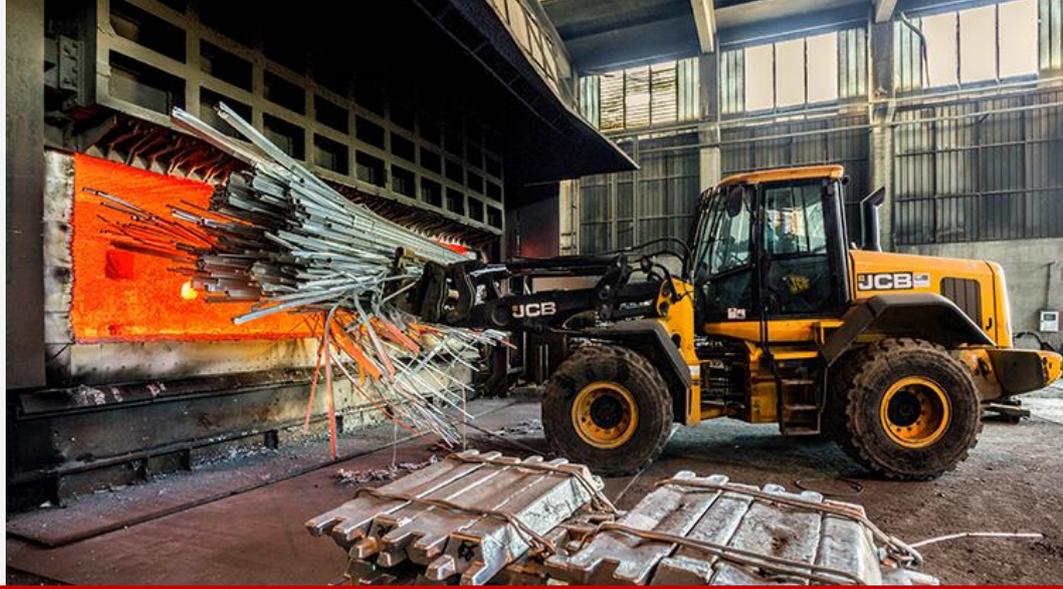




TOOLS for SMART MINDS

Case Study



Industry 4.0: Machinery Interconnection for Deral

Deral

Goals

- Machinery Interconnection
- Automation of data collection
- Automation of the sending of recipes to the machines at the start of the job order
- Downtime tracking
- Traceability of production
- Compliance with legal requirements for the Italian National Industry 4.0 Plan

Solution

Based on a system consisting of highly modular software solutions for Industry 4.0 that allow interconnection with the company's MES. Thanks to Part Program Manager it is possible to manage all the processing configurations differentiated by machine and by article.

In addition, Production Controller Lite has been implemented for easy management of the flow of

Resources

- iDaq
- Fabbrica Digitale 4.0
- Production Controller Lite

The Challenge

Deral S.p.A. has been a market leader in the production of aluminium billets for extrusion for many years.

The need is to **automate** the **data collection** of the **machinery**, an aluminum scrap recycling mill, to improve the efficiency of the entire company. In order to meet this requirement, it is essential to interconnect the machinery, which will be submitted for appraisal to benefit from the **tax incentives** offered by the **Italian National Industry 4.0 Plan**, with the company's digitized archive for the automatic exchange of data.

TOOLS for SMART MINDS is required to read, collect and analyze data from the machinery and to automatically transfer data from the machinery to the company's historical archive.



Deral products





DERAL S.p.A
DERIVATI ALLUMINIO

Deral S.p.A. was established in 1985 and since then is a leading aluminium remelting company producing aluminium billets for extrusion. Deral homogenized billets are produced in different diameters and lengths by melting primary aluminium with a minimum purity of 99.7% with selected scraps.

Deral considers the protection of the environment as an integral part of its structure, production process and of all its products and recycling scraps it plays an important ecological role, allowing with its activity the real "Circular economy".

Deral S.p.A is equipped with two casting lines installed on an area of 30,000 sq. m. of which 5.000 are covered. Deral S.p.A. annual production capacity exceed 60,000 Tons.

In addition to the scrap processing, aluminum smelting and heat treatment plants of the finished product, in Deral there is an analysis laboratory with a computerized control service of the alloy in all its elements and characteristics for the issue of the certificate of analysis.

<https://www.estrall.it/en/>

Deral S.p.A,

Sede Legale ed Amministrativa
via Artigianale, 19 - 25025
Manerbio (BRESCIA) - Italy

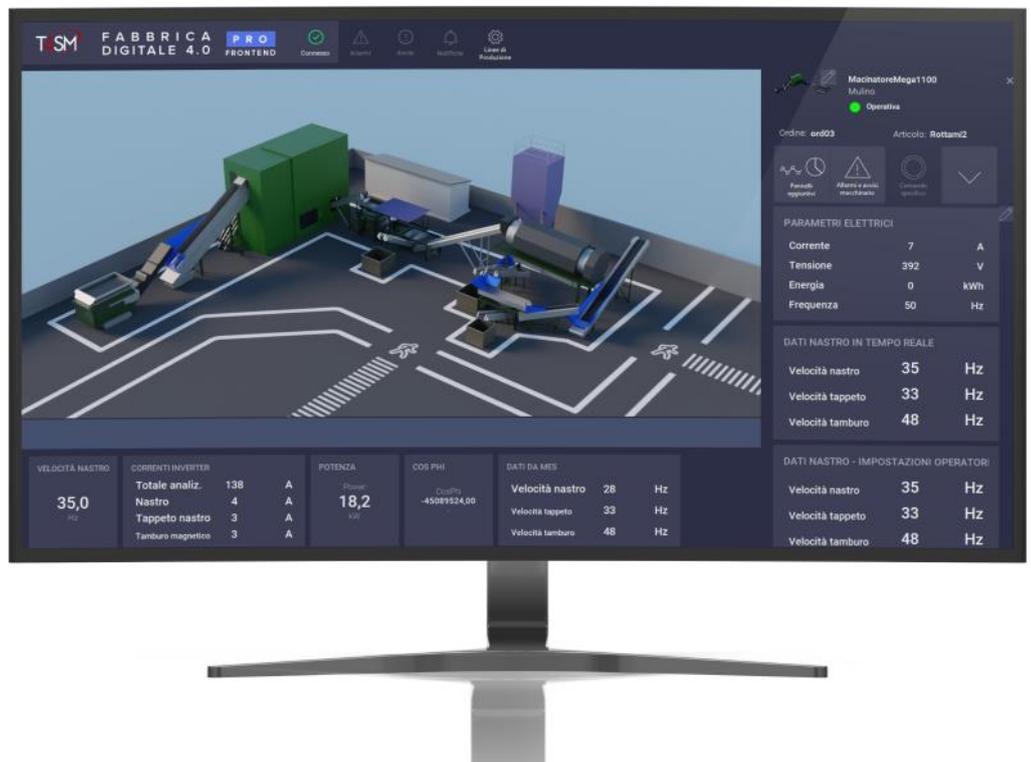
Solution

To meet the needs of Deral, a **complete, customized and scalable solution** was proposed, consisting of:

- iDaq for instant data exchange;
- Digital Factory 4.0 for a global vision of the production plant;
- Production Controller Lite for the easy management of the company's workflow.

All the proposed solutions, developed for Industry 4.0 and long tested in T4SM, make the work of the entire company more efficient.

iDaq automatically receives and analyzes data within seconds. Thanks to its innovative technologies, including advanced fault detection diagnostics, it alerts users in real-time of machinery failure, allowing timely intervention to solve the problem.



Mockup of the proposed custom solution in Deral.



TOOLS for SMART MINDS (T4SM) is a system integrator that develops software solutions for manufacturing companies.

T4SM is Alliance Partner of National Instruments and the development team consists of Certified LabVIEW Architects (CLA) who have long experience in LV Real-Time Programming and LV-FPGA.

T4SM designs from scratch to high-quality solutions easily integrable with third-party products, which help customers to shorten time-to-market of their systems.

T4SM uses the AGILE methodology for the development of software projects and the co-design of applications with immediate benefits for customers, helping them to gain a competitive advantage over competitors.

For technical support and product information:

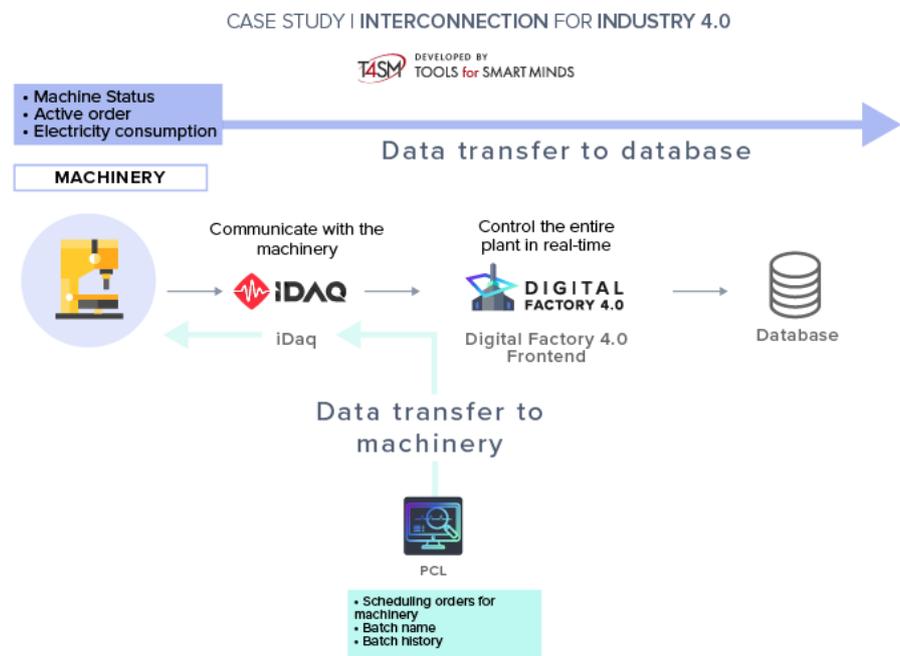
www.toolsforsmartminds.com

TOOLS for SMART MINDS
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Via Padania, 16
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Brescia (Italy)

To allow Deral to have a global view of what is happening during processing, iDaq's intelligent traceability is employed: this makes it possible to start from the "raw parameter" of interconnected machinery operation and to obtain clear and intuitive information that is always available to the entire company, thus eliminating human error in manually filling out paper forms.

Digital Factory 4.0 easily visualizes the production line: with the integration of Artificial Intelligence and Machine Learning models, it predicts in advance the behavior of the entire plant, allowing the optimization of its performance.

Production Controller Lite easily manages the entire company workflow: with just a few clicks, it is possible to create a new batch to be processed, specifying the number of pieces and the article to be produced, start it, view its progress and easily schedule production. It also allows you to automatically send the processing recipe to the mill: in a few seconds the user can save all the parameters of the machinery to work optimally and obtain a quality product.



Industry 4.0: diagram of machinery interconnection for Deral



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Benefits and Results

Having achieved all the objectives, Deral has obtained considerable benefits:

- **Streamlining the work of the entire company** with solutions that are easy and intuitive to use by any user.
- **Immediate knowledge of what is happening during processing** with the automatic acquisition and processing of data which eliminates human errors and the many paper forms to be filled out.
- **Traceability of the production with a click** allows to obtain a complete picture of the aluminum recycling process with the visualization of all the desired information, guaranteeing its availability also in the time.
- **State incentives of the Impresa 4.0 Plan:** all the requirements of the legislature have been met in order to access the tax benefits.

Client's Feedback

We requested the T4SM collaboration in a moment of real urgency. In spite of the short time available, T4SM provided us with a product that fully met our requirements and allowed us to successfully achieve our goals. We would like to underline the great professionalism and availability of all the collaborators involved in the project. "

*Foppoli Luigi
Automation manager
Deral S.p.A*