

Incremental Implementation of INDUSTRY 4.0 Practices

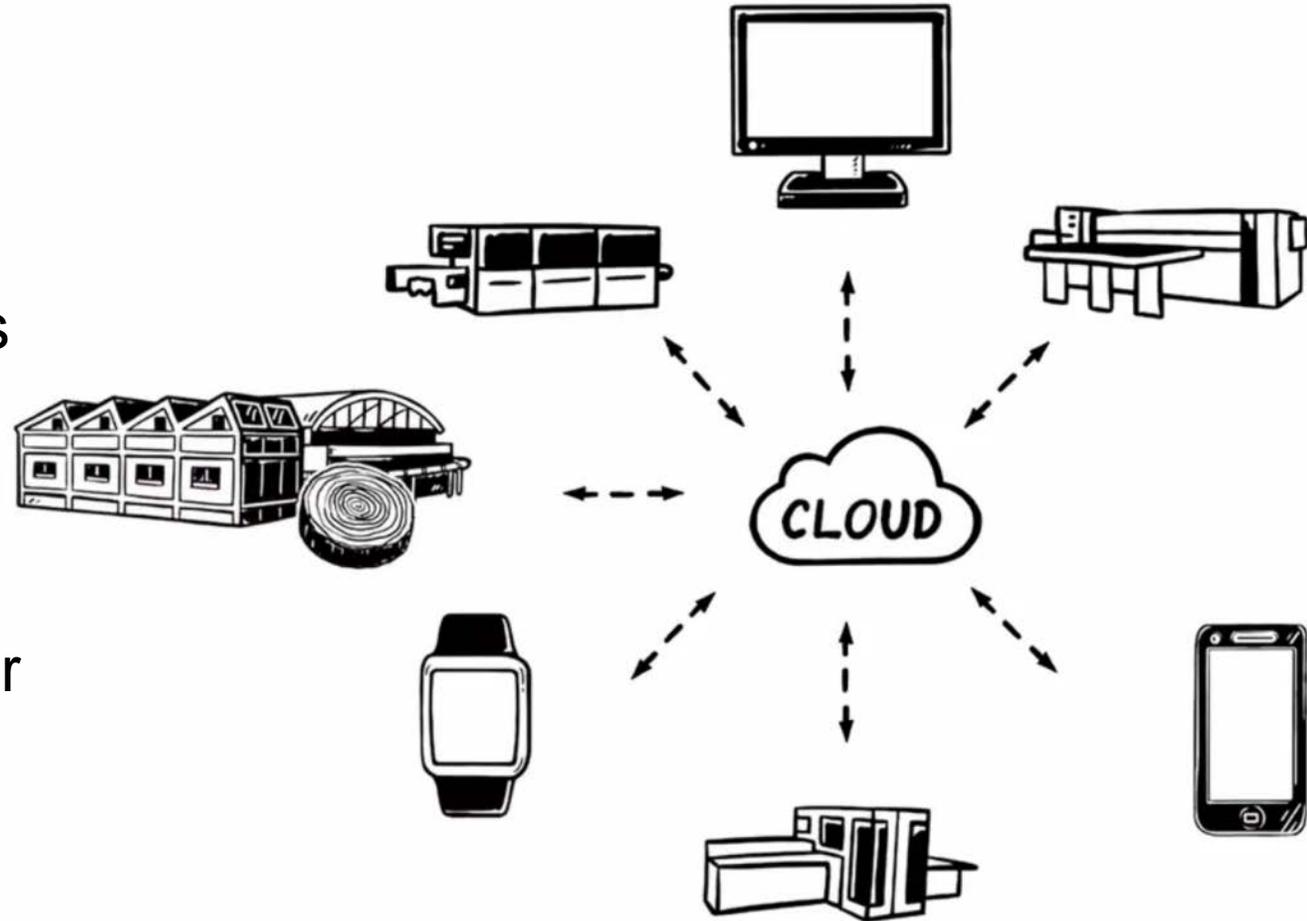
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Project Sales Manager

Stiles Machinery

Industry 4.0

The basic principle of Industry 4.0 is that by connecting machines, smart work pieces and systems, businesses are creating **intelligent networks** along the entire value chain that are able to communicate with one another independently and over the Internet.



Smart Factories

Industry 4.0 is the framework of "**Smart Factories**".

- Within a modular structured Smart Factory, **cyber-physical systems** monitor physical processes and make decentralized decisions.
- Over the Internet of Things, **cyber-physical systems** communicate and cooperate with each other and with humans in real time.
- **Cyber-physical systems** are IoT (Internet of Things) enabled devices / machines

Design Principles of Industry 4.0

There are six design principles in Industry 4.0

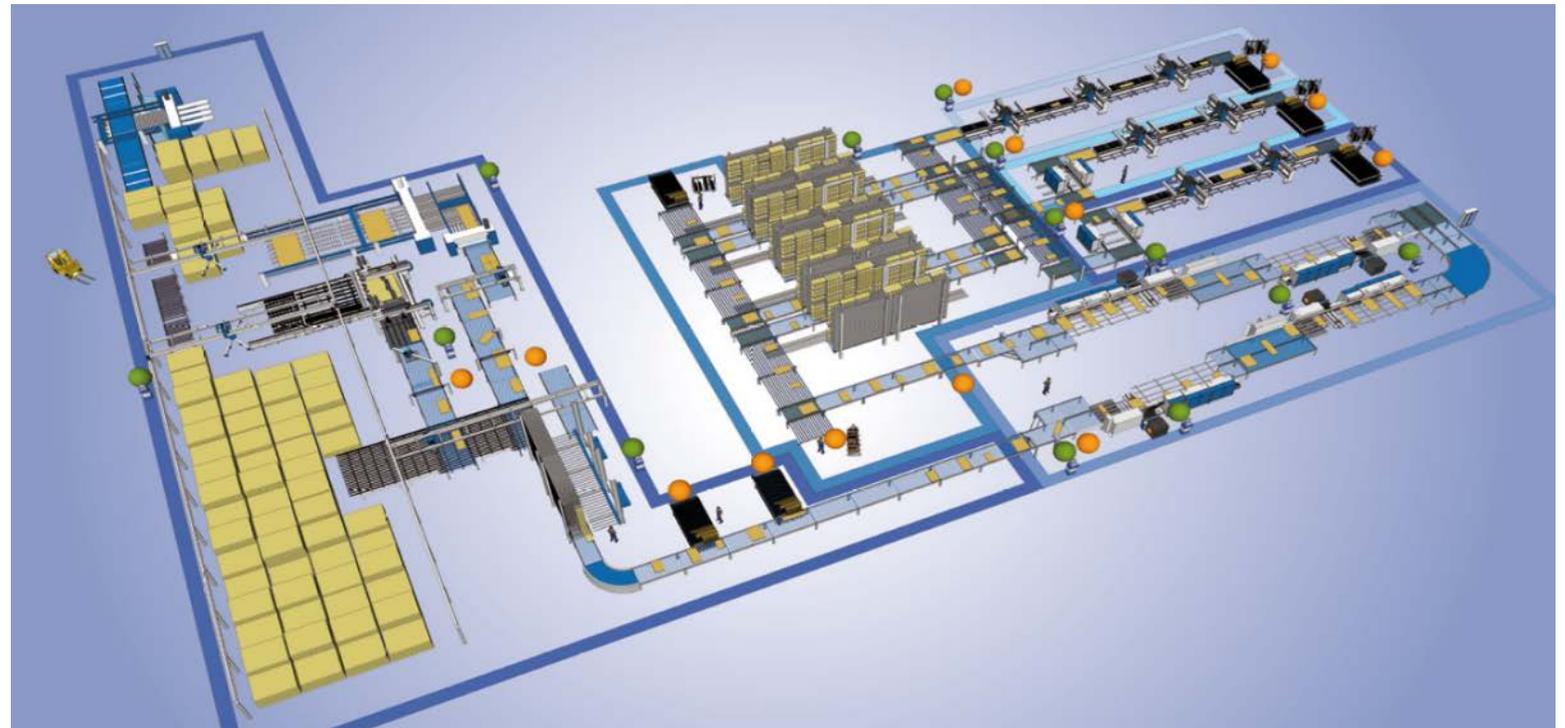
- **Interoperability**
- Virtualization
- Decentralization
- Real-Time Capability
- Modularity
- Service Orientation



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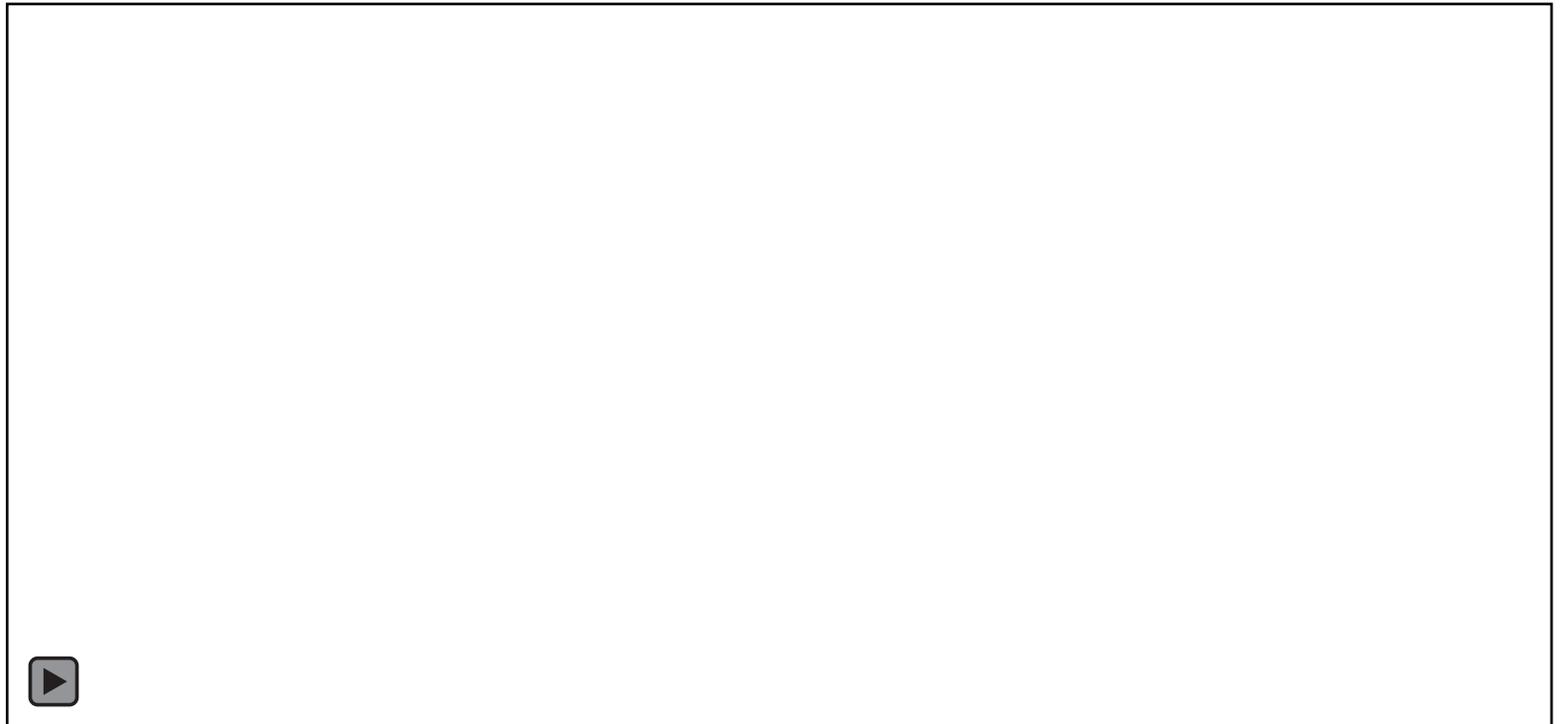
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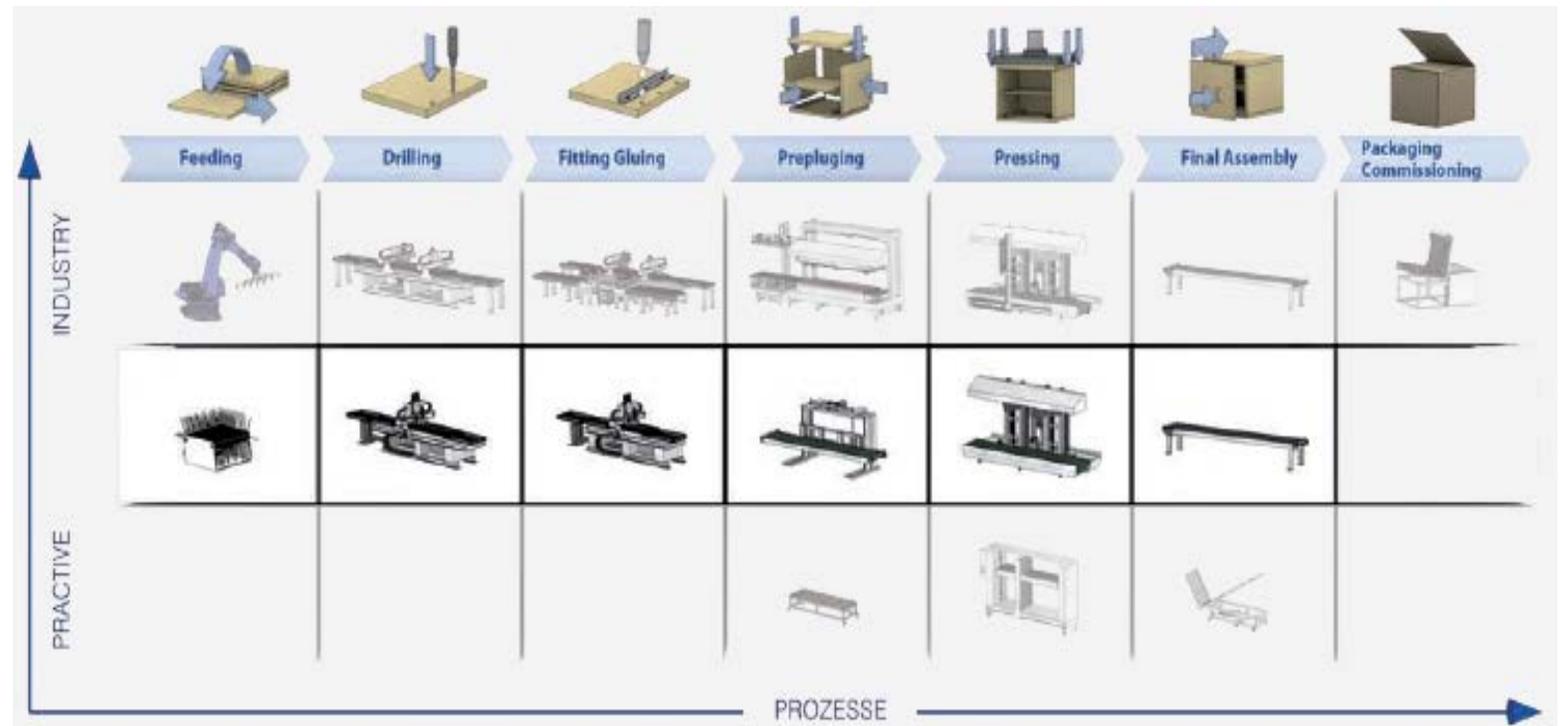
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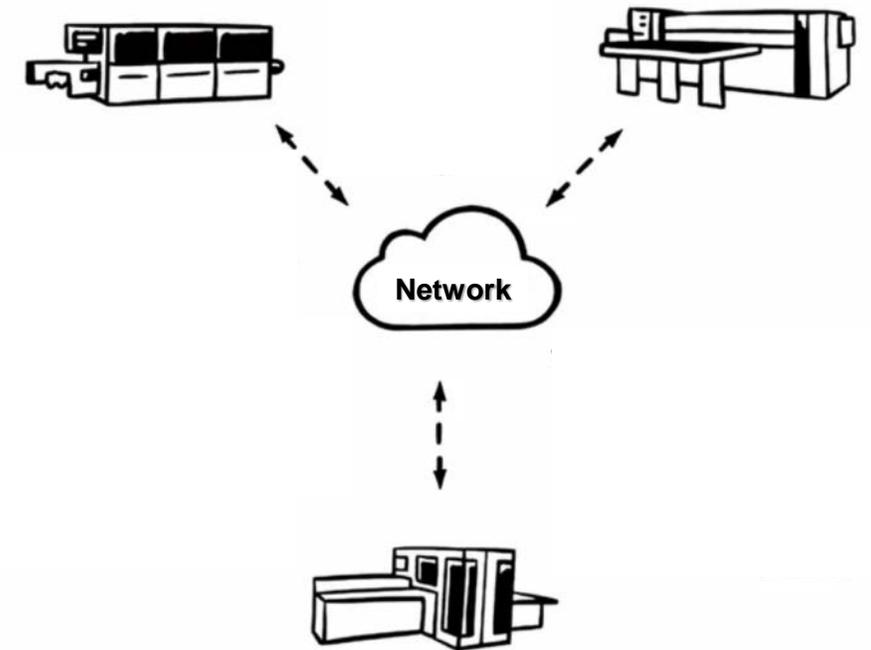


Networked Production in 5 steps

Step 1

Create the basic networked infrastructure

- Connect machines to the company network
- Implement a central file storage on a server

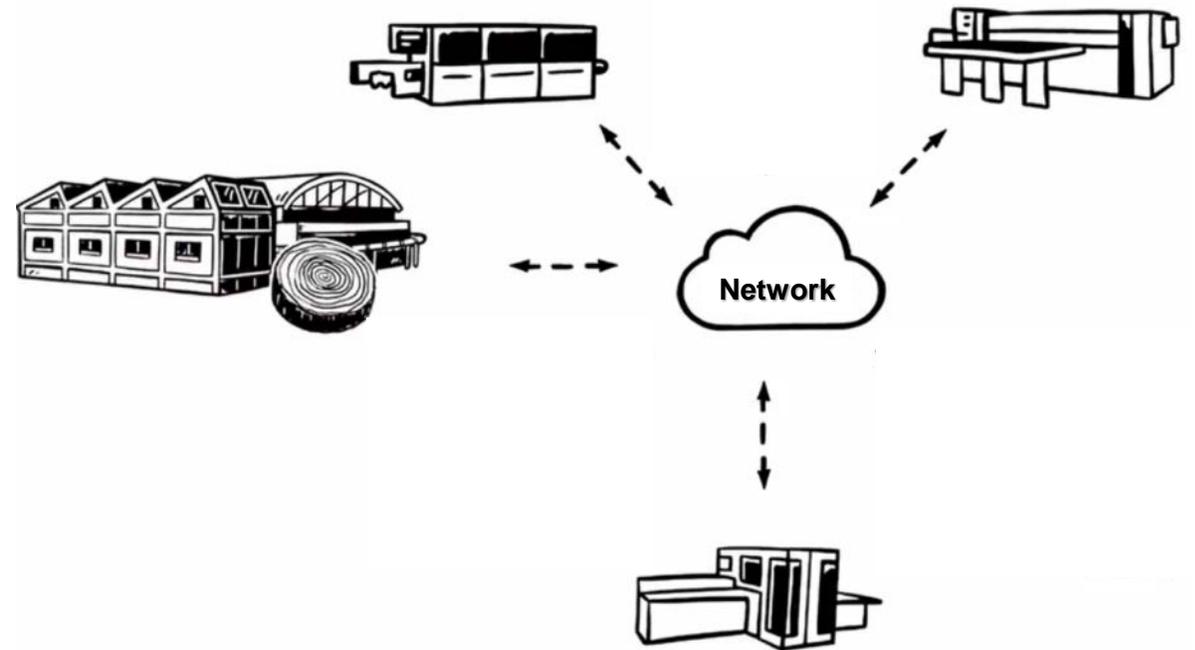


Networked Production in 5 steps

Step 2

Network the office and production

- Move all data preparation such as CNC programming to the office
- Implement SMART workpieces through part identification (i.e. labels with barcodes)
⇒ The Digital Component



Networked Production in 5 steps

Step 3

Vertical Networking

- Use of automated software helper tools, such as DXF-Import, woodWOP Project Manager, etc.
- Implementation of flexible CAD|CAM systems
- Implementation of scheduling software
- Utilization of manufacturing execution systems, i.e. Controller-MES

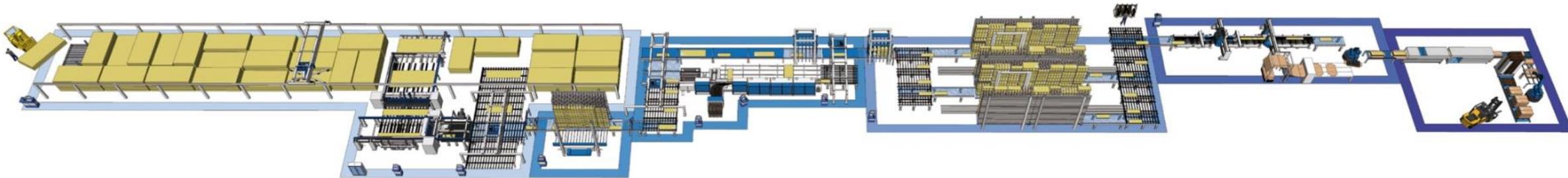


Networked Production in 5 steps

Step 4

Horizontal Networking

- Optimization of Production Processes
- Management of bi-directional information flow

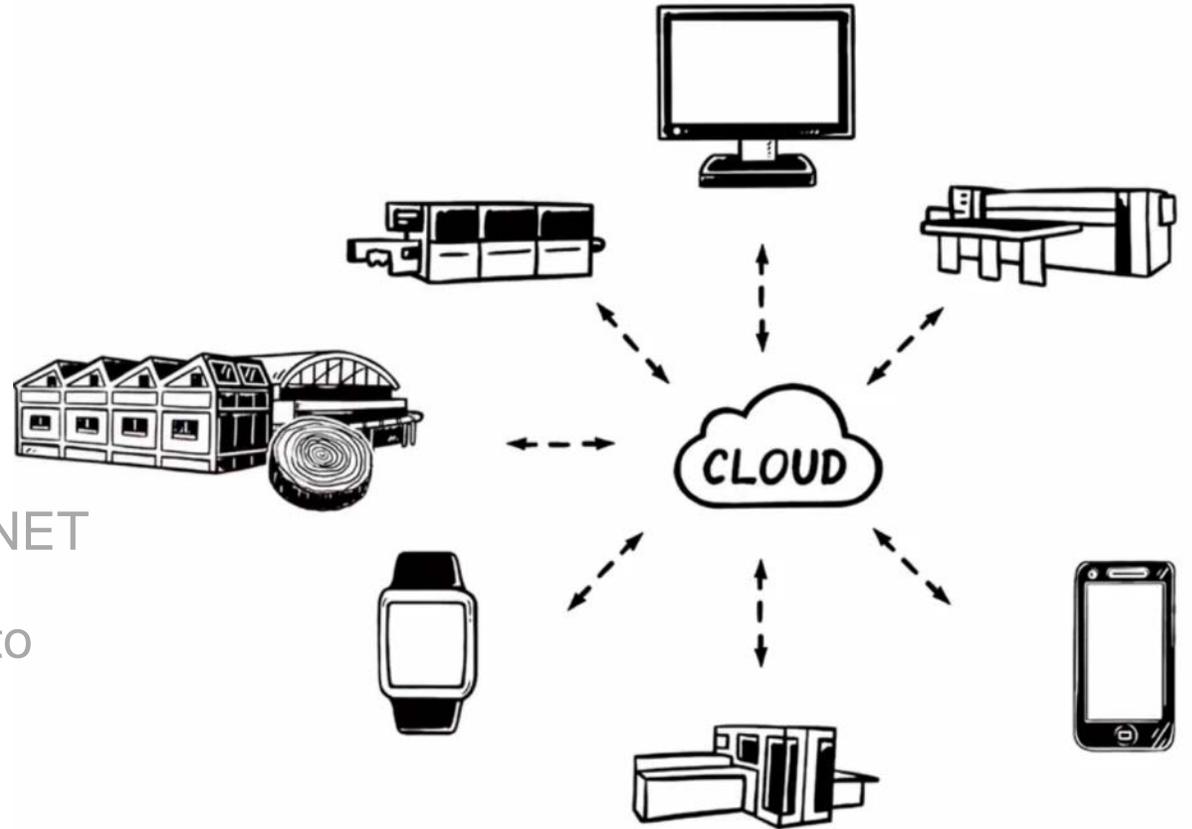


Networked Production in 5 steps

Step 5

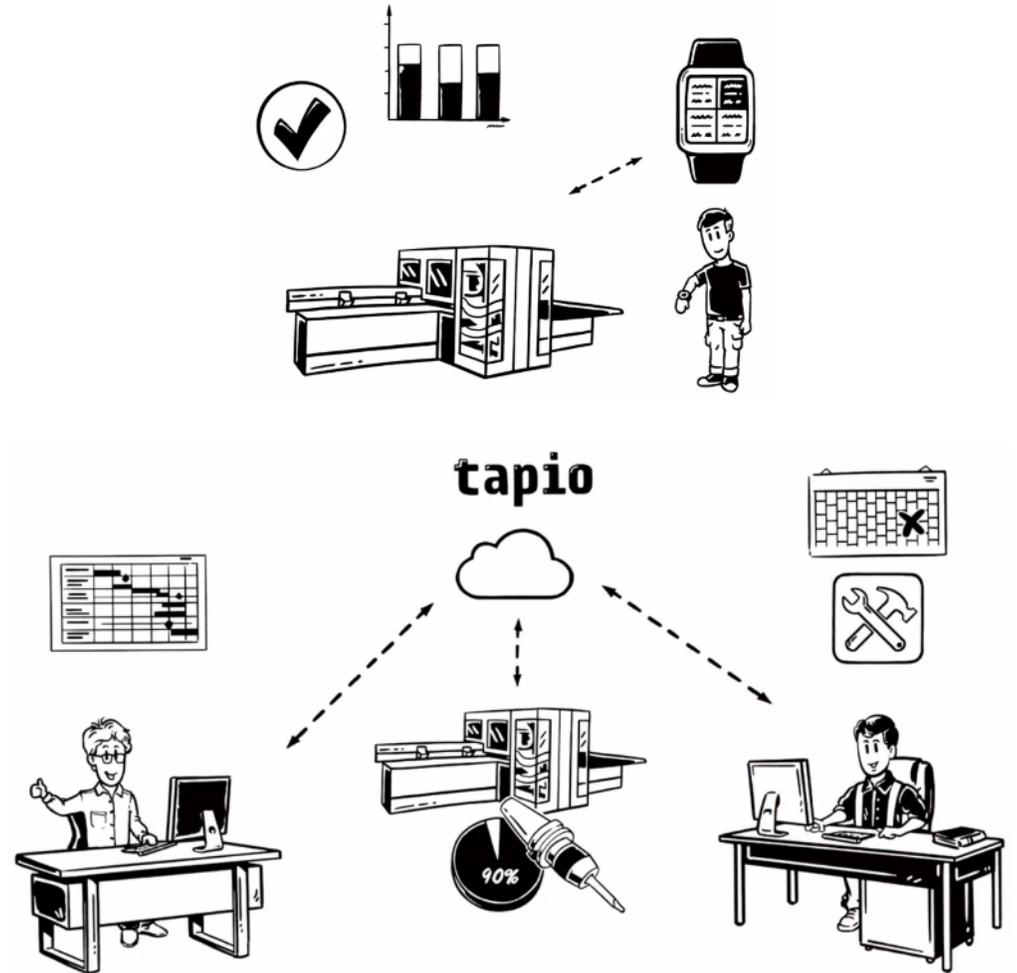
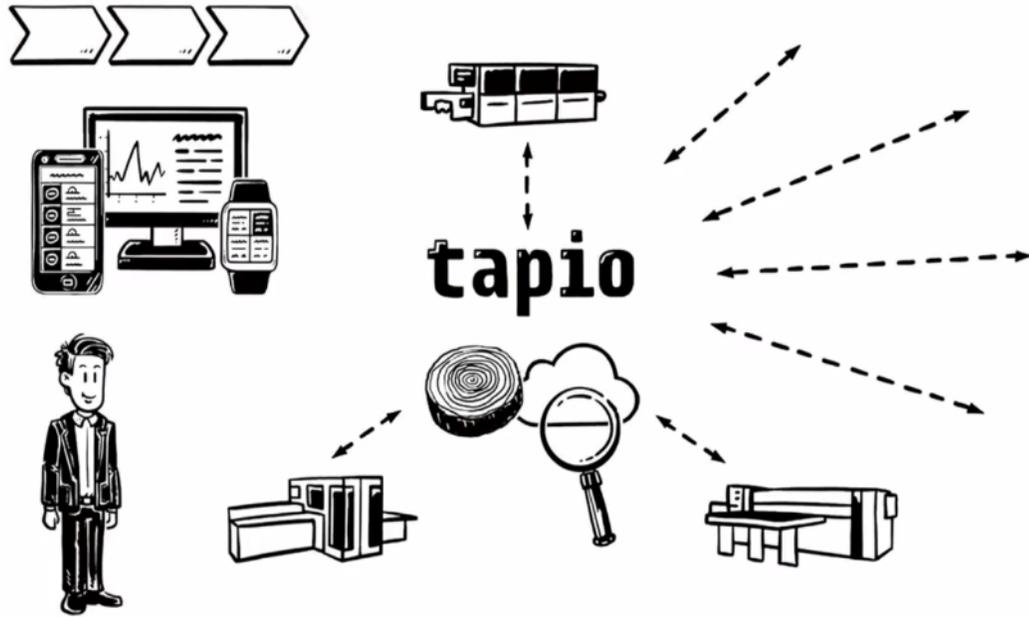
Connection to Online Services

- Integration of online POS (point of sales) tools that directly integrate into design and order processing, such as woodNET
- Online connection to raw material suppliers to automatically trigger orders



Connection to the CLOUD

tapio The Open CLOUD platform
for the wood working industry



tapio



tapio is not just a concept.



It works.

It connects machines and processes.

It is the future for our Industry.



Takeaway Points

- Industry 4.0 facilitates the execution of a "Smart Factory" through networked production
- A Smart Factory enables you to operate a manufacturing environment that constantly re-evaluates itself and makes logic decisions based on real-time data.
- **tapio** connects your Smart Factory

- **tapio** is more than Industry 4.0, more than the IoT, it is the framework that
 connects everything through the CLOUD

Questions

Thank you.

