

SMART FACTORY ASSEMBLY USE CASE

Measuring and Improving Productivity

In today's competitive manufacturing environment, knowing where time is lost and how to optimize processes is key to staying ahead. Manual tracking of performance data often lacks accuracy and makes it difficult to identify bottlenecks or improvement potential.

ELAM Solutions provides full transparency into production processes – capturing real-time data on cycle times, downtimes, process deviations, and operator interactions. With built-in analytics and intuitive dashboards, teams can quickly identify inefficiencies and take targeted actions to improve throughput, reduce waste, and standardize performance across workstations.

CUSTOMER PROFILE

Company Name: Mecal S.r.l., Fubine Monferrato - Italy, Leading Italian manufacturer specializing in high-precision crimping equipment for the wire harness industry.

Industry Sector: Automotive, industrial, architectural, and furniture sector

Key Facts:

- **Headquarters:** HQ in Italy (office & prod), one production plant in Brasil, one production plant in Mexico.
- Family owned.
- No digitalization in production at all. Production in batch sizes with no process and/or control definition.
- Knowing Bossard only as a screw supplier.
- Looking for 1 partner that could cover all (process, tool, sw, support) to act as a Digital Growth partner.

INITIAL SITUATION / CHALLENGE

Before implementing Smart Factory Assembly solutions, Mecal S.r.l. operated without any structured process control or tool guidance on their assembly lines. Assembly tasks were performed manually with limited oversight, and there was no standardized method to ensure or verify that quality-relevant steps were completed correctly.

Key challenges included:

- Lack of documented or traceable quality checks.
- No confirmation that critical steps were completed as required.
- Manual, unstructured assembly without guided workflows.
- Increased risk of errors, inconsistencies, and rework.



Assembly was typically carried out with components placed on worktables, relying heavily on the individual experience of workers. This approach limited repeatability, made training difficult, and provided no proof of process completion or product conformity – posing a risk especially in quality-sensitive operations.

PROJECT GOALS

Mecal S.r.l. aimed to take a major step forward by transitioning from a fully analog production setup to a modern, digital, and future-ready assembly environment.

The main goal was to establish a structured and traceable assembly process supported by a reliable technology partner.

Key project objectives included:

- Implementing a standardized assembly process across workstations.
- Digitally guiding workers through each process step to reduce errors and improve consistency.
- Capturing and documenting all quality-relevant data in real time.
- Enabling full traceability and accountability for each assembled product.
- Laying the foundation for scalable, smart factory operations in the future.

The project was not just about improving efficiency – it was a strategic move to build digital capabilities and ensure long-term competitiveness.

SOLUTION

To bring Mecal's assembly operations into the digital age, a dedicated Smart Factory assembly area, based on a **standard ELAM Solution sw**, was created replacing the previous table-based setup. This new area consists of three fully equipped stations designed to bring structure, traceability, flow and efficiency to the production process.

Key solution elements include:

Two main assembly stations equipped with:

- Bossard Smart Tools for controlled and validated fastening.
- Pick-to-light systems to ensure correct part selection.
- Barcode scanners for order identification and part traceability.
- Ergonomic workstations to improve operator comfort and efficiency.

One pre-assembly station fitted with:

- Bossard Smart Label system for dynamic part picking.
- Bossard Smart Tools for controlled and validated fastening.
- Bossard Smart Tower for automated storage and retrieval of small parts.

All stations feature a touchscreen interface running ELAM software that guides workers step by step through the assembly process, ensuring that no step is missed and every quality-relevant action is recorded in real time.

This comprehensive digital solution has created a modern, structured, and error-proof production environment tailored to Mecal's needs.

IMPLEMENTATION

- The implementation went straight forward with a selling cycle of approx. 4 months from first Pitch to project signature.
- No PoC were discussed due to a clear evidence of the solution's benefit.
- One week to have the full system up and running, including Customer training.

RESULTS / BENEFITS

Key measurable results (before vs. after)

- From a standard to a Lean Production.
- Efficiency improved: **20% (measured compared before)**.
- Assembly Space Reduction: **25% (measured compared before)**.
- Great appreciation from the workers on the line.



We perform an analysis of different partners who could come alongside and support us in this transition to digital, and only in Bossard we found the ideal partner for us for a full service including sw, smart tool, service and support.

Riccardo Morello - Develop/Production Manager. Board Member

Contact us for more information at www.bossard.com