

A blurred photograph of a modern office hallway with large glass windows and a central revolving door. Several people in business attire are walking through the hallway, their figures out of focus to convey a sense of motion and activity.

SIEMENS

August 2019

Industry 4.0 from Vision to Implementation

Digitalization Areas in low volumes manufacturing

INDUSTRY 4.0



AUTONOMOUS
ROBOTS



SIMULATION



SOFTWARE
INTEGRATION



INDUSTRIAL
INTERNET



CYBER
SECURITY



CLOUD



ADDITIVE
MANUFACTURING



AUGMENTED
REALITY



BIG DATA
& ANALYTICS

Just like LEAN, it's not just for manufacturing

Sales and marketing tools

Design and engineering

*Operation and Service
Live feed of data*

*Collaboration platform
with suppliers / customers*

Installation and commissioning

Supply chain modelling



Virtual training of operators

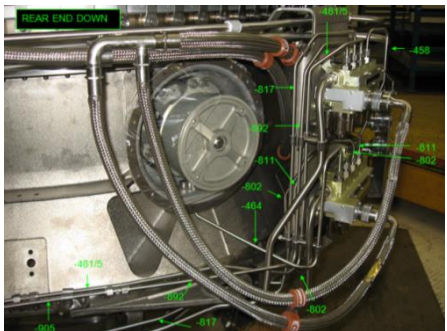
Manufacturing and assembly

↓ Cost
↓ Time to market
↑ Market share
↑ Quality

Vision

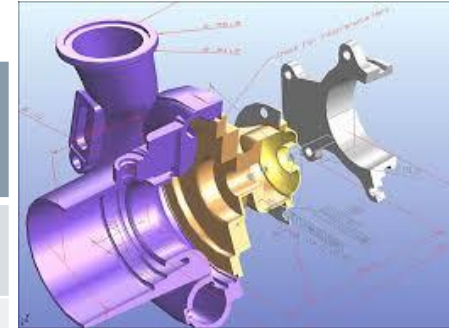


Paper instructions

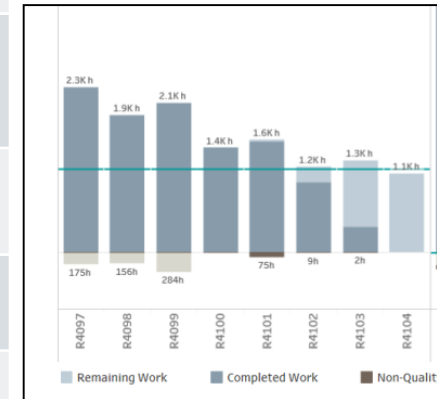


Complex operations supported by pictures

Yesterday	Industry 4.0
Instructions delivered to the shop on paper	Electronic work instruction 3D CAD models
On the job training Tribal knowledge	Knowledge captured and continuously improved
Data collection in paper form	Digital Twin captures data throughout life cycle
Many system / software not communicating	Software integration
Scheduled maintenance No equipment monitoring	Predictive maintenance Live diagnostic of equipment
Many manual data manipulation Little automation	Automation of processes Reports/KPI generated live



3D Electronic Work instructions



Live Shop performance reports

Lessons learned from our digital journey?



- Start small
- Get help (conference, working group, etc)
- Involve IT and HR