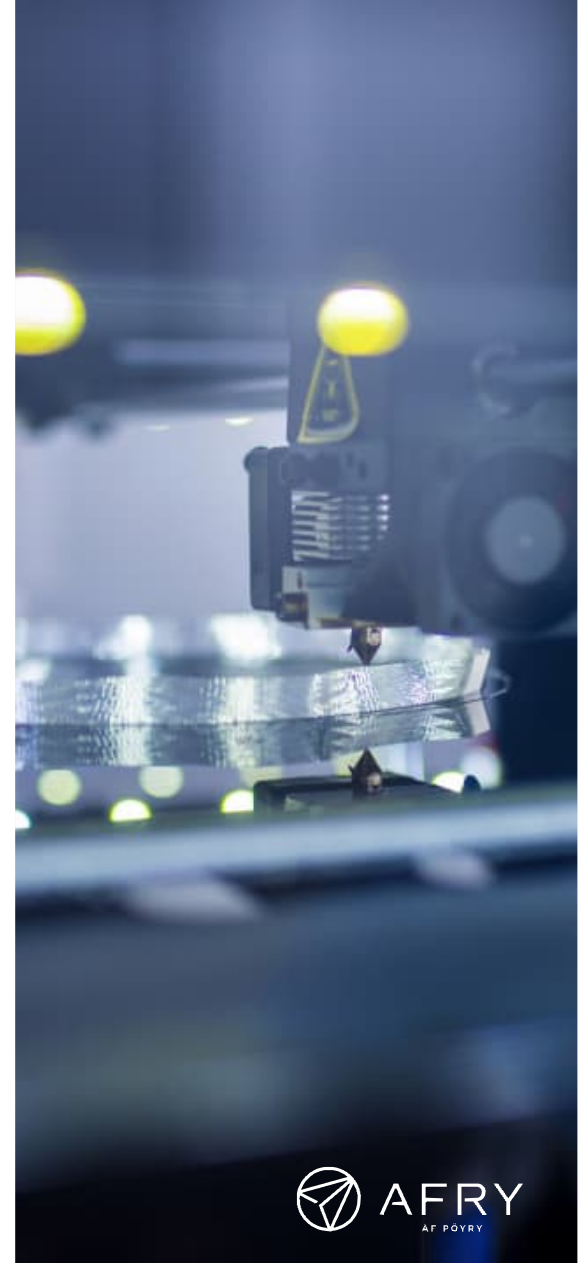# Smart Site

INTERNAL PRESENTATION

AFRY Smart Platform

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Digitalisation challenges of running plants

– Optimisation of running plants is difficult because of the large variety of different technologies and systems in use. Therefore, new and agile ways must be found to simplify modern implementations.

– As "living ecosystems", running plants have been modified over the years and the documentation has typically not been well updated.

– Opex budget can be limited, and Capex is highly controlled. Each improvement must have a solid and profitable business case.

– Without a good migration plan from as-is to the digital level and without having a quick way to validate new digital applications, the transformation can easily stall.
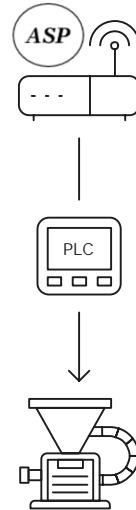
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Final goal: The digital enterprise

– "A digital enterprise" has all its operational (OT), engineering (ET) and IT data available for agile digital development with seamless integrations across the entire value chain. Operational performance is optimised through value-adding digital use cases powered by advanced analytics, AI and Advanced Process Control (APC). A truly digital company is on a steady path towards fully autonomous operations.

https://afry.com/en/newsroom/news/one-industrys-most-advanced-control-rooms-improves-production-elkems-plant-in

/ Home / Newsroom / One of the industry's most advanced control rooms improves the production at Elkem's plant in Bremanger, Norway

One of the industry's most advanced control rooms improves the production at Elkem's plant in Bremanger, Norway

Elkem's Control Room implementation in Norway by AFRY

AFRY has all the necessary expertise to make a digital enterprise reality as showed above

However, achieving a fully digital enterprise requires a solid strategy combined with agile implementation.

AFRY

The AFRY Smart Platform (ASP)

– Is an open source, scalable and opensource platform to help you accelerate your digital journey.

– You can start with a single machine and deploy a complete digital platform structure, on-premises or cloud.

– The platform can be installed inside your own environment, which means it is not necessary to transfer data outside: you will remain in control of all the data and fully own it

– From simple applications to artificial intelligence, you can easily build your own applications. It is also possible to get support from AFRY's experts in the application development or work with third parties: there is no vendor lock-in

Installed on a server

Or in a virtual environment

ASP

PLC

From a single machine

To the whole company

Engineering data

Corporate

IT Data

ASP

Hybrid infrastructure

Dashboard Builder   Low-code Platform   Database

OT Data

Factory

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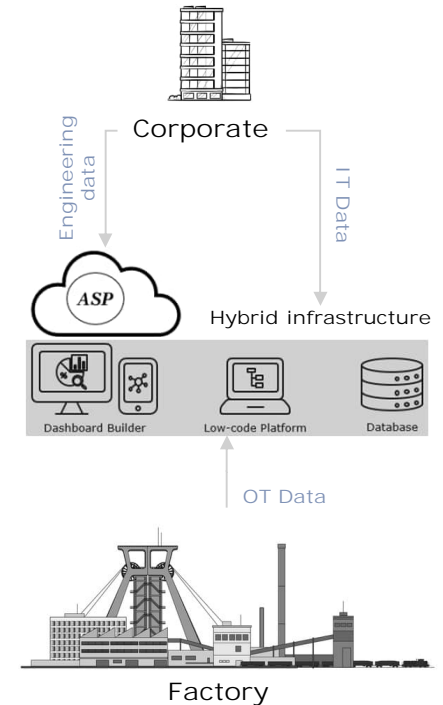
Freedom to operate without strings

No vendor lock-ins

Dashboard Builder

Low-code programming

AFRY Smart
Platform
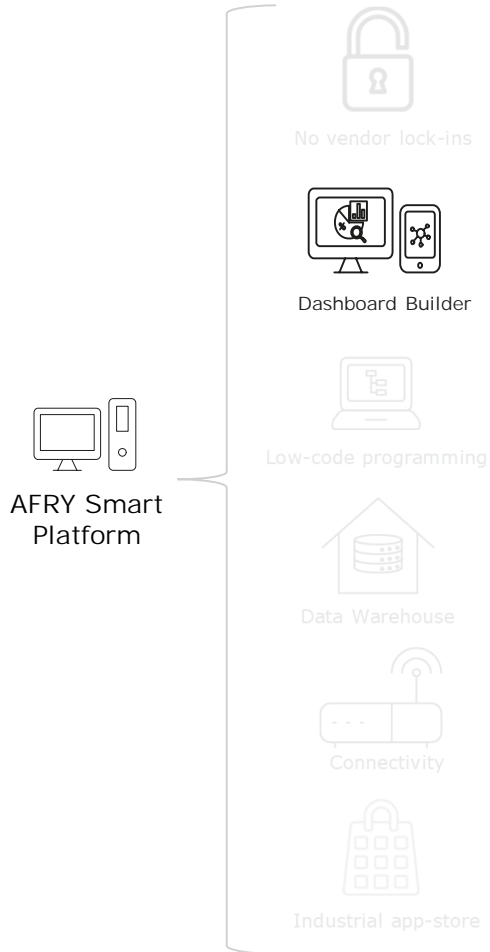
Data Warehouse

Connectivity

Industrial app-store

The platform is based on open-source technologies, giving the client the freedom to choose how to move forward with digitalisation.

Anyone (internal or external party) can create new applications as long as the client allows.
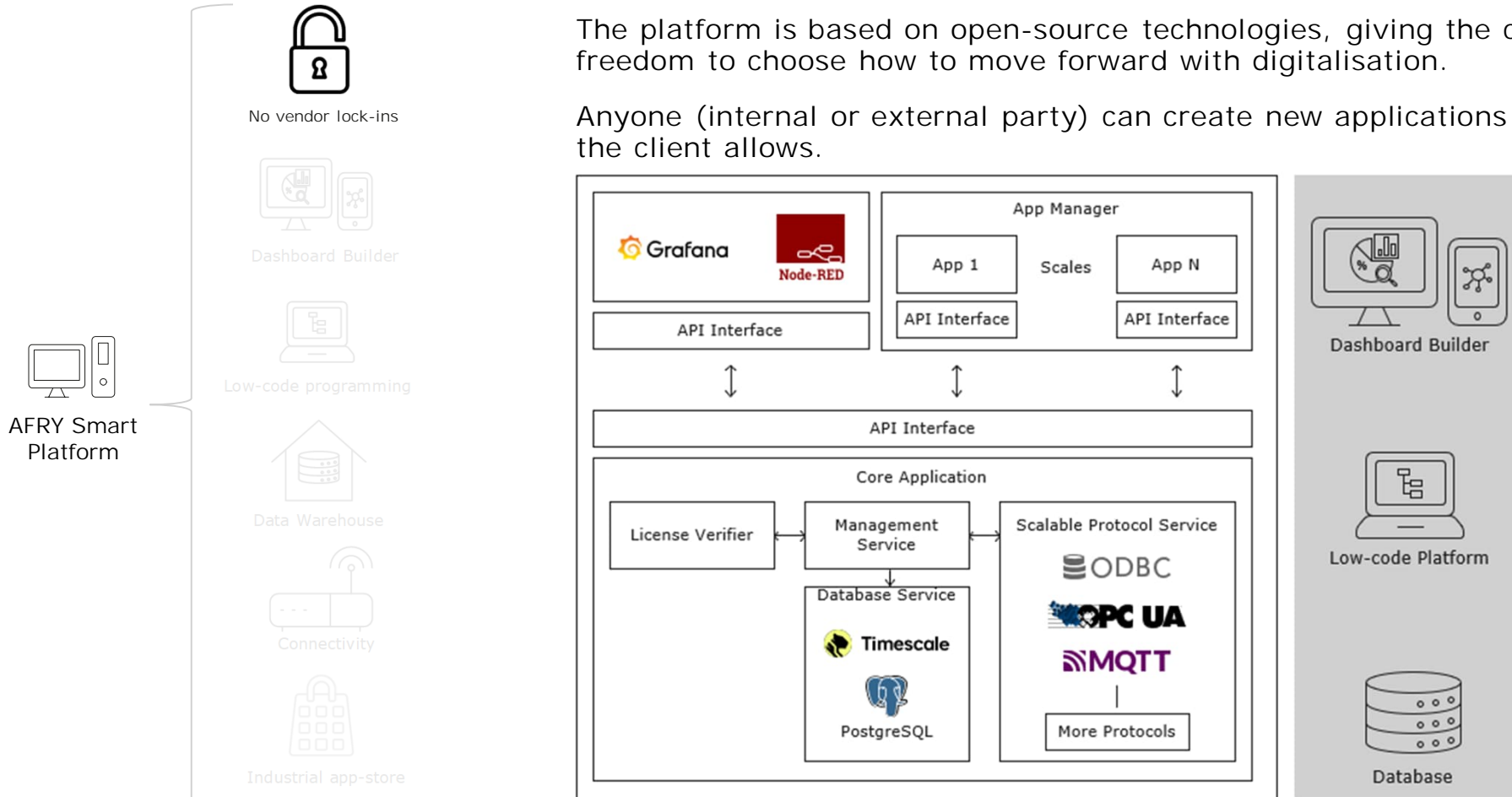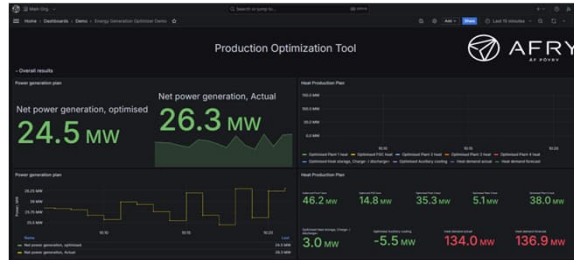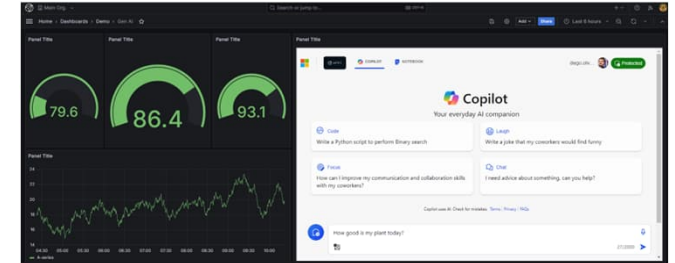
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Professional dashboards within minutes

No vendor lock-ins

Dashboard Builder

Low-code programming

AFRY Smart Platform

Data Warehouse

Connectivity

Industrial app-store

Possibility to easily create professional dashboards by using drag and drop components, but also with customization possibilities through React codes.

In addition to visualizing data, customers can send commands to other systems, make manual entries, create 3D visualizations, and more.

From simple dashboards

To generative AI

Through drag and drop components
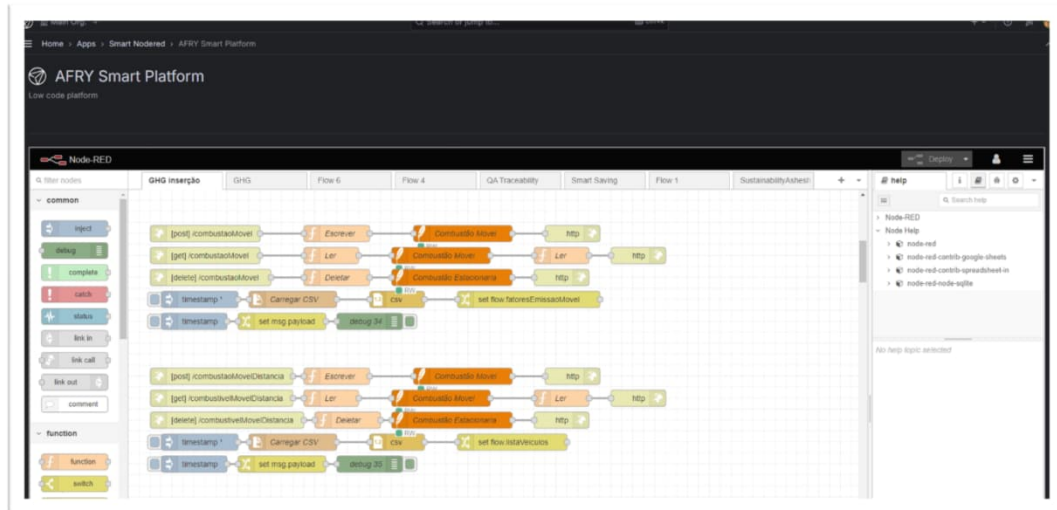
From algebraic algorithms to AI

No vendor lock-ins

Dashboard Builder

Low-code programming

AFRY Smart
Platform

Data Warehouse

Connectivity

Industrial app-store

Leveraging the IEC 61499 standard, you can use the Node-red or Total.js programming interface to create low-code applications by simply pulling ready-to-use functional blocks or even hard-coding them with Python or JavaScript.

With millions of algorithms already created by the Node-red community, you can seamlessly move from simple calculations to machine learning.
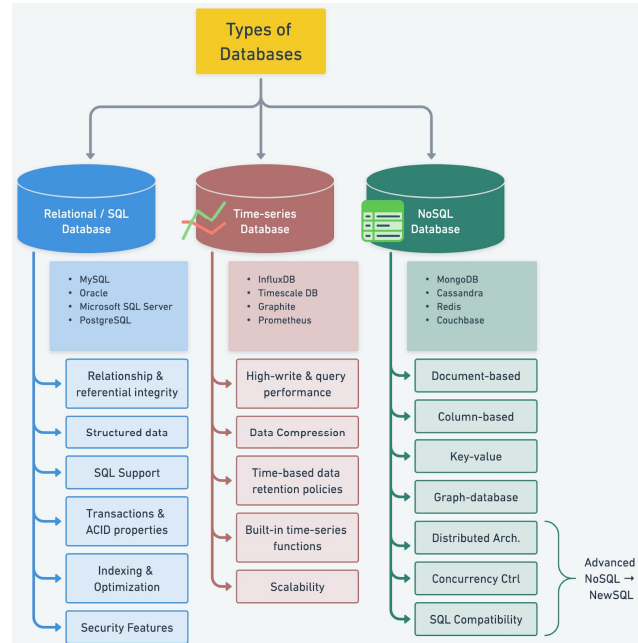
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Engineering, IT and OT data together

No vendor lock-ins

Dashboard Builder

Low-code programming

AFRY Smart
Platform

Data Warehouse

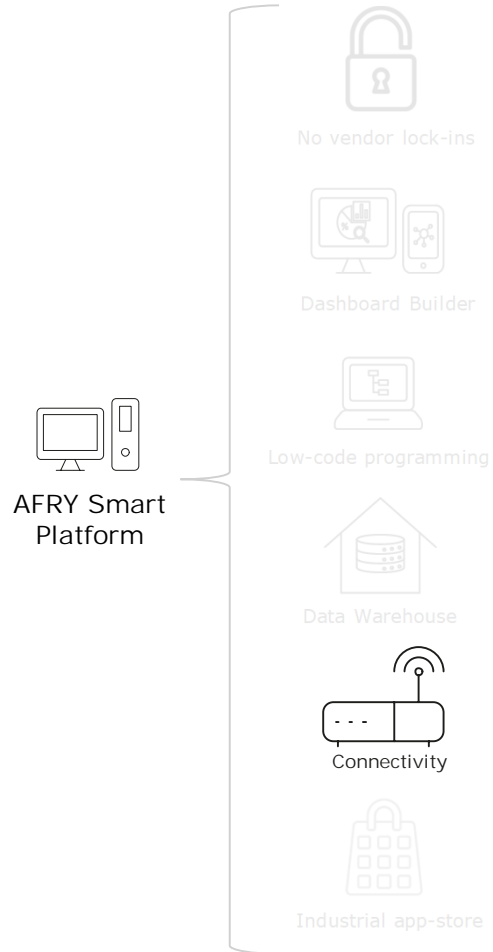Connectivity

Industrial app-store
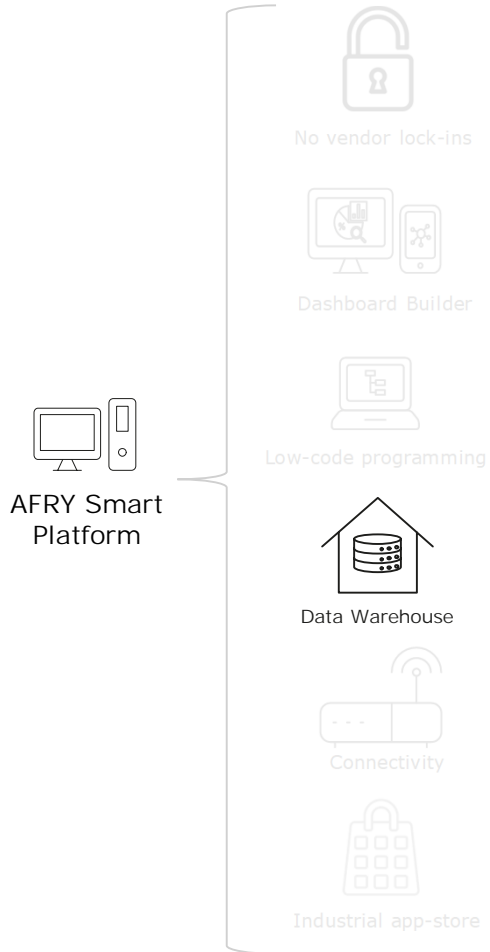
A proper data-driven decision-making demands data from many places: predictive maintenance, for example, demands knowing the operation manuals (Engineering), costs (ERP from IT) and process data (OT).

For this reason, the ASP already has powerful databases such as PostgreSQL and Timescale DB, but also offers the possibility of using many others depending on your needs.
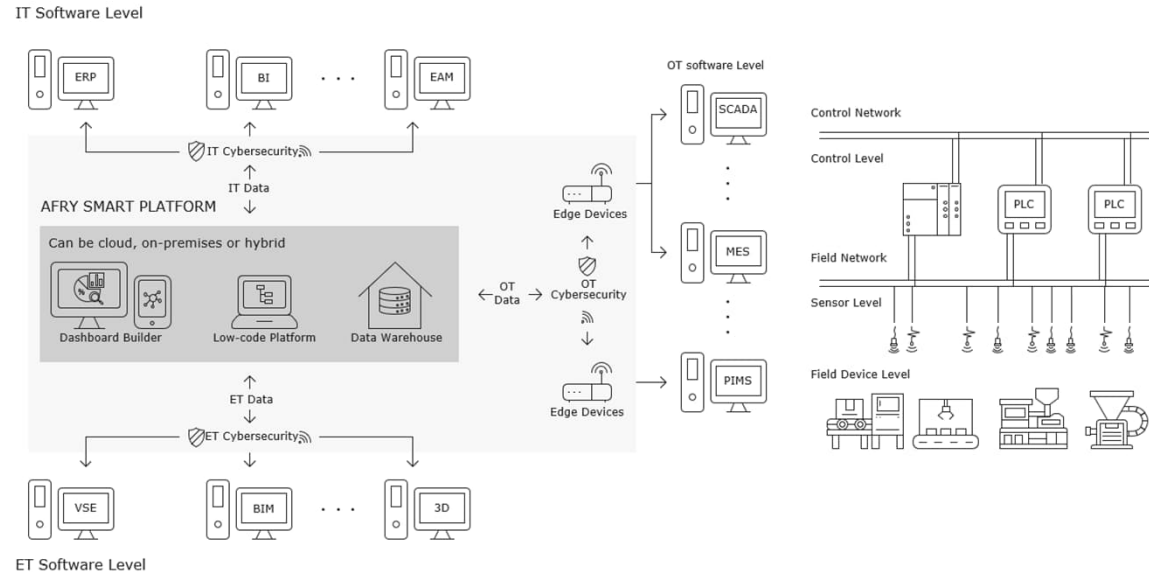
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From Modbus to MQTT

No vendor lock-ins

Dashboard Builder

Low-code programming

AFRY Smart Platform

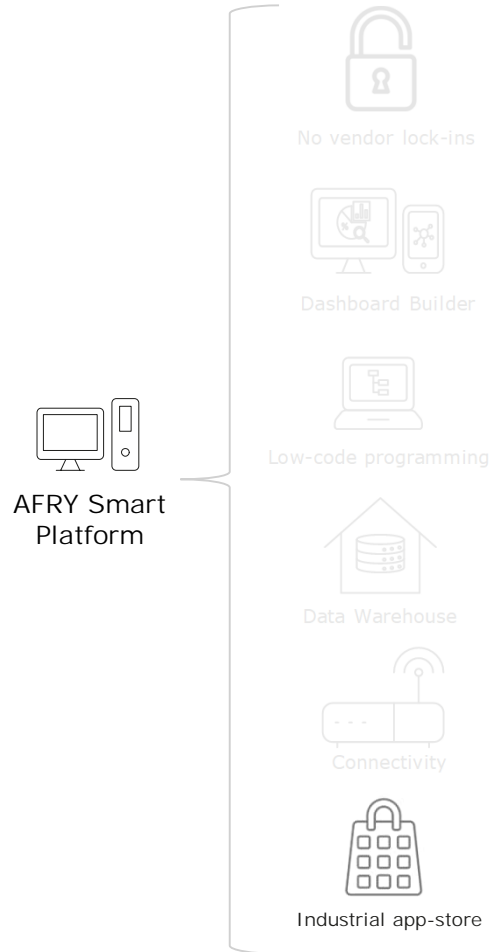Data Warehouse

Connectivity

Industrial app-store

Given today's reality in factories, a real platform must support multiple different protocols from IT and OT, receive files and manual inputs, and also work with many physical structures (Ethernet, RS-232, wireless, radio, etc.).

You can use Node Red blocks, Grafana direct connect, or even custom AFRY or third-party drivers to collect any data.

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Software as an App

No vendor lock-ins

Dashboard Builder

Low-code programming

AFRY Smart Platform

Data Warehouse

Connectivity

Industrial app-store

By orchestrating connections, databases, algorithms and dashboards, the AFRY Smart Platform acts as a hub for all factory solutions. For this reason we have created the industrial app store.

This feature allows you to organize all your applications and easily migrate them from one supplier to another, just like you operate your smartphone.

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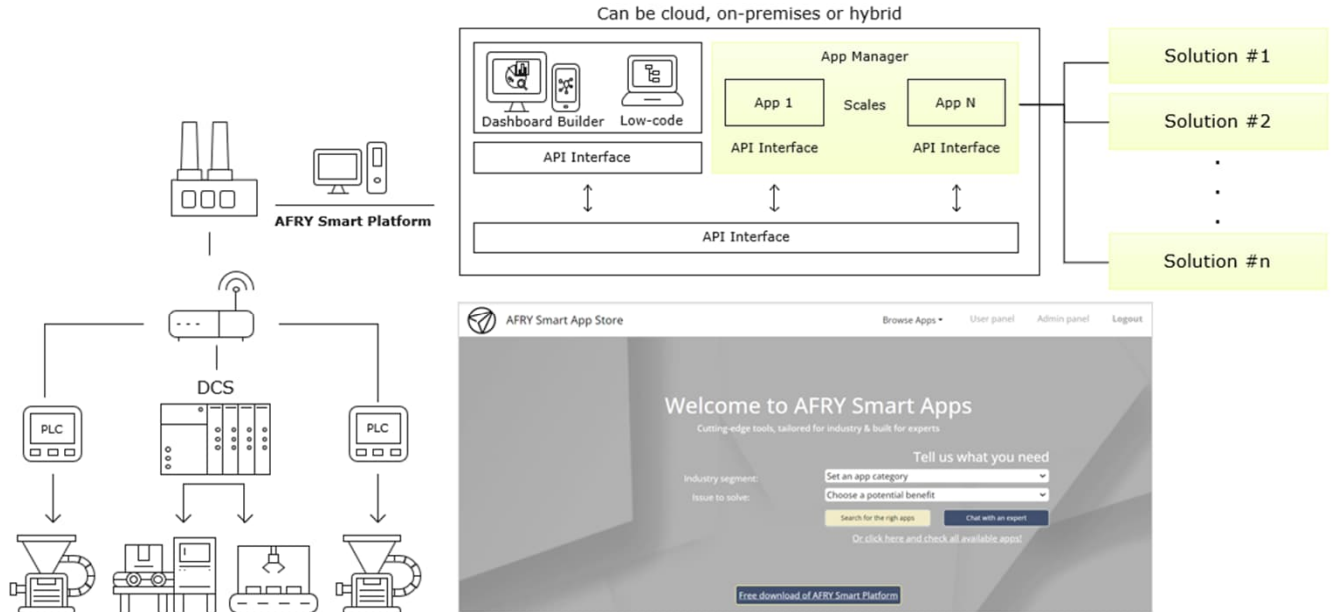
Reference case: Dexco

– Challenge: Dexco has 7 plants in Brazil and has faced issues to monitor and adjust their production predictions in real time. This was causing financial losses because the analysis could be made only at the end of each shift.

– It would have been very costly to implement more TAGs using the PI system and hire experts with specific knowledge to customise their current system (Prod-IQ).
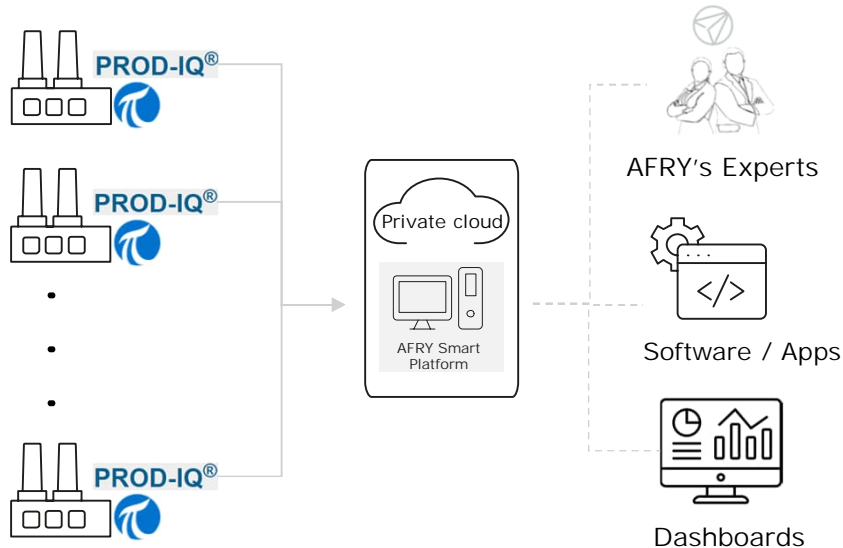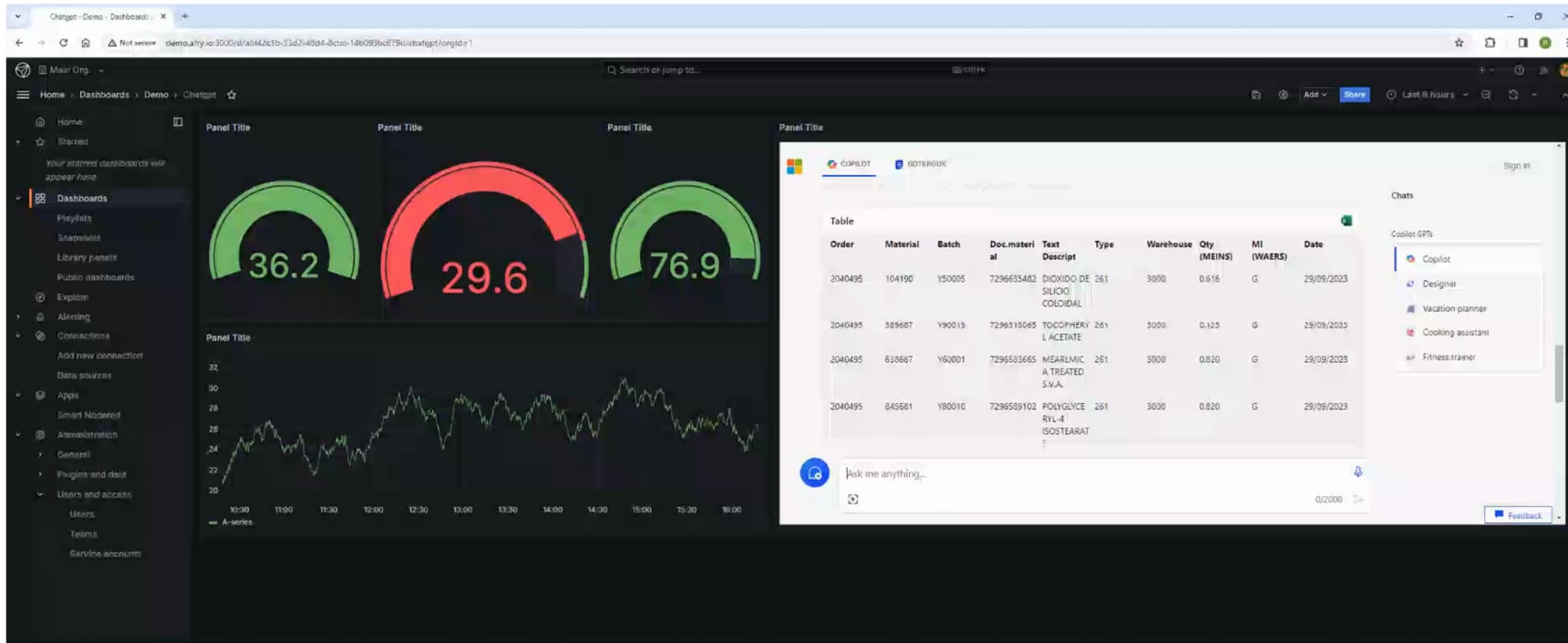

Solution: AFRY Smart Platform (ASP)
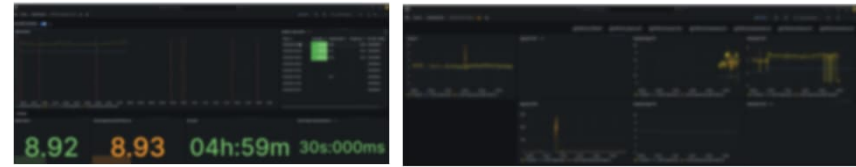
– Starting point: Installation of ASP into Taquari's factory (100% remote) connecting only Prod-IQ and creating the first dashboard.

– First result: Reducing financial losses by adjusting the process in real time and more freedom for operators to create new applications by using the ASP low-code tool.

– Growth: Dexco has signed a Frame Agreement, where AFRY can offer any kind of optimisation and digital services through the ASP, 100% remotely if necessary.

– By using the AFRY Smart Platform as a foundation, Dexco can now digitise their assets step by step by leveraging all of AFRY's know-how, installing new apps and creating applications by themselves.

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Generative AI success case: Microsoft Copilot on the ASP

This use case was created for a customer who was looking for a solution to simplify their database search processes. AFRY connected the ASP to Microsoft Copilot and used it to ask various questions about its data, saving a lot of time in root cause analysis.

It shows how powerful and versatile the AFRY Smart Platform can be, not only for OT, but also for the entire company.

Implementation roadmap: step 1

– The first step together is the remote installation of the AFRY Smart Platform and hands-on training to provide the customer's team with essential knowledge to ensure ASP delivers the right benefits.

– This installation is customized to the customer's automation infrastructure and can be in a single physical machine or in the cloud, communicating directly with the entire factory.

– Minimum specification hardware:
  – Intel core i3 7th gen
  – 8GB RAM memory
  – 500 GB SSD HD
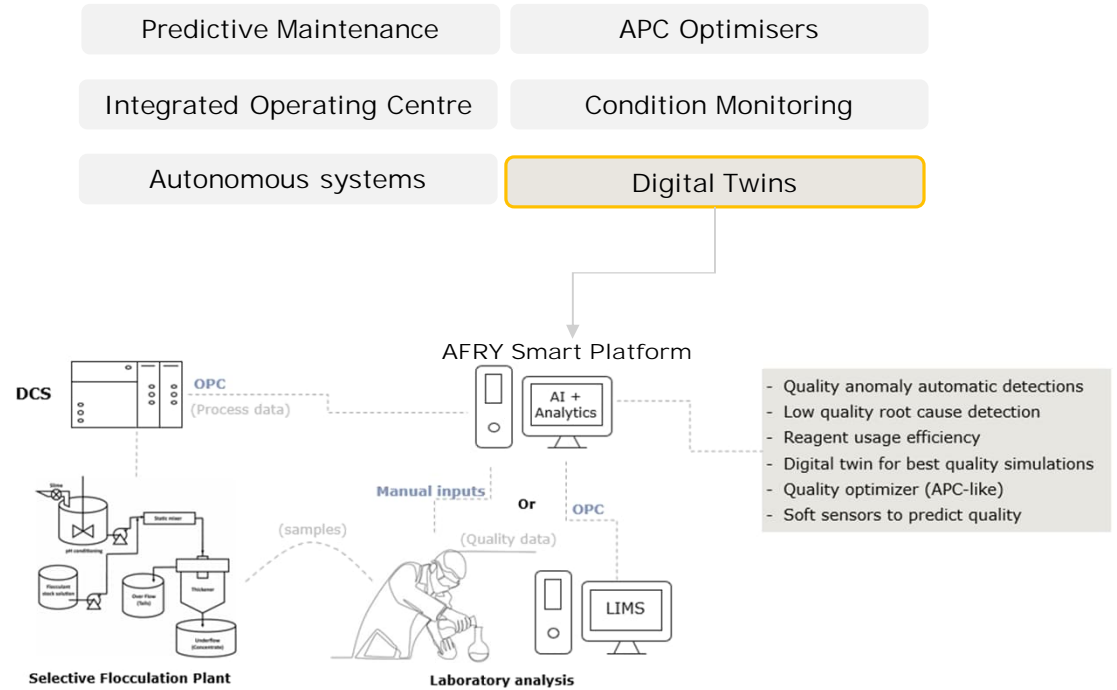 – Linux Ubuntu 22.04 LTS
  – Ports 3000, 80 and 443

Stand-alone architectures connected

Cloud architecture platform
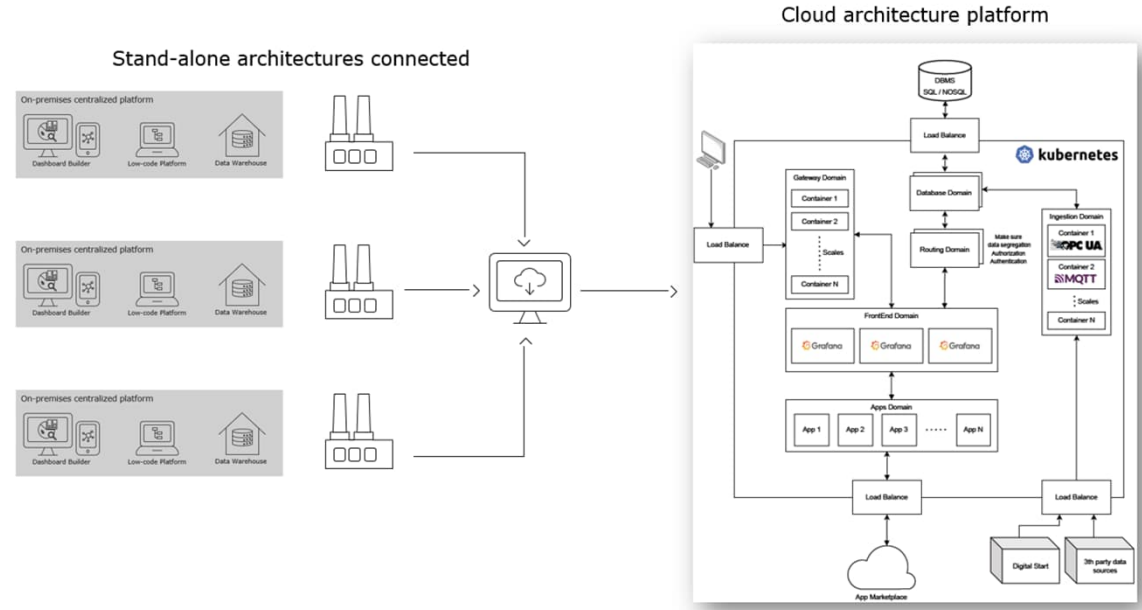
| Install & train | 1st business case | Continuous expansion |

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Implementation roadmap: step 2

– An initial business case is important for you to understand the benefits from using a modern and versatile solution like AFRY Smart Platform.

– AFRY's experts will help you map out some potential applications and initially select one with high savings potential.

– Regardless of whether the use case is implemented in just one part of the process or throughout the entire facility, the expected results should be clear and financially traceable.

Predictive Maintenance	APC Optimisers
Integrated Operating Centre	Condition Monitoring
Autonomous systems	Digital Twins

AFRY Smart Platform

DCS — OPC (Process data)

AI + Analytics

- Quality anomaly automatic detections
- Low quality root cause detection
- Reagent usage efficiency
- Digital twin for best quality simulations
- Quality optimizer (APC-like)
- Soft sensors to predict quality

Manual inputs   Or   OPC

(samples)   (Quality data)

LIMS

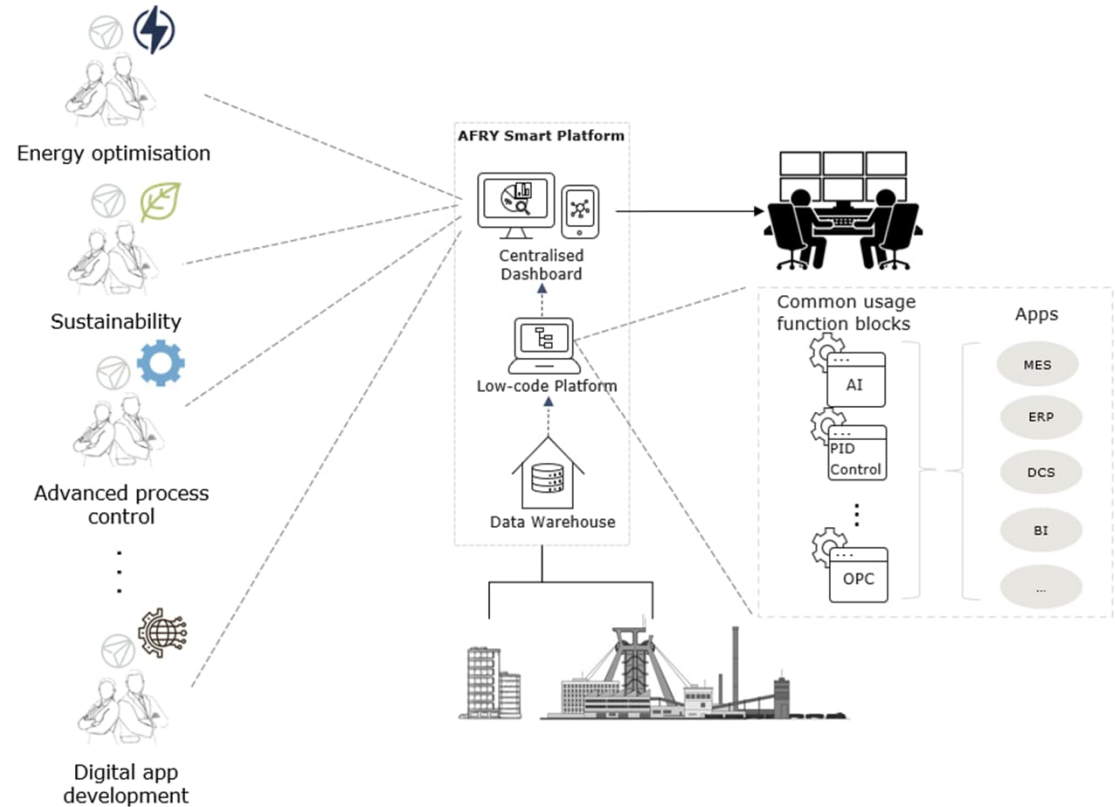**Selective Flocculation Plant**   **Laboratory analysis**

Install & train   →   1st business case   →   Continuous expansion

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Implementation roadmap: step 3

– After demonstrating the potential of ASP, the next steps depend on the customer's strategy: AFRY can support your journey with more than 130 different digital services, from digital infrastructure development to advanced process control applications.

– We understand that every customer is unique, and our mission is to support your strategy as a trusted partner focused on helping you choose the best paths to becoming a fully digital enterprise.

– AFRY's experts are KPI-driven and focused on improving clients' bottom line, using only the right technologies for each moment.

Energy optimisation

Sustainability

Advanced process control

Digital app development

AFRY Smart Platform

Centralised Dashboard

Low-code Platform

Data Warehouse

Common usage function blocks

AI

PID Control

OPC

Apps

MES

ERP

DCS

BI

...

Install & train

1st business case

Continuous expansion

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AFRY's offer for running plants

* If necessary, travelling costs will be charged separatedly.

Install & train

– Platform License: Free of charge

– Installation + training: EUR 4K

1st business case

– Plant assessment: case by case

– Implementation: Hour fee according to project's size

Continuous expansion

– Frame-agreement: fixed hourly pricing for different services

– Maintenance: 8x5 or 24x7 support with pricing according to defined amount of support and SLA

– Apps: Applications create by AFRY for MES, OEE, APC, water management, energy efficiency, sustainability and more.

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Key requisites for a successful implementation

– Define the solutions according to client's priorities and budget

– Establish a proper dataflow architecture, sending only necessary data to cloud, preventing unnecessary costs and network traffic

– Create a robust communication architecture, with modern protocols and industrial hardware

– Deploy a "future-proof" solution, prepared to scale without major changes

– Adjust the deliverables according to clients' KPIs and expectations

– Always trust in partners with solid background
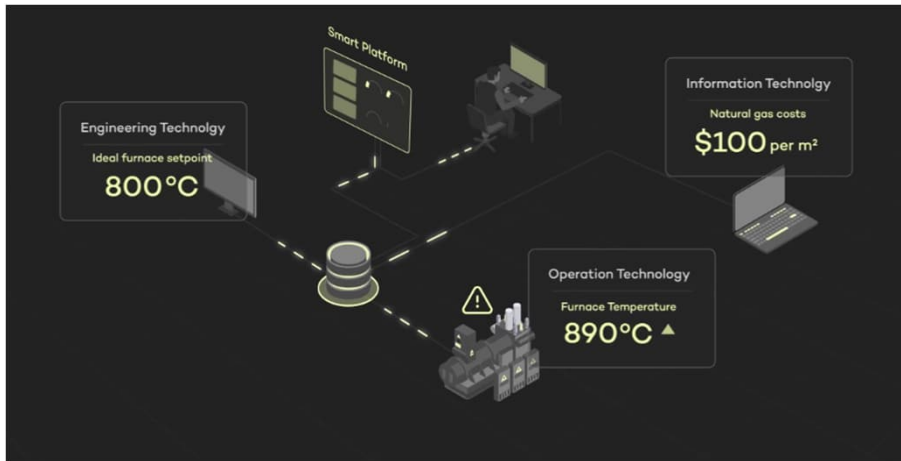
AFRY Smart Site

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