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FLEXIBILITY IN MANUFACTURING



2 July, 2026



14:00 – 15:00



Project financed by: Horizon Europe Programme, HORIZON-CL4-2023-TWIN-TRANSITION-01-07. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Agenda

- 14:00 - 14:10** **Keynote** – Dusan Jakovljevic
- 14:10 - 14:20** **Expert Talk** – Damir Filipovic
- 14:20 - 14:30** **DMaaST Project** – Branimir Rakić
- 14:30 - 14:40** **MaaS AI** – Sebastian Peña Serna
- 14:40 - 14:55** **Round Table Discussion**
- 14:55 - 15:00** **Q&A**



Keynote

Dusan Jakovljevic

Policy director at EEIP



Expert Talk

Damir Filipovic

BluSpecs Managing Consultant - CEI-Sphere Horizon Europe Project





Coordinator



Partners

7

Type

CSA



Coordinator



Partners

58

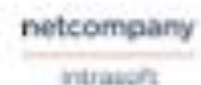
Pilots

8 | 27 scenarios

FR, IT, ES, IE, HR, RO, AT, MT, CY, CH



Coordinator



Partners

45

Pilots

4 clusters | 12 use cases

DE, ES, SE, IE, FI, GR, CH

TECHNOLOGIES

Cloud, Edge, IoT, AI, GenAI, 5G/6G



- Smart grids, renewable integration, energy flexibility
- AI-driven load optimisation, predictive maintenance



- Vehicle-as-Software (VaS), V2G integration, fleet optimisation
- Smart logistics, port & traffic management

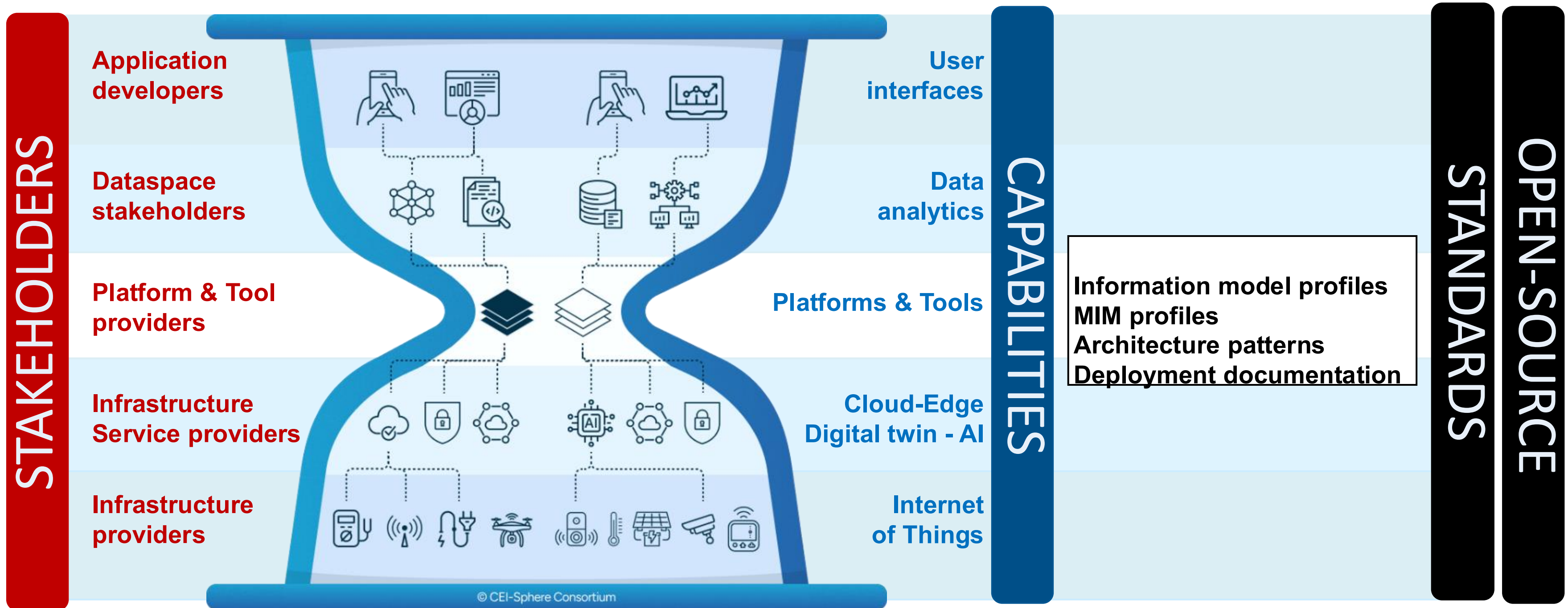


- IoT-enabled manufacturing, robotics & predictive maintenance
- Digital twins and secure industrial data interoperability
- AI / Edge intelligence for operational and energy optimisation

Collaborative environments that:

- Identify the **market challenges and opportunities** that are unique to each group of interrelated verticals.
- Provide **continuous market feedback** on pilot deployment so they can iterate their product-market fit.

The hourglass model (Cloud-Edge-IoT projects)



Applications, commodities and end user stakeholders

Manufacturers, OEMs, plant operators, system integrators

Digital Service Providers

Industrial software, analytics, AI & automation providers

Manufacturing Operations Systems

MES, ERP, QMS, SCADA, PLM

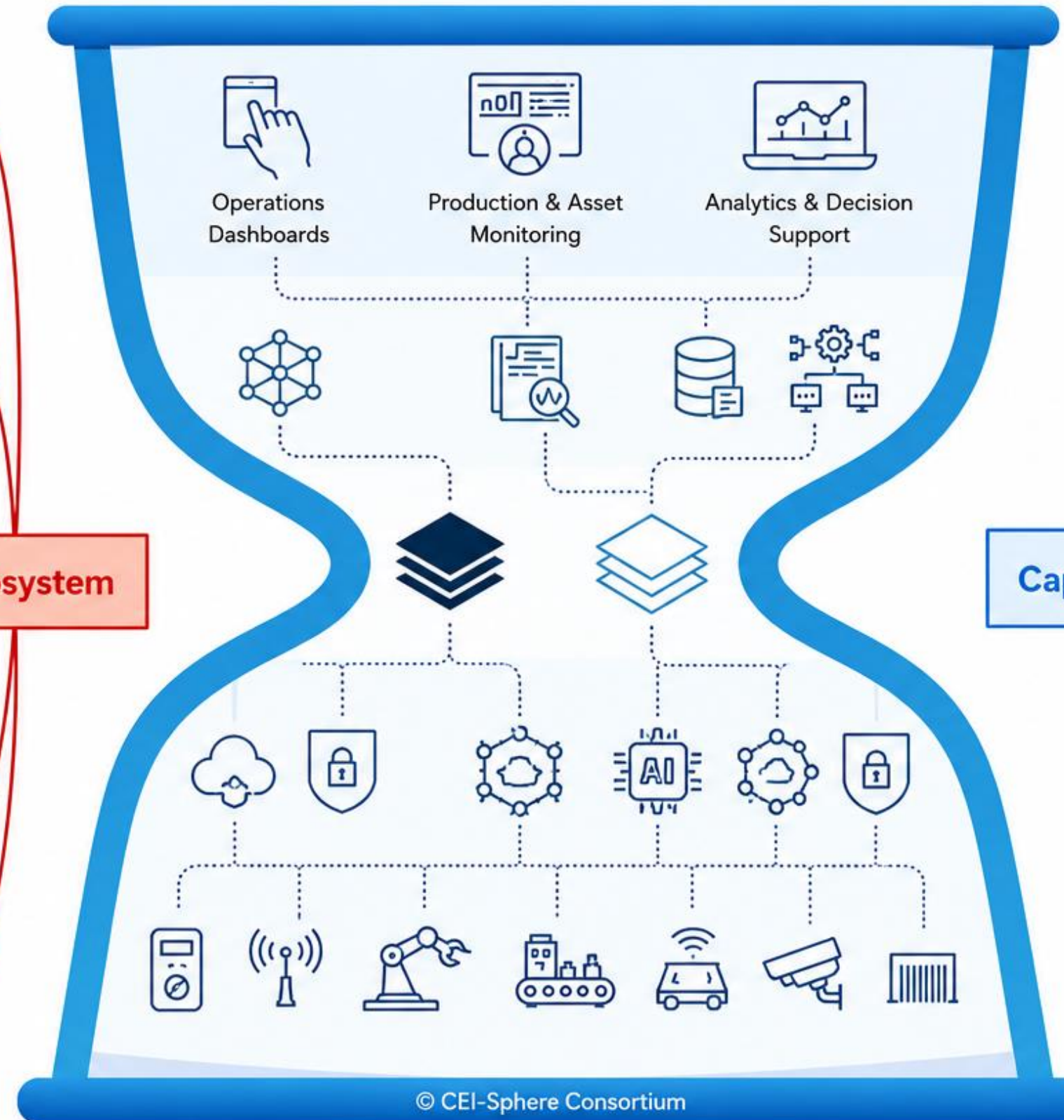
Data and Infrastructure Providers

Data spaces, cloud, connectivity, edge providers

Equipment, hardware and component manufacturers

Machine builders, robotics, sensor & device vendors

Ecosystem



© CEI-Sphere Consortium

Asset space

Unified view of assets across plants, lines and sites

CEI Assets

Reusable digital assets, models and services

CEI Platform

Interoperable platform enabling secure data sharing and services

Orchestration

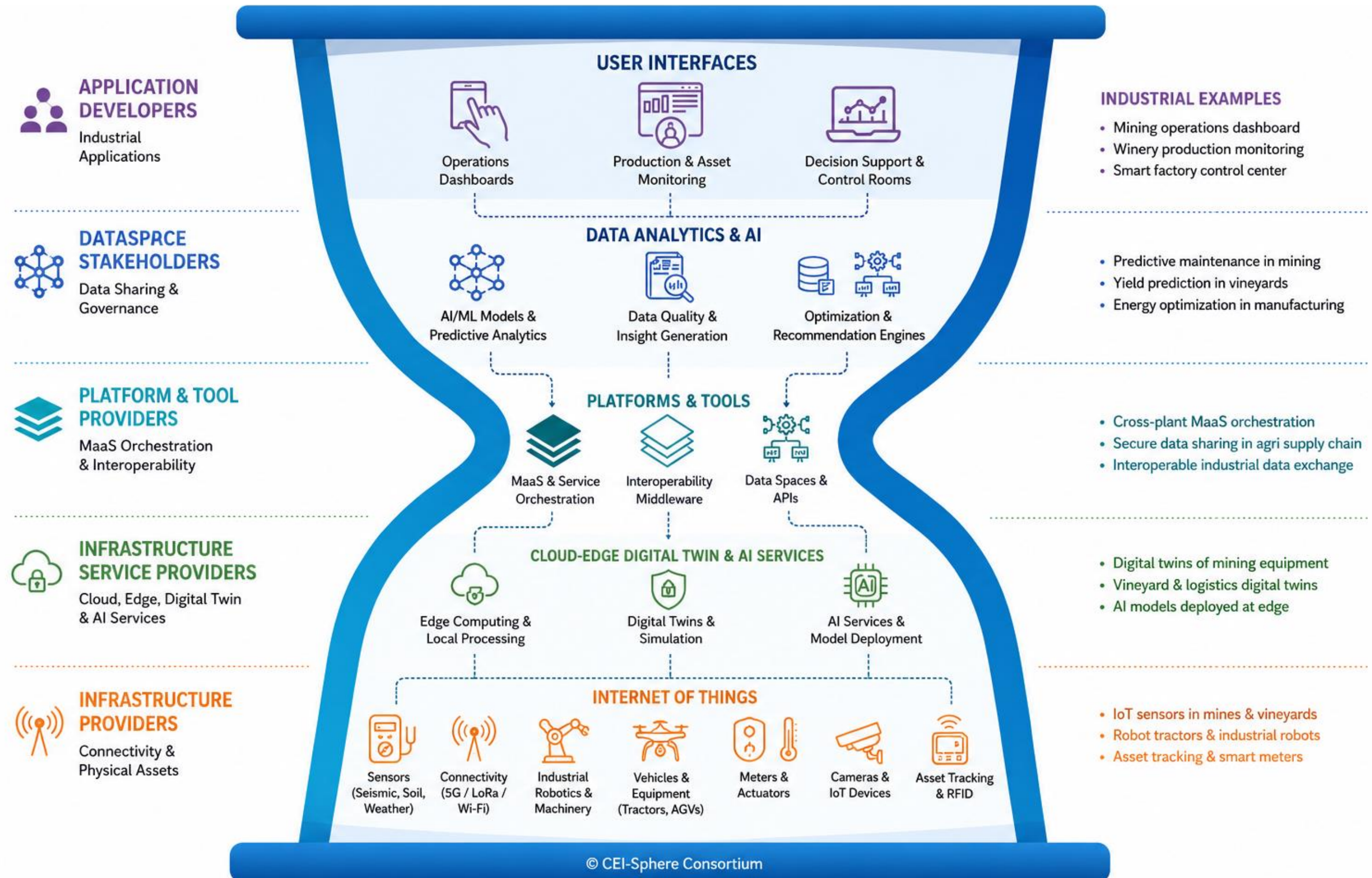
End-to-end workflow automation and resource orchestration

Physical assets

Connected, intelligent equipment and infrastructure

Capabilities

The hourglass model – Industrial use cases



 ceipshere.ceu

 eucloudedgeiot.eu

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 [@EU_CloudEdgeIoT](https://twitter.com/EU_CloudEdgeIoT)

 [@eucloudedgeiot_eu](https://youtube.com/eucloudedgeiot_eu)

 [zenodo \[zenodo.org/communities/eucloudedgeiot\]\(https://zenodo.org/communities/eucloudedgeiot\)](https://zenodo.org/communities/eucloudedgeiot)





DMaaST

Branimir Rakić

Co-founder & CTO @Trace Labs – OriginTrail Core Developers





FLEXIBILITY IS THE SPEED OF SHARED UNDERSTANDING

A Smart Manufacturing Platform (SMAP)
built on the OriginTrail DKG



2 July 2026
Flexibility in Manufacturing · DMa6ST & MaaS4I Webinar



*This project has received funding from the European Union's
HORIZON Research and Innovation Actions programme under
grant agreement number 101138648*

A large, abstract graphic in the top right corner of the slide, depicting a complex network or data structure with nodes and connecting lines in shades of red, purple, and blue, set against a dark background.

TRUST THE SOURCE |

6:14 AM - Supplier is out

6:14 AM

“Supplier X has ceased operations, effective immediately.”

The only source of a critical part - gone overnight.

To respond, we need to know:

- Which parts are single-sourced
- What alternatives exist - and are they any good
- Who can expedite, what can be re-routed
- Which orders are at risk - and how much revenue

Almost none of it lives inside one company's own walls.

Flexibility is an *ecosystem* problem.

Flexibility is the speed of shared understanding

Supply shocks

Demand swings

Sustainability rules

Changing customers

All four demand the same thing: adapt, fast.

Flexibility isn't more machines or more stock.
It's **how fast you can adapt** to the situation, understand it and act.
That means **processing scattered data** to get a shared, trusted understanding - and act before the moment passes.

Flexibility is a function of *context* and the *speed* of understanding it

Three walls stand between you and the answers

Problem 1

Dead data

Siloed in ERPs, PDFs, emails - and people's heads. Every answer means a human asking another.

Problem 2

No control

The data that matters belongs to other companies - who won't share what they can't govern.

Problem 3

No trust to act

Even your AI can't safely act on data it can't verify.

We need a system that overcomes the 3 problems.



INNOVATIVE MODELLING & ASSESSMENT CAPABILITIES
THROUGH MAAS FOR MANUFACTURING ECOSYSTEM RESILIENCY



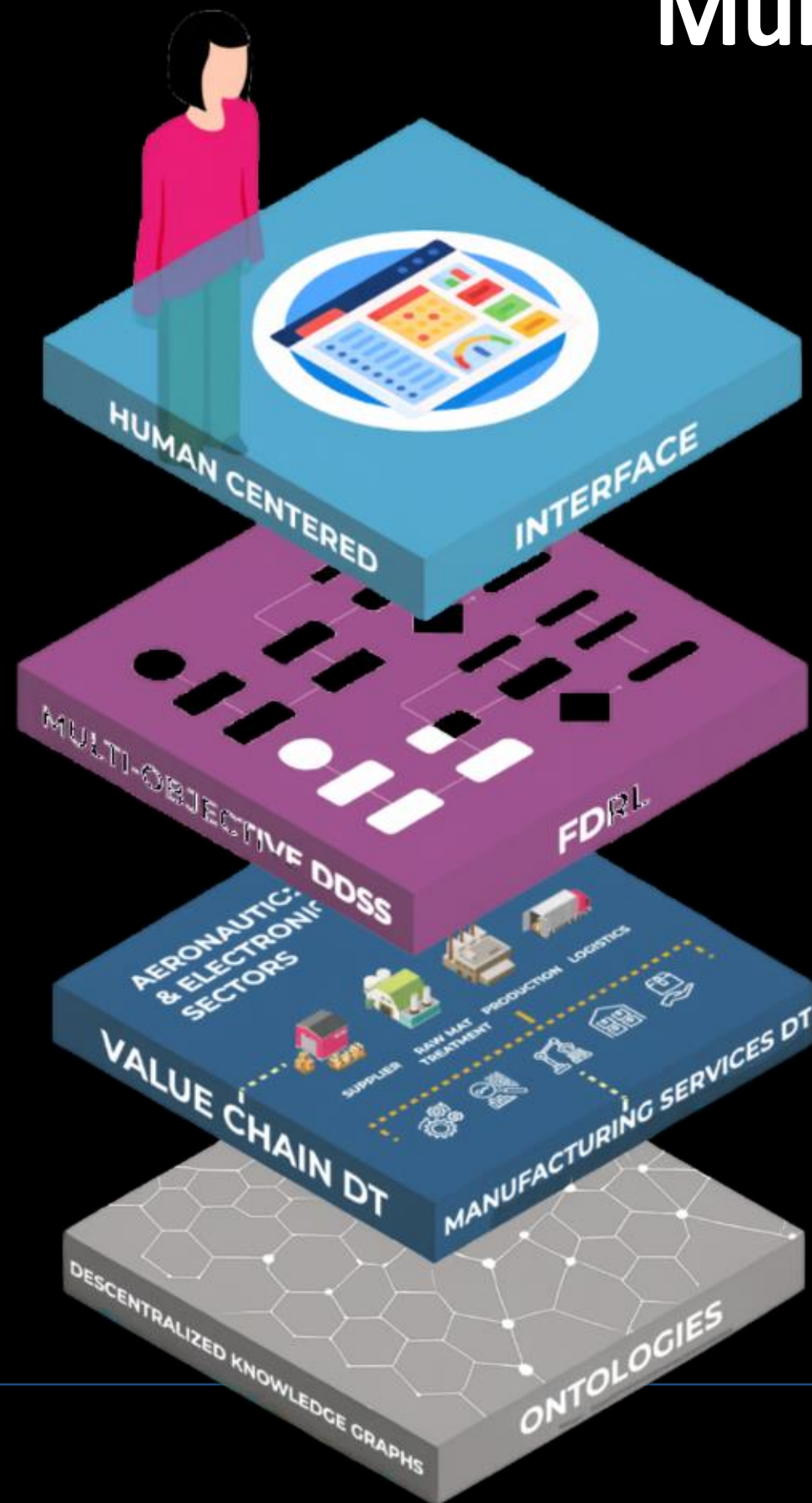
Main objective:

To reinforce manufacturing value-networks' resiliency.

Sub- objectives & technologies

- **Data interoperability** and cross-organization data integration enabled by the *Decentralized Knowledge Graph*
- Improve manufacturing industries' anticipation to unforeseen events using *Cognitive Digital Twins*
- **Respond to threats** while optimizing industrial production with a *Multi-Objective Decision Support System*
- **Improve sustainability** and circularity opportunities with the *Sustainability & Circularity Assessment Module*

Multi layered architecture



Human Centric Interfaces

Multi-Objective Decision Support System

Cognitive Digital Twins

Decentralized Knowledge Graph

A living memory that no one owns

Dead data → a living memory

- **OriginTrail Decentralized Knowledge Graph** - Knowledge Assets discoverable throughout the organization
- **Ontologies shape the understanding** - relationships ARE the data
- **Native memory for an AI agent** - native GraphRAG retrieval, standards based

No control → you govern your data

- A shared database has a **host who sees & controls all** - rivals won't join.
- **Decentralized system of nodes** - own your node, private by default, share what you choose
- **Nobody owns it, everyone can verify it.**

Complements Gaia-X / Catena-X

A cognitive twin you can trust

An LLM alone is statistical

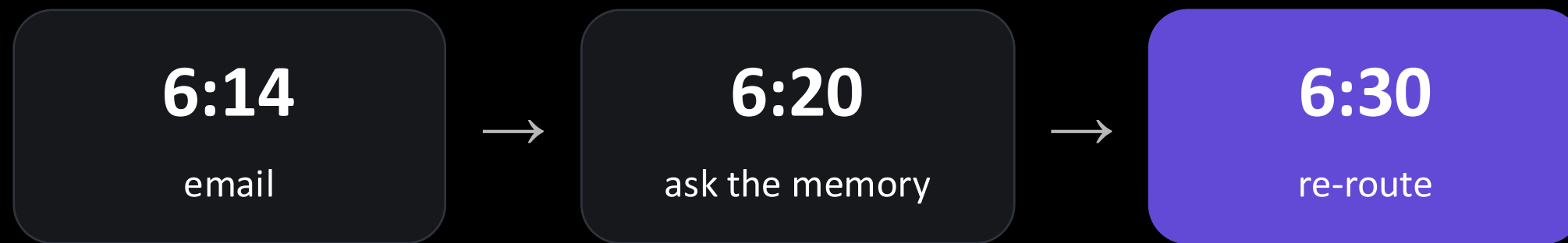
- **Predicts** the likely next word
- Fluent - and **can be confidently wrong**
- **Cites nothing or even invents citations**

The platform's twin, on the DKG

- Every fact is **signed and can be traceable on a blockchain - clear sources**
- Logic based reasoning - not statistics
- A **human verifies**, then acts

**Memory you can trust + reasoning that shows its work
= a twin you can actually use.**

Same morning, not next quarter



- Every answer comes back with its receipts - its **verifiable source**
- Re-route to a **pre-qualified alternative** · **protect top-revenue** orders · warn customers **proactively**
- Recovery moves from next quarter to the **same morning**

TARGET:

cut knowledge-discovery time by 60%.

THE AMBITION:

make the delay disappear.

Shared context graphs on the DKG



SUBGRAPHS All 58 epicis-supply-chain 27 Root 31

Shared Working Memory

Team workspace — shared proposals, TTL-bounded

Entities Assertions Graph Documents

SWM ATTRIBUTION 2 agents

- 0xaf7e..4bbb 41
- 0x3d6b..6b81 16

STANDALONE ENTITIES 9

- 691 882 883 2823-bv
- 9780-316-70948-8 electronica
- infrared editerranean root-081

More than surviving a shock

Re-source capacity

Manufacturing-as-a-Service:
discover and trust who can build
what, across the network.

Absorb demand swings

Re-plan against a live, shared
picture - not a stale one.

Prove sustainability

Carbon and compliance travel
with the product - Digital
Product Passport-ready.

Same shared memory. **A standing capability, not a fire drill.**

OriginTrail sits at the heart of building trust globally.



Trusted factory audits

BSI and SCAN are utilizing the OriginTrail to share security audits for over 40% of US imports through DKG



Pharmaceuticals

Ensuring traceability of donated medicines, and creating an AI-ready, collaborative medical knowledge ecosystem.



Rail Travel Safety

Ensuring the safety of train travel by tracking trains, parts and rail track material used by the Swiss Federal Railways with DKG



Trusted AI Infrastructure for Governments

OriginTrail powers trusted AI platforms for government use across large-scale, domain-specific data.



OriginTrail sits at the heart of building trust globally.



Safe and sustainable construction

Integrating with the EU Digital Building LogBook, the DKG provides a tamper-proof, AI-powered database accessible to all stakeholders.



Trustable manufacturing ecosystem

Revolutionizing manufacturing with secure, real-time data exchange for a safer tomorrow.



Driving international knowledge transfer

Empowering sports organizations' Web3 communities with AI solutions for better performance and engagement.



Secure genomic data sharing

OriginTrail powers decentralized infrastructure for secure genomic data sharing and personalized, AI-driven healthcare.



Thank you

www.dmaast.eu

www.origintrail.io

@branarakic

Aerospace industry



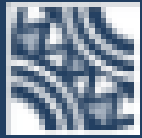


MaaS AI

Sebastian Peña Serna

Founder at clesgo





MASAI

Agile Manufacturing as a Service through AI Autonomous Agents

Sebastian Peña Serna

clesgo GmbH

Stuttgart, Germany



Co-funded by
the European Union





MaaS**AI** Motivation

The **competitiveness** of the European manufacturing industry is **challenged** by the limited access to:

- modern manufacturing **equipment**
- advanced digital **solutions**
- open collaborative **environments**

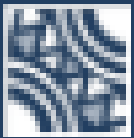
This is especially **critical** for manufacturing **SMEs**:

- **99%** of the European manufacturing industry are SMEs
- over **2.1 million** enterprises

This is leading to an **increased import** of manufactured products from other regions, **jeopardizing** Europe's:

- resilience
- employment
- sustainability





MaaS AI Motivation

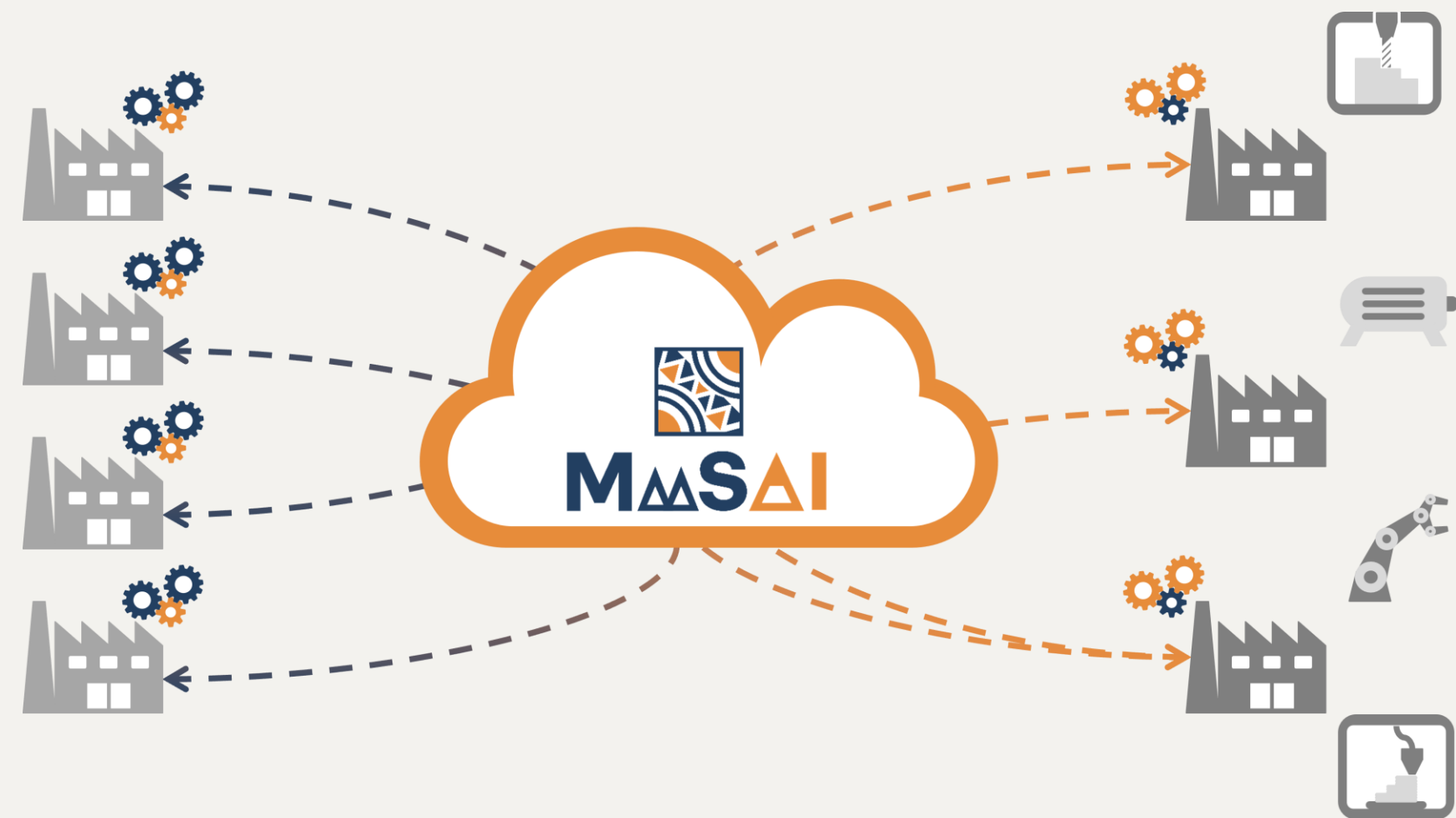
The **MaaS AI** EU project aims to tackle these challenges, by enabling **MaaS** and facilitating the access to **manufacturing resources** offered by distributed **Providers** across Europe.

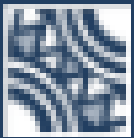
MaaS AI will establish a system where **Providers** and **Consumers** of resources interplay with one another within a **B2B ecosystem**.



This **system** will offer:

- A **cloud-based specialized UI** to assist Providers and Consumers in finding one another and negotiating the terms
- **Tailor-made tools for Providers** to digitalize the shop floor and optimize the requested production
- **Dedicated tools for Consumers** to monitor the remote manufacturing and to simulate their own processes





MaaS**AI** Key Benefits

Reduce investment costs: Manufacturers access production **capacity** without heavy upfront **CAPEX**, making use of a **shared-economy** model that keeps assets earning when they would otherwise sit **idle**.

Improve sustainability: Conscious, data-driven processes **minimize waste** and **energy**, accelerating the shift toward repair-, reuse- and recycle-oriented **circular manufacturing**.

Enhance collaboration: Real-time **data exchange** among companies, improving **response times** and strengthening integration across the entire **manufacturing value chain**.

Boost production flexibility: Capacity can be **scaled** up or down on demand, letting firms meet **volatile** orders without over-dimensioning their own lines.





MaaS**AI** Approach

Complete Manufacturing Lifecycle Support

Transform traditional manufacturing processes by facilitating **access** to flexible and **decentralized capacities**. Our system extends the principles of **service-oriented economy** to the manufacturing industry, enabling **on-demand production** while reducing waste and **optimizing resource** utilization across the value chain.

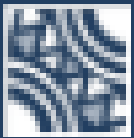
Intelligent Automation

Our system leverages **autonomous agents** equipped with Explainable Artificial Intelligence (xAI) to **negotiate** manufacturing capacities among Providers and Consumers. These agents use **hybrid models** to select optimal manufacturing solutions, while ensuring transparency and efficiency in every **decision-making** process.

Ecosystem Integration

Connect and collaborate through a complete **Cloud MaaS Marketplace** where Providers can **offer** their manufacturing assets in a structured way and Consumers can search and **locate** the manufacturing resources that best suit their needs. All transactions are secured through **blockchain** and **smart contracts**, reducing time and costs while increasing security and accuracy.

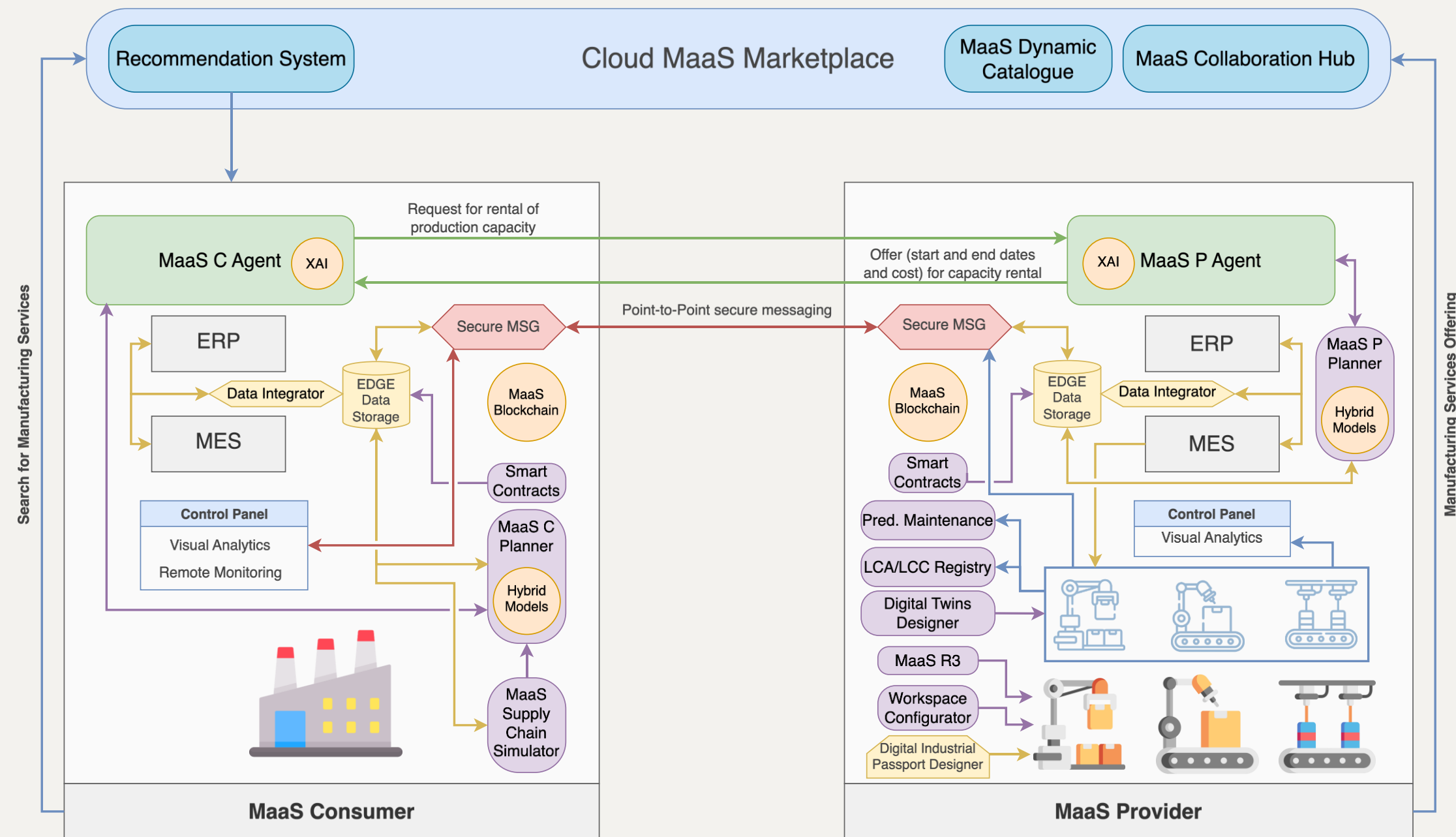


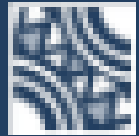


MaaS AI Proposition

MaaS AI is a comprehensive system designed to support Manufacturing-as-a-Service (MaaS) ecosystems

- Key Actors:
 - **Provider:** Offers manufacturing resources on a rental basis.
 - **Consumer:** Rents and utilizes manufacturing resources.
- Cloud MaaS Marketplace:
 - A **Platform** where **Providers offer** manufacturing assets.
 - **Consumers search** for and locate resources that meet their requirements
- Autonomous Agents:
 - Use **Explainable AI** and **Hybrid Models** for efficient management of Consumer needs and Provider capabilities.
 - Select **optimal manufacturing solutions** autonomously.

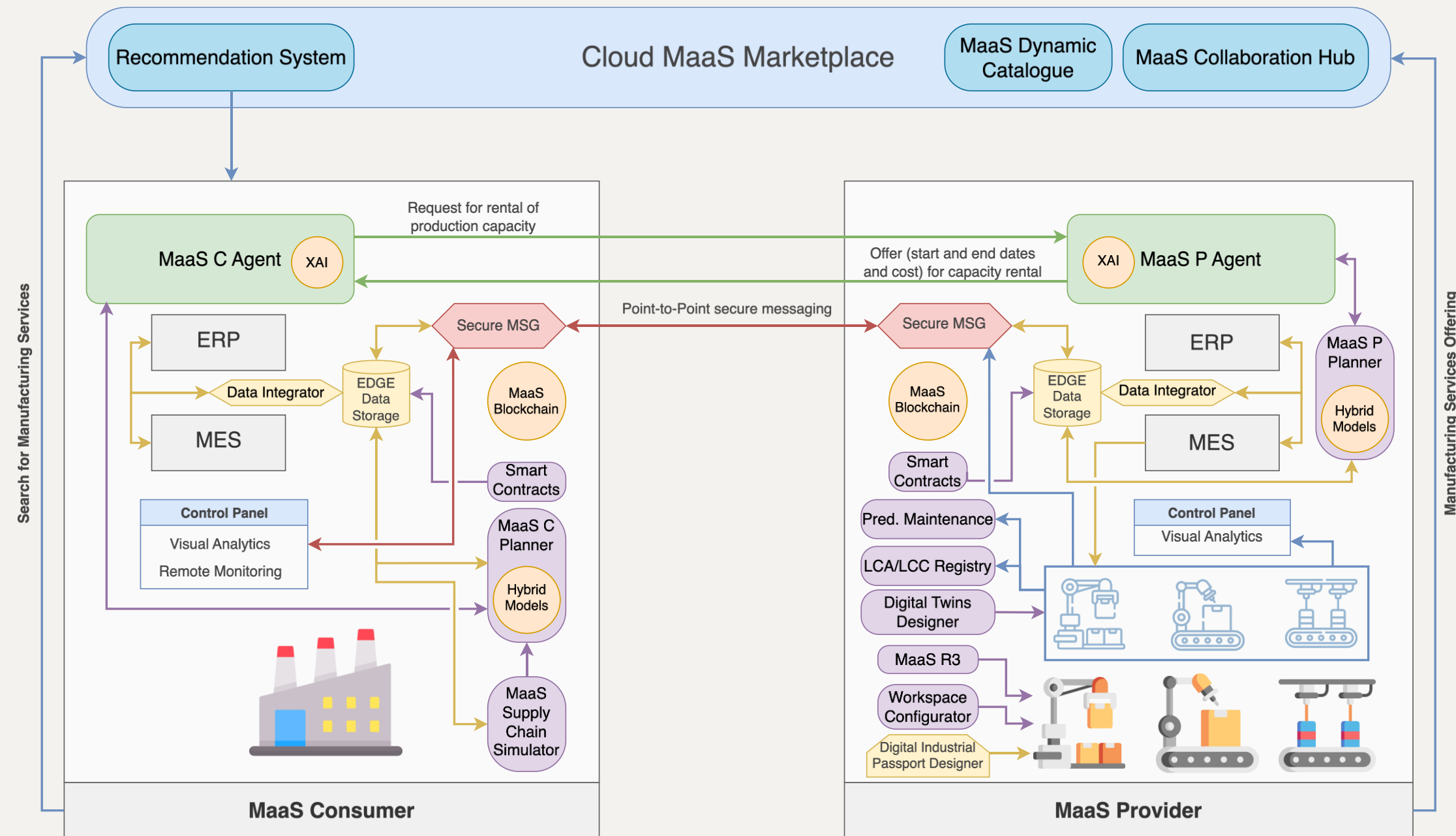


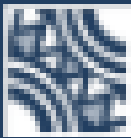


MaaS AI Proposition

MaaS AI is a comprehensive system designed to support Manufacturing-as-a-Service (MaaS) ecosystems

- Digital Twins & Digital Industrial Passport:
 - Providers create **real-time digital replicas** of their physical assets.
 - These digital tools enable **workspace configuration, predictive maintenance, and decision-making** regarding asset lifecycle (repair, reuse, recycle).
- Control Panels & Remote Monitoring:
 - Provide **visual analytics** and progress updates for both Providers and Consumers.
- Integration & Communication:
 - **Secure Point-to-Point messaging** and blockchain-based **transactions**.
 - **Smart Contracts** automate agreements, improving speed, security, and accuracy.





MaaS AI Solutions

MaaS AI Home Train something x Train something x

Data Analytics Environment

Home Settings Account Datasets Experiments Runs

Workflow Execution ID Run Workflow Logs x Data x

| Workflow Execution ID | Run | Workflow | Logs | Data |
|-----------------------------------|-----|----------|------|------|
| ● Scheduled - 2025-07-01 00:00:00 | | | | |
| ● Manual - 2025-07-01 11:43:09 | | | | |

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|---------------------------|--------------------------|---------------------------|
| 5.1 | 3.5 | 1.4 |
| 4.9 | 3 | 1.4 |
| 4.7 | 3.2 | 1.2 |
| 4.6 | 3.1 | 1.1 |

MaaS AI MaaS AI Q Search

Welcome to MaaS AI

Empowering the manufacturing process through autonomous AI.

Documentation → About us ↗

Solutions Suite

MaaS AI brings together a comprehensive suite of solutions that connect planning, automation, cloud collaboration, and analytics—so both manufacturing consumers and providers can operate with clarity, trust, and real-time efficiency.

Smart Planning & Operations

MaaS Consumer Planner (MCP) MaaS Provider Planner (MPP)

MaaS AI Dashboards Charts Datasets SQL +

Gauge Added to 1 dashboard Not available 13 minutes ago

Chart Source public.cleaned_sales_data

Search Metrics & Columns

Metrics Showing 1 of 1

/f(x) COUNT(+)

Columns Showing 25 of 25

- order_date
- price_each
- sales
- address_line1
- address_line2
- contact_last_name
- contact_first_name
- quantity_ordered
- year
- postal_code
- customer_name
- deal_size
- state
- status
- order_line_number

Query

Dimensions: abc deal_size

Metric: /f(x) COUNT(+)

Filters: order_date (No filter)

Row limit: 10

Sort by metric

830.4

553.6

276.8

0

Update chart

MaaS AI MARKETPLACE ENTERPRISE COMMUNITY SUPPORT ACCOUNT

Unlocking MaaS

MaaS AI aims to unlock Manufacturing as a Service by facilitating the access to manufacturing resources offered by distributed Providers. MaaS AI will offer a cloud-based specialized platform for Providers and Consumers; Provider tools to digitalize the shop floor; and Consumer tools to monitor the remote production.

SIGN UP

Services
Tailor-made tools for Providers to digitalize the shop floor and for Consumers to monitor the remote production.

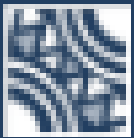
Resources
Consumers' access to qualified manufacturing resources and services offered by distributed Providers across Europe.

Interactions
Discover what the members of the community are doing, exchange experiences, and get matched to experts.

Digital Agora

cleo App: A B2B cloud-based platform that seeks for streamlining the access to and adoption of ICT-enabled technologies and solutions, th...





MaaS AI Pilots



Valencia - Spain

Metal Parts Manufacturing as a Service



Tampere - Finland

Optimising a Gears Manufacturing as a Service Production

Gears and mechanical power transmission sector



Sindos, Greece

Food Processing as a Service

Food processing sector



Milano, Italy

Prototyping and Low-volume Production as a Service

Biomaterials sector



Guimarães, Portugal

Smart Electronics Manufacturing as a Service

Electronics manufacturing sector



Gears MaaS Optimisation
Tampere, FI

MaaS AI planners and digital-twin simulations optimise tool-sharing across the six-stage line, cutting the up-to-95 % idle time of gear blanks and keeping Tasowheel's eight-week delivery promise.



Prototyping MaaS
Milano, IT

Bio4Dreams' Shared Labs™ and Beep Factory exploit MaaS AI digital twins and supply-chain simulation to shorten prototype iterations and give start-ups flexible production without owning costly labs.



Smart Electronics MaaS
Guimarães, PT

E4M integrates MaaS AI digital-twin libraries, edge data storage and predictive maintenance agents to accelerate custom Industry 4.0 electronics and launch remanufacturing as a service offerings.



Metal Parts MaaS
Valencia, ES

An autonomous, sensor-rich cell streams availability, performance and quality data, computes real-time OEE and lets an AI model deliver improvement actions for high-tolerance metal-part machining.



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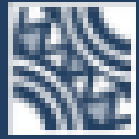
An autonomous, sensor-rich cell streams availability, performance and quality data, computes real-time OEE and lets an AI model deliver improvement actions for high-tolerance metal-part machining.



Food Processing MaaS
Sindos, GR

Barba Stathis combines the Cloud MaaS Marketplace, blockchain smart contracts and real-time analytics to move from fixed schedules to demand-driven, traceable frozen-food production while reducing downtime.





MaaS**AI toward** Flexibility in Manufacturing

Flexibility in Technology

Rapid **digitalization** by leveraging diverse solutions based on **standards** that are tailored to individual manufacturing and infrastructure **needs**.

Flexibility in Production

Creative products without limits by accessing remote **capacities** and resources to complement requirements, while **monitoring** and tracing the orders.

Flexibility in Circularity

Sustainable decision-making and action-taking, guided by thorough **life-cycle** analyses for the production, the products, and the logistics of every **order**.

Flexibility in Business

Virtually endless **network** of trusted partners to cooperate with, boosted by **autonomous** agents that negotiate smart **terms** for every case.





MAASAI

Thank you

Sebastian Peña Serna
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Co-funded by
the European Union

Learn more
about the solutions
suite here:



Round Table Discussion



Sebastian Peña Serna
Clesgo



Damir Filipovic
Managing Consultant



Branimir Rakić
Co-founder & CTO



Dusan Jakovljevic
Policy director at EEIP



Q&A SESSION

If you have any questions, you are welcome to ask now



THANK YOU FOR JOINING US



<https://dmaast.eu>



DMAaST EU Project



project@dmaast.eu