Smart Factory Together
The Industrial Internet of Things
The maturity of the IIoT

The Industrial Manufacturing sector is showing the most comfortable level of awareness and maturity in addressing some key expectations from the Digital Industry:

- Sharing essential information
- Support for remote configuration and operation
- Strategies to improve productivity and the quality of service

It is not unusual for an industrial CEO to wonder why a kit of already available technologies is repeatedly portrayed as an epochal game disruptor.
Re-thinking the business
A network of information and cooperation

The market behavior has changed. It is volatile, differentiated and geographically sparse.

BUT

Quality expectation has never been higher and even more so for single-lot products.

The manufacturing process must be reconfigurable and traceable to different users along the chain value.
3 Transforming the factory production systems
The Digital Factory

Digital Technologies ➔ integration of data and functions of ability and delivery

must be **vertical** to connect sensors and actuators embedded in the depth of the process with the many decision rooms

Digitization ➔ must be **horizontal** to add collaborative paradigms to the chain value from material procurement down to after sales service and equipment decommissioning

There is a growing need for virtual entities - the digital avatars of the physical process and of its many product realizations - to provide continuous and reliable information to all stakeholders.
The Big Data Analysis

In driving complex processes

- conflict management
- optimized compromise and
- fine adjustments

are the essential ingredients of a successful understanding and control of the many possible scenarios and of their consequences.
The Big Data Analysis

Data Collection alone does not lead to Smart Factory

Actually, you want to elaborate the acquired data through a multi-level strategy and create powerful instructions that control your process.
A concept central to the Smart Factory: the Cyber Physical System

The manufacturing process relies on production equipment that must be constantly monitored, controlled, corrected and configured. Product-related data and process-related data need to be collected and elaborated.

A Cyber Physical System - CPS - defines the embedded ability to collect timely and useful data and to interpret and actuate automatic instructions.
A concept central to the Smart Factory: the Cyber Physical System

Cyber Physical Systems represent the operational nodes of the new Smart Factory.

Marposs Smart Solutions for manufacturing monitoring and control are originally conceived to be Cyber Physical Systems that can help you turn your production equipment into Smart Factory equipment.
The cooperative interaction between Man and machine

**Cooperative interaction**: mutual recognition of the partner’s maturity level and an inherent ability to support the weakest side. It allows specific skills to be transferred for improvement from one side to the other.

**Human-Machine Interfaces** must be easy to use, highly interactive and customizable. Operators are facilitated to do their job with no compromise on safety and productivity.
The cooperative interaction between Man and machine

**Humanism 4.0: the change of paradigm of the innovative HMI**

Man – not the computer – stands at the center

People should be where they can work better, not where they can find a terminal

People should receive all and only the information they need, where they need it and when they need it
Factors influencing the manufacturing process

**Machine**
- Stiffness
- Accuracy
- Coolant and lubrication
- Vibration/chattering

**Human**
- Qualification
- Experience
- Response time
- Diligence

**Tool**
- Tool wear
- Tool breakage
- Positioning
- Diversification of tool properties

**Organisation**
- Production type
- Manufacturing
- Maintenance

**Workpiece**
- Variations in allowances
- Material inhomogeneity
- Workpiece clamping

**Surrounding**
- Ambient temperature
- Vibrations
- Electromagnetic fields
Marposs Solutions for the Smart Factory

**Strategy**
- Completely Networked Working Environment

**Objective**
- Service Orientation
- Innovative Management of Events
- Flexibility & Agility
- Collaborative Interaction
- Increased Efficiency Productivity
- Data Security
- Inform Decision Making

**Technology**
- Cloud
- I-IOT
- Field Bus Universal Connectivity
- Big Data Analysis
- Cyber Physical Systems
- Augmented Reality
- Secure Local Networking

**Other Features**
- Increased Efficiency
- Productivity
- Data Security
- Inform Decision Making
- Flexibility & Agility
- Service Orientation
- Collaborative Interaction
Four steps into the Smart Factory

1. **Integrate** Marposs Smart Solutions into your manufacturing line to increase your ability to monitor, control and flexibly configure the production process.

2. **Upgrade** your existing equipment with Marposs Smart Solutions and experience how your access to necessary production data can be easy and fast.

3. **Adopt** the Marposs approach to Human-Machine Interface that allows differentiated technical skills, physical abilities and cultural backgrounds without compromise on productivity and safety.

4. **Trust** Marposs Smart Solutions that guarantee the security of your production data, no matter if you want it stored locally or in the cloud.
Opportunità per le imprese

Gli investimenti in tecnologie 4.0 sostenuti nel 2017 potranno essere iperammortizzati al 250%, unendo ai vantaggi derivanti dalle nuove tecnologie, condizioni fiscali particolarmente vantaggiose.

MARPOSS

Marposs per Industria 4.0

Sin dalle origini Marposs propone soluzioni in grado di soddisfare i requisiti fondamentali della 4° rivoluzione industriale: controllo in tempo reale del pezzo e della lavorazione, feedback alla macchina utensile per l'ottimizzazione del processo, condivisione ed elaborazione dei dati rilevati.

Insieme a Marposs, Industria 4.0 diventa realtà!

BLÉ

Rete di controllo integrata su unico cavo per rettifiche.

Genior

Sistema di monitoraggio utensile e processo per centri di lavoro.

Optoquick

Stazione di misura flessibile per alberi.

I-Wave2

Misuratore manuale riattezzabile con trasferimento dati wireless.
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Smart Factory
4.0
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