

BIO

- ▶ Hans J. Lynggaard
- ▶ NOVOTEK (MES, Automation, Scheduling)
- ▶ 15 years at NOVOTEK
- ▶ Co-founder of scheduling division
- ▶ Background: Research and Industrial Automation
- ▶ www.rob-ex.com (NOVOTEK scheduling site)
- ▶ www.novotek.fi



Agenda

Top- and bottom-line

Closed loop production scheduling

Industrial internet enabling scheduling

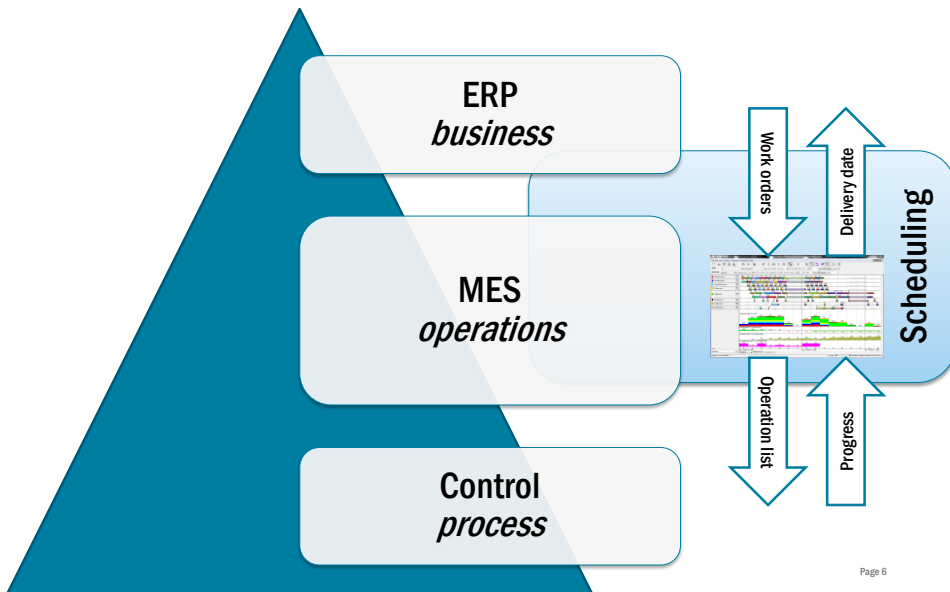
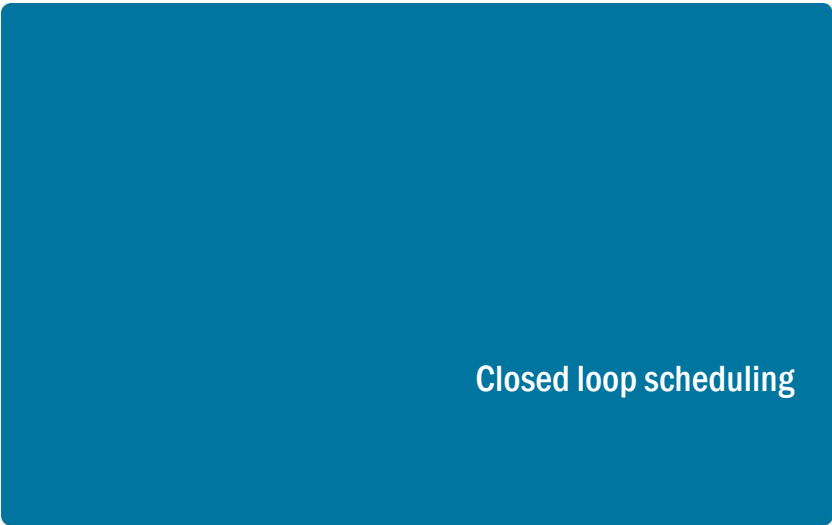
Top 3 scheduling ROI's

 **Reduce labour costs**

 **Increase revenue**

 **Reduce capacity costs**







Discrete Manufacturing

- Metal Machining
- Hydraulic components



Batch processing

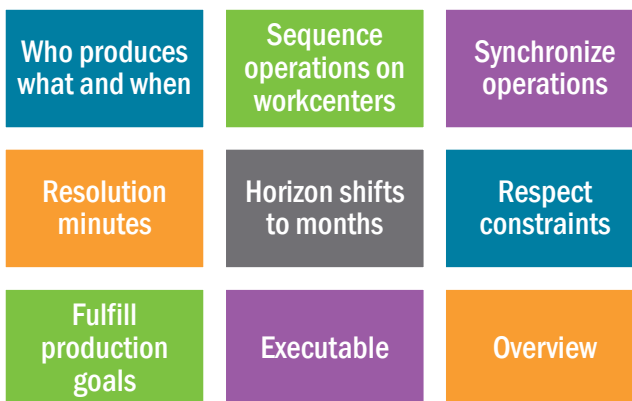
- Food & Beverage
- Yoghurt

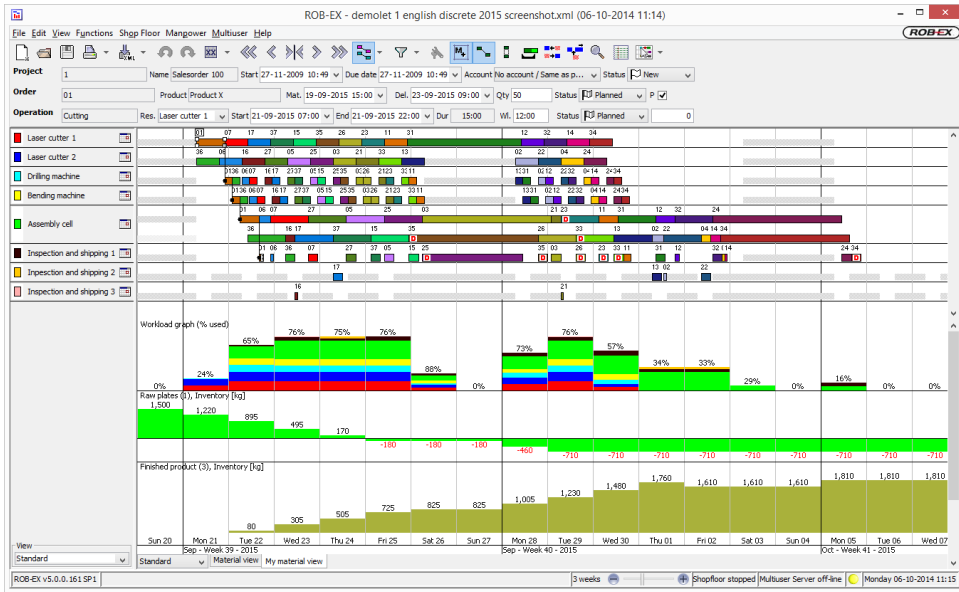


Project Manufacturing

- Equipment Manufacturers
- Food processing lines

About the production schedule





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The scheduling challenge

Constraints

- Due dates
- Cost
- Capacity
- Sequence
- Regulations

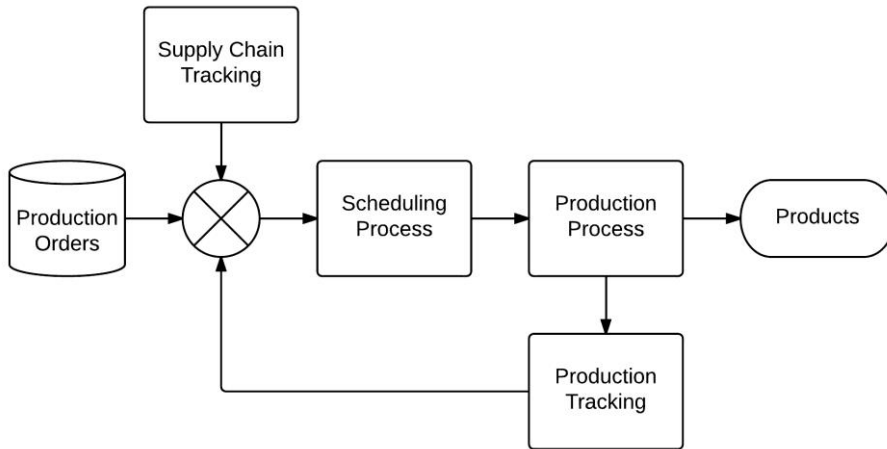
Variation

- Work order changes
- Process
- Demand
- Ressource availability
- Material supply and properties

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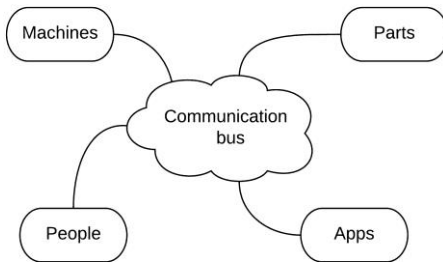
10/10/2014

Closed loop scheduling



Closed loop scheduling
and the Industrial Internet

Industrial Internet facilitating scheduling



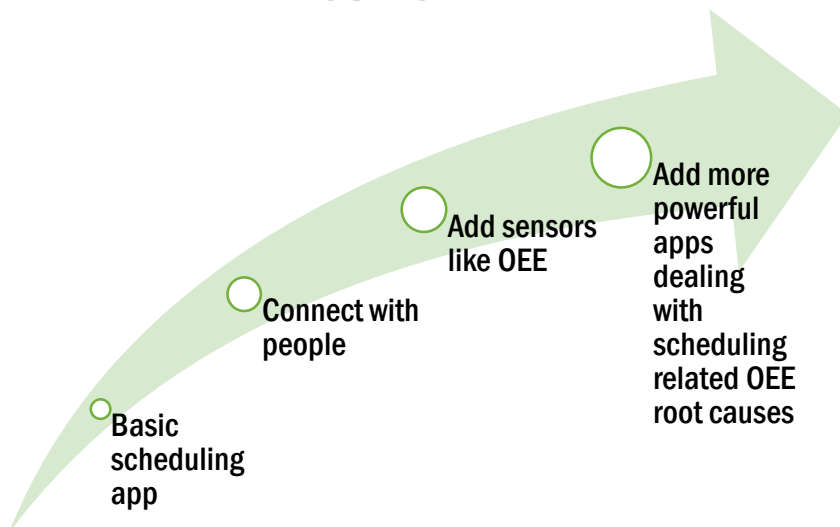
System level scope

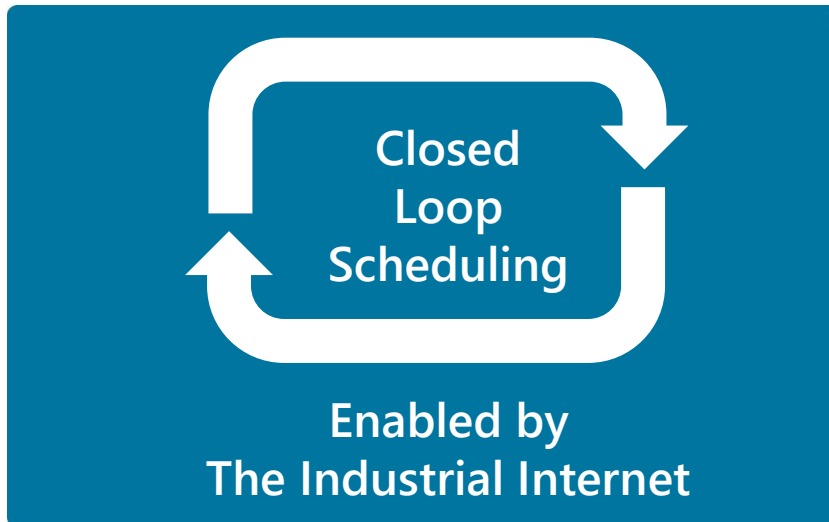
- Internal supply chain
- External

Quality in data

- Frequent
- Precise
- More parameters

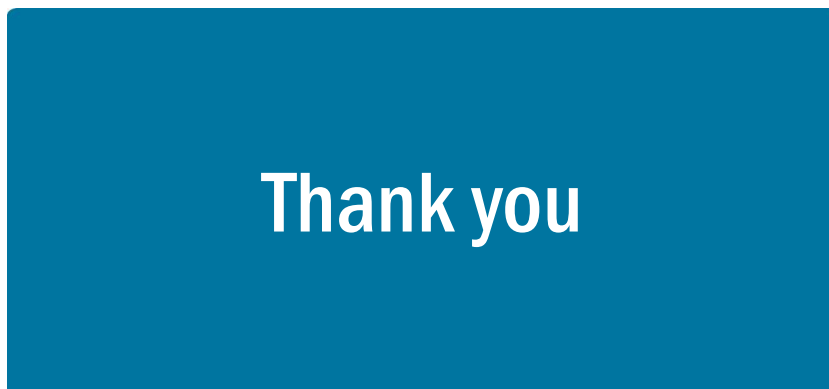
Enabling progressive roll-out





Closed Loop Scheduling

Enabled by
The Industrial Internet



Thank you