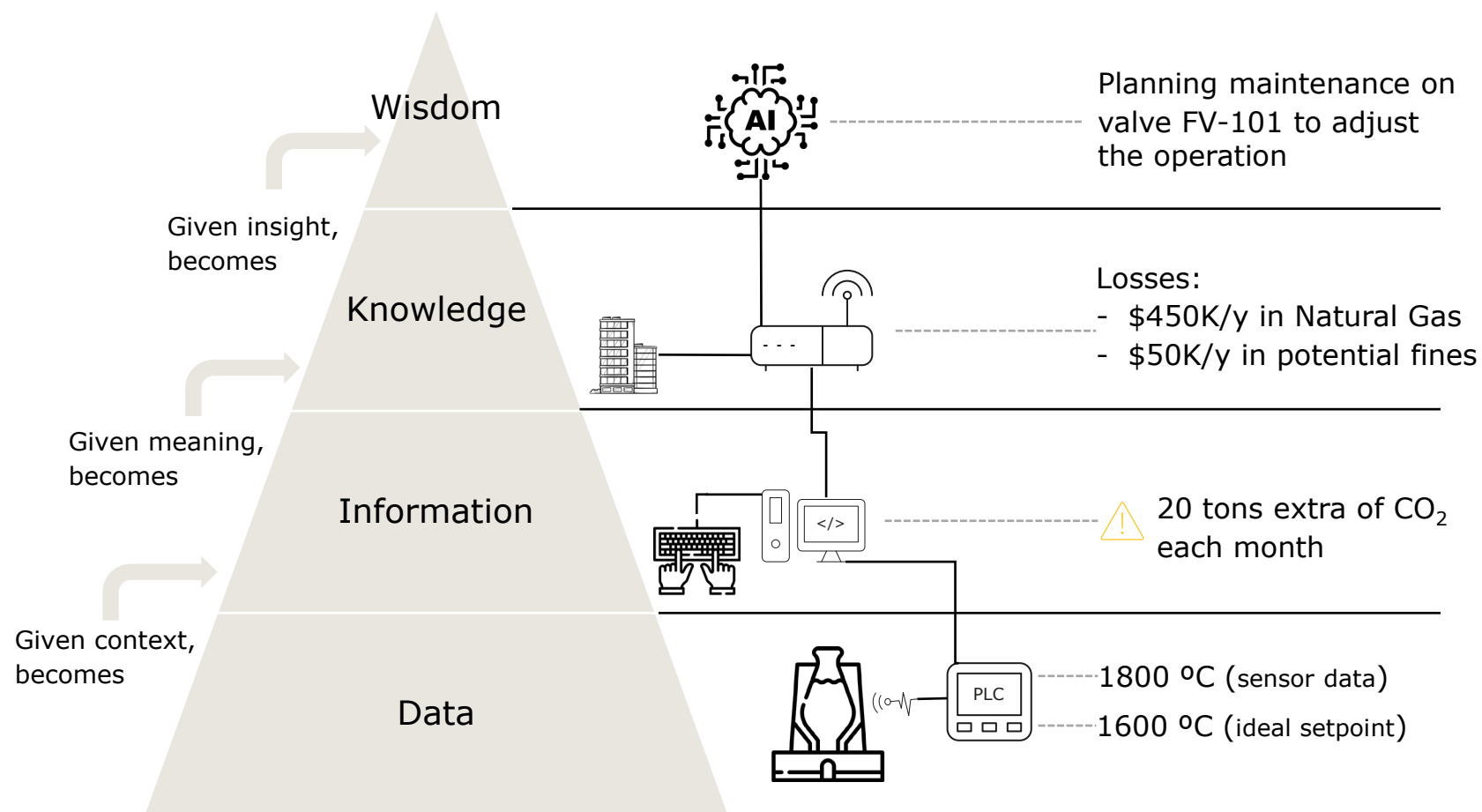


Smart Site

AFRY Smart Platform

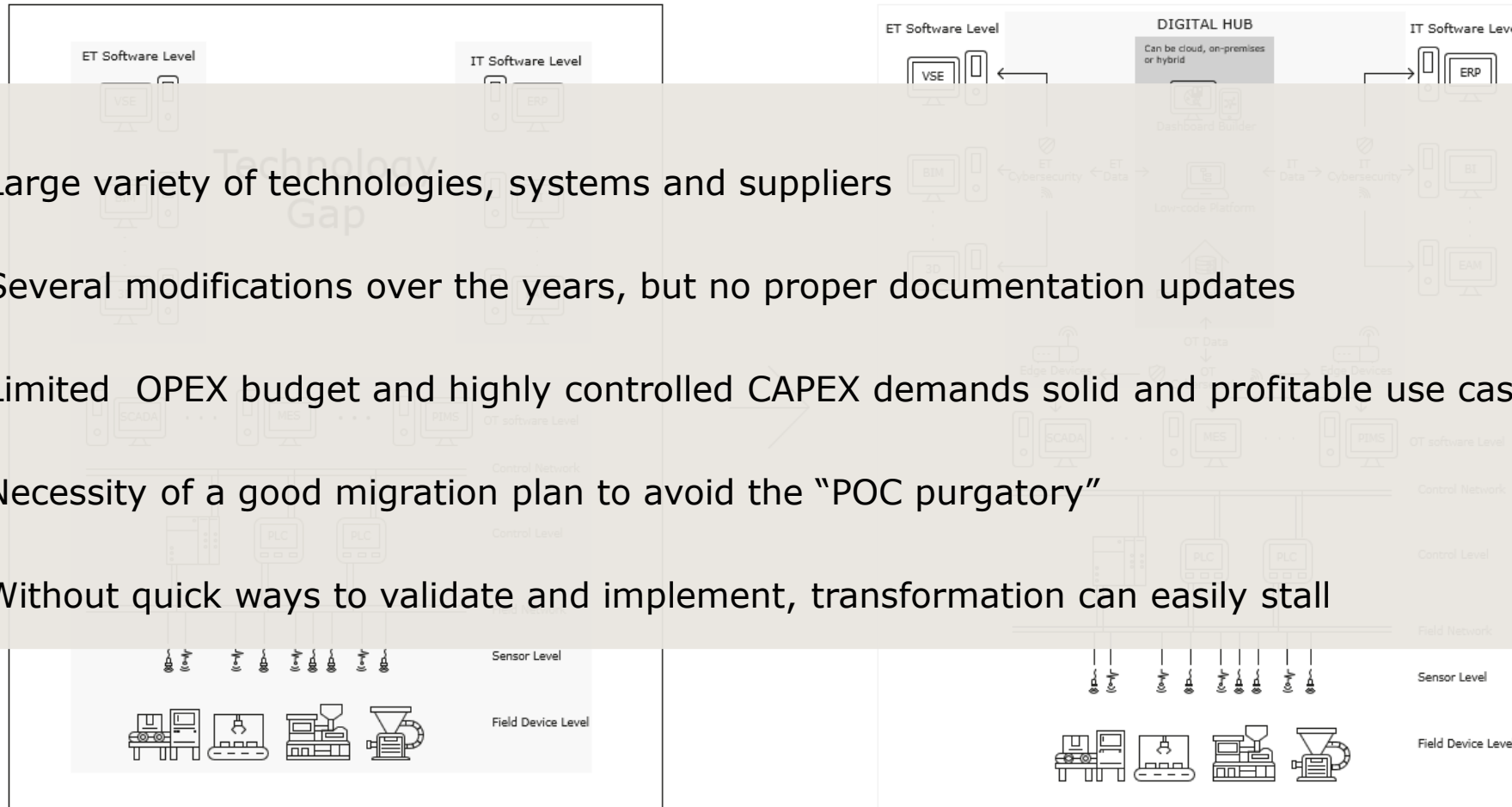
Data-driven concept

Digitalisation aims to **enhance data**, creating an environment where we can **correlate** and having a **deeper knowledge** regarding how to **optimise** company's **processes**.



Bridging the Digital Gap

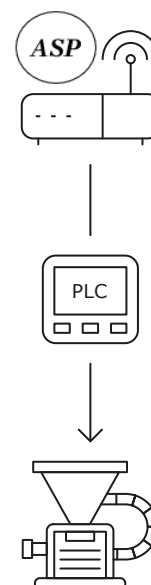
- Large variety of technologies, systems and suppliers
- Several modifications over the years, but no proper documentation updates
- Limited OPEX budget and highly controlled CAPEX demands solid and profitable use cases
- Necessity of a good migration plan to avoid the “POC purgatory”
- Without quick ways to validate and implement, transformation can easily stall



The AFRY Smart Platform (ASP)

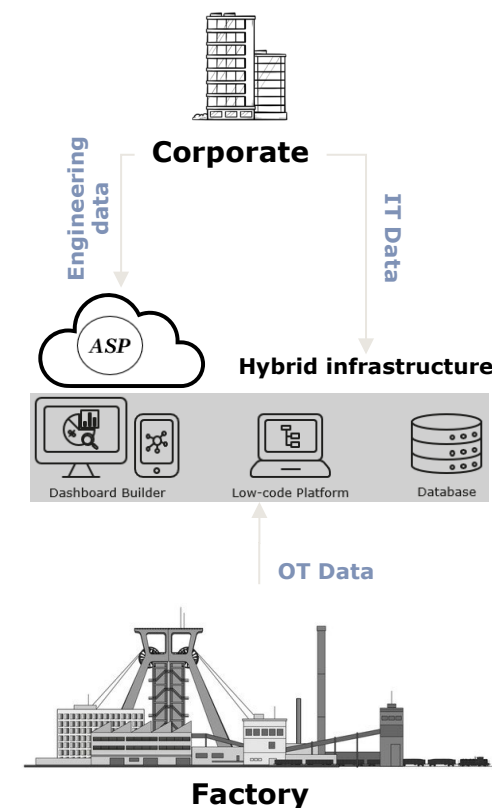
- Is an affordable, scalable and opensource platform to help you **accelerate your digital journey.**
- You can start with a single machine and deploy a complete digital platform structure, **on-premises or cloud.**
- The platform can be installed inside your own environment: you will remain in **control** of all the **data** and **fully own it.**
- From simple applications to artificial intelligence, you can easily build your own applications: **there is no vendor lock-in.**

Installed on a server



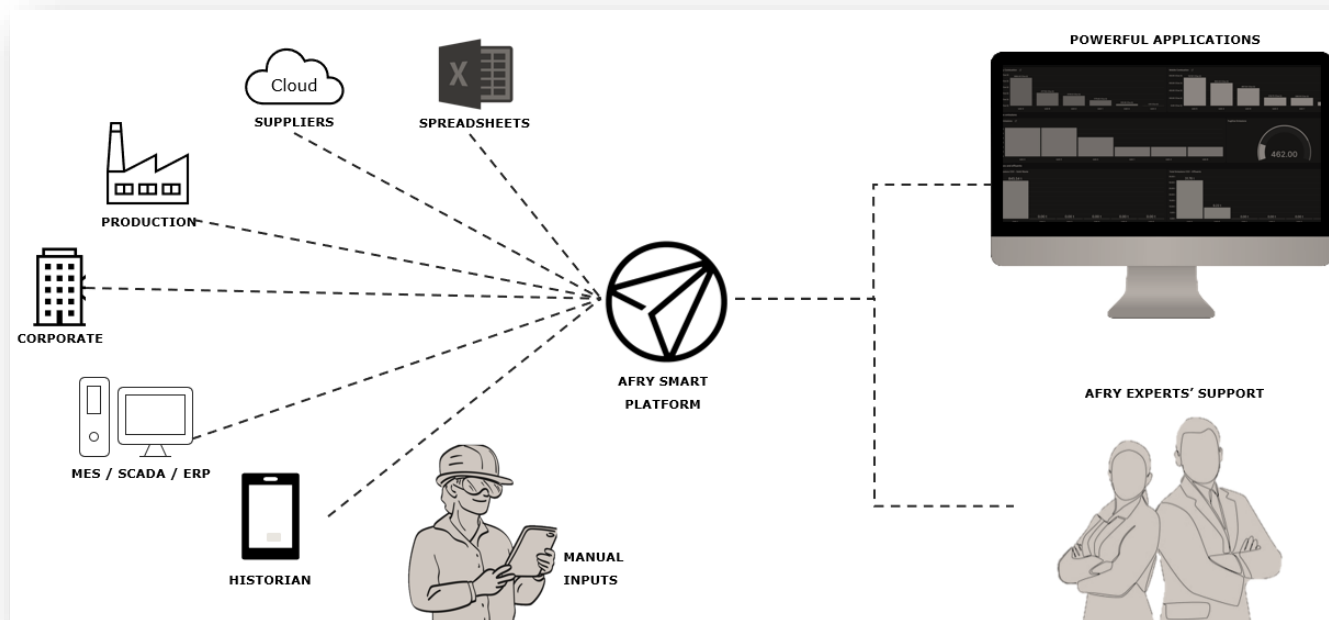
From a single machine
to the whole company

Or in a virtual environment



More than just a platform, it's AFRY's expertise packed in a digital format

Complete integration with all your data, possibility to **develop** your own **applications** and remote **consulting services** from all **AFRY's experts**, using **secure** connections.



Decades of Pulp and Paper knowledge in a single source of truth

Platform capabilities



Freedom to operate without strings



No vendor lock-ins



Dashboard Builder



Low-code programming



Data Warehouse



Connectivity

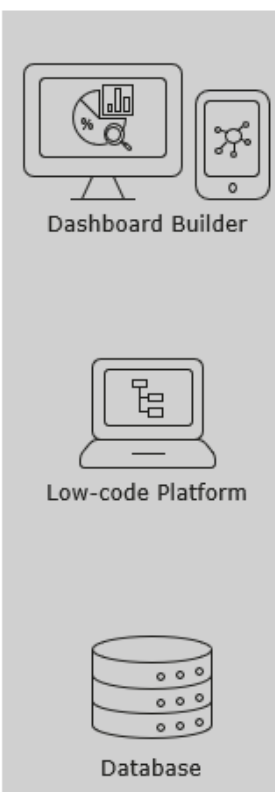
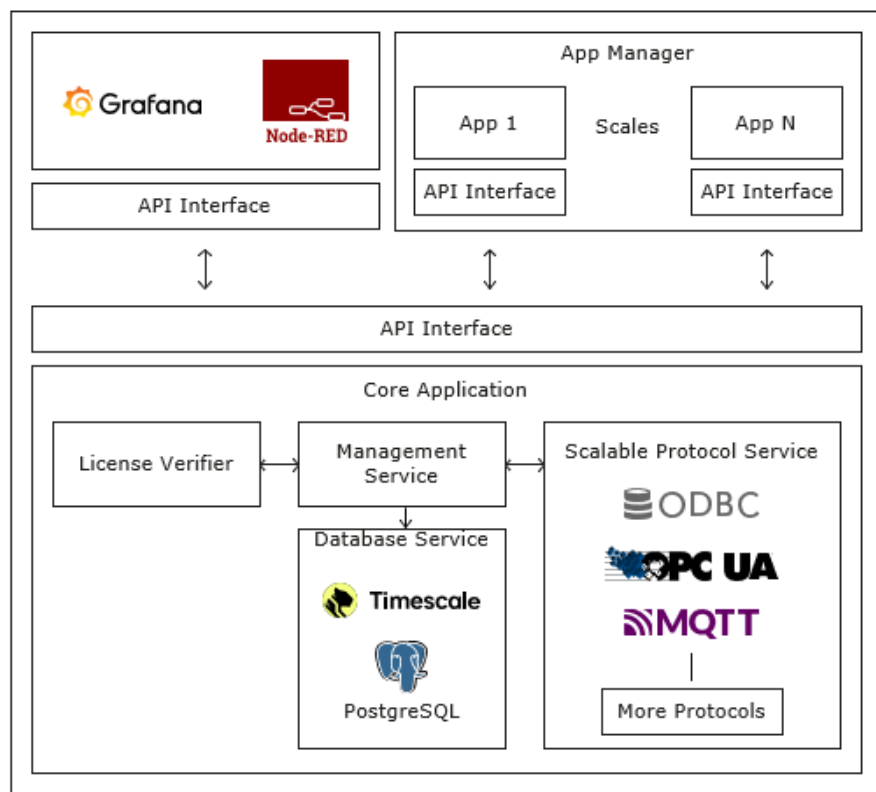


Industrial app-store

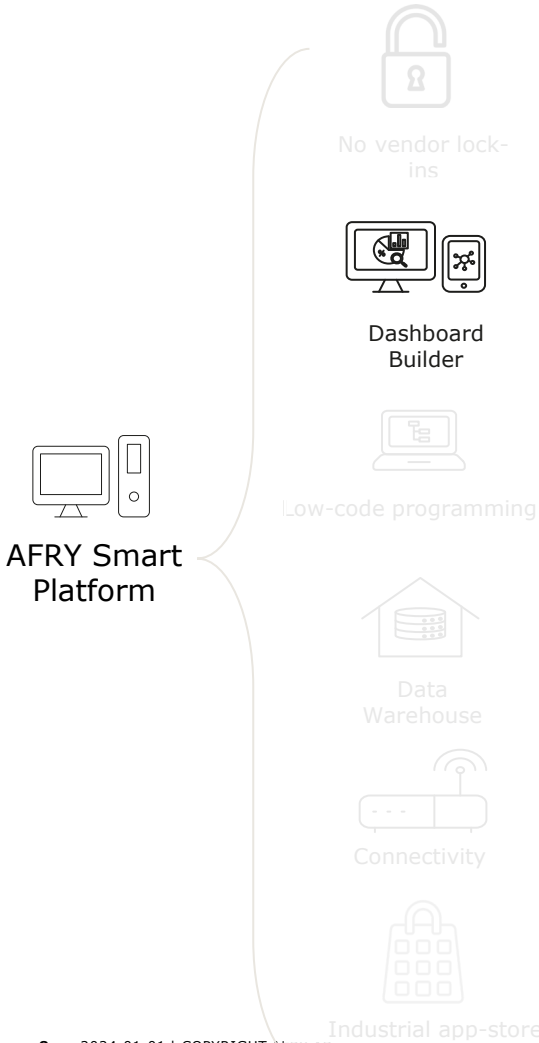
AFRY Smart Platform

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

Anyone (internal or external party) can create new applications if the client allows.

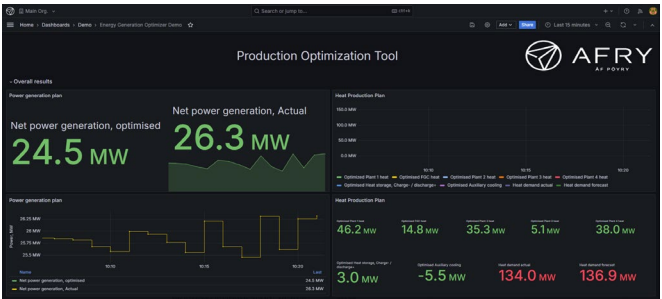


Professional dashboards within minutes

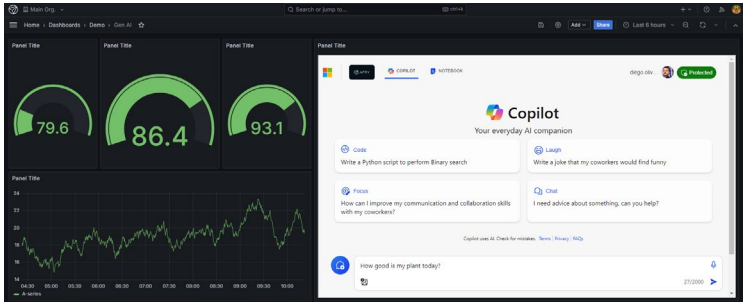


Possibility to easily create professional dashboards by using drag and drop components, but also with customization possibilities through React codes.

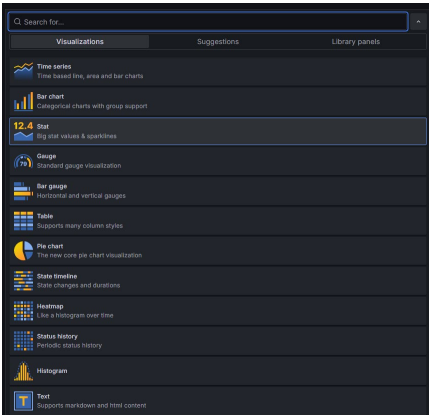
In addition to visualizing data, customers can send commands to other systems, make manual entries, create 3D visualizations, and more.



From simple dashboards

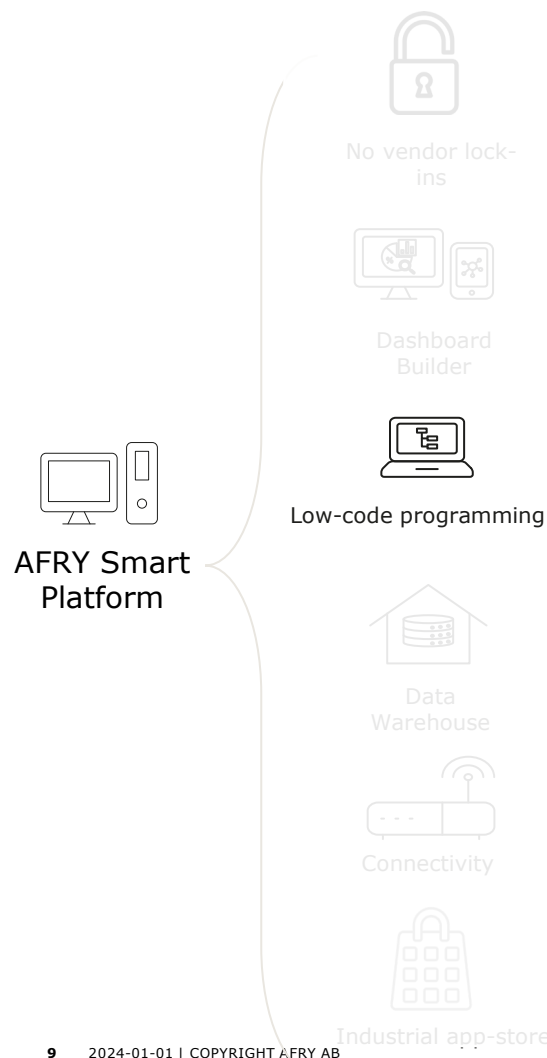


To generative AI



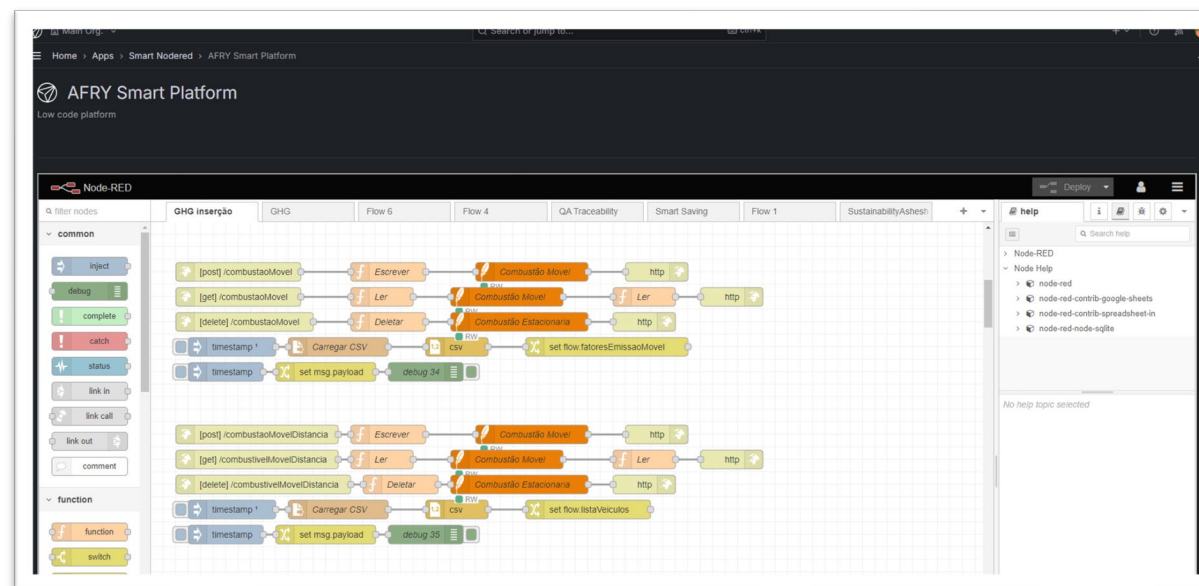
Through drag and drop components

From algebraic algorithms to AI

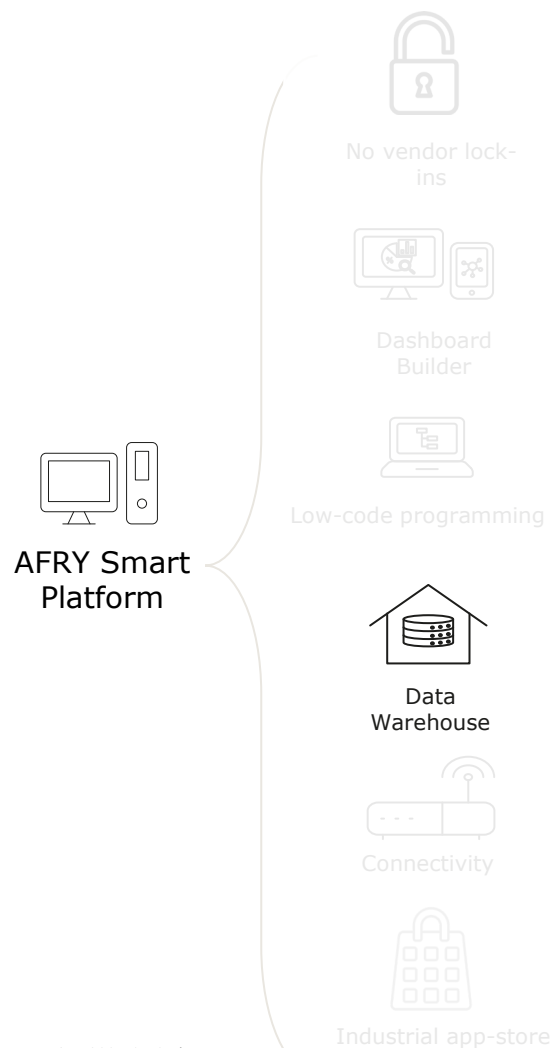


Leveraging the IEC 61499 standard, you can use the Node-red or Total.js programming interface to create low-code applications by simply pulling ready-to-use functional blocks or even hard-coding them with Python or JavaScript.

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

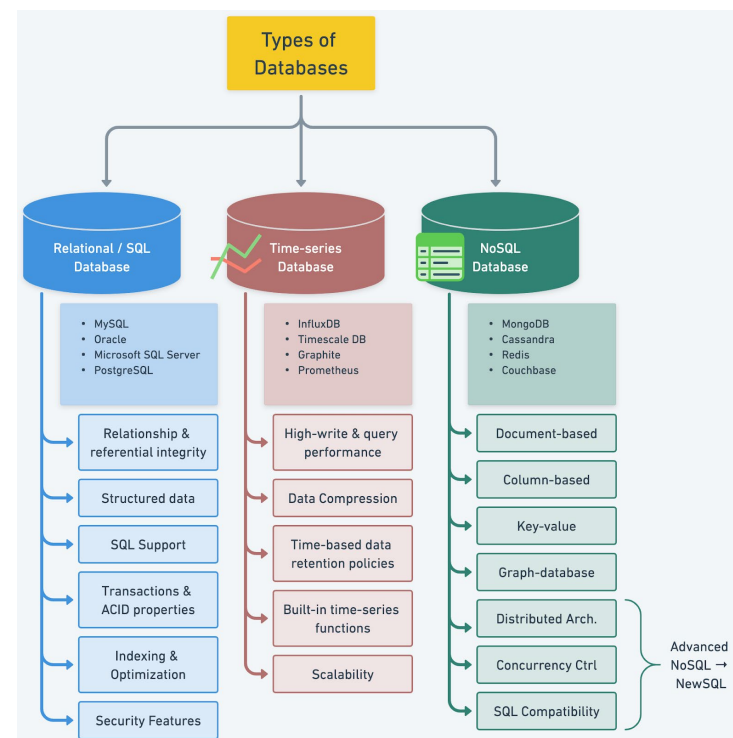


Engineering, IT and OT data together

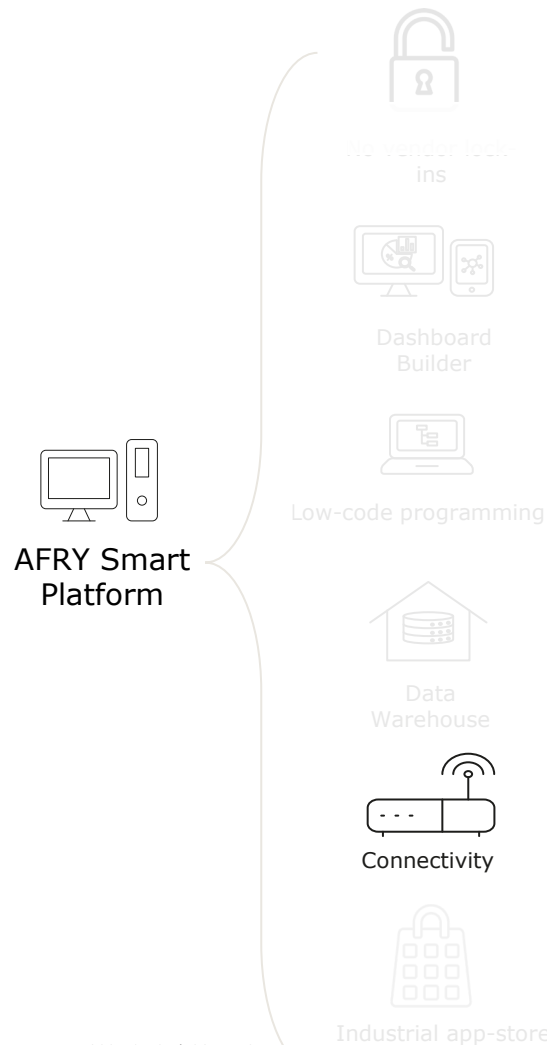


A proper data-driven decision-making demands data from many places: predictive maintenance, for example, demands knowing the operation manuals (Engineering), costs (ERP from IT) and process data (OT).

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.

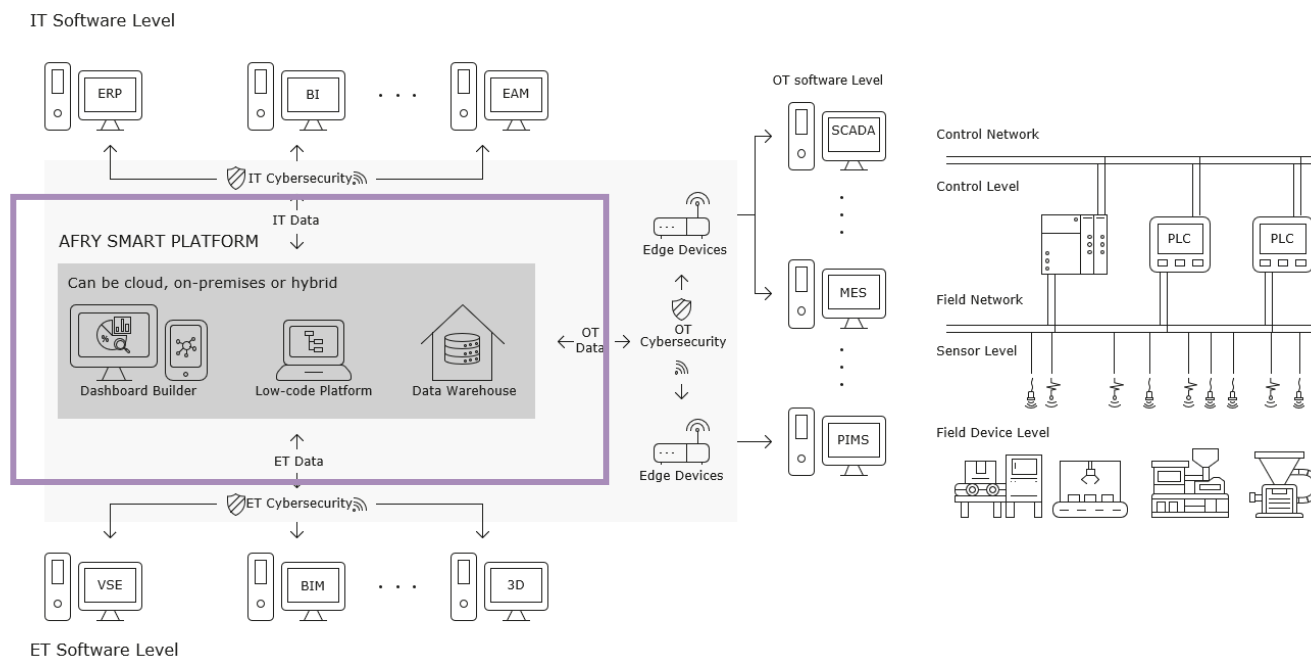


From Modbus to MQTT

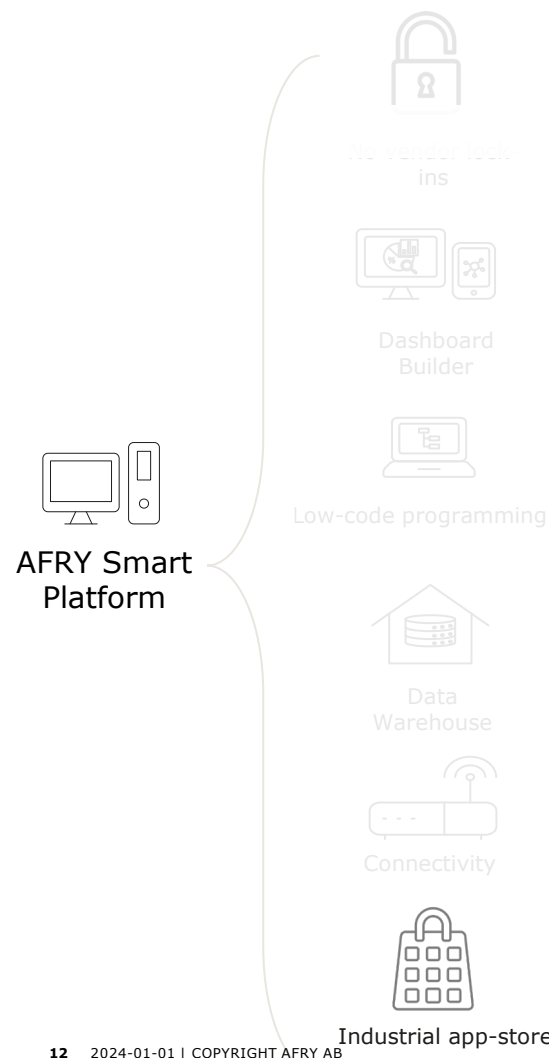


Given today's reality in factories, a real platform must support multiple different protocols from IT and OT, receive files and manual inputs, and also work with many physical structures (Ethernet, RS-232, wireless, radio, etc.).

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

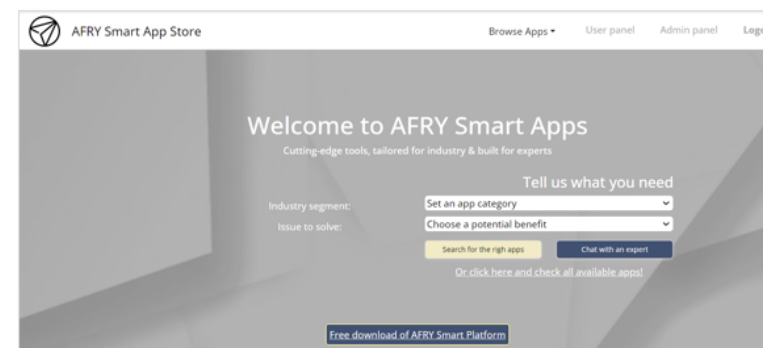
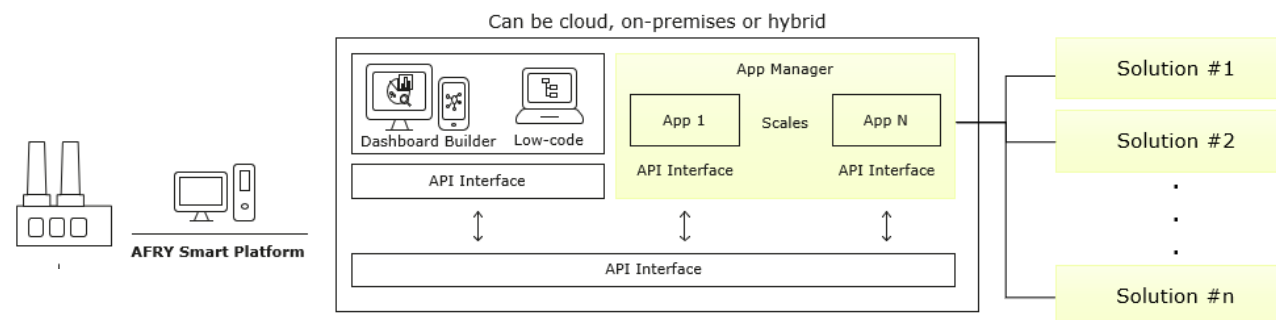


Your own industrial app-store



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.

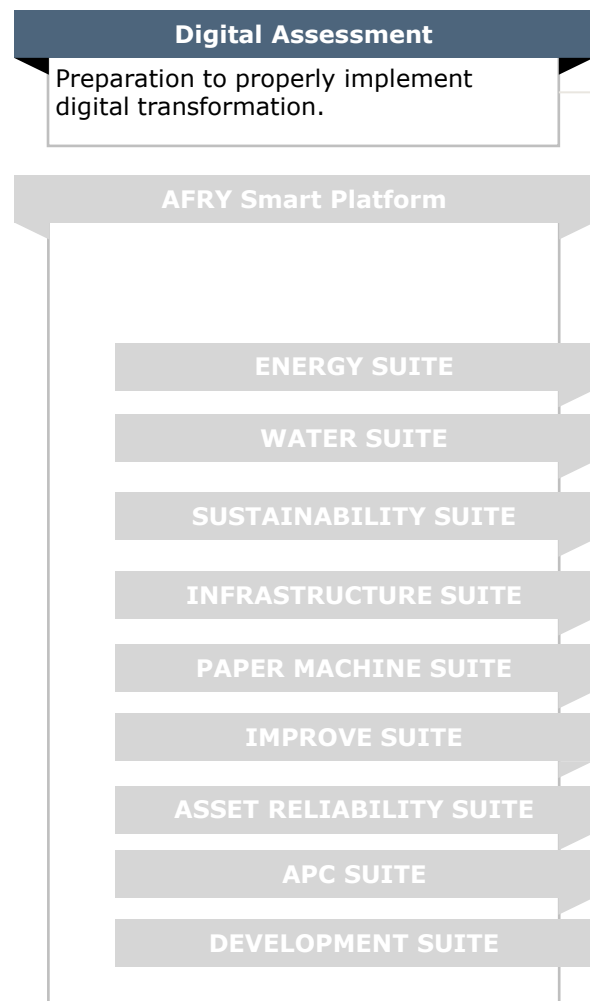
This feature allows you to organize all your applications and easily migrate them from one supplier to another, just like you operate your smartphone.



Platform implementation



Implementation roadmap: step 1



- Finding potential savings to quantify the opportunities
- Detecting technology gaps that must be fulfilled
- Preparing a summary of recommendations with investment estimates
- Prioritizing the initiatives and selecting the first one to start

Effort estimates

- 4 weeks
- 1 Digitalization expert
- 1 Process expert

Outcome

Document with as-is scenario, potential savings (in \$), suggested technologies, prioritization roadmap, and investment estimates

Reference Cases

- Solidus running plant assessment – Spain
- Dexco digital strategy – Brazil
- Elkem Integrated Operation Centre – Norway
- CMPC APC analysis – Chile
- And more!

If the client already has this strategy, we can go directly to step 2

Implementation roadmap: step 2

Digital Strategy

Preparation to properly implement digital transformation.

AFRY Smart Platform

Affordable toolkit to implement digital applications.

ENERGY SUITE

WATER SUITE

SUSTAINABILITY SUITE

INFRASTRUCTURE SUITE

PAPER MACHINE SUITE

IMPROVE SUITE

ASSET RELIABILITY SUITE

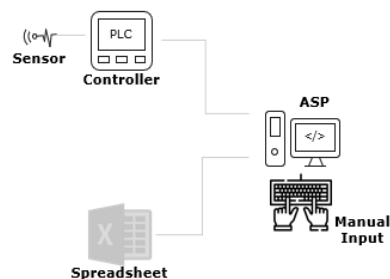
APC SUITE

A complete suite of solid use cases with proven results worldwide.

- Connecting to relevant company's databases and integrating to the current infrastructure
- Creating the algorithms or implementing a ready-to-use solution
- Preparing customized dashboards and automatic reports

1 Data gathering

ASP is ready to connect with several industrial and IT systems, receive manual inputs or even Excel spreadsheets.



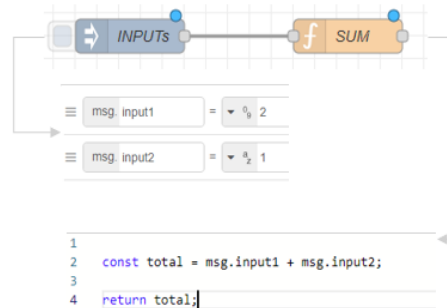
2 Data processing

Low-code makes it as easy as creating an Excel formula, but here you can create normal calculations or powerful AI applications.

Using Excel

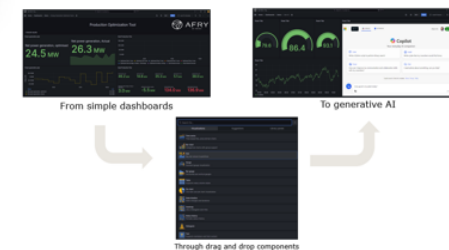
Input1	Input2	sum
1	2	=D26+E26

Using ASP Low-coding (Node red)



3 Data presenting

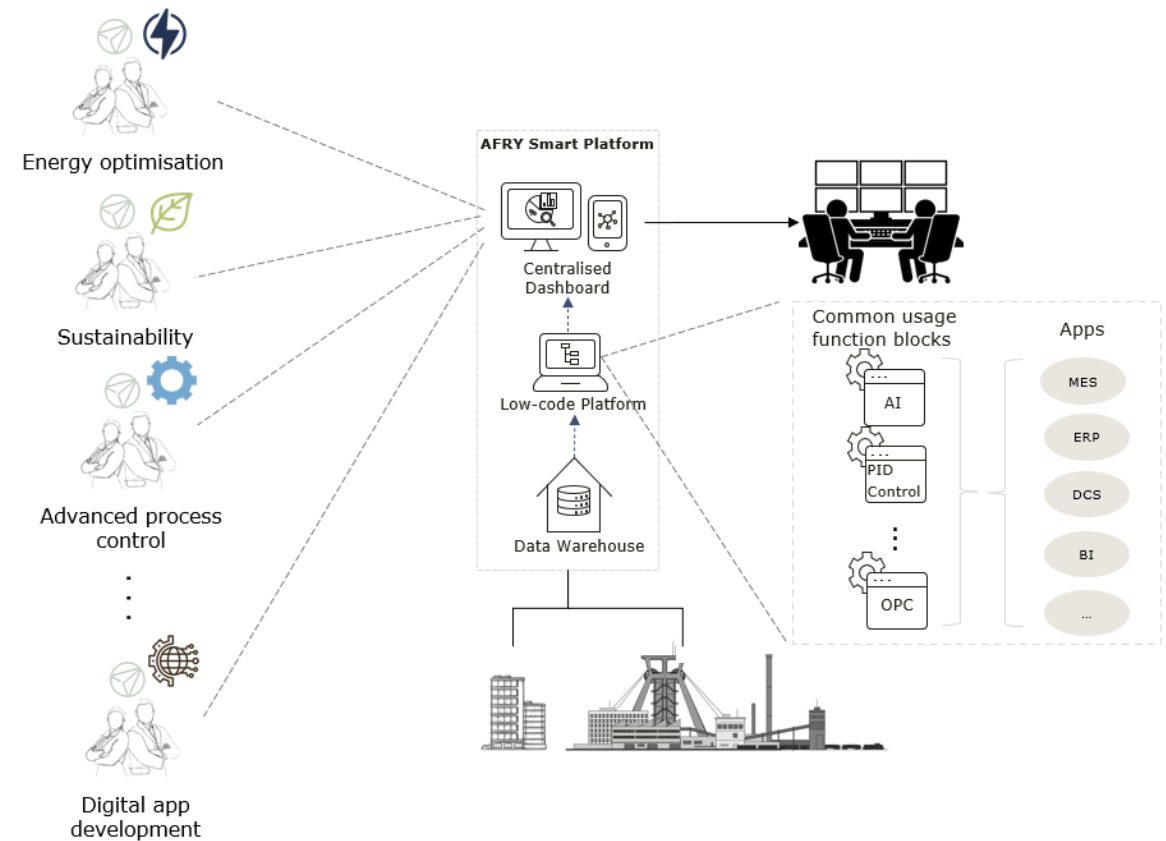
After data treatment, you can just drag and drop professional charts to create dashboards with any type of visualization.



If the client already has a platform, the solutions can be integrated transparently

ASP expansion

- Focusing to improve client's bottom line, ASP can be upgraded in different ways:
- Expanding the current app to other factories
- Creating an industrial app-store to the client and its suppliers
- Giving access to AFRY's experts to support process optimization
- Developing new apps to specific needs
- Implementing other existing apps according to client's necessities
- And more!

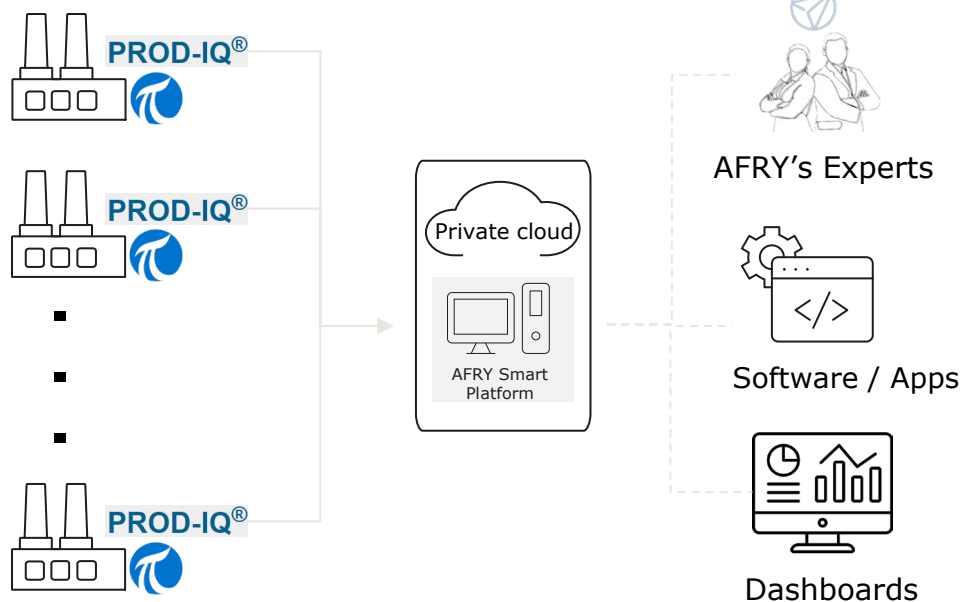


Platform success cases

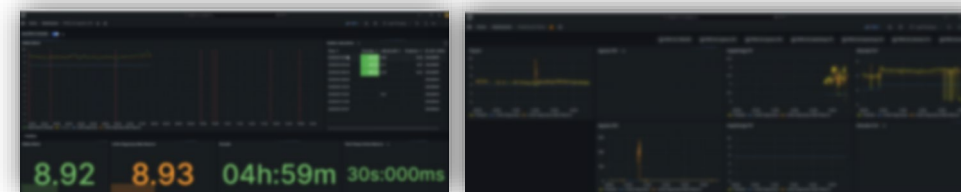


Reference case: Dexco

- **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)

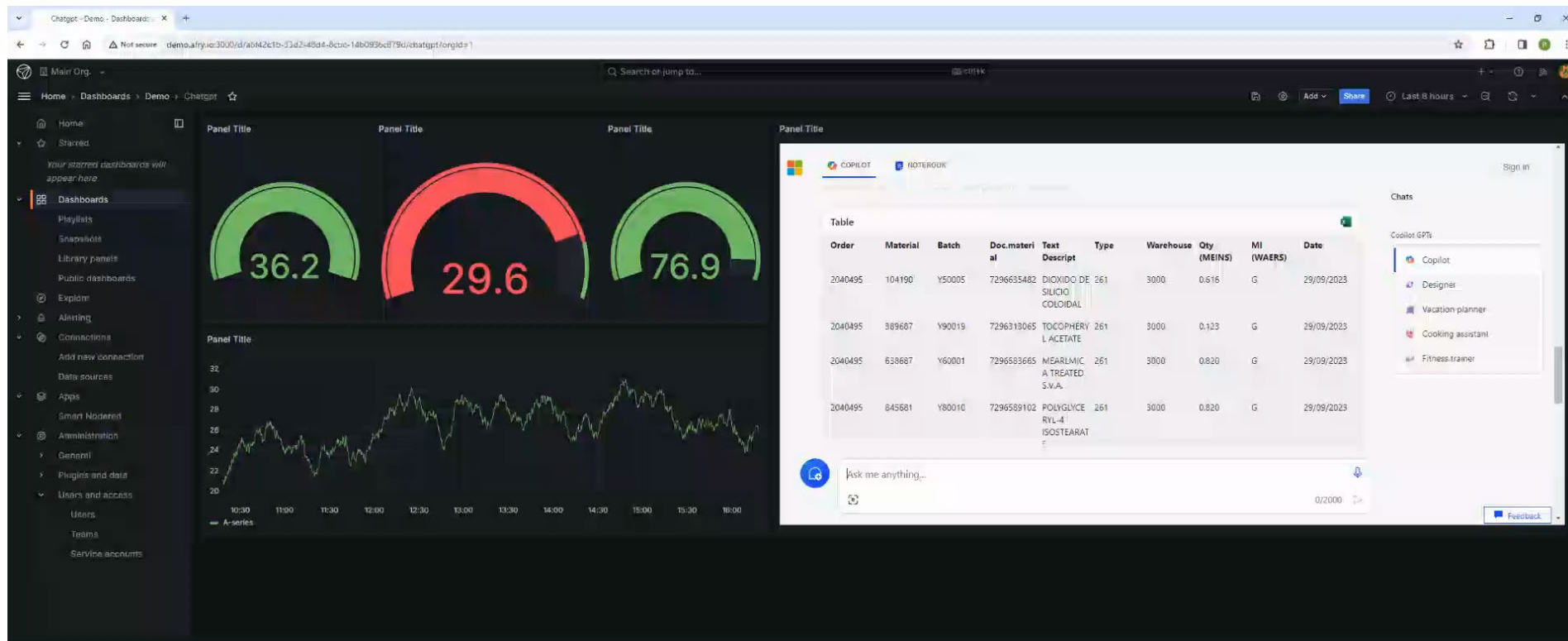


- **Starting point:** Installation of ASP into Taquari's factory (100% remote) connecting only Prod-IQ and creating the first dashboard.
- **First result:** Reducing financial losses by adjusting the process in real time and more freedom for operators to create new applications by using the ASP low-code 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.

Reference case: Generative AI for database analysis

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.



Platform pricing



AFRY's offer for running plants

* If necessary, travelling costs will be charged separately.

- After first installation, client is free to use it. There is no recurring fee or lock-ins
- Each app has its own pricing, but the client is free to create their own apps too
- For continuous expansion, client can purchase packages of hours, using it to maintenance, support, or custom development
- New versions will demand investment in engineering hours, but security packages (if any) will be delivered for free

Install & train

- Platform License: **Free of charge**
- Installation + training: USD 20K

1st business case

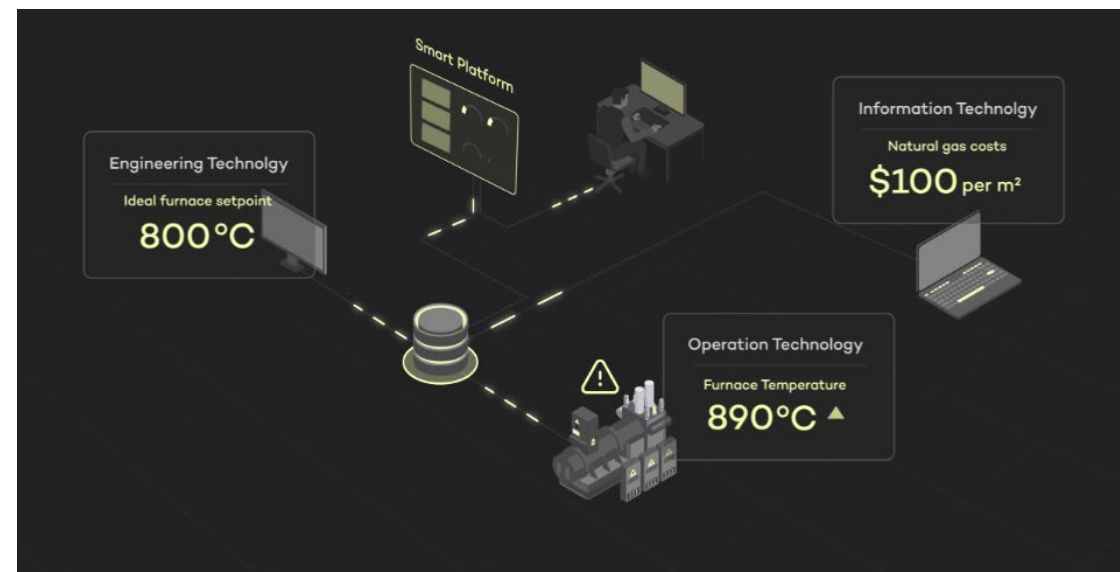
- Plant assessment: hourly fee, usually to 4 weeks of work
- Implementation: Hourly fee according to project's size

Continuous expansion

- Frame-agreement: annual package of hours for different services
- Maintenance: 8x5 or 24x7 support with pricing according to defined amount of support and SLA
- Apps: case by case.

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



CONTACT INFORMATION

AFRY Smart Site

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