

Case Study



Software 4.0 for the interconnection of machinery

Cast System

Challenge

- Interconnection of presses of different ages and brands
- Automation of data collection
- To trace downtimes
- To know the cost associated with each batch
- Compliance with the requirements of the Italian State Business Plan 4.0

Solution

- Based on a system consisting of iDaq, Digital Factory 4.0 and Liliun communicating with the company's machinery and MES

Resources

- iDaq
- Digital Factory 4.0
- Liliun

Challenge

Cast System has been dealing with the Zamak (zinc alloy) die-casting activity at an international level for over 25 years. The goal of Cast System is to **interconnect machinery** and become **Industry 4.0, to be more efficient, competitive** and respond to the challenges of the ever-changing market.

The challenge is to interconnect similar presses of different brands and ages with the management system and the company MES. The goal is to **automate data collection, to track downtimes** and to **know the cost associated with each batch.**

We also want to take advantage of the opportunity offered by the Italian Business Plan 4.0, which offers State incentives to promote the technological innovation of the country: further objective to be achieved is, therefore, compliance with the requirements of the legislature in this regard.

Above, an example of production



For more than twentyfive years Cast System has been running successfully and on an international level its activity of die-casting custom-made articles and technical parts in zamak. High quality and technical expertise are their strengths, thanks to which they offer their customers an all-inclusive service, ranging from project, modeling and mould manufacturing to die-casting, polishing and finishing of the required item. Zamak is a versatile material thanks to its main characteristics of resistance, hardness and ductility. Cast System job and passion consists in projecting, diecasting and finishing it in the best way possible depending on the application required. In fact, their production covers different sectors: merchandising, sport, medals, sacred art, fashion accessories for clothing, leather goods and furs, dog leads components, technical items for furnishing, industrial manufacturing, household appliances, lighting, design, perfumery.

Cast System know-how and efforts in research & development make them flexible and versatile towards the needs of all the customers of their international network.

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Solution

To meet the needs of Cast System, we used our software for Industry 4.0: iDag, Digital Factory 4.0 and Liliium, achieving the objectives with a complete and scalable solution in a short time.

iDag is used to **communicate directly with Frech and Agrati presses** using Modbus TCP protocol and other dedicated protocols.

iDag collects the main production data, such as:

- Machine status
- Number of pieces produced
- Cycle time

Digital Factory 4.0 provides a global view of the plant and forwards the parameters of the job to be performed on the machine on the basis of what the operator has chosen from the MES.

Liliium deals with the transfer of data to the company database, from which the MES extrapolates the information for viewing and archiving, and the transfer of data from the database to Digital Factory 4.0 and iDag.

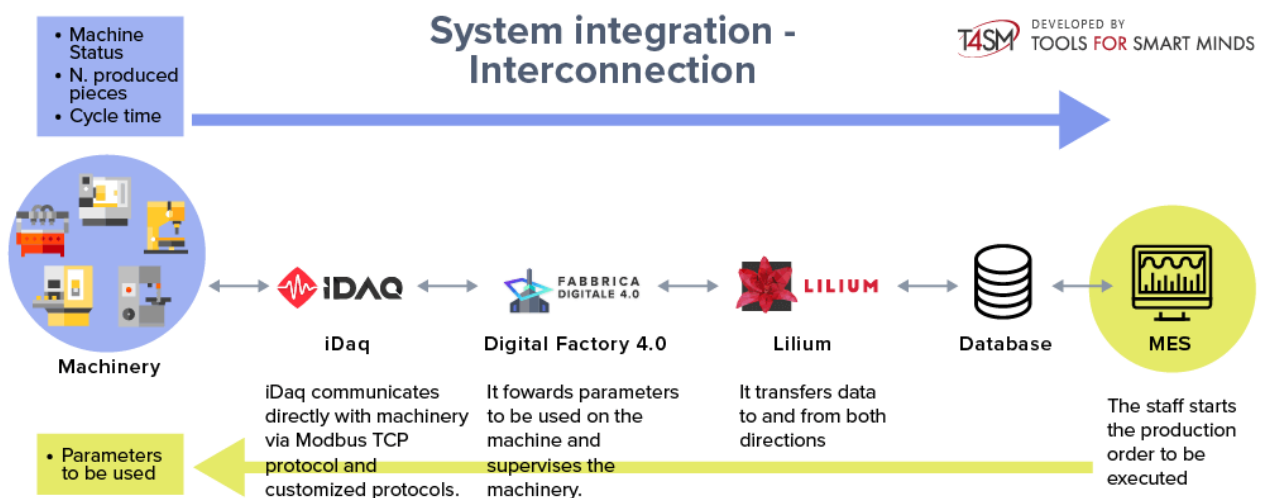


Diagram of interconnection of machinery and MES



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:

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Benefits and Results

All the pre-set objectives have been achieved, allowing Cast System to obtain significant benefits:

- **Time-saving:** production and process parameters are acquired automatically without the need for human intervention.
- **Cost determination:** with all the automatically collected production data it is possible to have an accurate cost report.
- **Reduction of human errors:** data acquisition is automatic, reducing errors due to manual operations.
- **Traceability:** all the data of the production cycle are tracked and there is a production history committed per job.
- **Company interconnection:** the requirement for company interconnection between machinery and management has been respected in order to have access to tax benefits.
- **Italian State Incentives of the Business Plan 4.0:** all the requirements by the legislature have been respected.

Client's comment

"We are extremely satisfied with the collaboration with T4SM because they have been able to translate the needs of our production organization and management, allowing us to constantly monitor the production process in a way to have real benefits."

Guido Brevi

CEO

Cast System