Datan hyödyntäminen automaation rakentamisessa

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INTELLIGENT FACTORY AUTOMATION SOLUTIONS AROUND CUTTING MACHINE TOOLS

Key Facts

- 100M revenue, family-owned
- 450 employees
- 40 years of automation experience
- 4000+ installed systems
- Open integrator with 90+ machine tool brands integrated
- Main markets in Europe, North America and Asia

Industries we work with?

- Production technology
- Aerospace
- Subcontractors (Job shops)

What we supply?

- Manufacturing Management Software (MMS) & MOM
- Flexible Manufacturing Systems (FMS)
- Robotic automation solutions
- Services

Purpose

Sustainable, strong and competitive manufacturing can be achieved only by automation and digitalization. Fastems helps metalworking manufacturers in improving their productivity and profitability by providing intelligent automation, software and services.

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Miten data voidaan hyödyntää kappale-valmistuksessa?

Miten tästä syntyy uutta liiketoimintaa?

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Complexity in Manufacturing

Product

- Increasing complexity and variety of products
- Shorter lifecycles
- More pressure on quality
- Increasing traceability demands

Customer

- Delivery of the perfect order
- Personalized products
- Shorter delivery times

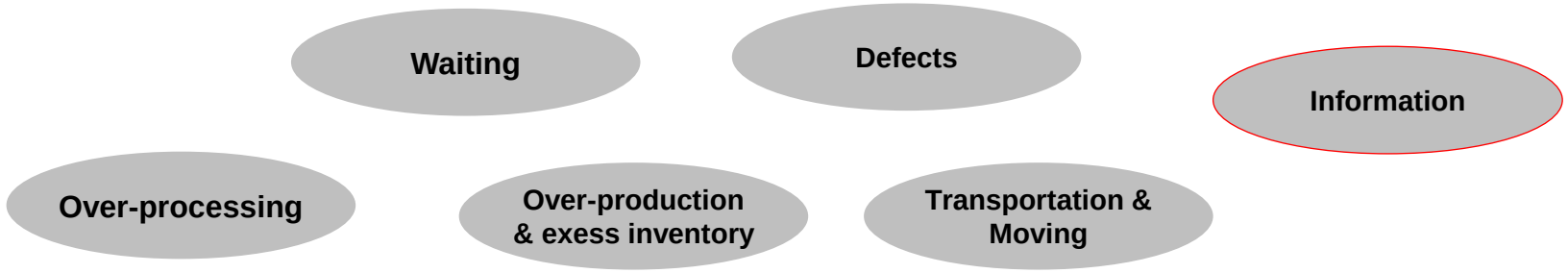
Globalization

- Global marketplace
- Geographically diverse supply chain and complex networks

Speed

- Clockspeed of business
- Rapid shifts in business
- Accelerated technological progress and adoption

Eliminating waste in HMLV production



LEAN + **Intelligent automation**

Work methods	Processes	Flexible Automation	Automated resource management	Automated production planning
Choose **the right machine tools** and **cutting processes** for your workpiece mix	Design **reproducible processes** and integrate the value chain (different steps) as much as you can	Automate **all feasible production steps** (milling, turning, grinding, de-burring, washing, measuring, marking, inspecting…)	Utilize **proactive** resource management **software** to ensure all needed resources and people are in place when a batch is due	**Automate** production planning and execution – **adapting to changes** like machine malfunctions or missing resources.

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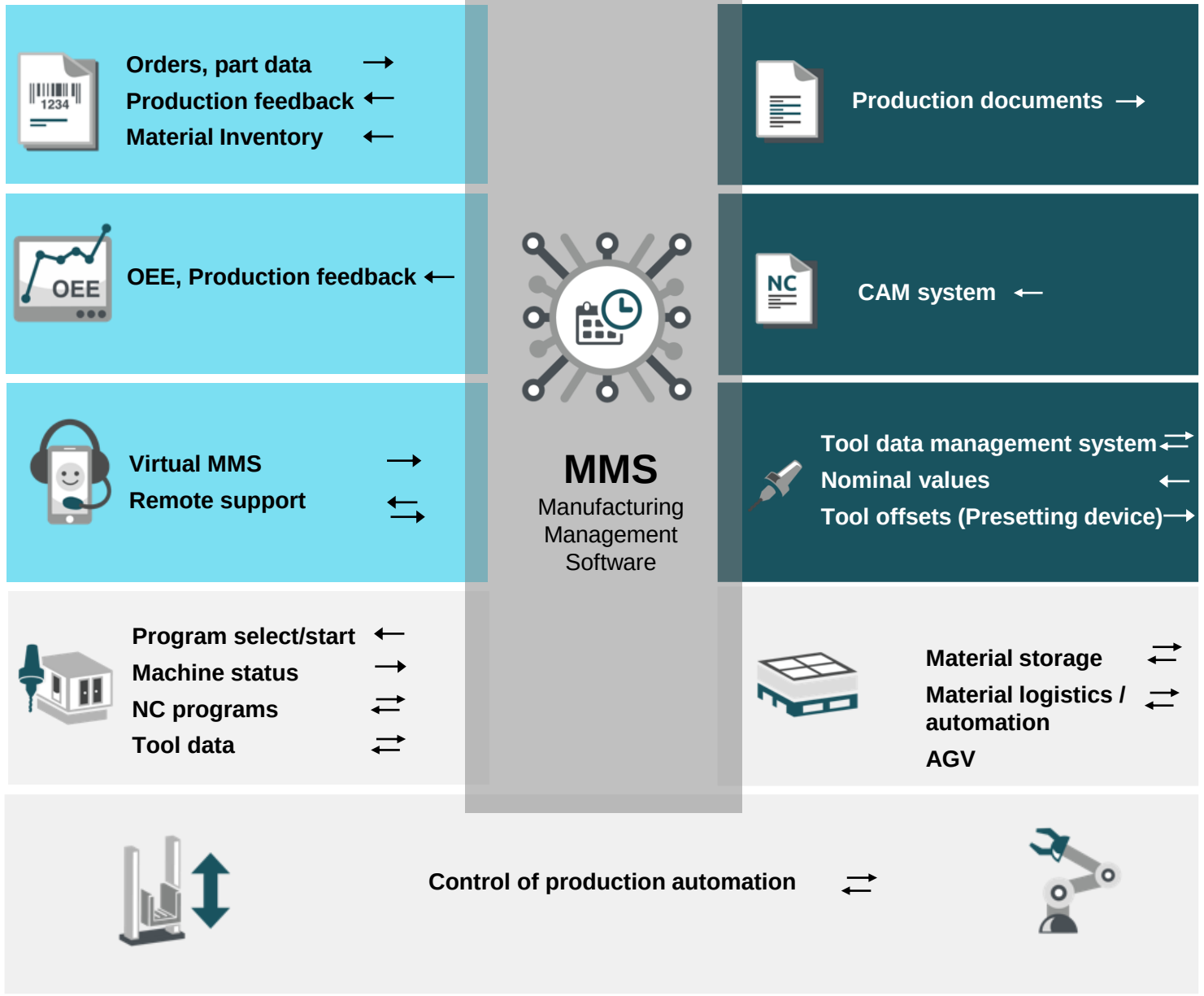
Industry 4.0 in action – use of data in a manufacturing setting

- ✓ Modern manufacturing environment creates **seamless production team-play** by integrating production data systems and production machinery to work together
- ✓ MMS provides **interfaces for different production machinery and data systems**



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Order: 562459

Part A

Delivery time: 10 days

Quantity: 20 pcs

Order: 568975

Part C

Delivery time: 14 days

Quantity: 8 pcs

Order: 568555

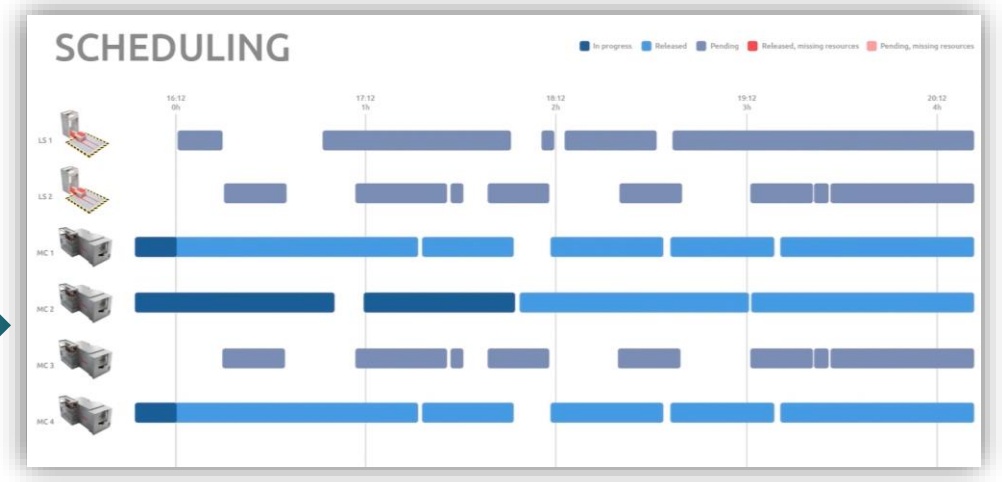
Part E

Delivery time: 25 days

Quantity: 20 pcs

Orders from ERP or through the user interface

MMS



Order: 566899

Part B

Delivery time: 6 days

Quantity: 12 pcs

Order: 568985

Part D

Delivery time: 14 days

Quantity: 8 pcs

Order: 568345

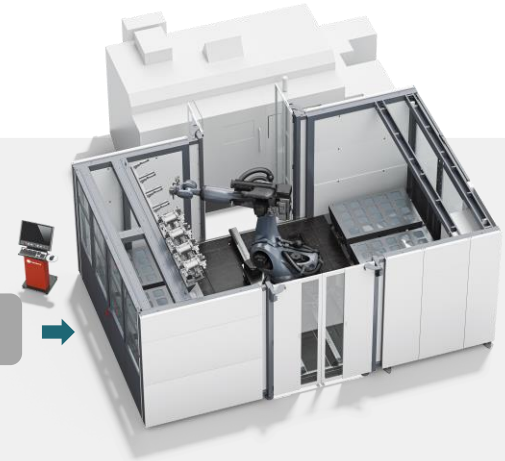
Part F

Delivery time: 4 days

Quantity: 50 pcs

How intelligent automation works in practice?

Plan | Run | Optimize



Part D | Part E

Setup change

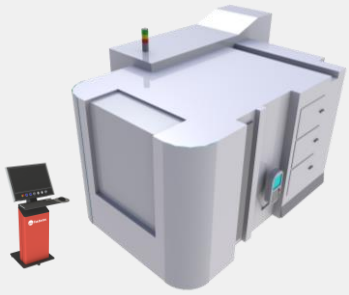
Part B | Part A | Part F

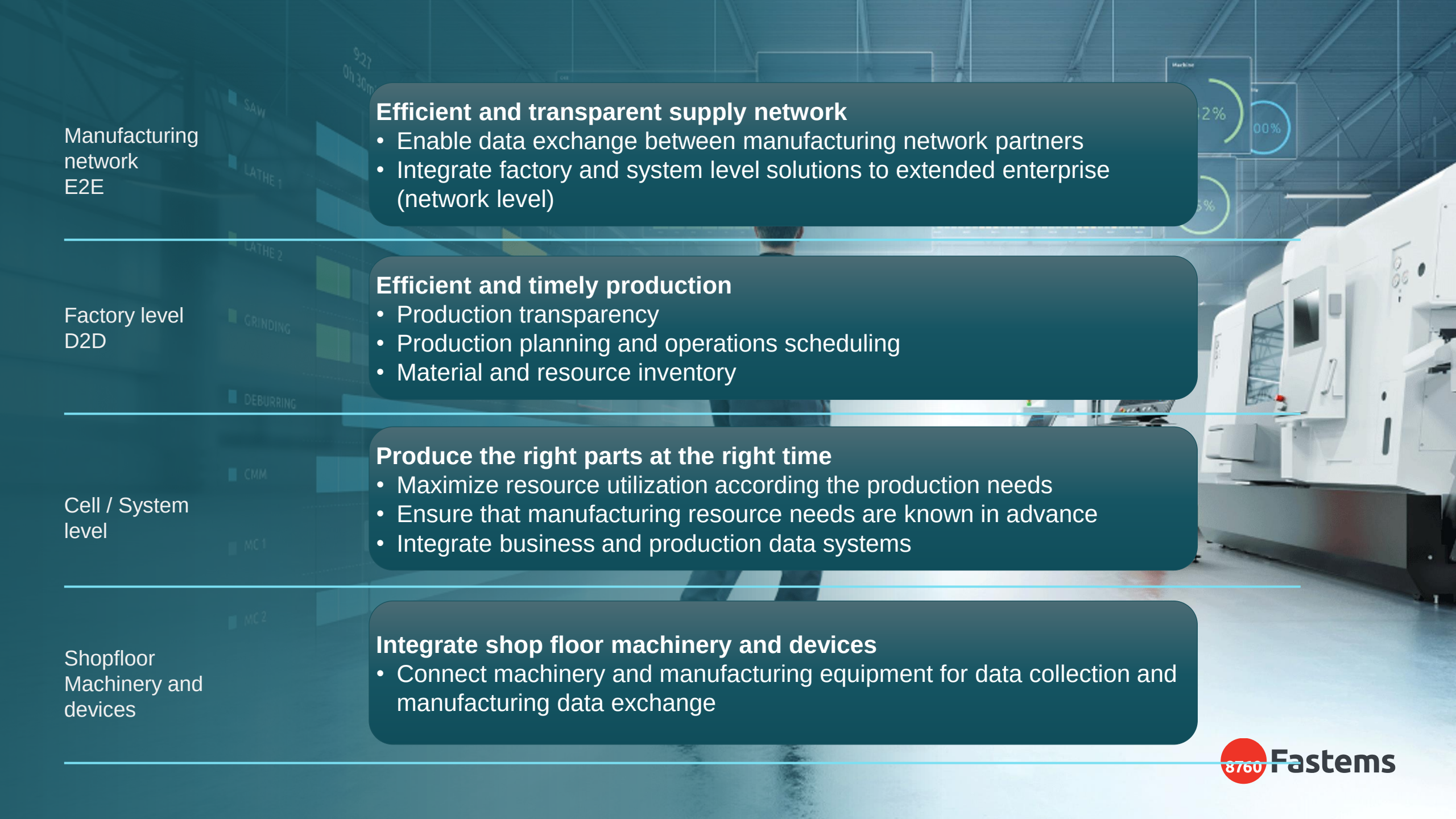
Machine 1 24h

Production will be skipped

22:40 (in 7 hours)

Tools missing





Manufacturing network E2E

Efficient and transparent supply network
- Enable data exchange between manufacturing network partners
- Integrate factory and system level solutions to extended enterprise (network level)

Factory level D2D

Efficient and timely production
- Production transparency
- Production planning and operations scheduling
- Material and resource inventory

Cell / System level

Produce the right parts at the right time
- Maximize resource utilization according the production needs
- Ensure that manufacturing resource needs are known in advance
- Integrate business and production data systems

Shopfloor Machinery and devices

Integrate shop floor machinery and devices
- Connect machinery and manufacturing equipment for data collection and manufacturing data exchange

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Case: Sandvik rock drills manufacturing

Manufacturing Operations Management functionalities

- Material inventory
- Picking
- FMS machining
- Standalone machining cells
- Painting
- Assembly

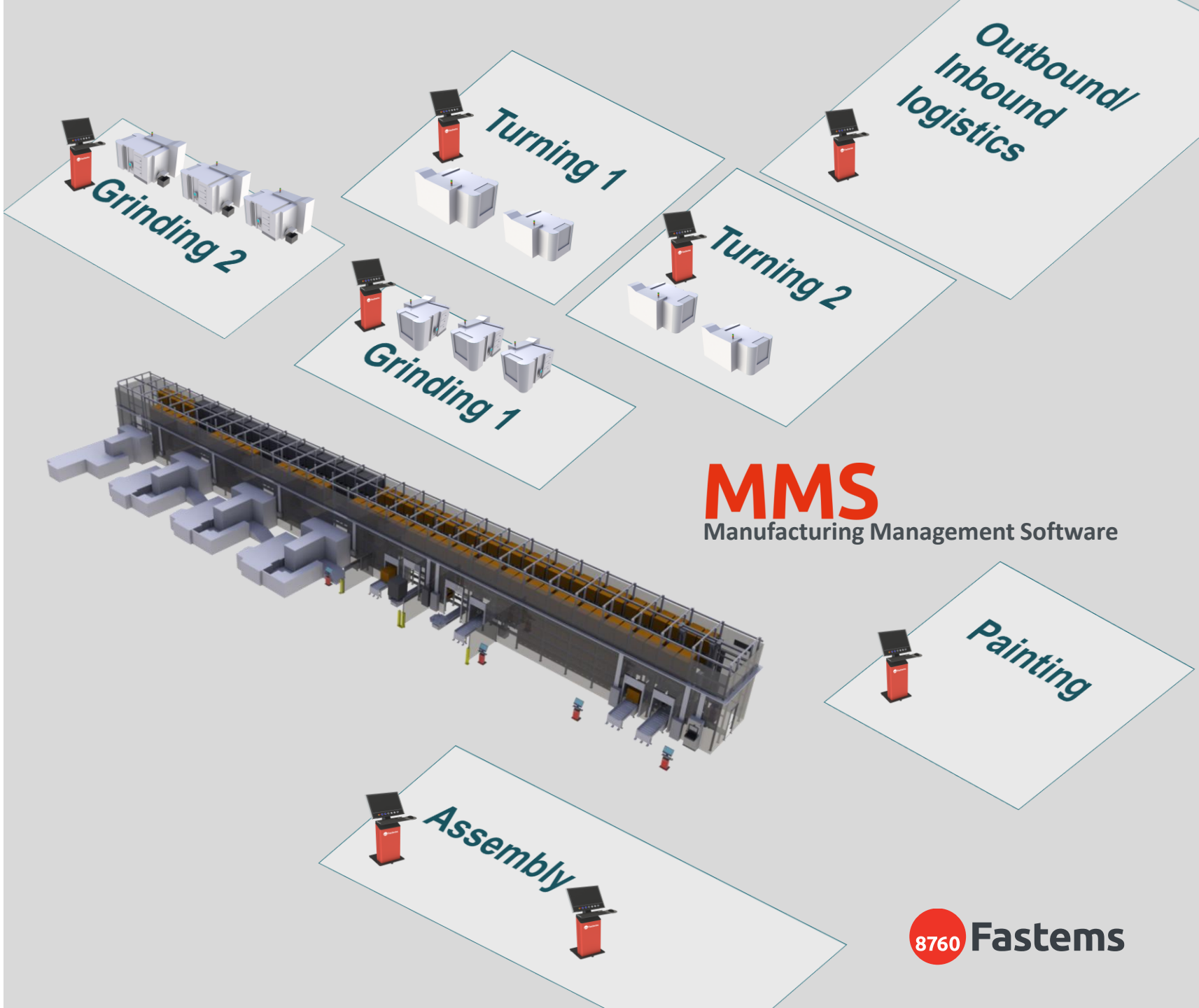
Benefits

Real-time operations management:

- Automatic and predictive production fine scheduling throughout the factory

Transparency over manufacturing (door-to-door):

- On-line monitoring tools
- Continuous learning and optimization



Summary

Data makes the increasing complexity of manufacturing manageable and creates new opportunities.

With enough data the state of production is known also in discrete manufacturing.

Information processing automation adds another layer to physical automation.

Manufacturing of the future is goal-based and optimized with real-time and simulated data.

Next levels of productivity will be achieved through data sharing on factory and network levels.


What if
my production would
do only the right
things, at the right
time – all the time?
That is,
during all of
the 8760
yearly hours
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