

# FROM MACHINE TO PROCESS

Salvagnini helps you in building  
your own efficiency.

[www.salvagninigroup.com](http://www.salvagninigroup.com)



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From our point of view it is essential we can offer the market solutions that, at the state of the art, are capable of exploiting in the best possible way the **ENORMOUS VOLUME OF DATA** generated in today's factories. So every single system must be able to collect, process, manage and correct information associated with the specific process it is involved in that - linked to other methods required to produce a given object - generates the correct work cycle.

What is the point of having a self-diagnosing machine if it cannot follow up by **TAKING ACTION ON ITS OWN** to correct the errors detected? What is the advantage of a rapid exchange of information between machines when human intervention is then required to carry out manual changeover, calibrate or adjust each machine?

So it is good having machines communicating with each other but, above all, **THEY NEED TO BE SMART AND SELF-ADAPTIVE IN EVERY RESPECT**, from the setting stage to the real-time running of the actual bending or cutting stages.

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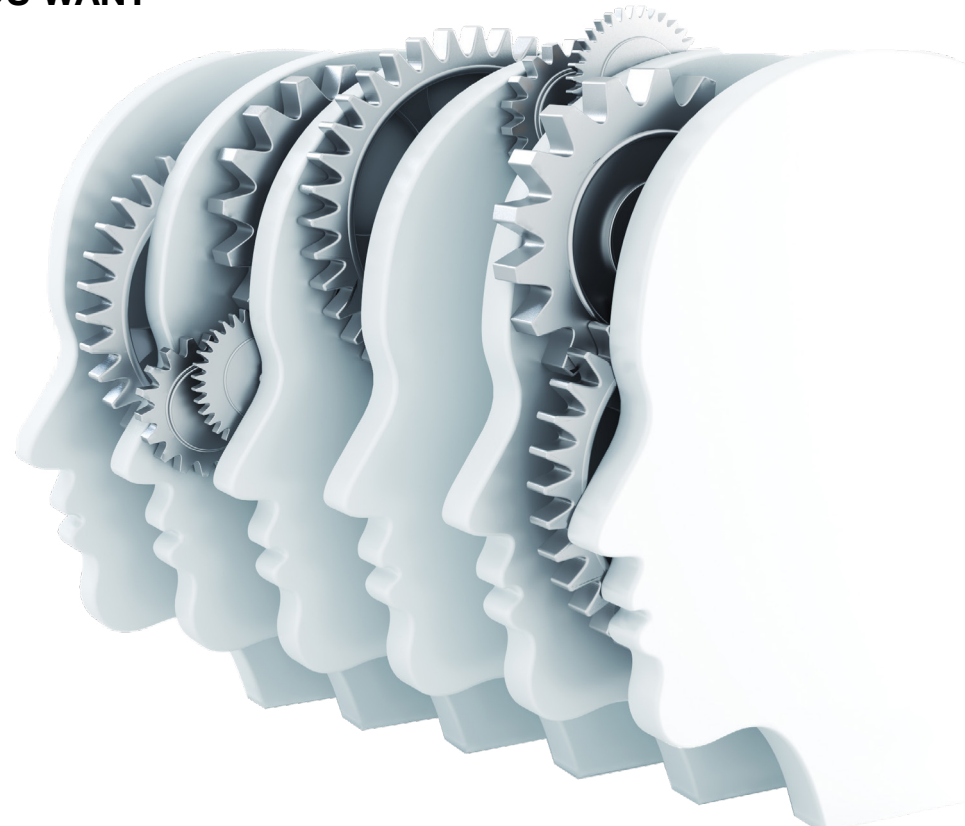


Tommaso Bonuzzi, Sales Director Salvagnini

## SMART MANUFACTURING? INDUSTRY 4.0? DIGITAL ENTERPRISE? CALL IT WHAT YOU WANT

The **SMART FACTORY** is an agile and flexible ever changing environment that is self-optimizing its performance depending on the task of the day. It is self-adapting and learning from changing conditions in real or near-real time, and is capable of autonomously run production processes that is optimized to a **MAXIMUM** using least amount of time, energy and material.

Creating a **SMART FACTORY** environment should start with a focus on the “things” that will give a **COMPETITIVE EDGE** to the company. You can start the path to a true **SMART FACTORY** at any level, value creation could begin with a single machine, not forgetting the **SMART FACTORY** solution is a **HOLISTIC SOLUTION**, involving the whole supply chain, inside your factory walls as well as outside. The goal should be to optimize, grow and create a total autonomous self-guiding and self-learning environment that is prepared to meet the future.



## THE FUTURE OF MANUFACTURING

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The **HOLISTIC**: whole is more than the sum of its parts vs. **ATOMISTIC** - the parts comprise the whole - replacing stand-alone machines (and expect a different result) vs. looking at the whole value stream with connected **SMART-FLEXIBLE-AGILE** and **FAST** less **OPERATOR** dependent solutions.

To be able to stay competitive and survive in the future, entrepreneurs need to rethink their approach to capital investments. They must make sure that they invest in something that will give them a competitive edge. When they invest, they must think long term, they should avoid simply adding machines because they are out of capacity in some areas, this is the **ATOMISTIC APPROACH**, this will not change anything. This will for sure not give them a **COMPETITIVE EDGE**.

The decision how to schedule the production 5 years from now will not be made by the **OPERATOR** on the floor, the machine programs will not be entered manually by the operator on the floor, number of tool changes should not have an impact on the throughput, batch size one or a one hundred should not impact the throughput or productivity per man-hour. We must make sure that we are using technologies that eliminates the variability of the operators such as skills, experience, mood of the day, motivation etc. etc.

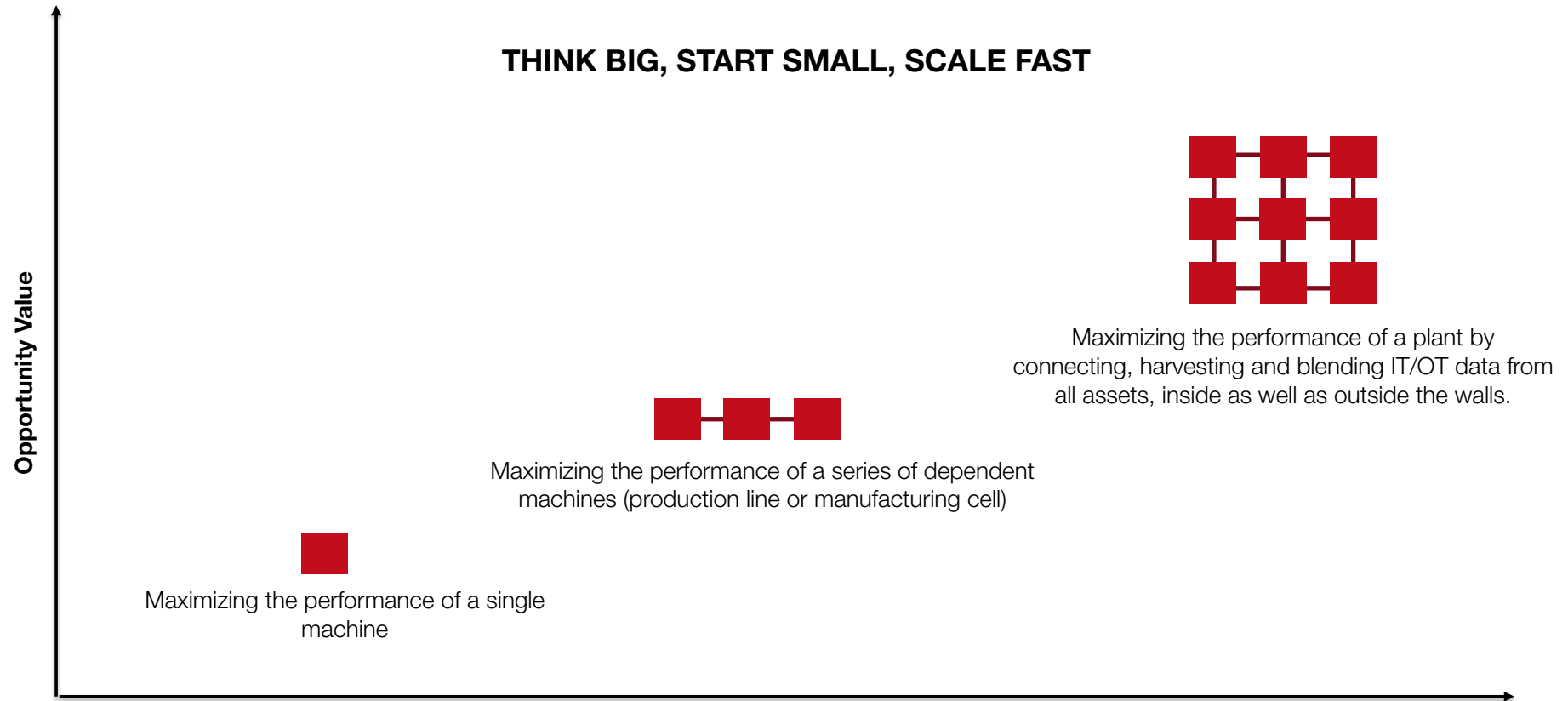
We are not going to use less operators, they will only have a totally different role in the **FUTURE FACTORY**, a role that involves work that requires higher technical skills, and it is our duty to prepare them for this **NEW** role.

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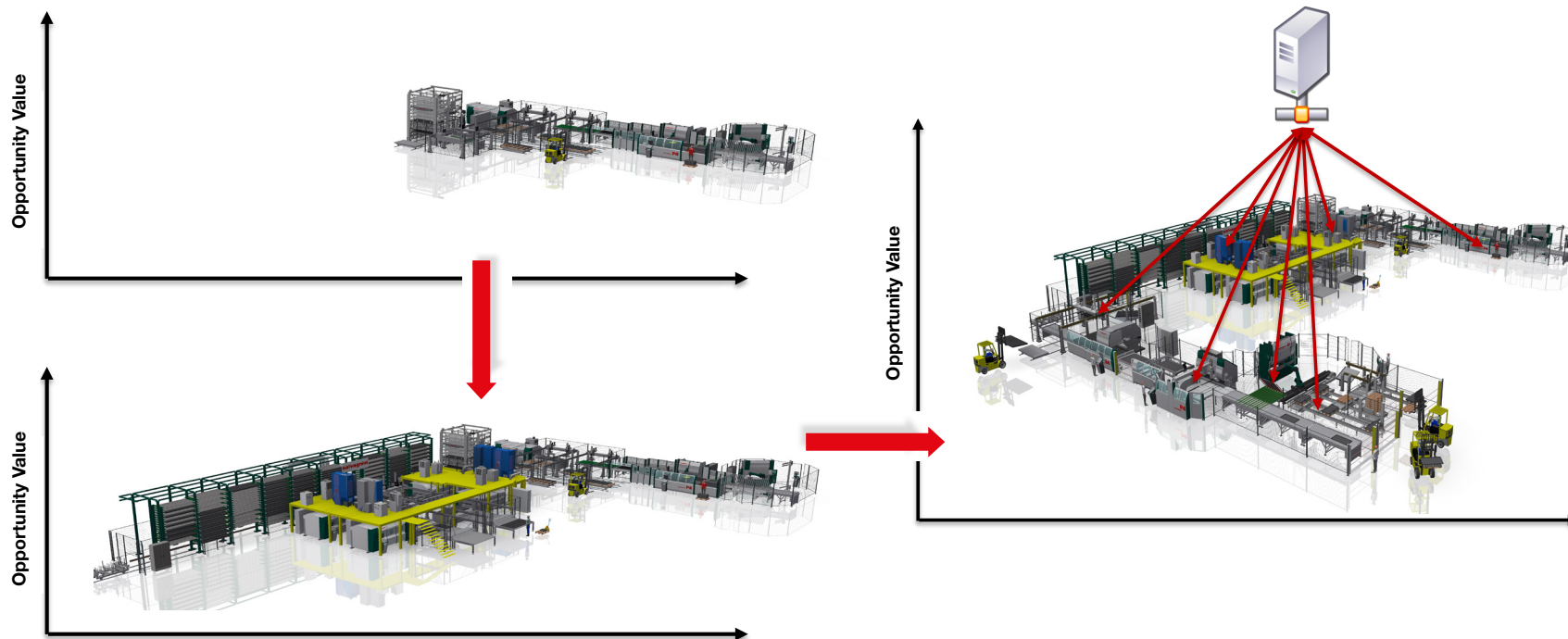


Ricky Hansson, Head of Process Application Salvagnini

## THINK BIG, START SMALL, SCALE FAST



## THINK BIG, START SMALL, SCALE FAST

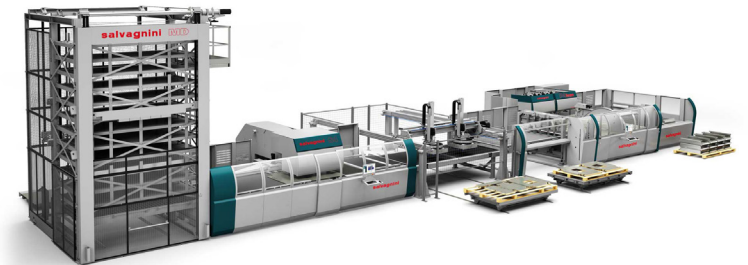
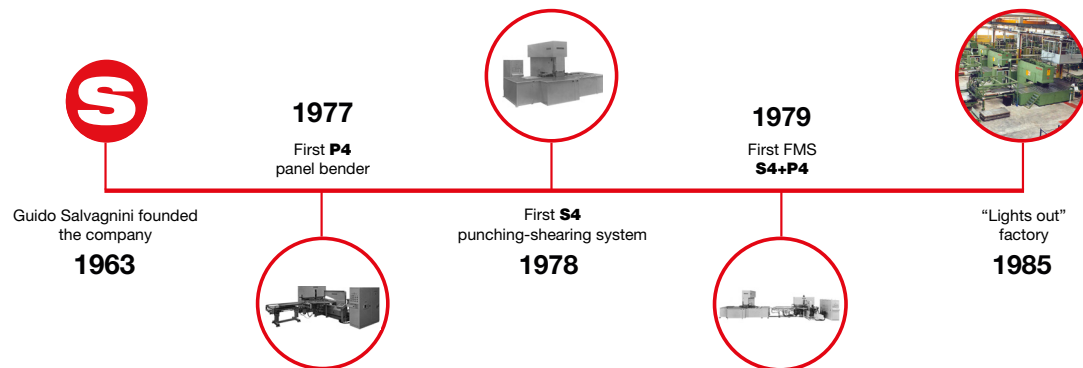


## FLEXIBLE AUTOMATION & PROCESS EFFICIENCY

Flexible automation and process efficiency are the cornerstones upon which Salvagnini has developed its range of products. These intelligent solutions are capable of producing a wide variety of parts in sequence and without interruption, thanks to setup processes in masked time and automation devices that reduce WIP and eliminate human intervention in low value-added processing.

Salvagnini natively integrates the 4.0 concept among its solutions: in 1985 it produced the first automatic job shop (AJS) for lights-out production comprised of 12 interconnected systems that communicate with MRP.

The fourth industrial revolution therefore is a natural evolution for Salvagnini. In the paradigm of Industry 4.0, we find confirmation of that innovation path undertaken as early as 1985, identifying two winning and competitive aspects for companies destined to stand out in the future: machine connectivity and automatic factories operating lights-out.



## INDUSTRY 4.0

Industry 4.0 indicates the use of cyber-physical systems (CPS) and digital technologies (cloud, IoT, Big Data) for improving work conditions and increasing the productivity and productive quality of plants, creating a collaboration between all aspects involved in the productive process, i.e. the operator, machines and instruments.

The machines are interconnected and adaptive, able to exchange high level information among each other and with the external environment.



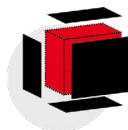


## HOW SALVAGNINI IMPLEMENTS 4.0



**OPS** – connection with the company's ERP. It is possible for every Salvagnini system to be equipped with OPS, the combinable and modular software that permits data exchange with the factory's information system: from the order, to the generation of machine programs, to the return of product quantities and consumed materials.

**MAC2.0:** the intelligent closed chain sensors and proprietary algorithms developed in all Salvagnini product lines permit every machine to adapt automatically in cycle to external variations (material being processed, temperature etc)



**FLEXIBLE AUTOMATION:** thanks to the original integrated solutions, Salvagnini systems are suitable for being inserted in flexible production cells or lines, and are able to produce the correct quantity of product, at the right moment, concentrating on added value operations, while minimizing WIP, waste and inefficiencies and reducing delivery lead-times.

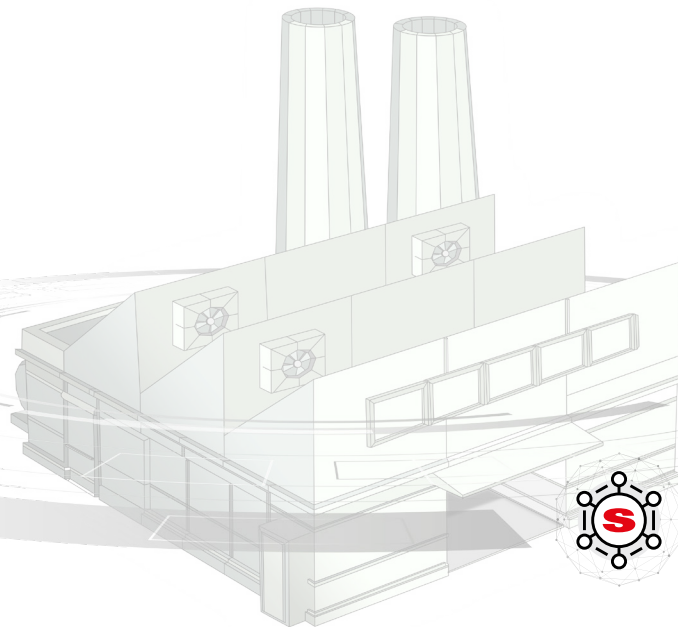
**LINKS:** Salvagnini's IoT solution, developed on a maximum security Microsoft platform, guarantees continuous and effective monitoring of systems in production, also remotely, and allows technical support to respond in a targeted and quick manner.





## FACTORIES

Salvagnini combines different production technologies, manages operations via the proprietary OPS software and optimizes factory production flows in a completely automatic and flexible manner.



## LINK

Salvagnini's cloud based IoT solution guarantees continuous and effective monitoring of systems in production, also remotely.



## SYSTEMS

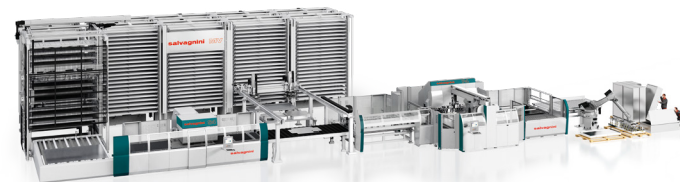
Salvagnini designs, builds, sells and services flexible, adaptable, fast and accurate systems for sheet metal processing.



## FMS S4 + P4

### THE HIGHLY EFFICIENT SHEET METAL PROCESSING SYSTEM.

The S4+P4 line punches, shears and bends sheet metal totally automatically, without any intermediate handling. Set-up in masked time delivers high productivity and makes kit and batch one production possible. The line is modular and can be combined with intelligent solutions for manual or automated feeding and unloading that enhance the quality and cost-effectiveness of the parts produced.



Production on demand



Zero set-up times



Zero scrap

# FMS

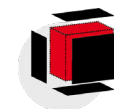
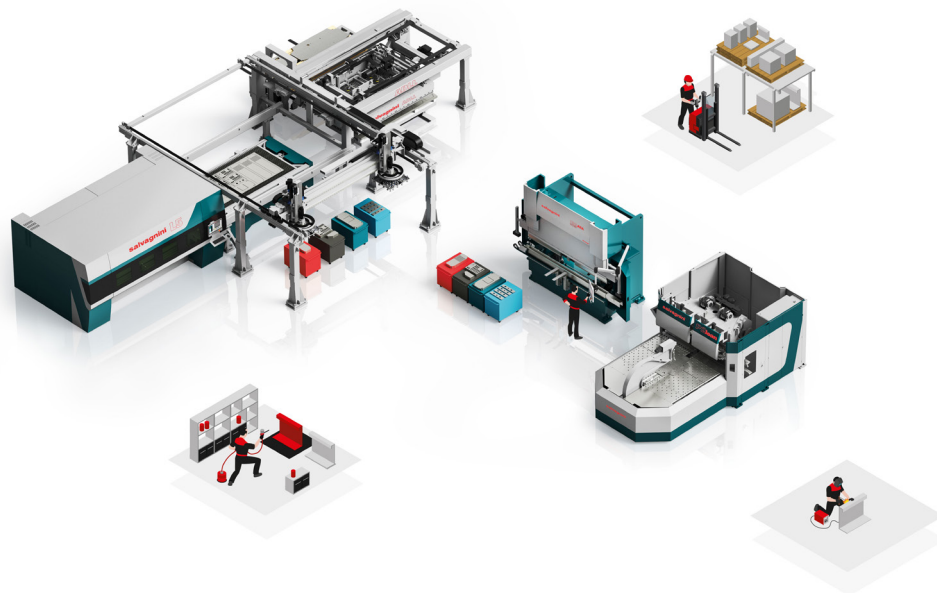
FLEXIBLE MANUFACTURING SYSTEM



## FlexCell

### THE CELL DESIGNED FOR 4.0 FACTORIES.

FlexCell is a smart combination of stand-alone machines communicating with one another and with the ERP thanks to proprietary process software. It allows to get the highest value of the bending by combining panel bender productivity with press-brake flexibility. It can easily be integrated with automatic handling devices.



Kit production



Semi-automatic process

# FMC

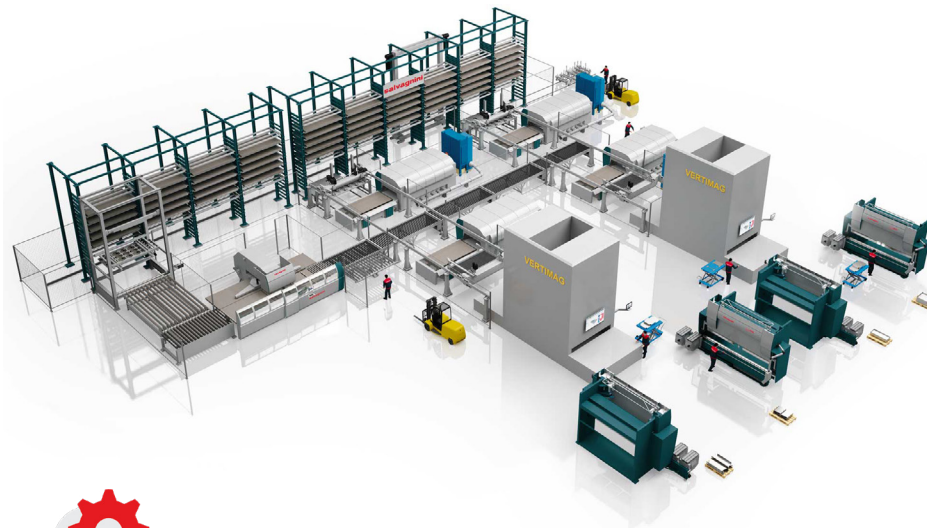
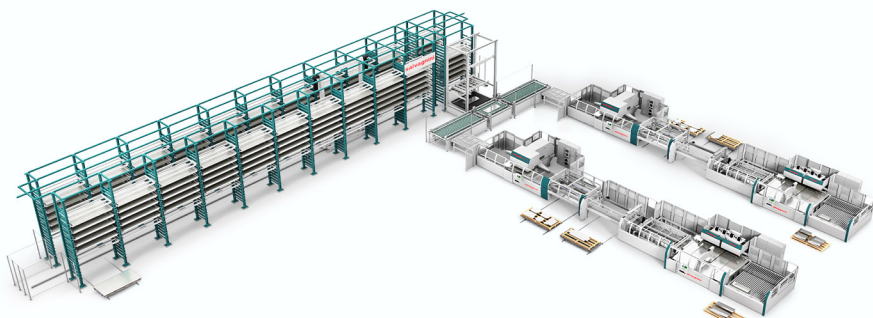
FLEXIBLE MANUFACTURING CELL



## AJS Automated Job Shop

### THE PRODUCTION SYSTEM FOR REALLY LEAN PRODUCTION.

AJS™ is Salvagnini's 4.0 multi-process solution: by combining different production technologies and managing operations via the proprietary OPS software, it schedules, balances and optimizes factory production flows in a completely automatic and flexible manner.



4.0 connectivity



Automatic process

# LIVE PROCESS EFFICIENCY AT ITS FULLEST.

**05.15-16.2019**

## **SALVAGNINI: CUTTING-EDGE TECHNOLOGY IN ALL FIELDS**

The Salvagnini Group designs, builds and sells flexible systems and machines for processing sheet metal: punching machines, panel benders, press-brakes, fiber laser cutting machines, FMS lines, automatic store-towers and software. Thanks to its global presence, the Group offers direct customer service in 35 countries around the world.



**salvagnini**

