Summ Systems

For Digitized Smart Factories

Integrated Engineering 4.0

Vejen til integrated engineering

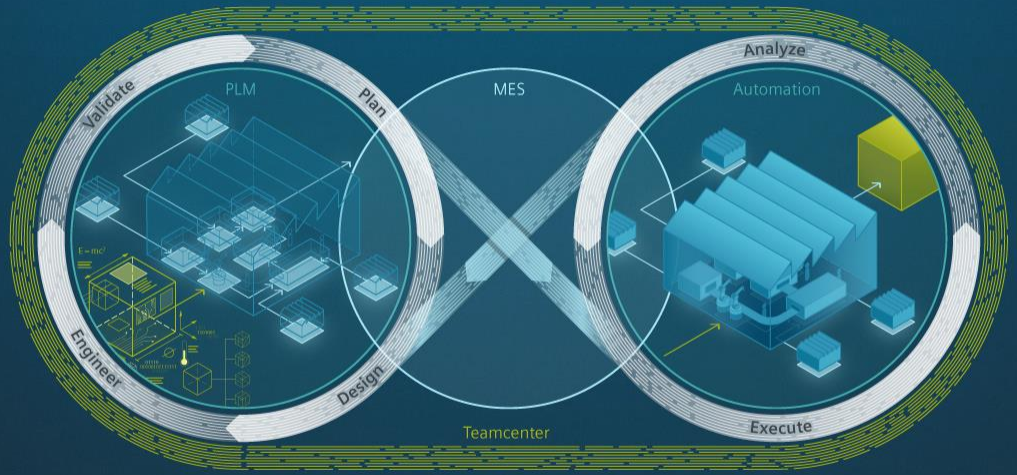
Paradigmskiftet inom tillverkningsföretaget

<u>EN datamodell</u> för alla tekniska områden/processer

"BOP" Bakgrund

- **Planering/krav**
- **Konstruktion**
- **Simulering**
- **Prod.balansering**
- **Risk hantering**

IBS QMS: Closed Loop Quality



Alla tekniska områden I

EN data modell

Virtuell

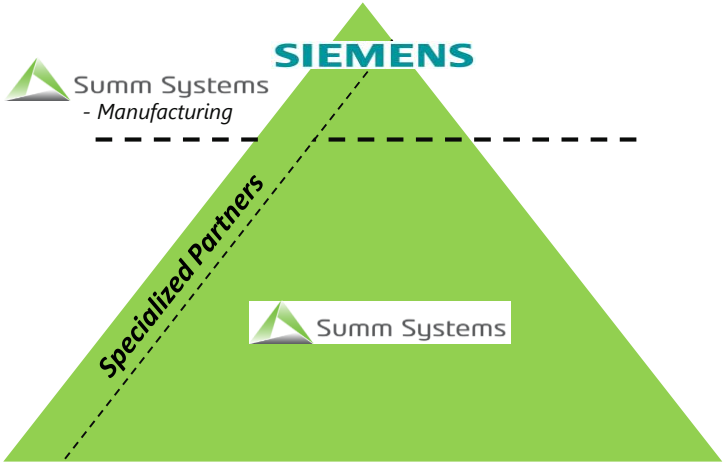
Verklig

"BOP" Genomförande

- **Order-hantering**
- **Risk-hantering**
- **Ledning/styrning**
- **Tillverkning**
- **Spårbarhet**

Go-to-market model – Nordic

- Office in Linkoping Gothenburg, Sandviken and Oslo
- ***Startup in Denmark from summer 2017, Roskilde***
- 26 people
- All employee have a design- and/or manufacturing engineer background
- Specialistpartner to Siemens PLM
- Close coperation with Siemens DF, Nordics and other OEM's within advanced automation



teamster
TechROi
KONSULTINGENJÖRER
swerea
swedish research
semcon
JIGSAW
ROBOTICS AND AUTOMATION
MODIG
SWEDEN
VERKTYGSMEKANO
Westinghouse
sapa:
PARTNERTECH
VERTIV
Tooltec
SAAB
TECHNOLOGIES
BHARAT FORGE
KILSTA
KONGSBERG
AUTOMOTIVE
TRESTAD
LASER AB
Rolls-Royce
APT
AUTOMATION · PRESSES · TOOLING
Alteams Group
BOFAB
LKN
swisslog
BHARAT FORGE
KILSTA
MEKVERKEN
tool ab
inm
HB Mekaniska
AB Produktions Service APS
DEVEX XR AB
BRANTHEIM
CJ Automotive
ALTRAN
CAMPOSTPRO
SWEDEN AB
CeeMVe Mekaniska Verkstad AB
CHALMERS
DEVEX
MEKATRONIK
Barilla
DIANOR
EMERSON
Process Management
Autotech
Fuji Autotech AB
HARDAB
HÖGSKOLAN
I SKÖVDE
HSF
GROUP
HSF i Vimmerby AB
Intermekano Tools
VICURA
Delivering driveline technologies
JOAB
LAMECO
AB
LEAX
ARKIVATOR
TELECOM
NEVS
WILHELM
HAGLUNDS
GYMNASIUM
MVG
Motala Verkstad Group
SVENSK TRYCKGJUTNING
IVARS VERKTYG AB
FORSHEDA
P·B·H TEKNIK AB
ALSTOM
Rapid
Reduce · Reuse · Recycle
SWE FOG
tau
BERÄKNING
THORSMAN
TRELLEBORG
plastal
VIRTUAL
manufacturing
TEKNISKA HÖGSKOLAN
HÖGSKOLAN I JÖNKÖPING
SANDVIK

AGILITY
Subsea Fabrication
aibel
biobe
EKER DESIGN
Laerdal
helping save lives
aquamarine
SUBSEA SOLUTIONS
DYNATEC
DRESSER-RAND
Business
kverneland
group
MJØS
METALLVAREFABRIKK AS
FMC Technologies
FFI
Forsvarets
forskningsinstitutt
BW Offshore
molstad
modell&form
Nammo
otivio
OneSubsea
A Cameron & Schlumberger Company
NorSap
NORSE OILFIELD SERVICES
RAINPOWER
NAXYS
Skriverform a.s
SEC
Scandinavian Engineering Corporation
Spetals verk
EGENES
BRANNTEKNIKK AS
TOMRA
Systor
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schenckprocess
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TECHNIUM
Keep-it
TECHNOLOGIES
N A
Seasafe Transport A/S
RING MEKANIKK
AEH GROUP
TYSSE
Tech
DAMPER
DEC as
DESIGN - ENGINEERING - CONSULTING

So, let’s jump into todays topic….

10.00 Advanced Manufacturing — a key part of Integrated Engineering

Learn how Advanced Manufacturing can be implemented using Digital Twins, simulations and integrated software concepts. See why design and simulations of machines, production lines and whole plants, including mechatronics and robotics, are important cornerstones of your future automation projects. Get inspiration to your own digitalization strategy via selected Nordic customer cases.

Digital Production Optimization

Integrated Engineering 4.0

Vejen til integrated engineering

DAu

- Advanced Manufacturing — a key part of Integrated Engineering

Industrial Skills for Design & Manufacturing Excellence

Solution Partner PLM SIEMENS

Siemens PLM Software Solution Partner

Summ Systems

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Team Leader – Digital Production Optimization

- Solution architect/advisor
- Project leader/lead engineer

Background

- Manager of Design Engineering & Development
  - *Sandvik Materials Technology*
- Senior Automation Engineer
  - *Midroc Automation*

Digital Production Optimization

Advanced Manufacturing

- Pacing
- Planning
- Scheduling
- Optimization
- Parameter Registry
- Process Safety SIL
- Machine Safety PL
- Safety Matrix
- Remote Support
- Local Support
- QR Codes
- RFID
- SCADA
- DCS

Customers

- MOM
- MES
- QMS
- Automation
- Maintenance
- Sustainability

Sales

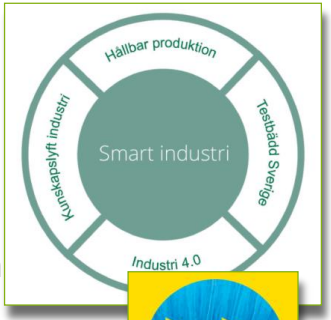
- IT Security
- WLAN
- IWLAN

- Machine Learning
- Advanced Analythics
- Artificial Intelligence
- Predictive Maintenance

- Operating
- Monitoring
- Smart Alarm Handling
- Optimized Dashboards

- Edge Computing
- Virtual Comissioning

- Collaboration
- Startups



- CAD
- CAM
- PLC
- CNC

- Big Data
- Production Data
- Cloud Integration
- Tracking
- Traceability
- Reporting
- Process historian
- High speed data logging
- Video & data in sync

- Simulation
- Digital Twins
- 3D Scanning
- 3D Walk Through
- Augmented Reality
- Testing
- Training
- Validation
- Verification
- Inspection

- Engineering
- Best Practice
- Standardization
- Integration Strategy
- Construction Database
- Version Handling
- Backup Management
- Asset Management
- Lifecycle Management
- Energy Management

- Instructions
- SOP
- Manuals
- Drawings
- Technical Files
- Operational Excellence

- Discrete
- Process
- Hybrid

Plant W

- Production Line W1
- Production Line W2
- Production Line W3
- Production Line W4
- Production Line W5
- Production Line W6

Plant X

- Production Line X1
- Production Line X2
- Production Line X3
- Production Line X4
- Production Line X5

Plant Y

- Production Line Y1
- Production Line Y2
- Production Line Y3
- Production Line Y4

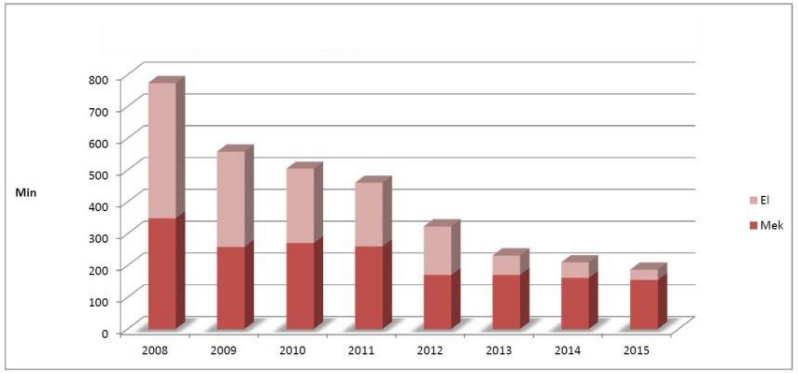
Plant Z

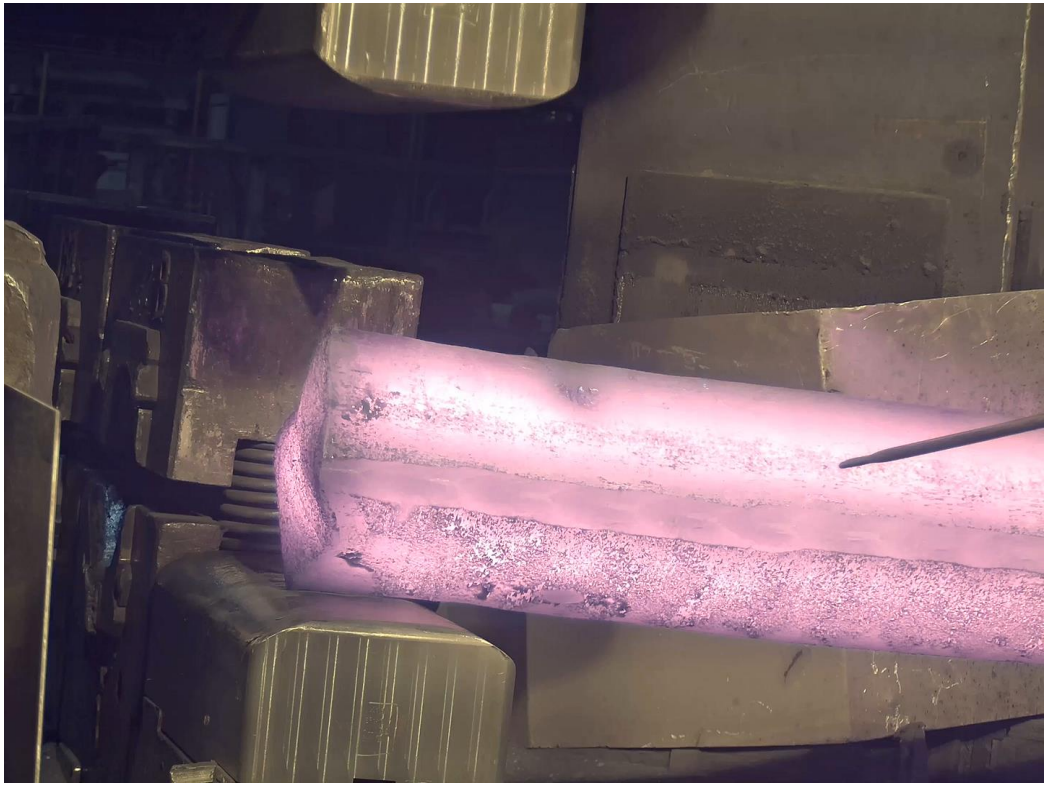
- Production Line Z1
- Production Line Z2
- Production Line Z3

@ The Forging Plant, Sandvik Materials Technology, Sweden

Reduction of downtime by **75%** = 4,2M EUR / Year

År	Mek	El	tot
2008	348	426	774
2009	258	300	558
2010	270	234	504
2011	260	200	460
2012	170	153	323
2013	170	61	231
2014	161	49	210
2015	154	33	187





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Success factors to reduce downtime by 75%:

- Standardization, Automation & Industrial IT policy
- Increased level of automation in a common redundant & failsafe control system that can handle operating/ monitoring and process/machine safety for all lines, cells and machines in the plant
- Digital twin for the control system
- Full traceability at individual level
- High speed data logging system synchronized with video camera system
- Smart Alarm Hiding, Smart Alarm Statistics
- All diagnostic data for sensors, failures, alarms etc. easy available in the control system
- All documentation easy available in the control system e.g. instructions, electrical drawings, maintenance instructions
- One buffered connection to the MES-level for recipes, parameters etc

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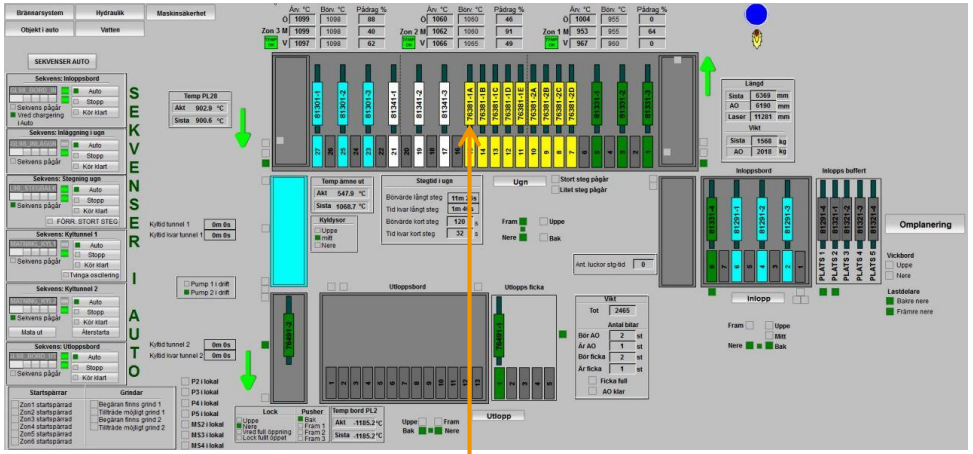
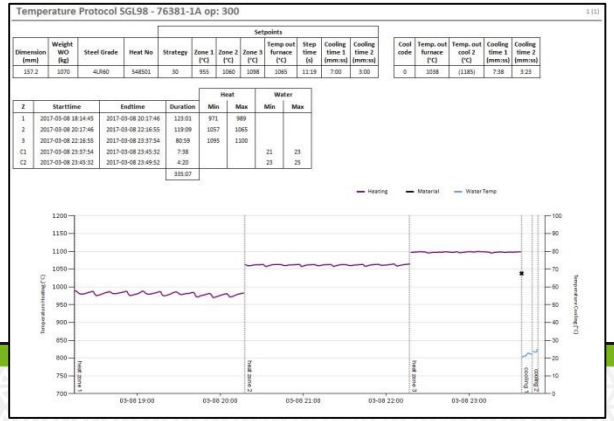
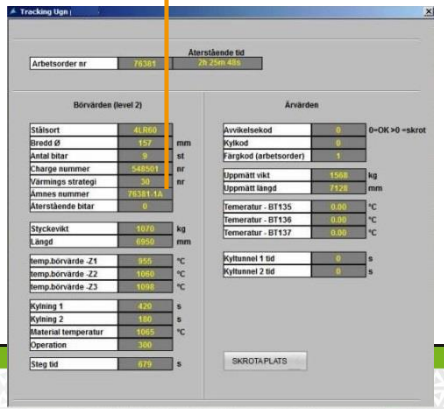
Full traceability







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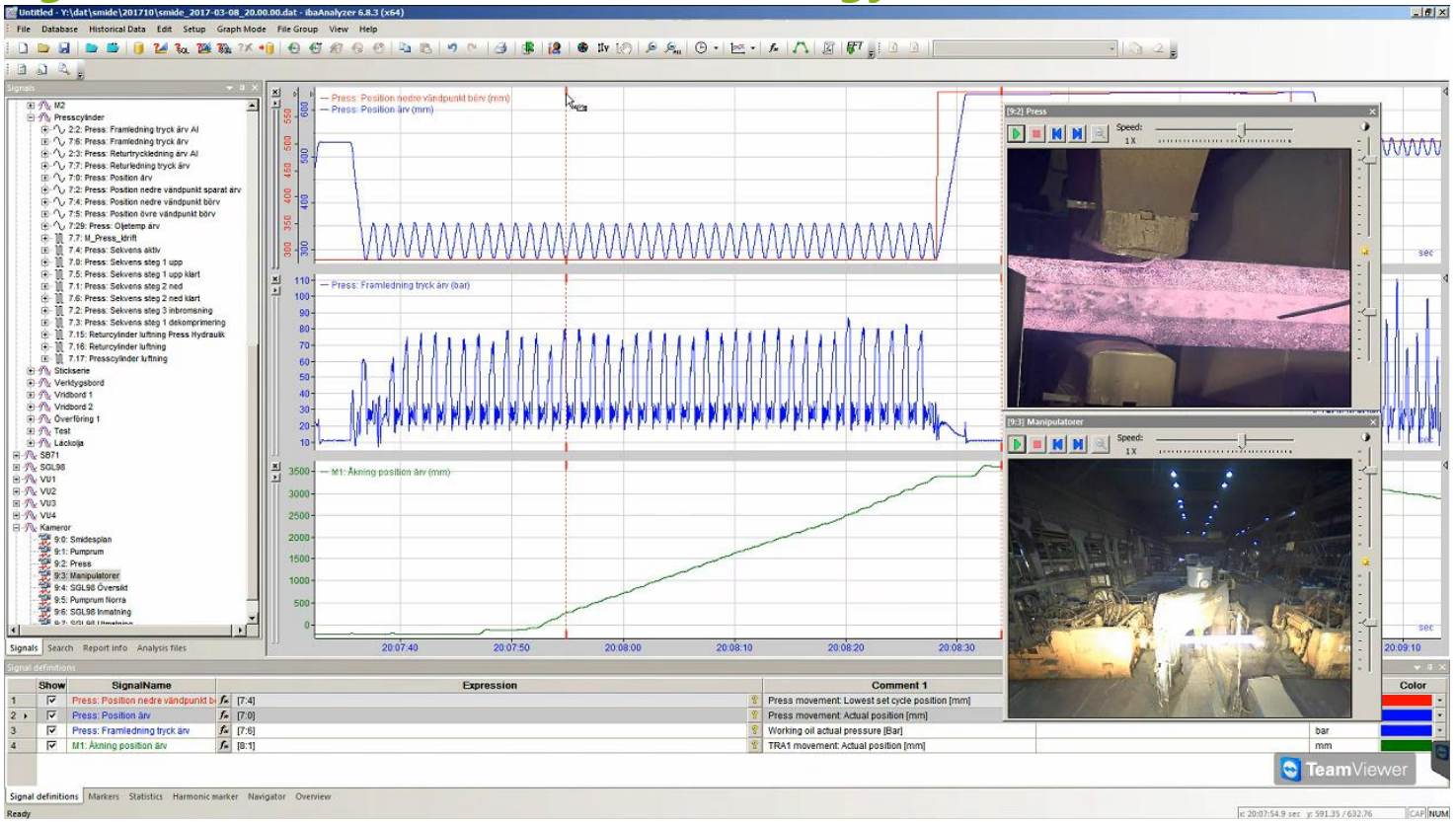
Video in sync with high speed data logging



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Next step no 1:

Tecnomatix
Plant Simulation

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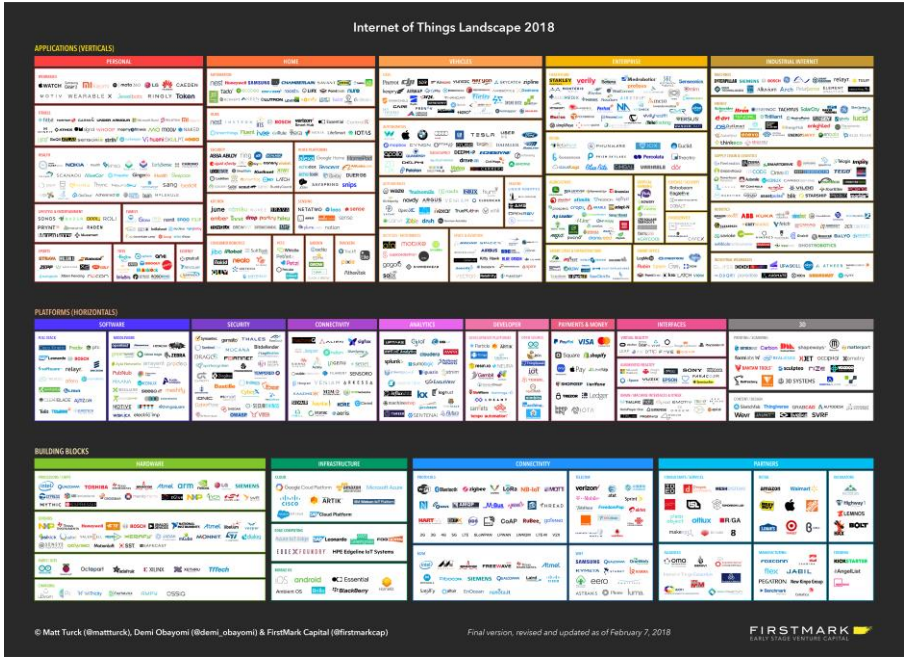
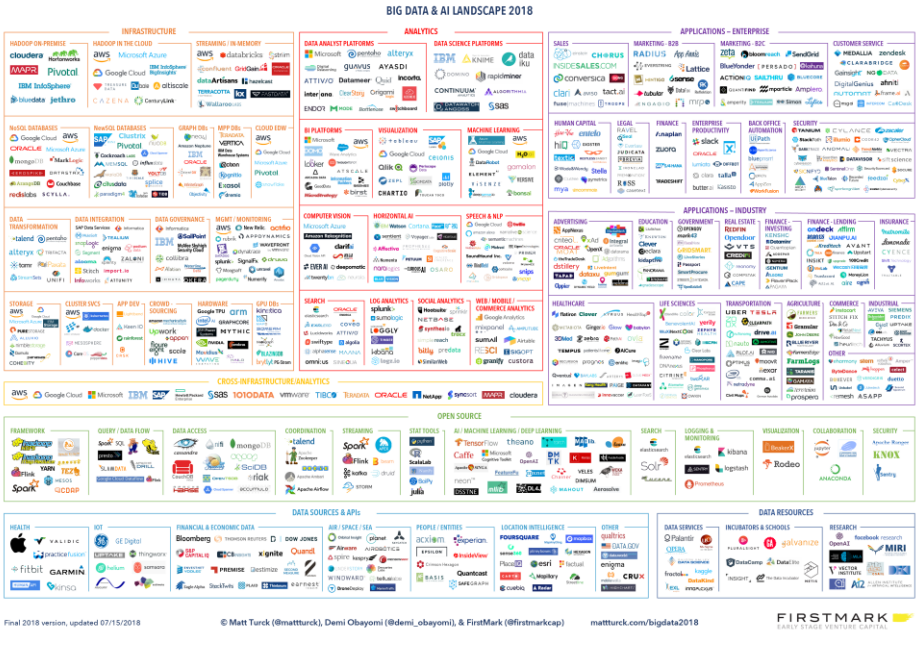
Next step no 2:

Big Data and AI





Tecnomatix Plant Simulation, live demo