

Industrie 4.0
From data to information
how to build Imerys' industrial digital
platform

Group presentation

An introduction to Imerys

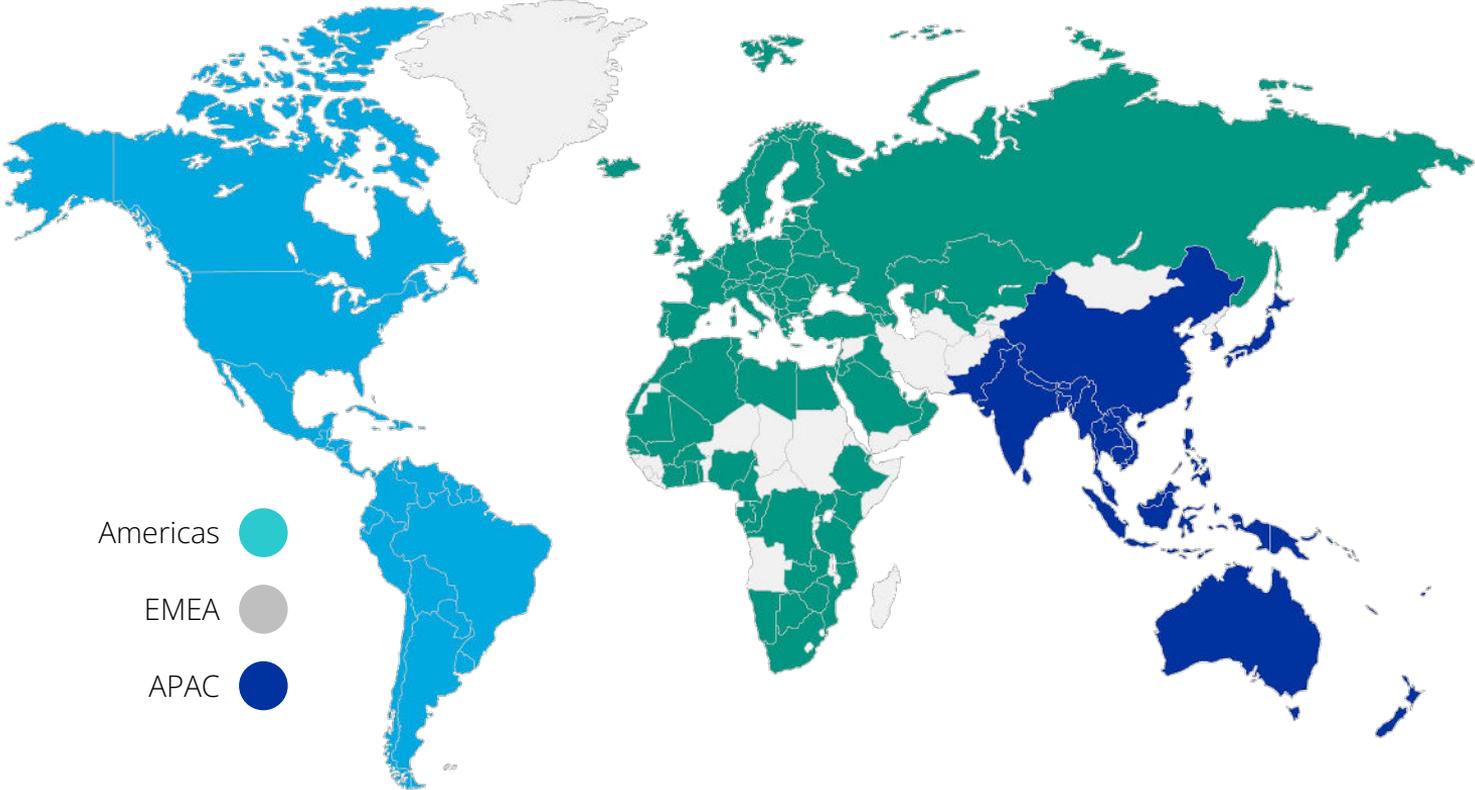
A world leader in mineral-based specialties, offering high value-added solutions to many different industries, ranging from process manufacturing to consumer goods.

We succeed through:

- Best-in-class operations, delivering commercial excellence and market-driven innovation
- A strong business model and value proposition
- Unrivalled technological and industrial processes, solutions and leading positions in most of our markets
- Understanding our customers' applications
- Meeting ambitious targets for being a responsible business



Where we operate



- Americas 
- EMEA 
- APAC 

Key figures* – At a glance



Over 15,000
customers



Sales
In 142 countries



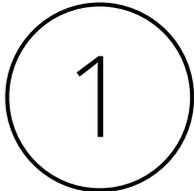
€4.4bn
revenue



16,900
employees



€761m
EBITDA



#1 in 75%
of our businesses



Americas
28% of revenue



EMEA
48% of revenue



APAC
24% of revenue

(*2021 figures)

What we offer – Solutions for diverse markets

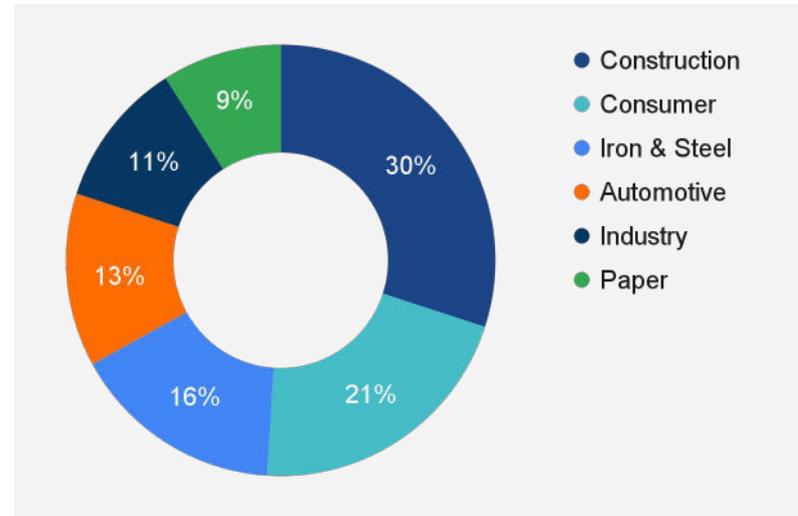
Imerys delivers value-added solutions that are formulated to meet the technical specifications of each customer.

The solutions contribute to the performance of a multitude of products in three categories:

1. **Functional additives:** added to the mineral formulation of customers' products
1. **Mineral components:** essential constituents in the formulation of customers' products
1. **Process enablers:** used in customers' manufacturing processes, but not present in the end product

These serve many industries such as construction materials, mobile energy, steelmaking, agri-food, automotive and cosmetics.

Revenue by end market



Source: Imerys estimates based on 2021 revenue.

What we offer

Within these industries, Imerys' mineral specialties have a very large number of applications

**Plastics, rubber,
paints & ACS¹**



Gloss and opacity in paints,
conductivity and
lightweighting in plastics

**Paper
& board**



Whiteness,
opacity, gloss
and **pitch control**

**Ceramics &
sustainable
construction**



Whiteness
and **hardness**

**Filtration
& life sciences**



Purification of liquids,
moisture absorption
and **smoothness**

**Mobile
energy**



Lifespan
and **fast charging**

Note: ¹ Adhesives, Caulks & Sealants

Our commitments – Placing health and safety above all

- For the coming years, the objective is to focus on the further development of our health and safety culture through our new approach “**Safer Together**” and improve the systemic approach to occupational health management
- **Training** is a priority and is delivered through many communications channels
- Regular **campaigns and events** also keep health and safety front of mind
- **Health and Safety Charter**, a framework for continuous improvement, applies to all



200

*sites deployed Imerys
Industrial Improvement
'I-Cube' Program*

1.19

*lost-time accidents per
million hours worked*

2.66

*total injury
frequency rate*

-17%

*decrease in the total
injury frequency rate
from 2019*

Our commitments – Meeting our customers' needs

Your trusted mineral partner

We offer high-quality and high-performance products from unique mines and plants.

- A customer-facing portfolio, aligned with markets
- A one-stop shop for mineral solutions

We offer in-depth knowledge of how to apply our products.

- Ensuring safe use and handling
- Information to ensure compliance with regulations
- How to create business opportunities
- Helping manage product and reputational risks
- Innovation based on customer needs



Imerys' coordinated actions on climate issues are recognized by the Carbon Disclosure Project with a Level B.

Together with our different ratings and indices [available here](#) these demonstrate sustainability leadership that support our customers.

Our commitments – Being a responsible company

At Imerys, we fulfill our role in society in a responsible way.

The technical expertise and innovative mindset of our people enable us to extract and transform minerals responsibly and in a sustainable way over the long term.

EMPOWERING our people



Increase women in senior management to 30% by 2022¹



CARING for our planet



Reduce CO₂ emissions (in tCO₂/€) by 36% by 2030²



BUILDING for the future



Assess 40% of portfolio³ against sustainability criteria by 2022



Notes: ¹ And fully implement the Group Diversity and Inclusion 3-year program; ² Target approved by the Science Based Target initiative; ³ By revenue

SustainAgility – Our approach to sustainable development

In 2018, we launched a new sustainability program, SustainAgility, with six pillars structured into three key areas:

- **We empower our people –**
by making sure our employees and contractors stay healthy and safe, nurturing their talent, and fostering a culture of inclusion
- **We care for our planet –**
by protecting the environment, using resources efficiently, preserving biodiversity, and acting on climate change
- **We build for the future –**
by acting fairly and responsibly, ensuring responsible purchasing, working with our communities and promoting sustainable products.



SustainAgility is aligned with the United Nations' Sustainable Development Goals (SDGs).

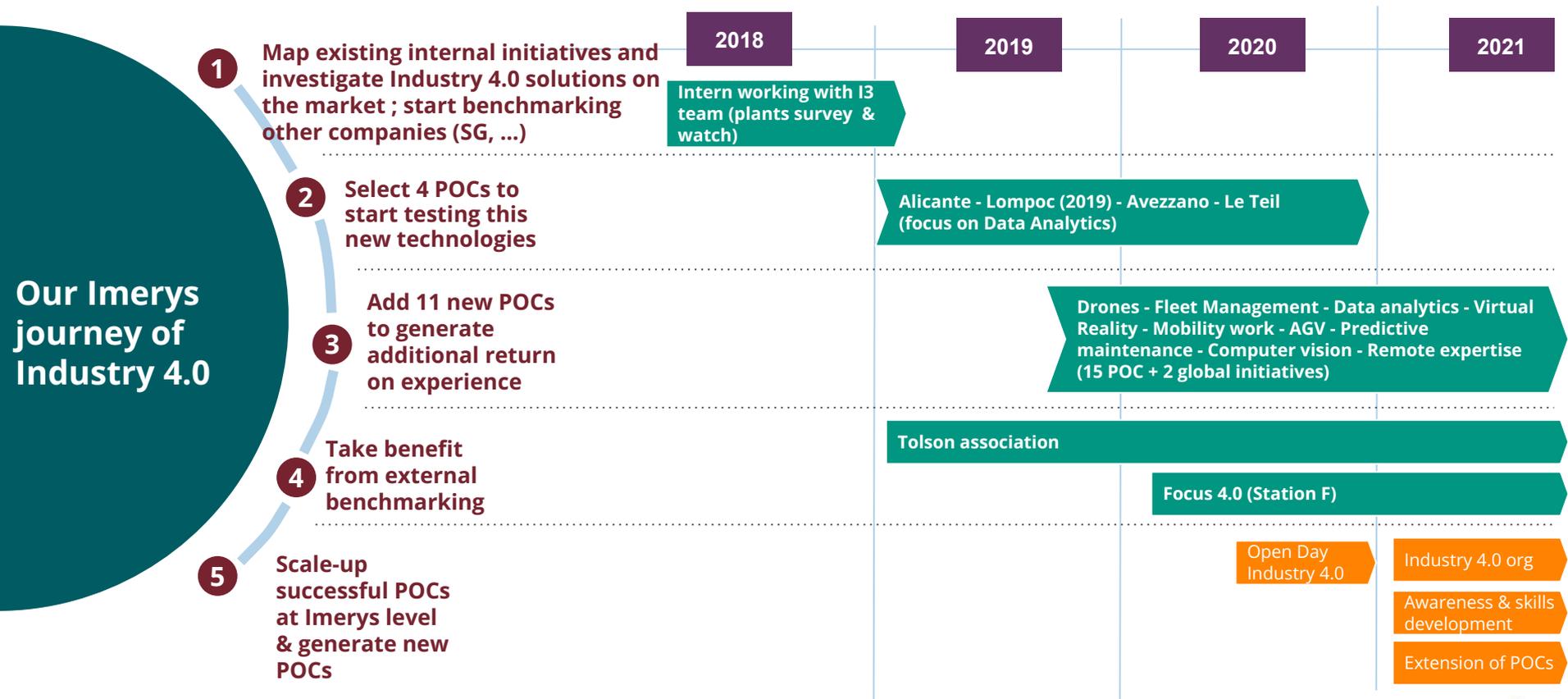


[Click here to watch the Imerys SustainAgility video.](#)



Industry 4.0 journey

Imerys Industry 4.0 journey started in 2018



To learn & launch, done with existing FTE, Corporate I3, Process, Mining & trainees & % of FTE in the BA (Process, Safety, Mining, Maintenance...)



A leading site that will enable us to:

Identify priority needs & **improvement levers**

Deploy **multiple solutions** on a single site

Test and **validate benefits**

Lessons **learned** & roadblocks

Proof Of Value - **impact to the business**

Data platform construction

1 site → Lixhe, Belgium - PM EMEA



1 mine → Glomel, France - RAC



Flagship approach as an experiment to learn, validate impact and build the 'heart' of a data driven operations model

1



Single point of access. Avoid Data silos. Be able to explore any industrial data from one point of access.

2



Data & information Ownership. Own the information Imerys is producing. Who owns the semantic, owns the information and defines its usage

3



Agnosticity. Avoid being Vendor Locked with a full approach.

4



Scalability. Sustain the ability to deploy anywhere, anytime. Levers :

- **Cloud** based architecture
- **Extensive communication capabilities.**
Ability to communicate with legacy and brand new devices whatever the vendors
- **Ability to transform Data into Information.**
Use of Imerys Standard & Repeatable Data Models-objects to facilitate the creation of Plant's "digital twins"

Fit for purpose / Fit for use

Fit for purpose : traditional solution providers (Aveva, C3Ai, Aspentech)

- translate at cloud level into proprietary information

Hyperscaler : looking for an end to end

- Google : translate at edge level with their bespoke Litmus edge
- Microsoft azure : translate at cloud level or OPC UA own modeling pipeline
- AWS : translate at cloud level own modeling pipeline or OPC UA own modeling pipeline

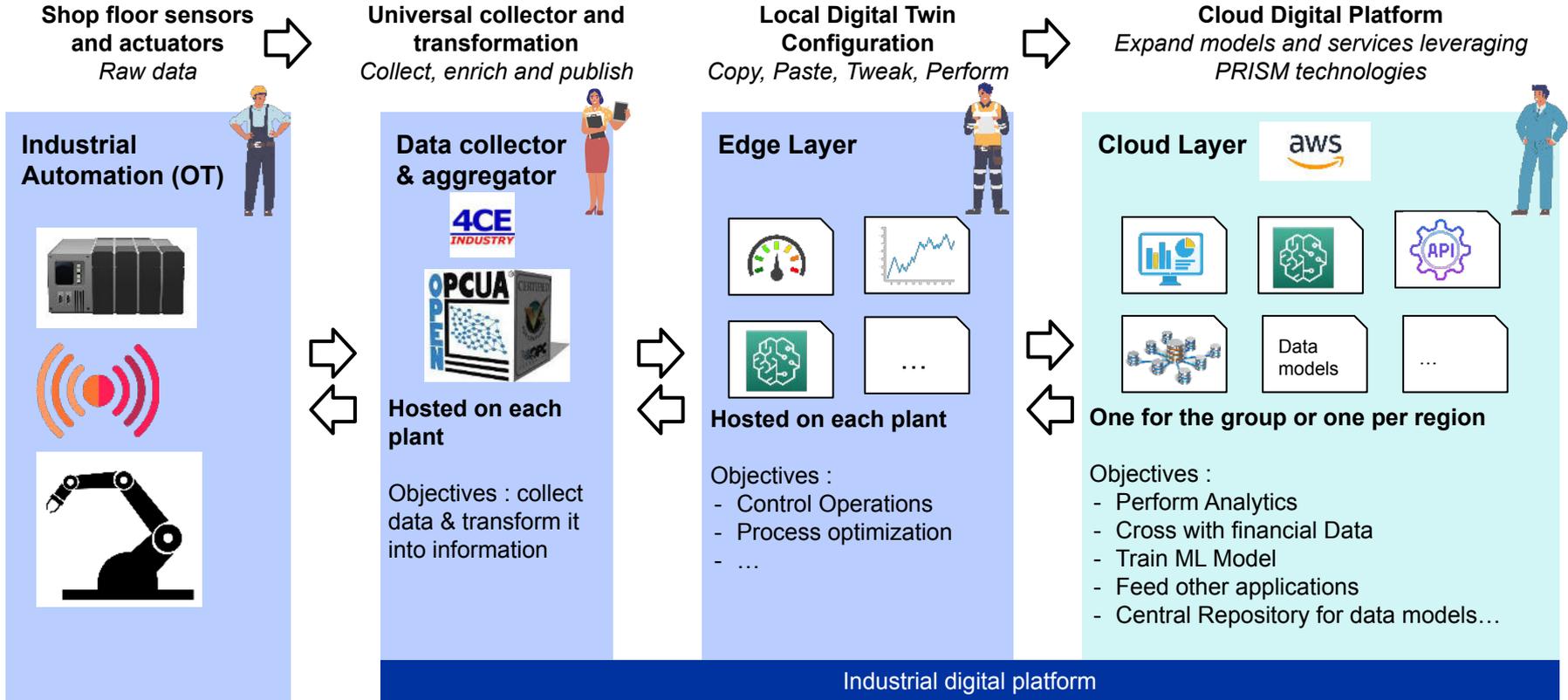
Fit for use

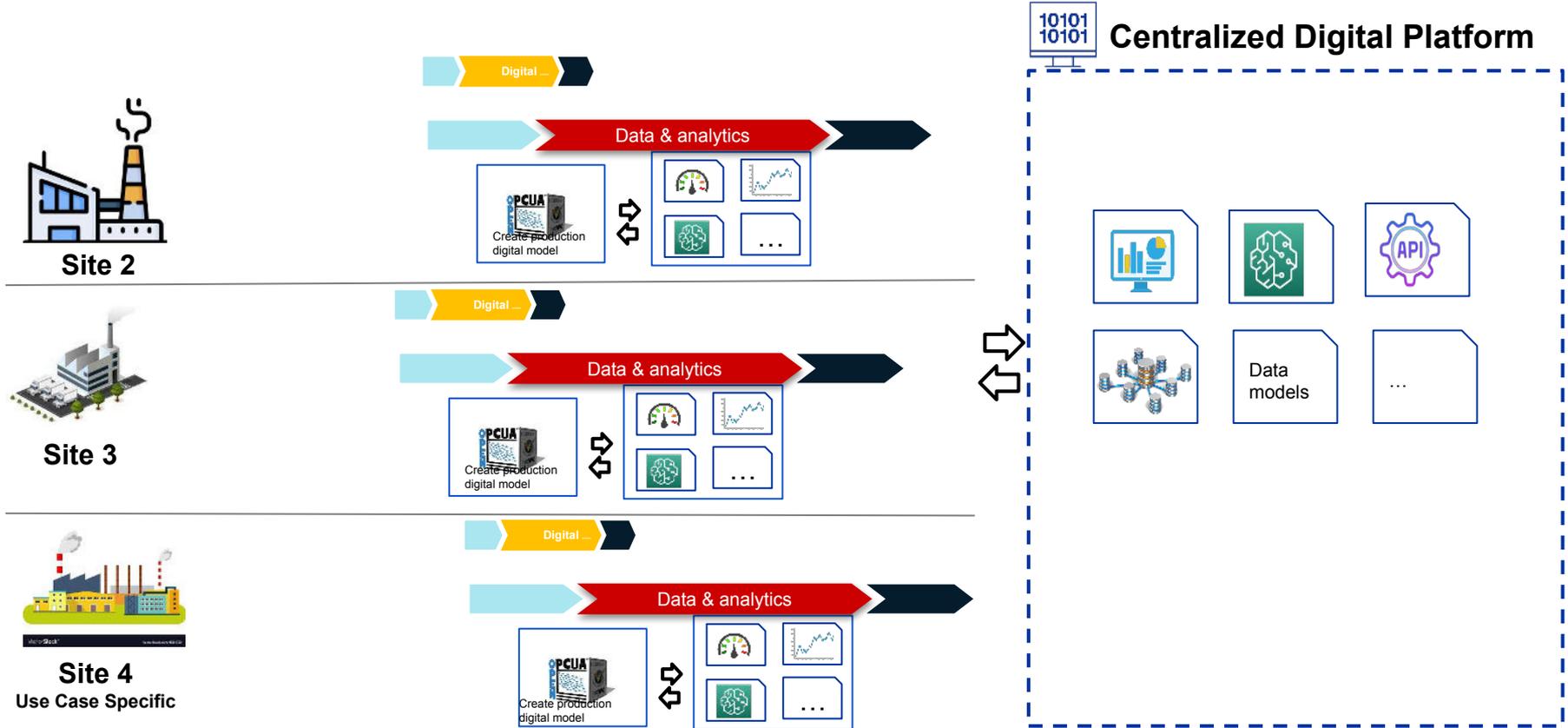
- New protocols : MQTT sparkplug B or Apache Kafka
- Industrial standard : **OPC UA**

IT/Digital Platform - What it looks like

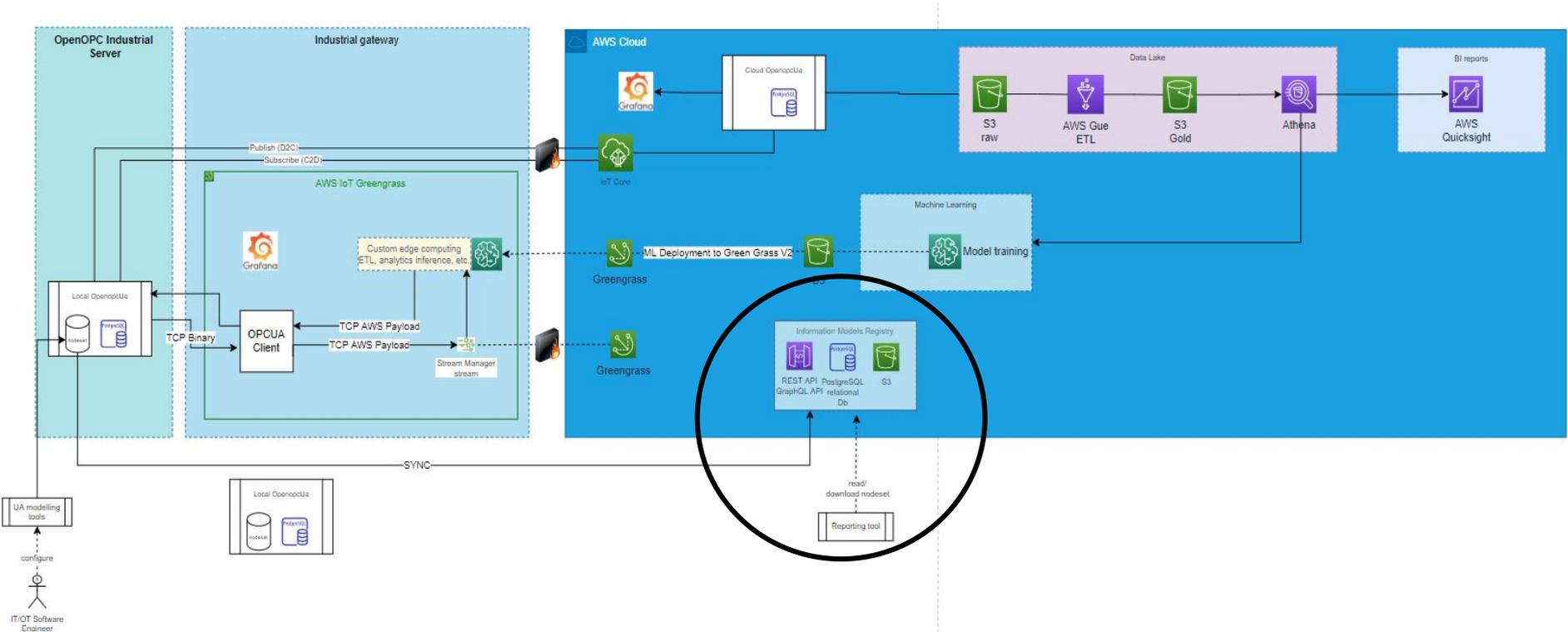
Sites

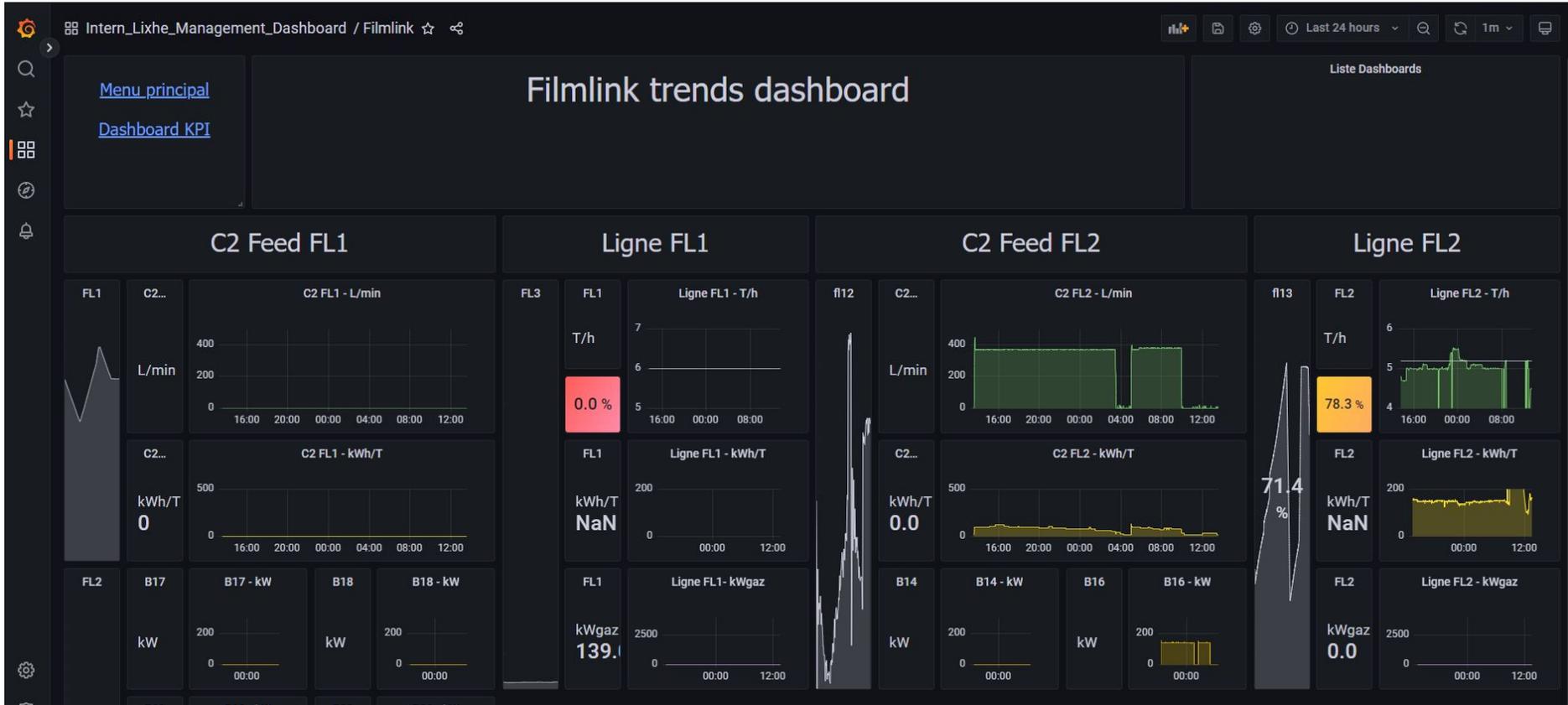
Cloud



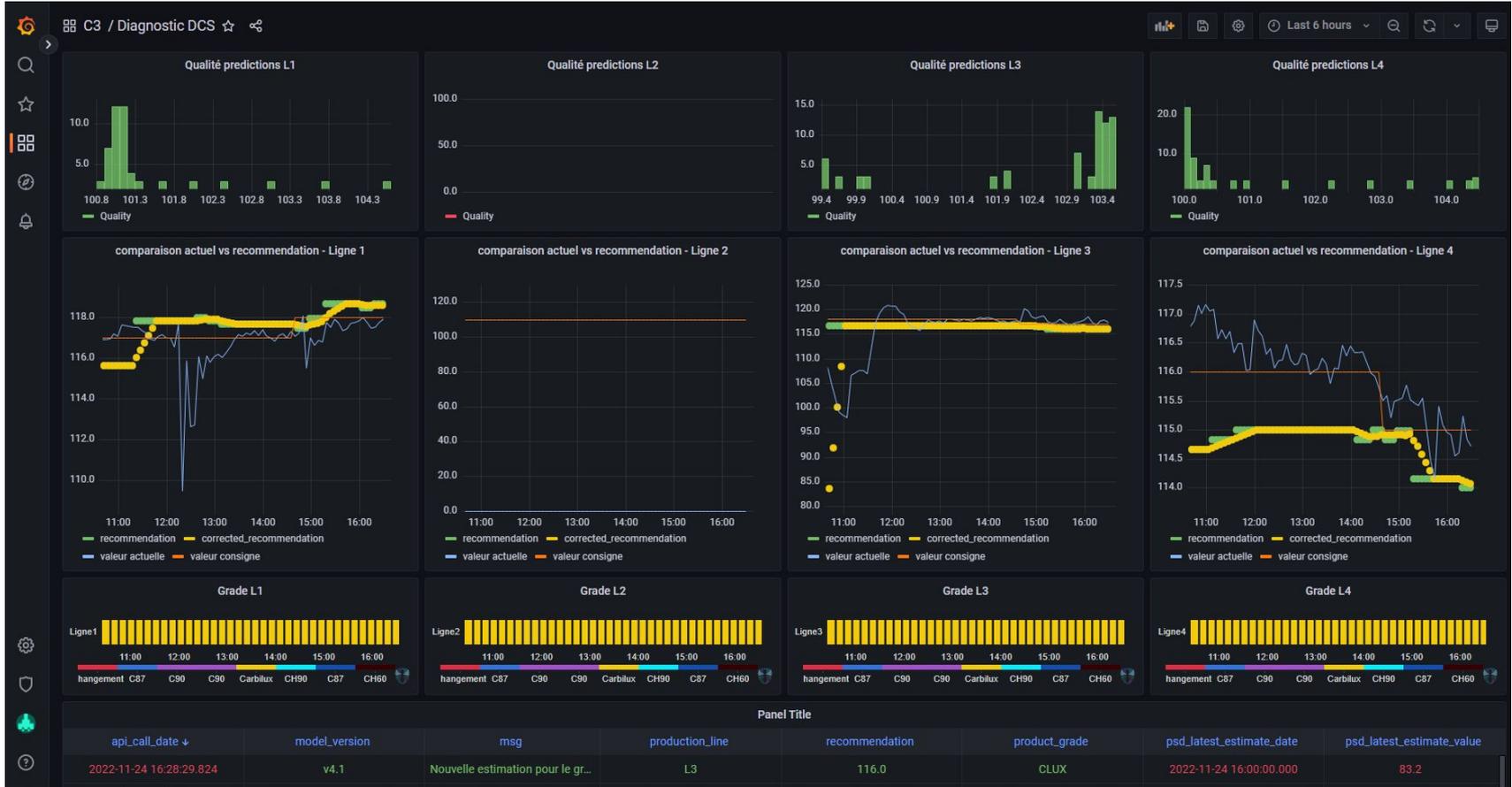


IT/Digital Platform - How it scales to other sites





Use case edge and cloud : Machine learning



Legacy systems

- Planned to substitute to previous industrial architecture and traditional solutions.

Data Platform

- the Industrial Process Data Platform **foundation** :
Provide universal data understanding for all Imerys sites
- Created of a first shared and centralized **Library of Object Models** for Imerys
- Autonomy
- Make or buy

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 www.linkedin.com/company/imerys/

 www.facebook.com/imerysgroup/