MULTI-FORMAT VIAL HANDLING AND PALETTIZING

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PROCESS PLANTS
AUTOMATION
ROBOTICS

Introduction JAG

JAG PROCESS PLANTS AUTOMATION ROBOTICS

We plan and build the most challenging and highly automated process plants and robotic systems.

Independent company, fully owned by the management

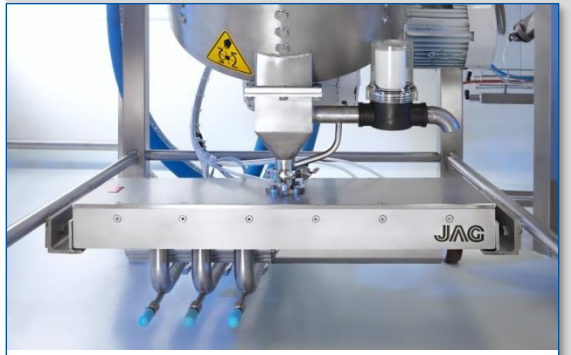
Headquarters in Switzerland

6 subsidiaries (3 CH, 1 CZ, 1 AUS, 1 US)

300 employees in the entire JAG Group

PROCESS TECHNOLOGY

Solutions for the processing industries



PLANT ENGINEERING

JAG plans and builds the most challenging process plants for highly automated operation.

AUTOMATION

The JAG automation solution controls smallest plants up to the largest and most challenging production processes.

ROBOTICS

Solutions for the manufacturing industries

ROBOTICS

We plan and build turnkey robot cells with peripheral systems and integrates these into production lines.

Project presentation

Current process:

- Our client manufactures various plasma-based pharmaceutical products.
- These products are packaged in vials of different sizes.
- The vials are transferred manually into trays.
- The trays are palletized manually onto pallets.

50,100,200,250,350,400,500ml

Challenges: flexybility

- The shape changes
- The diameter changes
- The height changes
- The cadence changes with format

Vial with cap

Objectifs and constraints

Improve ergonomic factors

- Reduce the weight of loads to be carried (trays)
- Reduce repetitive and borings movements
- Reduce exposure to noise

Improve quality

- Reduce the risk of vials falling
- Automatic traceability (reduced risk of error)
- EBR Integration and PI interface

Improve productivity

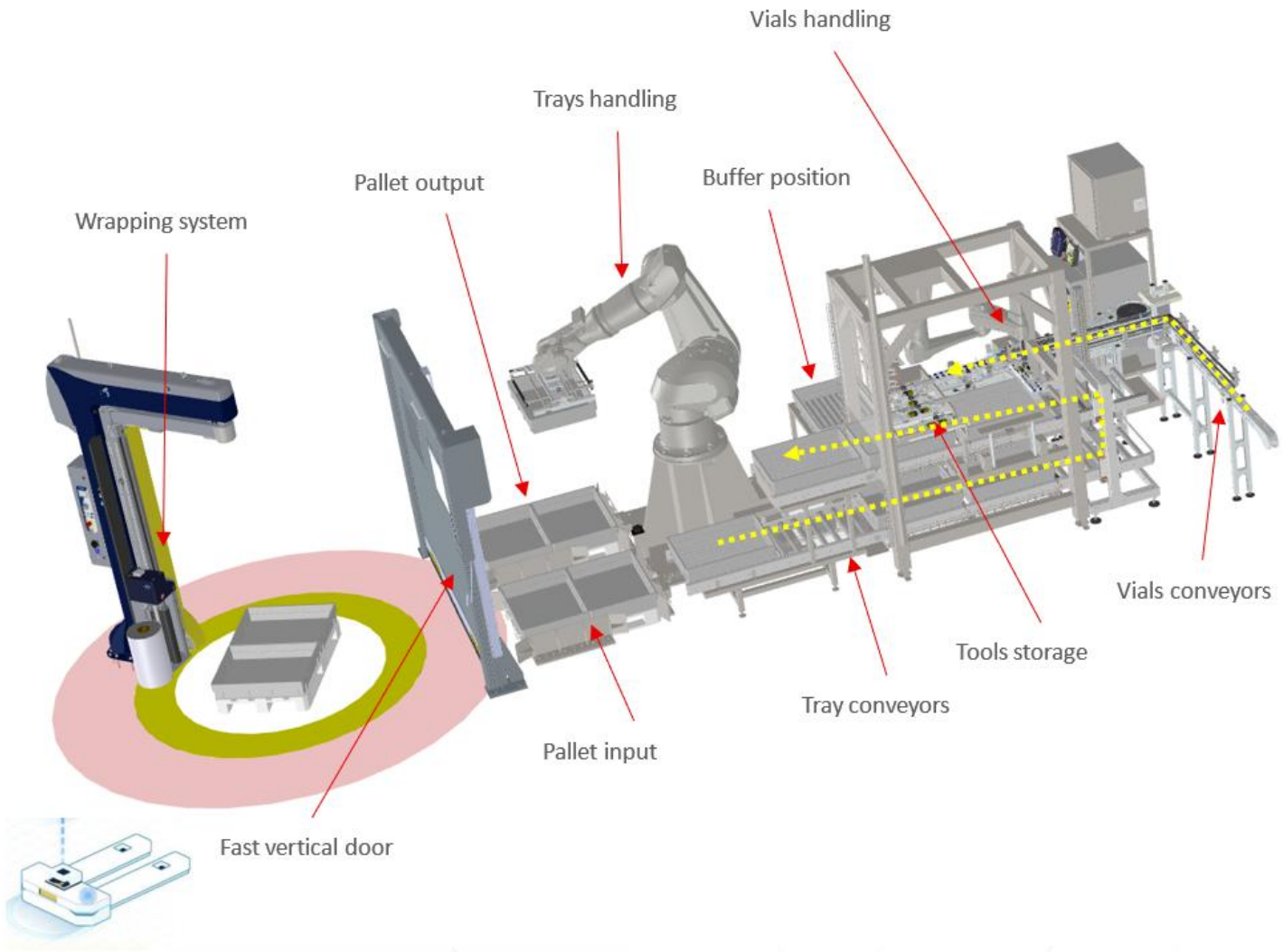
- Uninterrupted production (No human factor)
- Increased production rate

Constraints

- Limited space
- Difficult access to the area
- Tight deadlines
- Adaptable layout to fit other sites with different configurations
- Speed rate upgrade (6400 v/h + 20 %)
- If possible, add wrapping system

Concept

- Cell divided into several modules
- Integration of wrapping directly at the cell output
- Use of robot with tool changer
- Create independent vial/tray flows
- Creation of buffer to allow pallet changes
- Creation of buffer To allow continuous filling operation



Demo

Attractiveness

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Flexibility

- New vial formats can be easily integrated
- Compactness (direct wrapping at the palletizing station)

Accessibility

- Cleaning / maintenance / set up… No chassis, no metal sheets to dismantle, the operator can easily enter and access all equipment.

Single operator use

- Up to 8300 vials / hour
- Replacement of pallets every 30 minutes
- Reduce repetitive and borings manual tasks

Attractiveness

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Ready for future AGV integration

- Automatic doors
- Wrapping without threshold
- Software ready

Quality aspect

- Automatic tray identification
- Integrated automatic traceability (GMP)
- Data exchange with high-level systems (MES, EBR, …)
- Reducing the risk of falling glass
- Continuous production, no filling interruptions

Easy to integrate

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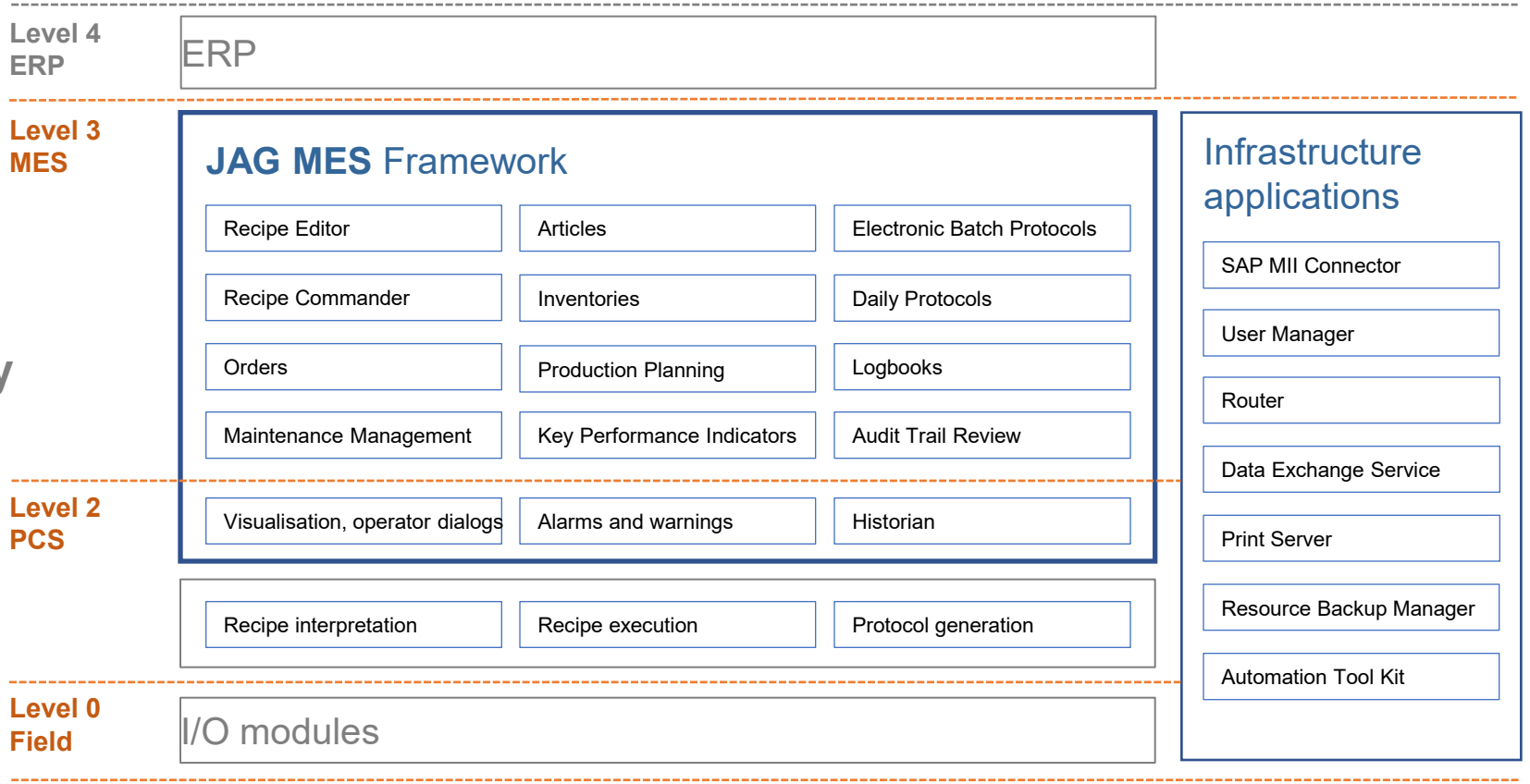
Modular MES

- Internal development
- All-in-one
- Specific dev. if necessary
- Integrated gateway



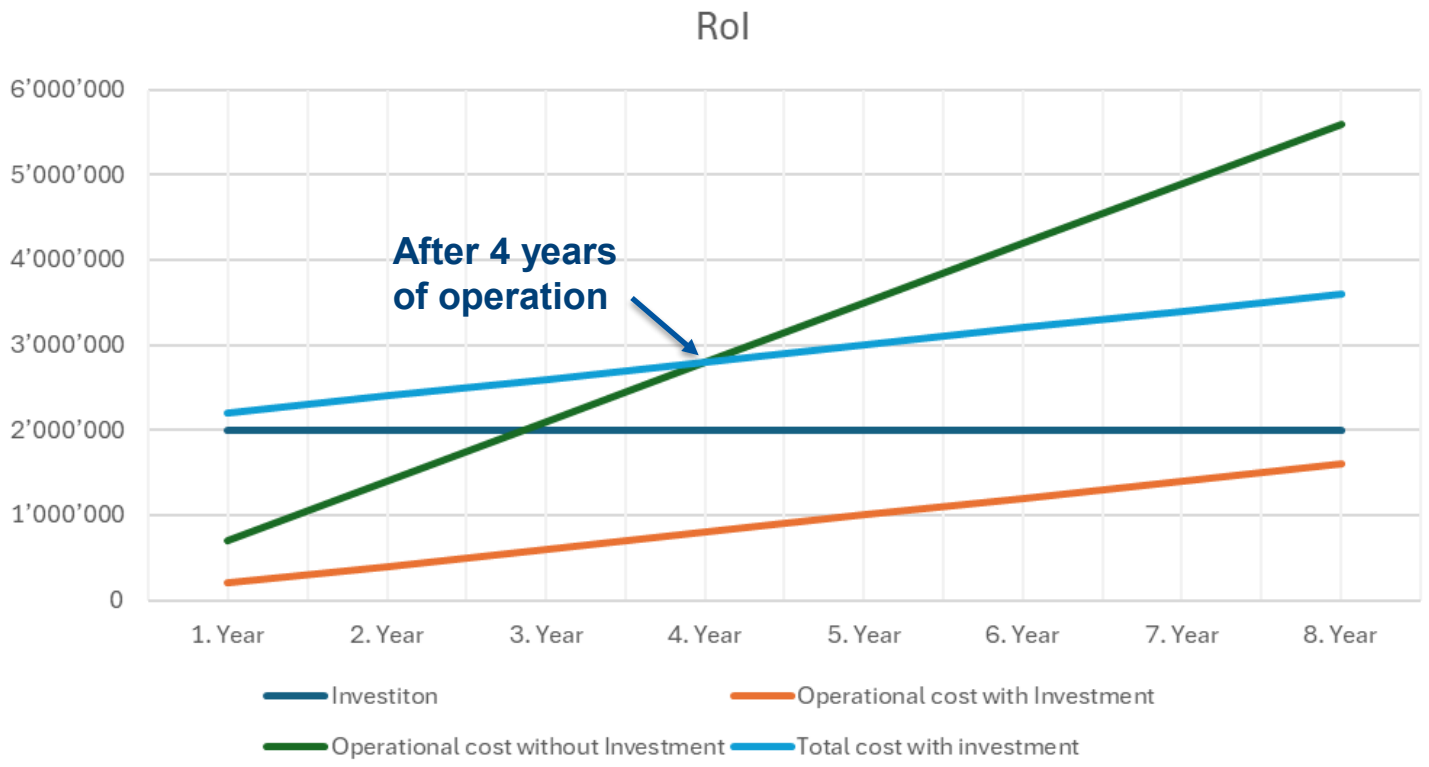
Return on Investment

Previously

- Max 6400 Vials/ h
- 3,5 operators / shift (2 shifts / 5 day)
- Max 25’600’000 vials / year => 700’000.- (operator)

Automatised process

- Max 8300 Vials / h
- 1 operator / shift => 80% (2 shifts / 5 days)
- Max 33’200’000 vials / year => 160’000.- (operators)
  Installation cost 2’000’000.-
  (total cost of project including cost of customer)



Cost effectivness Indirect

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Not considerred in ROI:

- Reduction of production loss by diminution of falling vials
- Continuous operation for filling, reduction of interruptions
- Instant format change (10 minutes)

Area of application

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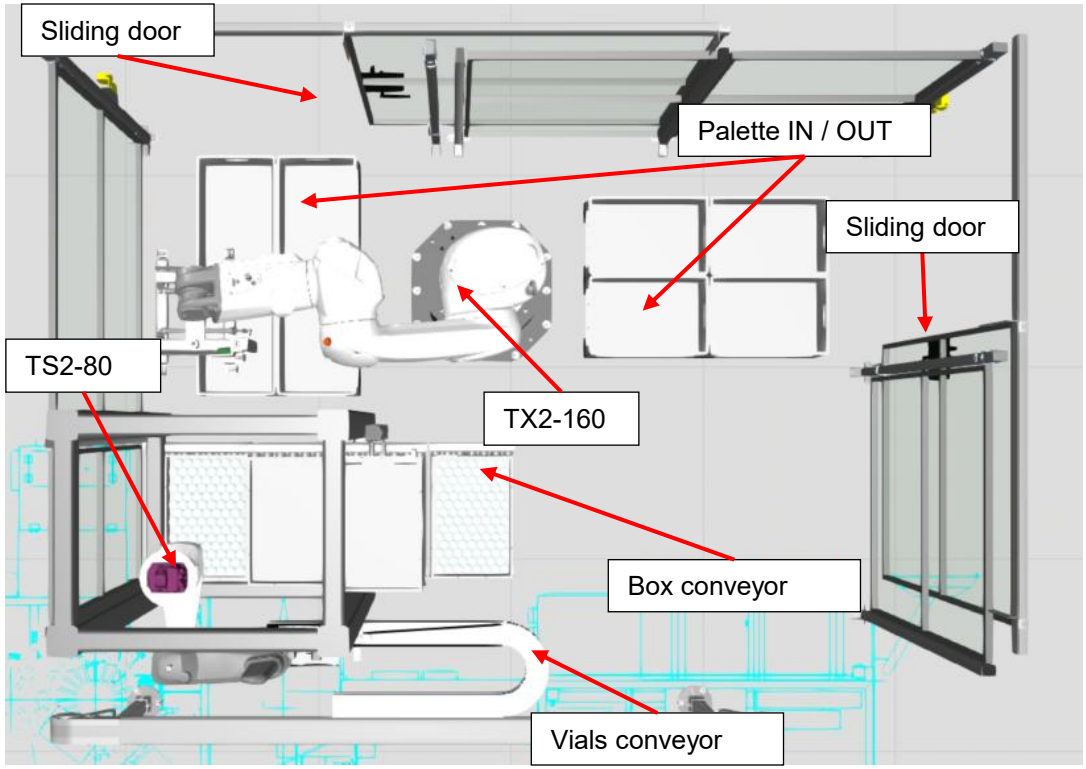
Any type of application requiring high-speed handling of vials.

JAG provides solutions based on proven concepts.

The concepts can be easily adapted to other issues.

The example opposite shows a similar application but with other constraints:

- Smaller trays.
- Building with additional constraints.
- Different incoming and outgoing pallet flows.
- Cleanroom Classe C



Why this application should get the audience

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Challenges overcome in this project

- Fast track project
- Building constraints (no building elements dismantled or modified)
- Flexibility = ultra-fast format change
- Ready for the future => AGV ready
- Profitability => Less tha 4 year by taking indirect costs in consideration
- Increased quality => fewer losses, fewer interruptions, fewer errors
- Improved ergonomics => fewer painful tasks, fewer boring tasks

Application fully developed to reach customer expectations, “Your challenge, our mission”