



HUMAN CENTRIC DIGITAL TRANSFORMATION

Case Fastems



FASTEMS WORLDWIDE

A privately held company founded in 1901 with world headquarters in Finland, Fastems operates in nine European countries, the United States, Japan and China, with manufacturing facilities in Finland and Germany.

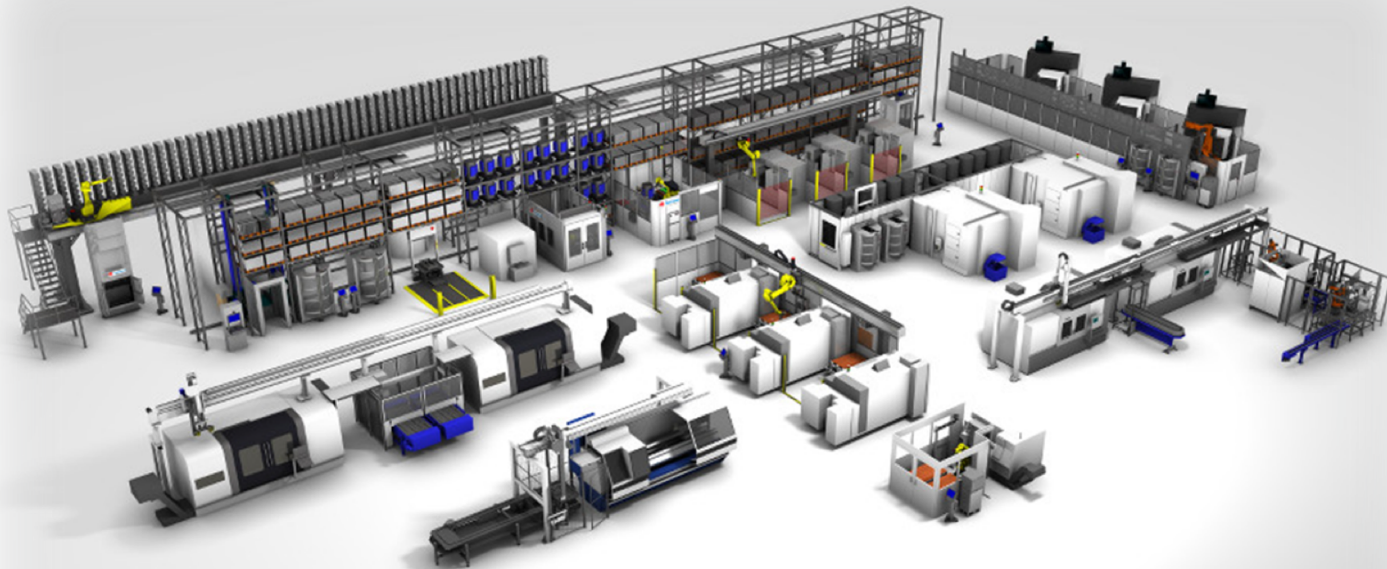


FASTEMS' ROLE

...serving the customer

- Improve customers' competitiveness through automation
- Being with our customers 8760 hours in a year, providing more value for their time
- Creating the attractive jobs of the future
- Radically change the way solutions are built and served using industrial internet and software
- Create possibilities for value adding by using new emerging technologies and process innovation
- Applying robotics on every level of the manufacturing value chains

SOUNDS BRILLIANT, 4,000 SYSTEMS WORLDWIDE



1982

First system installed
and still in use

24/7

Teleservice support
world wide

7,200

Fastems record: spindle
hours per year

8760

Fastems

Digital transformation

THE BIG PICTURE..

Compared to the 3rd industrial revolution, the 4th revolution will have relatively high impact at comparatively little replacement of equipment

1st revolution
Water/Steam



2nd revolution
Electricity



3rd revolution
Automation

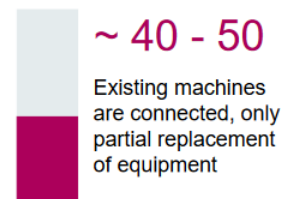
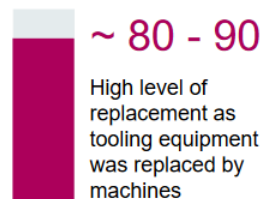
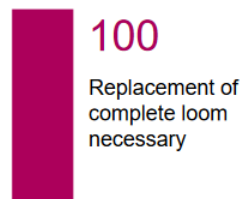


4th revolution
Cyberphysical systems



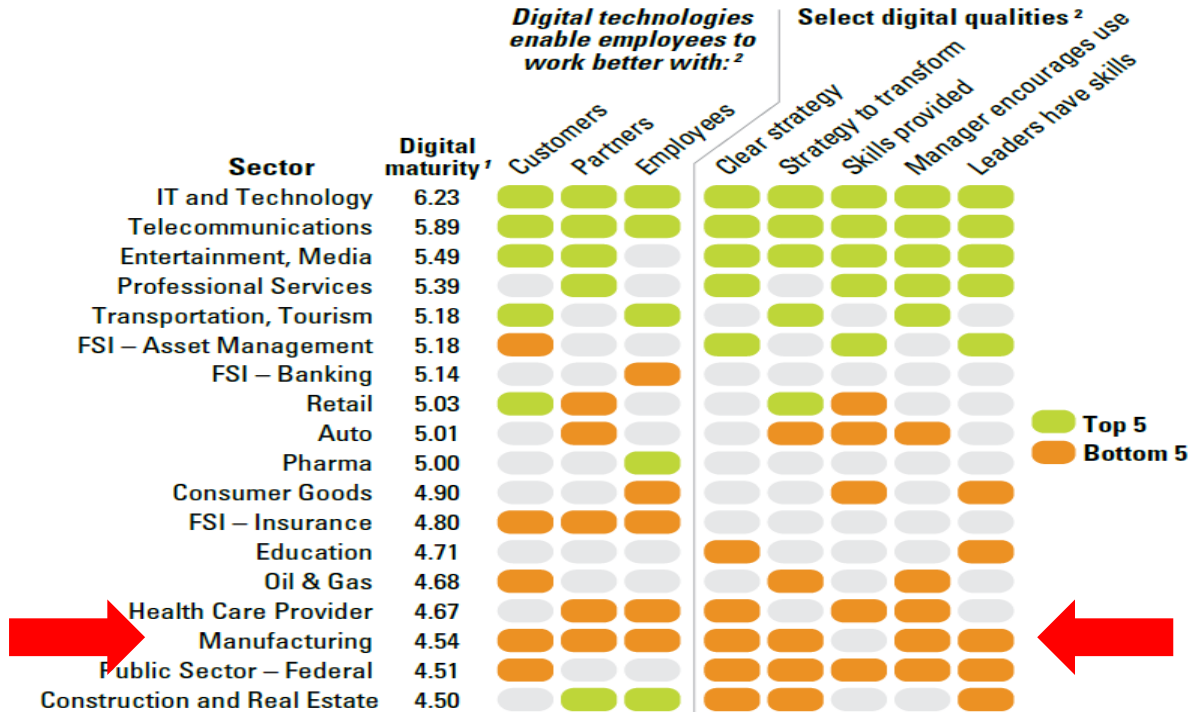
Replacement of equipment

Percent of installed base



SOURCE: Statistisches Bundesamt; Deutsche Bundesbank; Prognos; Thomas Nipperdey; McKinsey

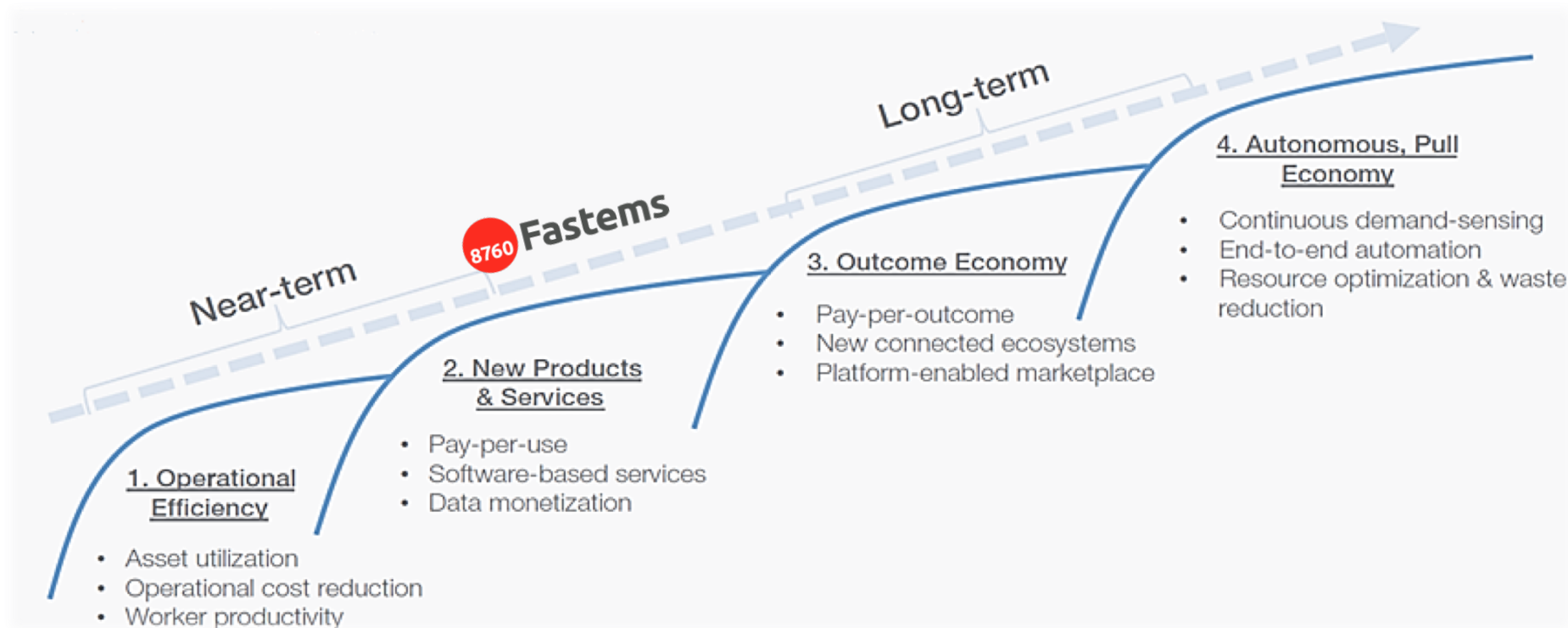
CURRENT MATURITY OF DIGITALIZATION



1. Digital maturity is calculated as the average maturity of responses from a given sector. Respondents were asked to rate their organization's digital maturity on a 10-point scale with 1 being least mature and 10 being most mature.

2. Correspond to specific survey questions in the study. Percentage of respondents who agree/strongly agree their organization has the relevant digital skills or capabilities.

THE ADOPTION AND IMPACT PATH OF THE DIGITALIZATION

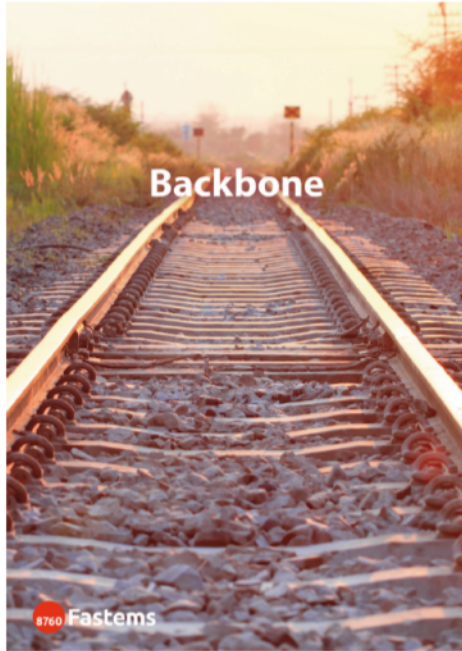


Conclusions and Actions...

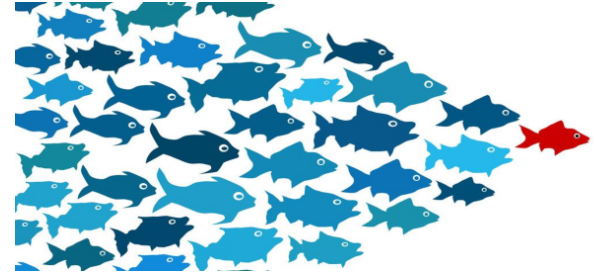
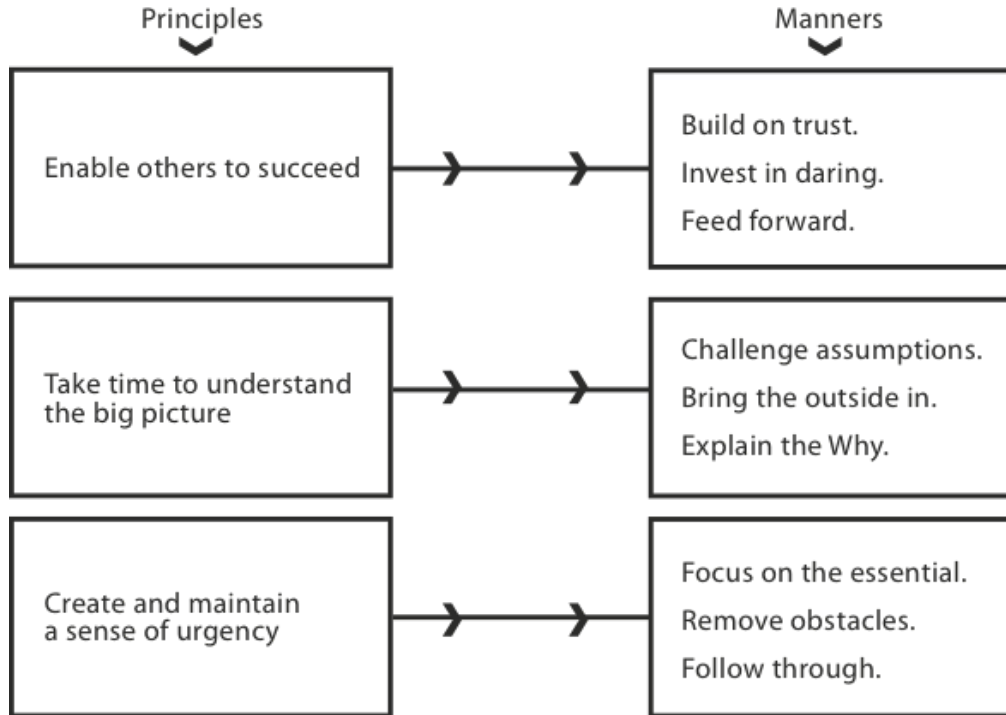
CASE FASTEMS

FASTEMS COMMITMENT

Manners of Our Culture

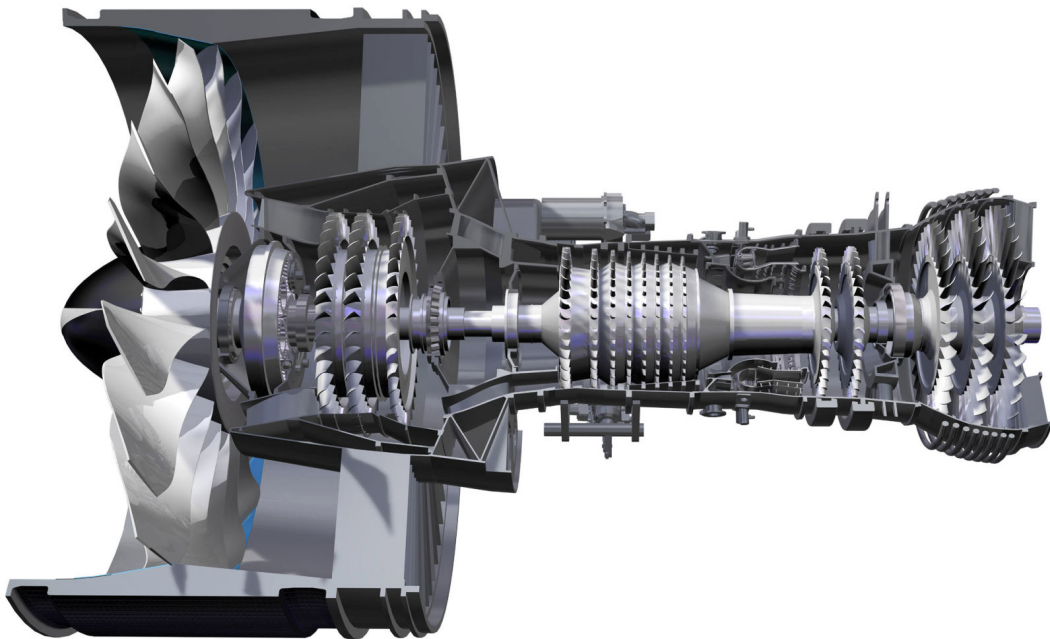


FASTEMS LEADERSHIP – Delight and Deliver



Case - MTU Aero Engines

Airbus 320 NEO engine blisk manufacturing



MTU challenge

- For 25 years MTU thought that manufacturing-intensive production can't be profitable in the high cost Bavarian area.

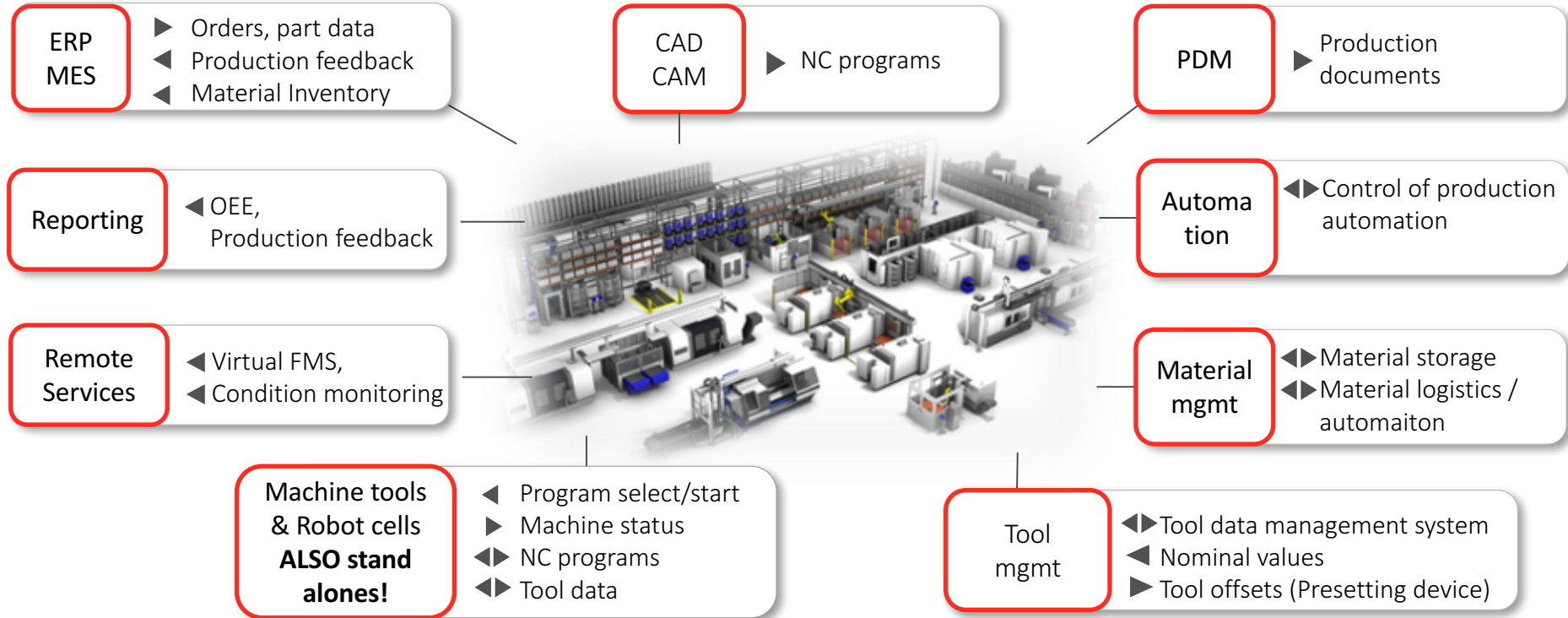
The solution

- Automating manufacturing and workflow management with software and hardware.

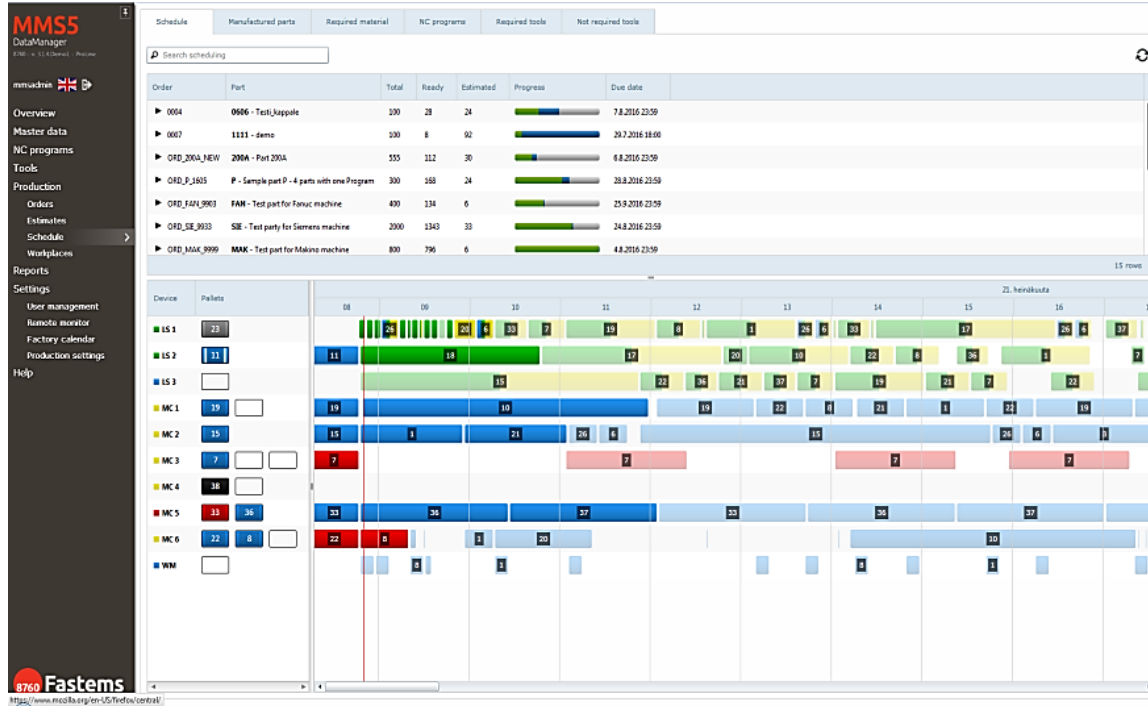
The consequence

- Fastems is mission critical for "Hall 077" and subsequent assembly – by choice of the customer

MMS integrates manufacturing execution, not only automation



MANUFACTURING DIGITALIZATION in practice



- Based on real time data, production orders are simulated and optimized into the production schedule, then outcome is executed.
- Any change in production assets (data, resource or machine status) triggers an updated simulation.

→ real time data based production schedule for coming days!

Conclusions and Actions...

THE FASTEMS APPROACH

"How to get it all without making a mess"

Bimodal IT = Marathon Runners + Sprinters

Think
Marathon Runner



Mode 1

Reliability

Goal

Mode 2

Agility

Think
Sprinter

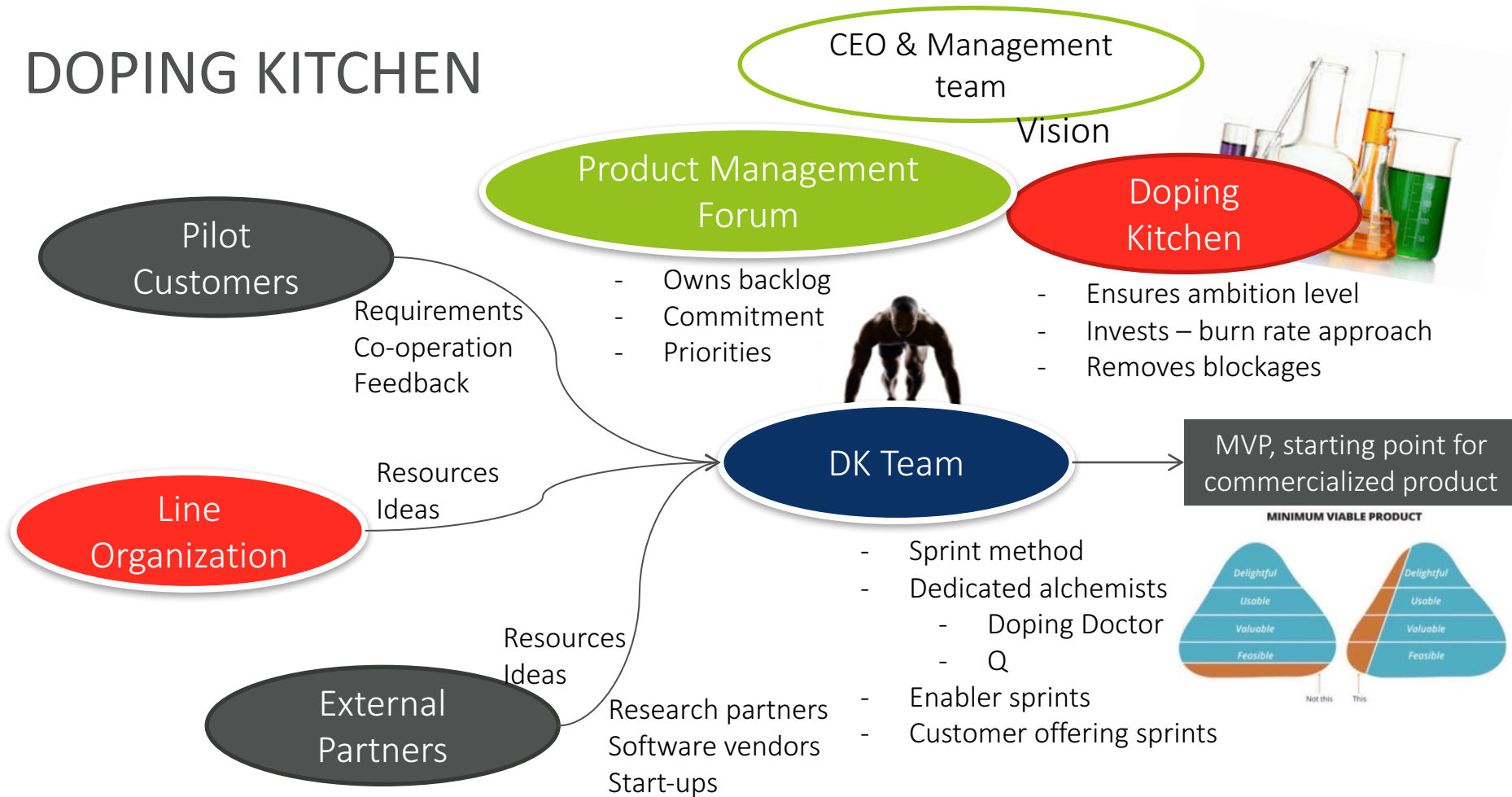
Price for performance	Value	Revenue, brand, customer experience
Waterfall, V-Model, high-ceremony IID	Approach	Agile, Kanban, low-ceremony IID
Plan-driven, approval-based	Governance	Empirical, continuous, process-based
Enterprise suppliers, long-term deals	Sourcing	Small, new vendors, short-term deals
Good at conventional process, projects	Talent	Good at new and uncertain projects
IT-centric, removed from customer	Culture	Business-centric, close to customer
Long (months)	Cycle times	Short (days, weeks)



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DOPING KITCHEN



Human Centric Digitalization

THE BUILDING BLOCKS..

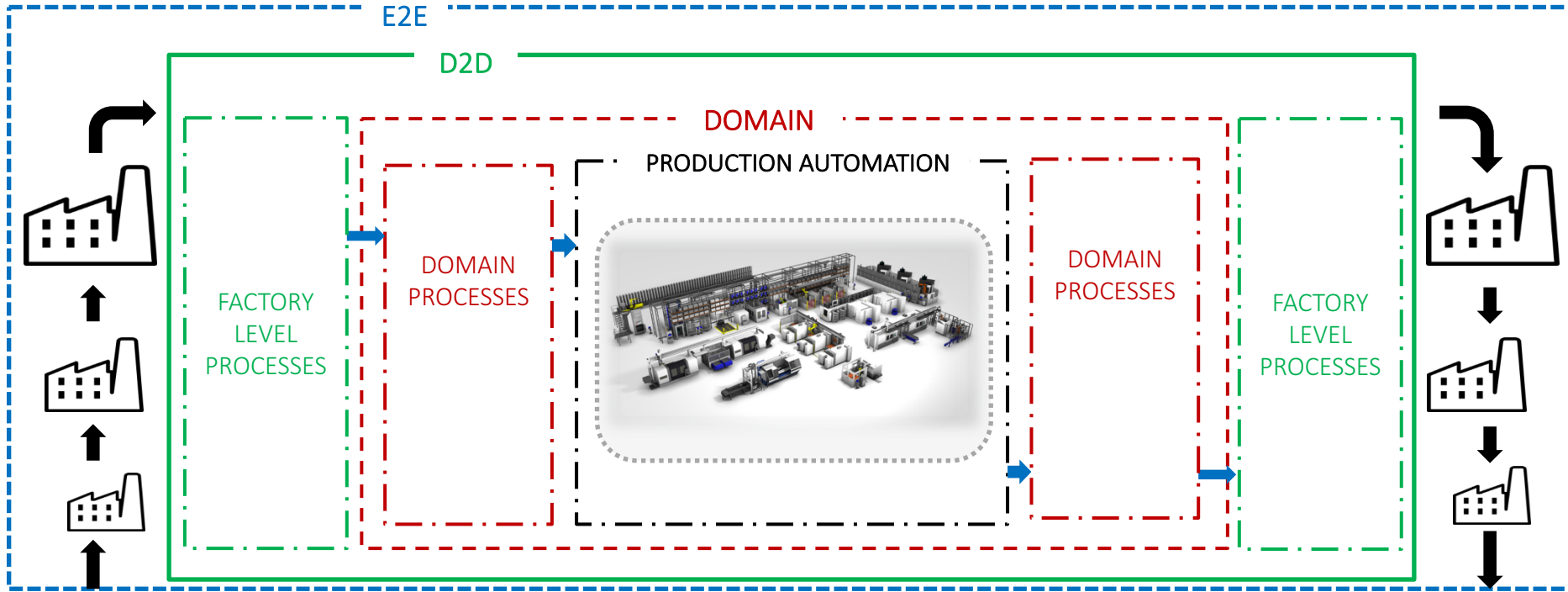
FUTURE DEFINITION OF SCOPE

E2E – End to End: whole supply chain

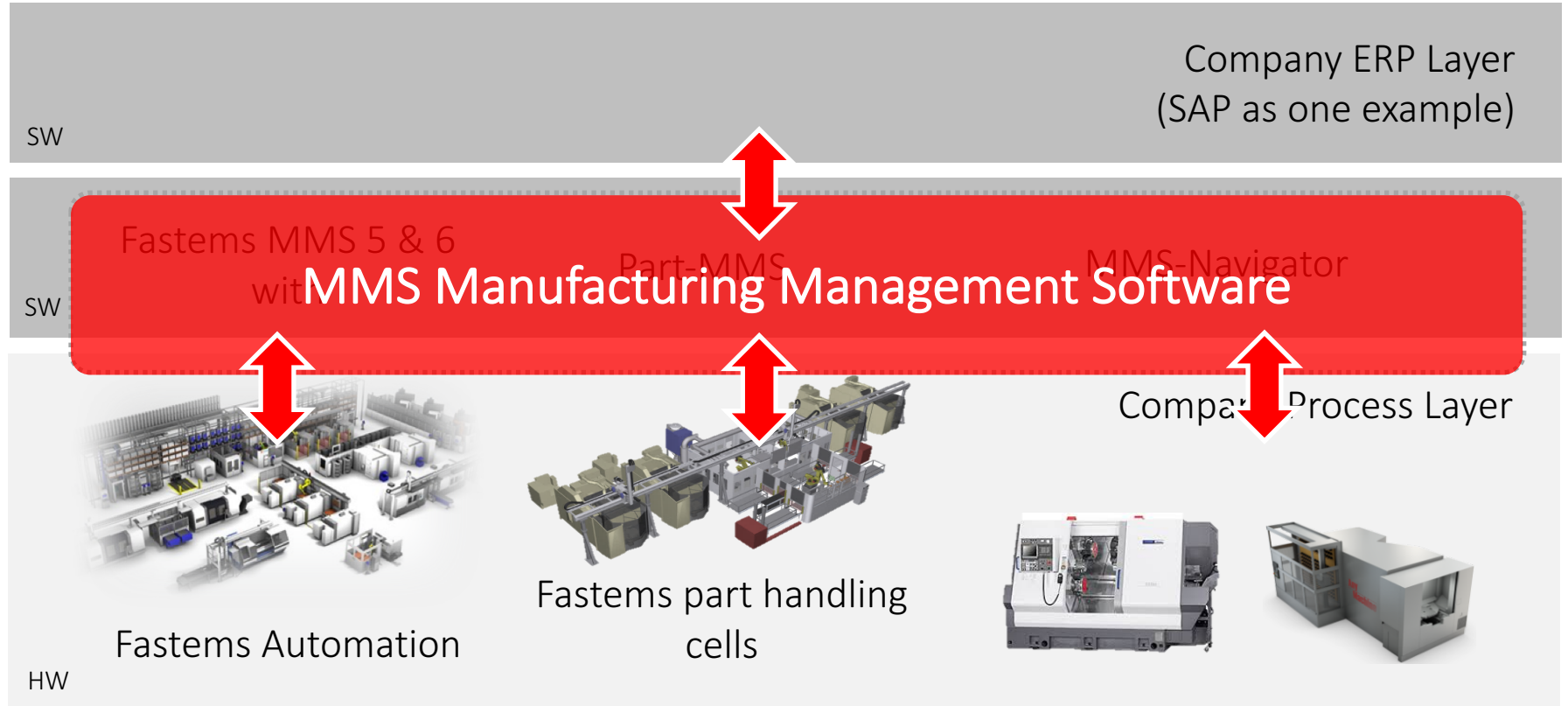
D2D – Door to Door: one factory

DOMAIN – machining + supporting processes,
quality mgmt, interim logistics

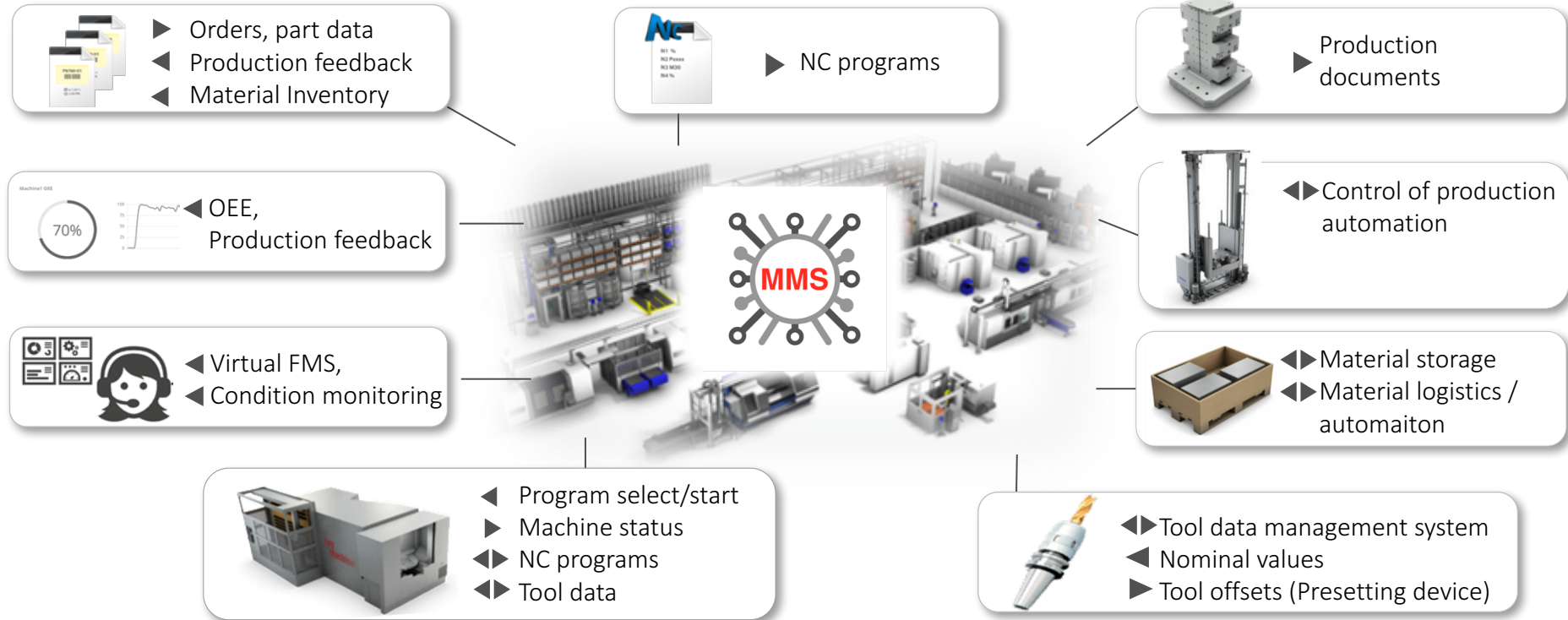
Fastems - manufacturing systems and -cells



Connecting Systems for Intelligent Production

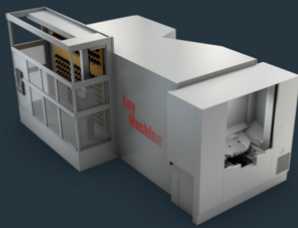


Fastems Integrates Manufacturing Execution



Machine 1

08:36



Current status

BUSY

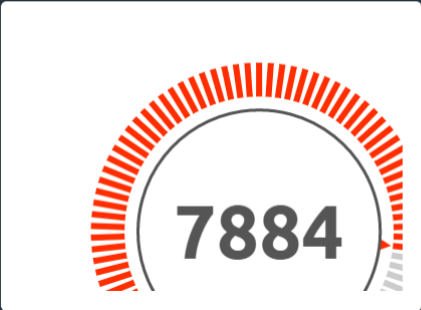
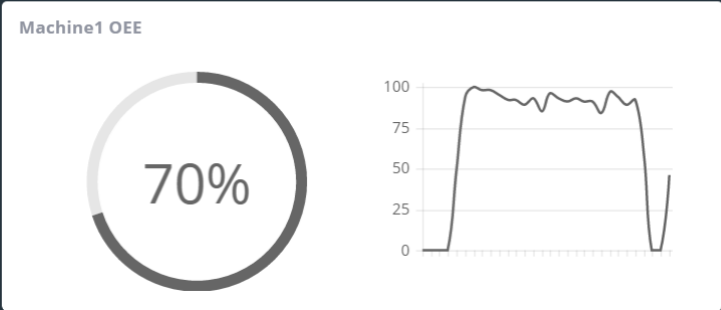
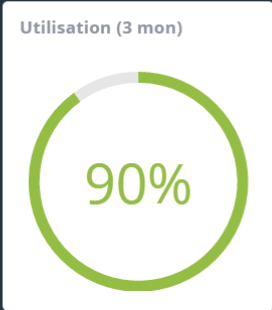
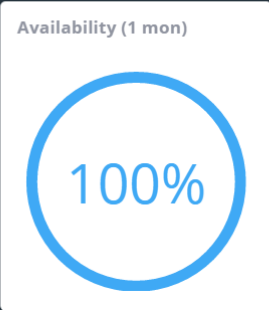
17

TC50A

Machine 1 (16h)

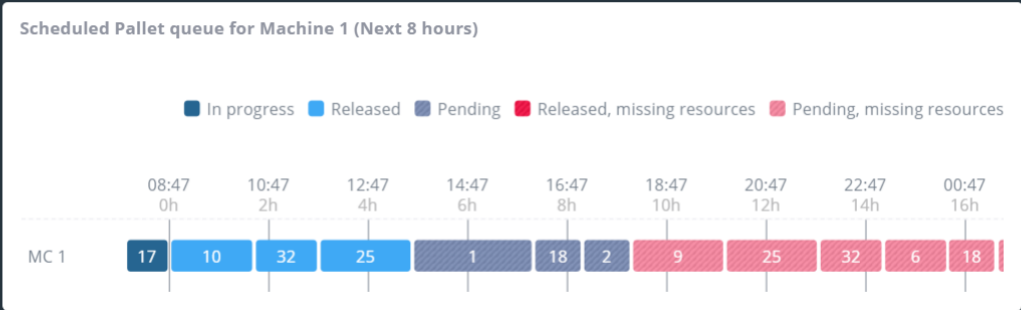
STOP

Machine will stop
Tools missing
18:05 (9h 27min)



Missing tools, MC1 (24h)

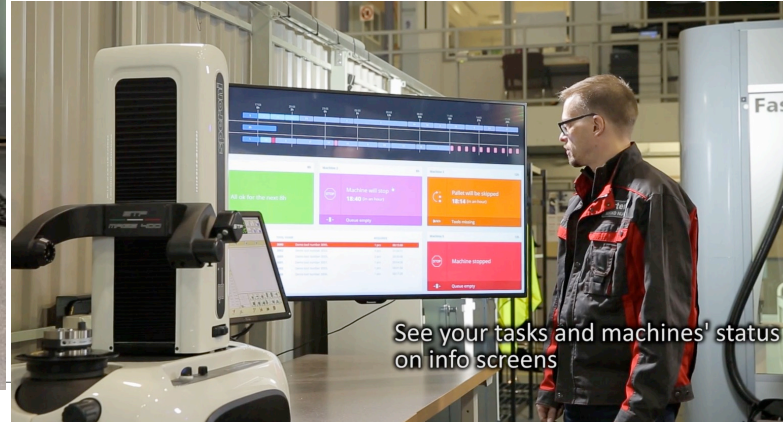
MACHINE	WHEN	TOOL NAME	REQUIRED
MC1	18:05	3008 Demo tool number 3008.	1 pcs 00:19:09
MC1	21:51	3019 Demo tool number 3019.	1 pcs 44
MC1	00:26	3005 Demo tool number 3005.	1 pcs 00:09:21
MC1	in 19 hours	3000 Demo tool number 3000.	1 pcs 16



Transparency from Shop Floor to Top Floor



Browse the loading documents on large screen



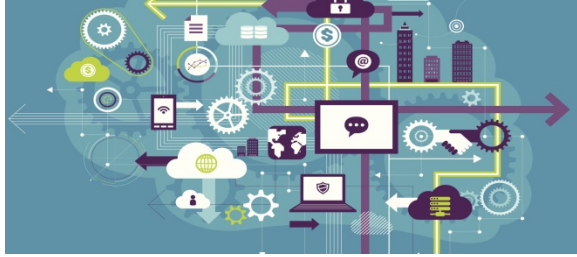
See your tasks and machines' status on info screens



Case Fastems...

SUMMARY

Digitalization is not (just) about technology & business models



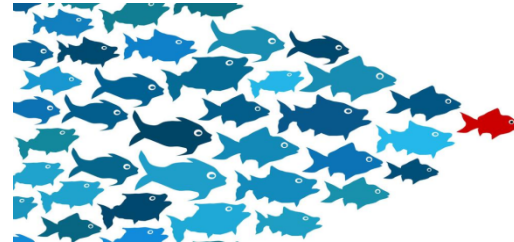
Technology & Business
models



Culture



Performance management



Leadership

Conclusions

- Digitalization is not about technology, it's about people and strategy
- Change promoting mindset, culture and leadership are mandatory
- Radical challenge of legacy for disruptive leaps
- Organize and manage for agile development

Thank You
www.fastems.com

