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SPEED-BIN-PICKING

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RAYA 2023 Finalist Event

AGENDA

SPEED-BIN-PICKING

PROFILE

PROCESS

ATTRACTIVENESS & EFFECTIVENESS

SUMMARY

PROFILE

SPEED-BIN-PICKER

TASK

Bin Picking and sorting of fragile, transparent syringes from bulk material into trays.

TECHNOLOGY

The robot application is based on two ABB YuMi robots and a single universal robot UR10 integrated by ESSERT.

COSTS

The total cost for the robot application itself is around 790.000 EUR.

EFFICIENCY

Due to the high level of automation the robot application can replace up to 11 people who are needed for the manual process.

PROCESS

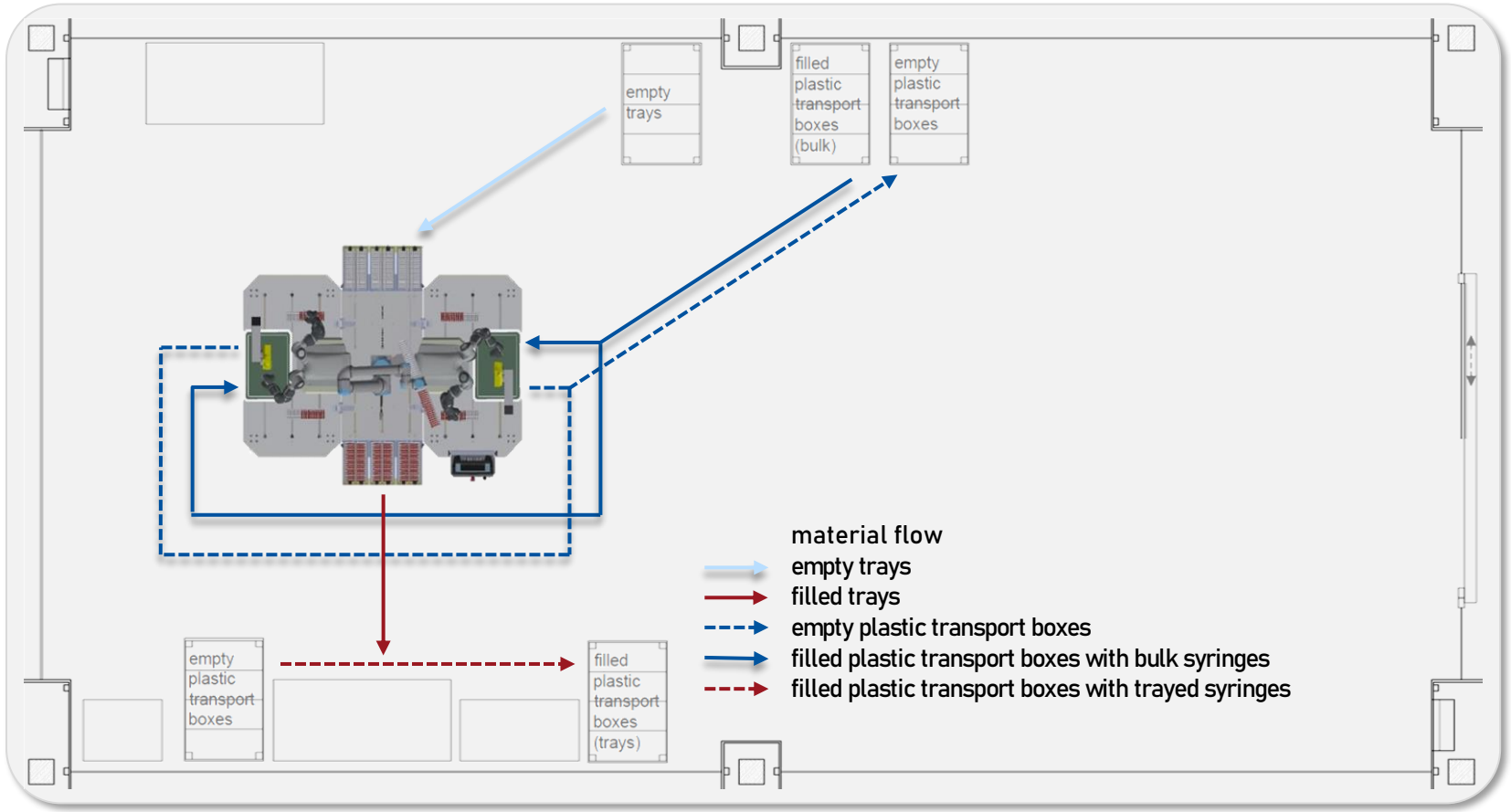
PROCESS DESCRIPTION

Operator	Loads the platform of the speed-bin-picker with empty trays and plastic transport boxes containing bulk syringes.
Universal Robot UR10	Picks and places empty trays next to each of the four YuMi robot arms for the upcoming loading process.
ABB YuMi	Picks single syringes out of the plastic transport box and places them into trays. Four trays are filled in parallel - one by each YuMi robot arm.
Universal Robot UR10	Picks and places the filled trays on the outfeed position.
Operator	Removes the filled tray stacks from the outfeed position.

autonomy
> 80 minutes

PROCESS

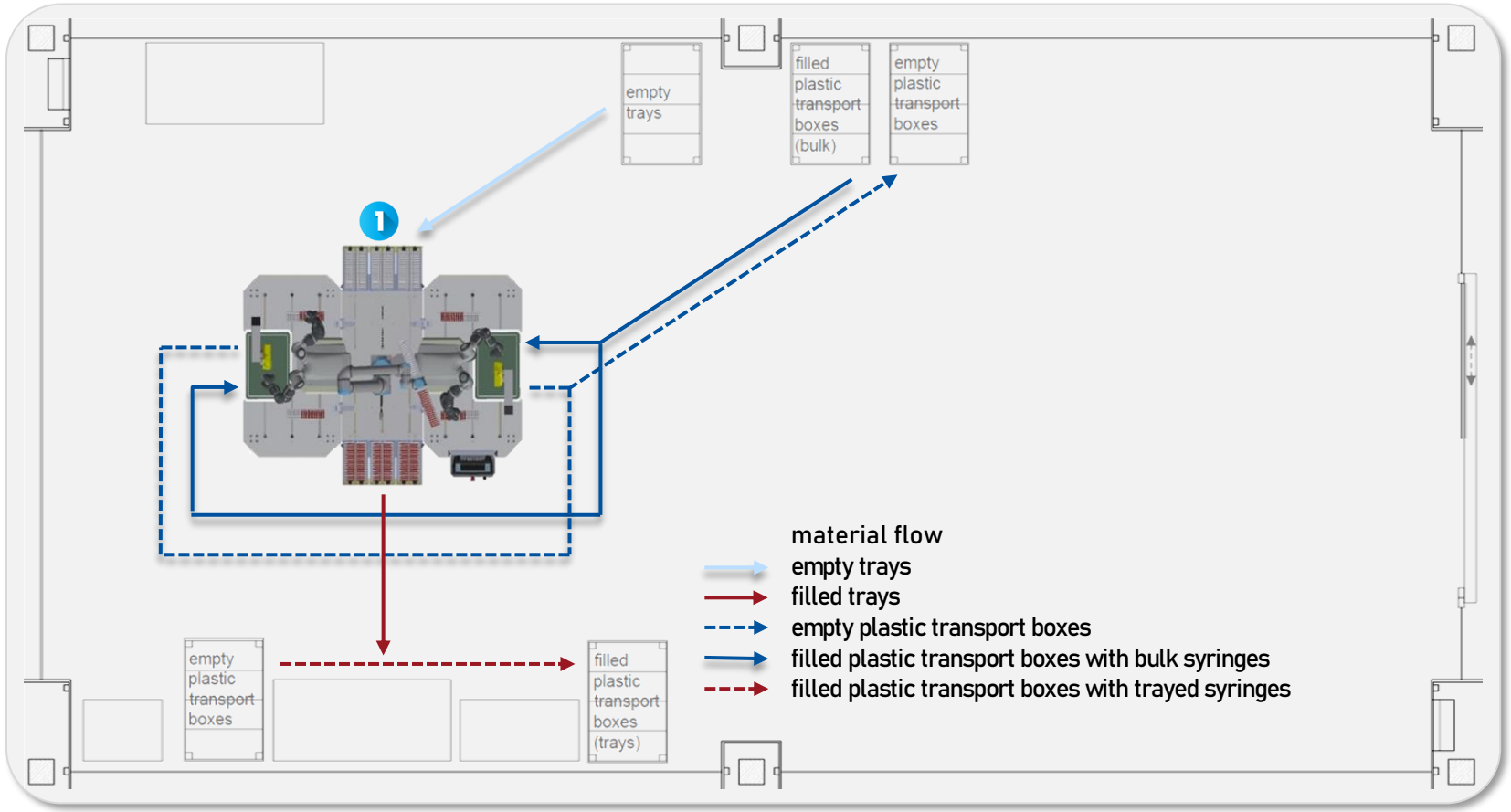
AREA OF APPLICATION



1. Feeding position of empty trays
2. Feeding position of plastic transport boxes with bulk syringes
3. Outfeed position of filled trays

PROCESS

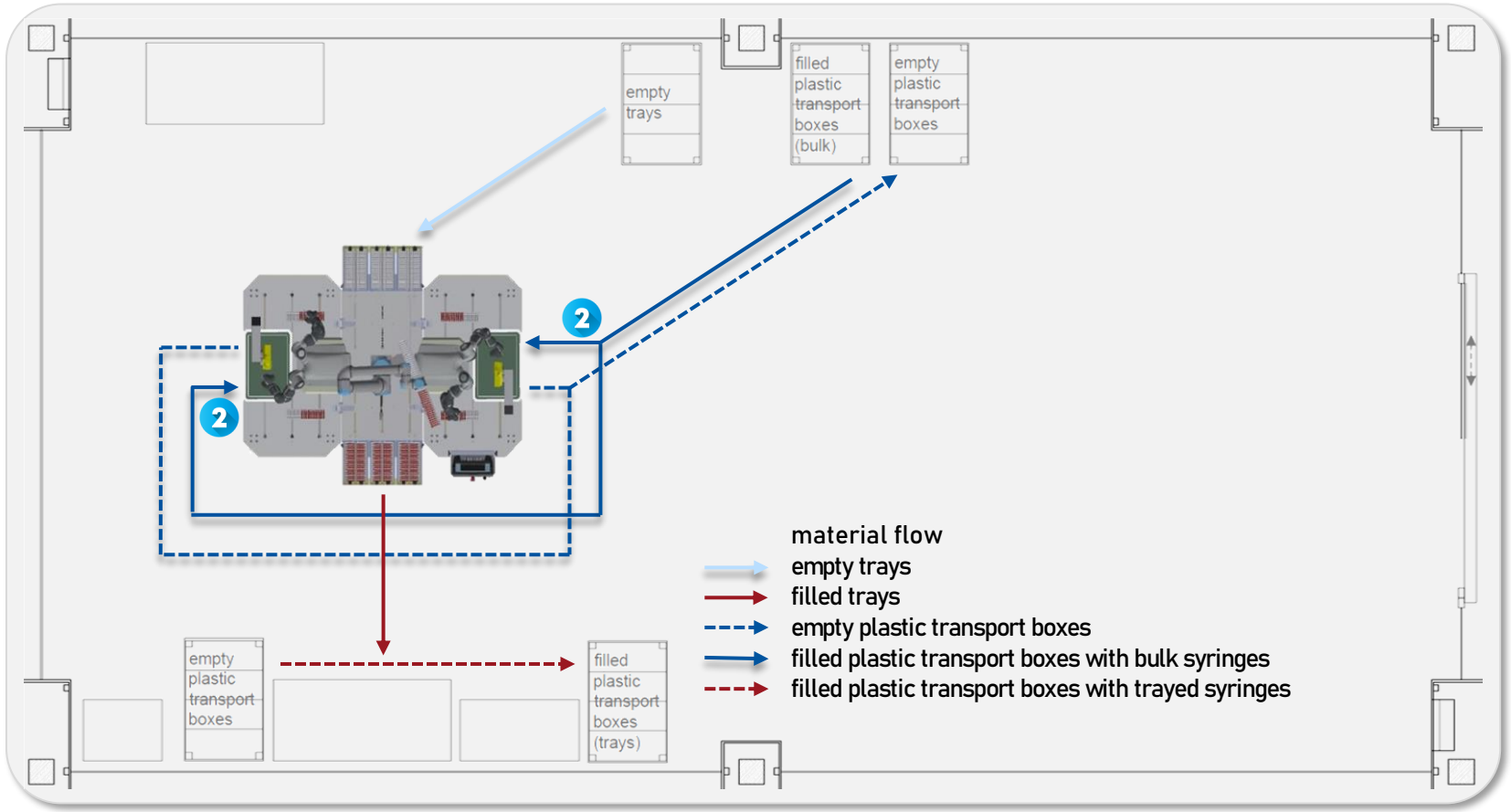
FEEDING POSITION OF EMPTY TRAYS



1. Feeding position of empty trays
2. Feeding position of plastic transport boxes with bulk syringes
3. Outfeed position of filled trays

PROCESS

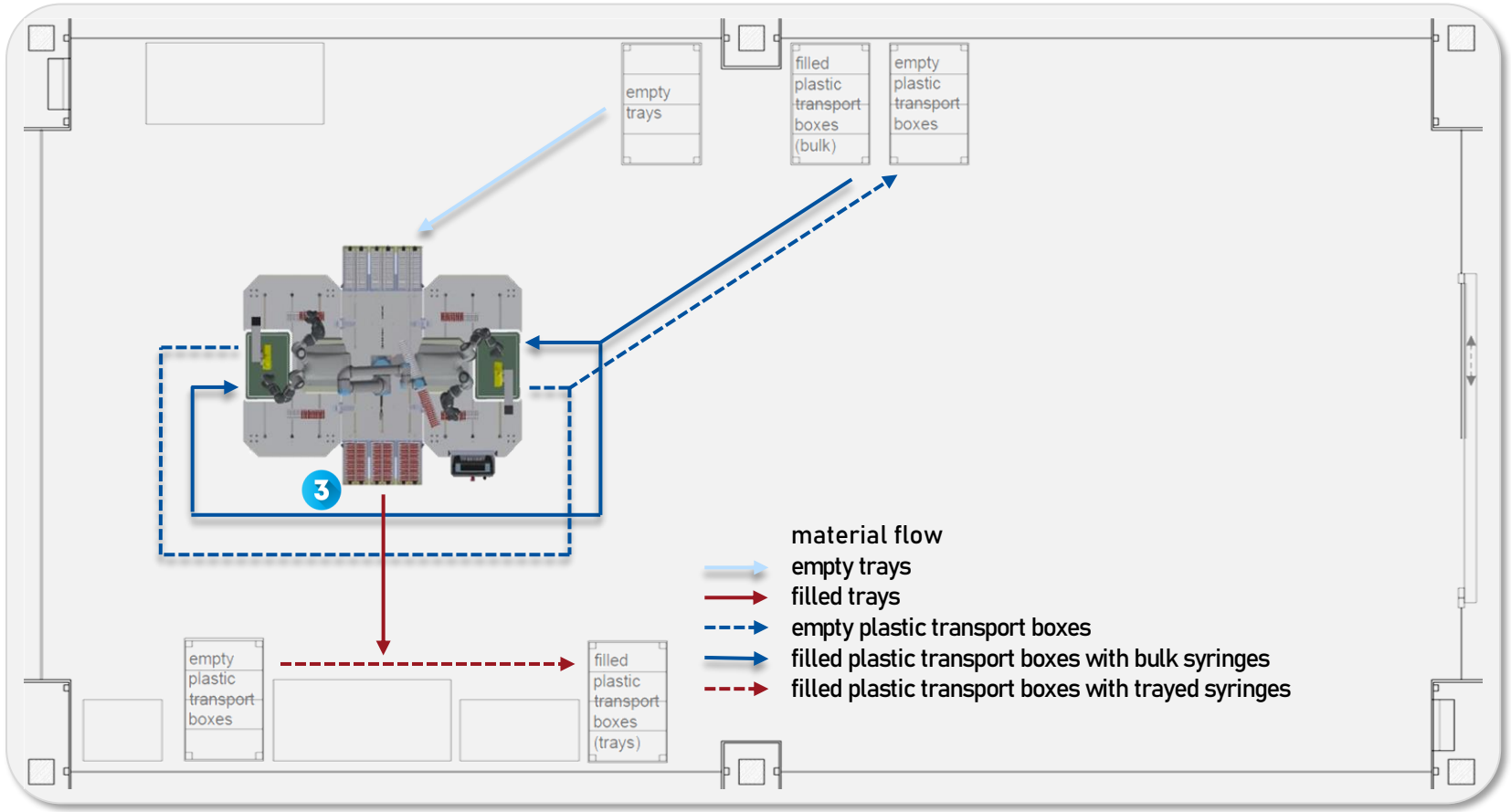
FEEDING POSITION OF PLASTIC TRANSPORT BOXES WITH BULK SYRINGES



1. Feeding position of empty trays
2. Feeding position of plastic transport boxes with bulk syringes
3. Outfeed position of filled trays

PROCESS

OUTFEED POSITION OF FILLED TRAYS



1. Feeding position of empty trays
2. Feeding position of plastic transport boxes with bulk syringes
3. **Outfeed position of filled trays**

PROCESS
VIDEO

source: https://www.essert.com/pharma-compliant-bin-picking/

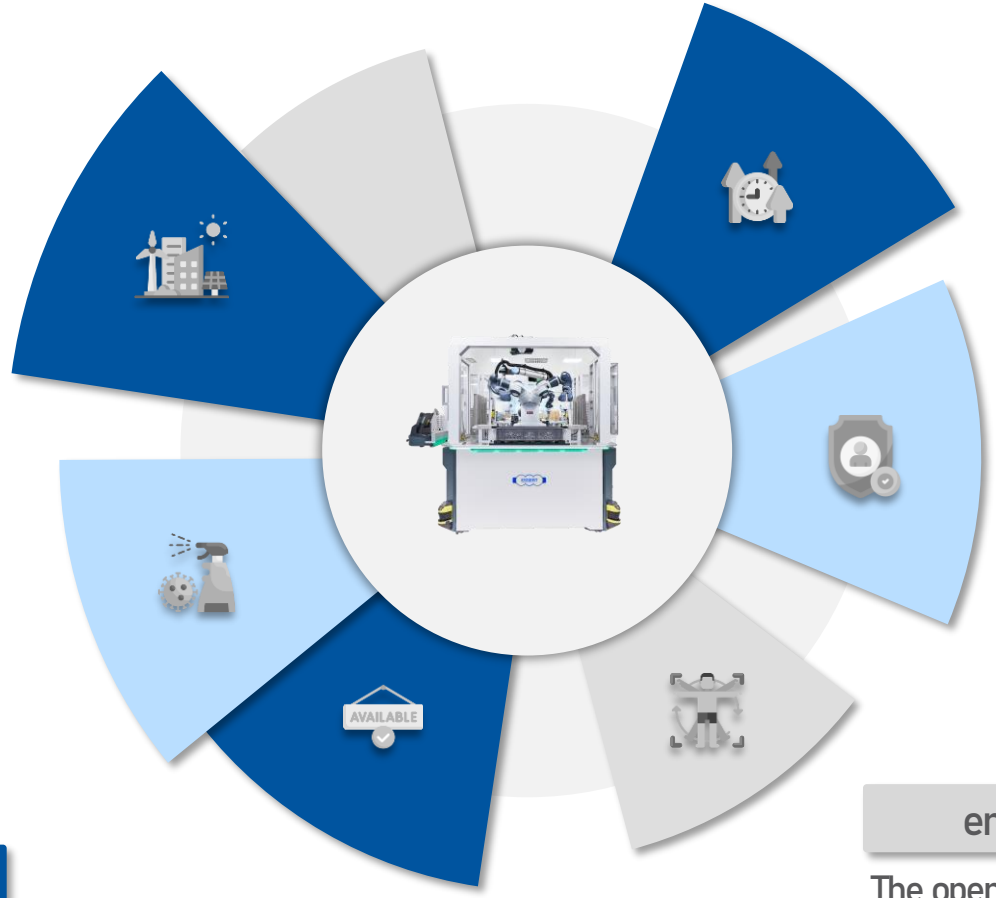
ATTRACTIVENESS
DRIVERS

sustainability
Automation replaces employees, which reduces production costs. In addition, automation increases human error; reject rates are reduced.

process quality
Reproducibility is increased since manual handling is replaced by automated handling.

aseptic conditions
The Speed-Bin-Picker is operated in a CNC (clean-non-classified) zone.

availability
The system is available 24/7.



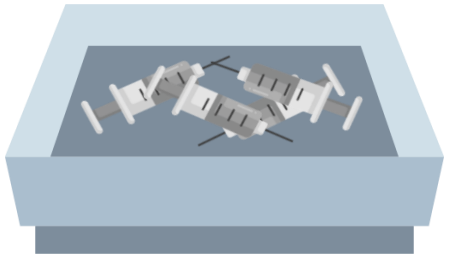
efficiency
The system works with an output of approx. 2600 syringes per hour and an autonomous runtime of > 80 minutes.
It can be operated by just one person. It thus replaces 11 employees who are needed for the manual process.

human protection
The platform is partially encased by polycarbonate panes. The areas used by the operator are accessible.

ergonomics
The operator works at working height during the entire process.

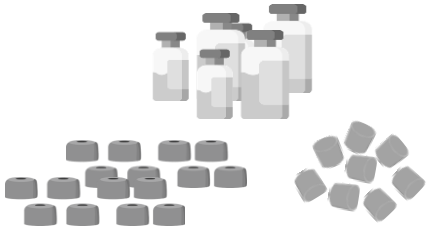
ATTRACTIVENESS

APPLICATION ACROSS PHARMA



The Speed-Bin-Picker can pick syringes from an almost disorderly arrangement in a plastic transport box and store them in an orderly manner.

Therefore, the system can be used for all applications where bulk syringes or cartridges, or other containers/systems must be transferred into trays.



The application can also be applied in other areas of the pharmaceutical industry e.g., sorting or pre-sorting of stoppers, or for arranging or aligning closure parts, secondary packaging components, etc.

ATTRACTIVENESS

FLEXIBILITY OF THE SYSTEM

Location

The system is very compact and can be moved to different positions.

Control Cabinet

The control cabinet is installed inside the machine.

Vacuum

The vacuum required for the grippers is generated in the machine itself.

ATTRACTIVENESS

FLEXIBILITY OF THE SYSTEM

Tray order

The trays used can be stacked on the same side or alternately.

Tools

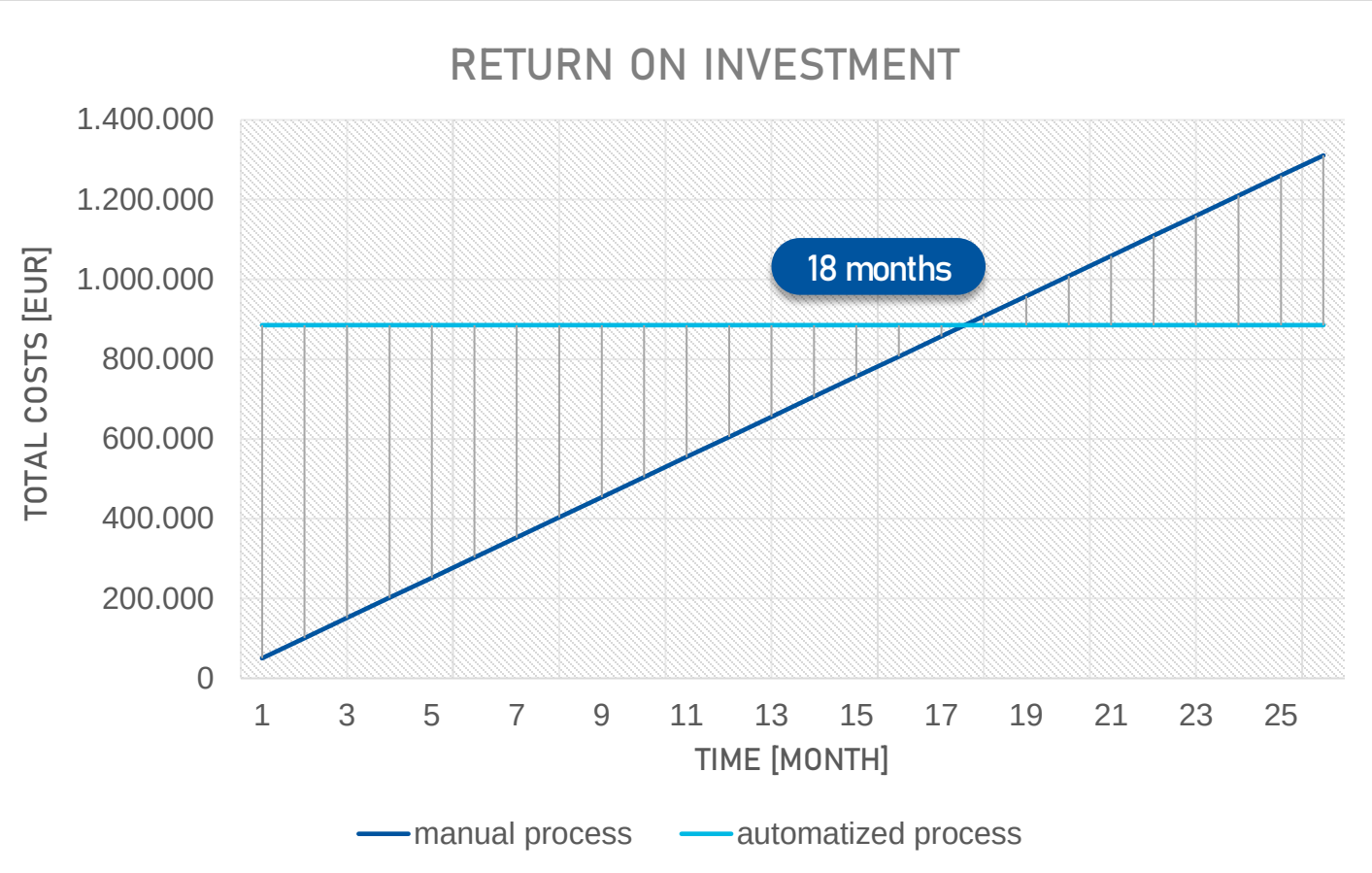
The format change can be done with an Allen key.

Integration

The system can be bought without any customization as long as the use case is unchanged. At Vetter, the system is classified as a primary system, which requires a qualification phase.

EFFECTIVENESS

RETURN ON INVESTMENT



EFFICIENCY AND RETURN ON INVESTMENT

Due to the high level of automation, one Speed-Bin-Picker can **replace up to 11 people**. For this reason, the system has already paid for itself after 1.5 years.

FTE

SUMMARY

SPEED-BIN-PICKER

TECHNOLOGY

The robotic application combines an amount of different robots and provides their smooth interaction.

EFFECTIVENESS

Reproducibility is increased since manual handling is replaced which leads to an improvement of the process quality.

EFFICIENCY AND RETURN ON INVESTMENT

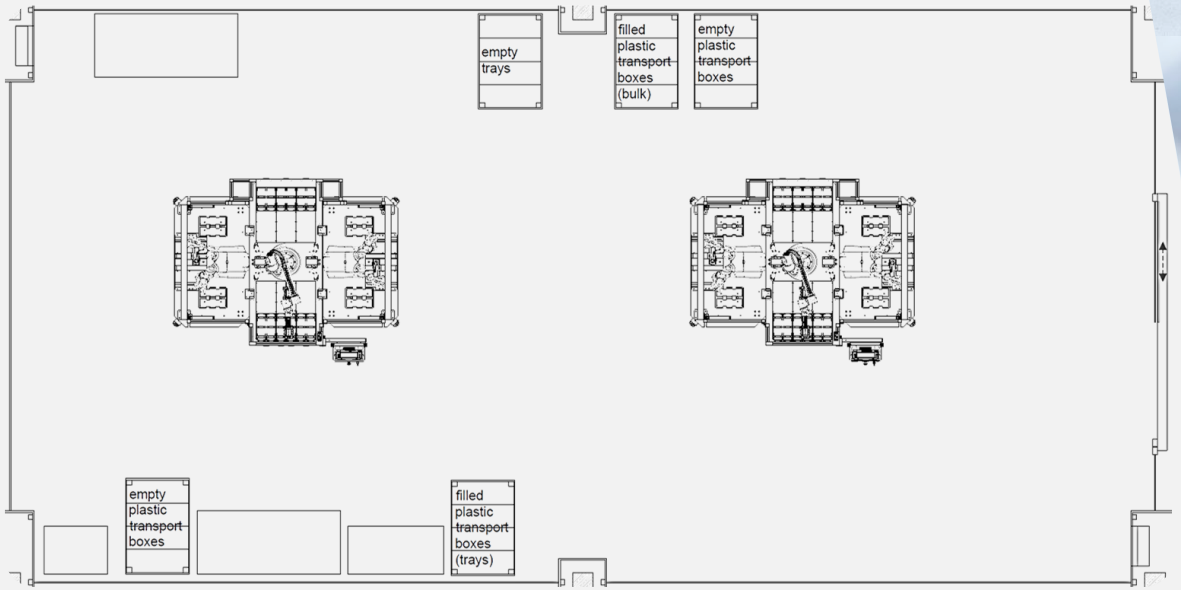
With the robotic application up to 11 full-time equivalents can be replaced which benefits a short return on investment within 1.5 years.

SUMMARY

SPEED-BIN-PICKER

ADDITIONAL SYSTEM

The robotic application was so attractive & efficient that Vetter bought the same system again and put it into operation.



THANK YOU FOR YOUR

KIND ATTENTION!

ISPE SIG Robotics

ESSERT ROBOTICS

VETTER