

# Smart thermoplastic injection



## CloudiFacturing Shion experiment

The goal of this project is to be able to generate a **predictive model** for **preventive defect detection** in the thermoplastic injection production by **using cognitive technologies** (specially **deep learning algorithms**) with following data handled in the cloud:

- Data of the thermoplastic injection process itself (temperature, pressure, cycle time, volume, flow, ...).
- The settings of the injection machine for each piece.
- Environmental conditions information (temperature, relative humidity).
- Contextual information (material, piece sensor info, ...).
- Quality inspections (weight, dimensions, visible fails, ...).
- Operators review.

The algorithms are **constantly evaluated and fine tuned** by the artificial intelligence.

The aim is to **improve efficiency, quality and productivity** of monitored manufacturing processes by anticipating possible faults. This approach will enable:

- Preventive detection of anomalies to **reduce the number of non-conformities**.
- **Predictive maintenance** for machines and tools.
- Operation **parameters optimization**.

## European project

The **CloudiFacturing** project is essential for the digitalization of the manufacturing sector to boost the competitiveness of the European manufacturers (SMEs).

Shion experiment contributors are **BMSvision** and **ITAINNOVA**. **Thermolympic** as prospective customer provides production information.

## Technical description

All data is collected by **BMSvision** systems:

- **PLANTMASTER**: Manufacturing Execution System (MES)
- **QMASTER**: SPC/SQC system

The data is streamed to the cloud and analyzed by the **ITAINNOVA** artificial intelligence software.

Results are returned to the **BMSvision** system and can be displayed on the **DU11** Data Unit that is mounted on the machine. The machine can also be controlled via a communication connection (e.g. OPC UA, Euromap) or via relay outputs. Alerts and actions can also be communicated with the operator e.g. via the **BMSvision MyMES** app or **SMART BRACELET**.

### About **Thermolympic**

Spanish family SME, founded in 1991 with origins in 1971, located in Utebo, Zaragoza, Spain. Specialist in thermoplastic injection molding for the automotive, electrical equipment and telecommunications industry. Active in Spanish and European markets.

### About **ITAINNOVA**

Non-profit public Spanish research center with sites in Zaragoza and Huesca. Knowledge areas: robotics, power electronics, materials, logistics, lab facilities and big data and cognitive systems.

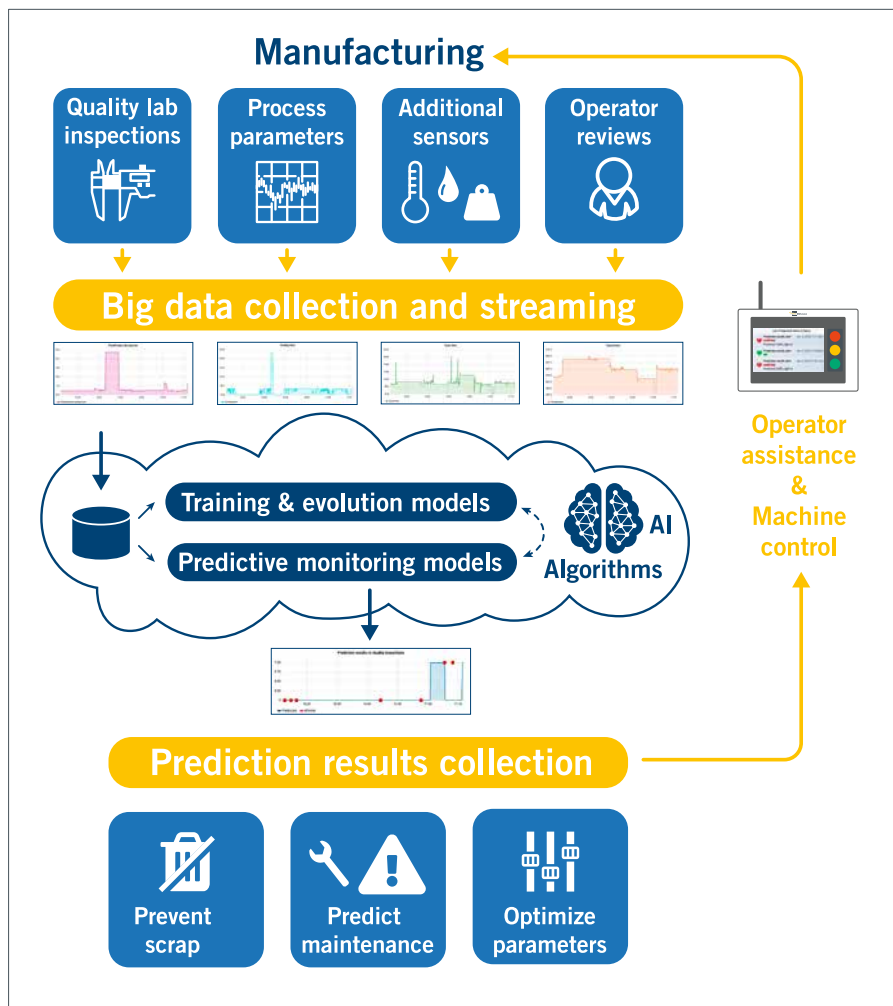
### About **BMSvision**

**BMSvision**, established in 2007 as a carve-out from the Barco group, is a leading supplier of Manufacturing Execution Systems (MES) for discrete manufacturing, with focus on the textile and plastics industry. Under the brand name **BMSvision** (formerly **BarcoVision**) and with over 40 years of experience as a former division of the Barco group, **BMSvision** offers a wide range of systems aimed at productivity, quality improvement and energy management.

**BMSvision** is present at key locations around the world, either with own branch offices or through a world wide network of agents and service centers.

### About **CloudiFacturing**

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**BMSvision**

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