Industrial IoT – The Automation Perspective

ISA Pune Section

TITLE

Industry 4.0 in Process Industries

Presented By Avtar Bratch

Company Name AUCOTEC AG

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With 20 years of technical sales experience providing engineering solutions within the International arena to a number of different industries sectors.

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EB
COOPERATION
PLATFORM

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Why talk about Industry 4.0?

Because everybody is talking about it

You shouldn't have
no opinion

Industry 4.0 is the booster for industrial innovation

Facts

An initiative of the German government

First time mentioned at Hanover Fair 2011

Announcement of the platform at Hanover Fair 2013

(background: keep production in high wage countries)

Why 4.0?

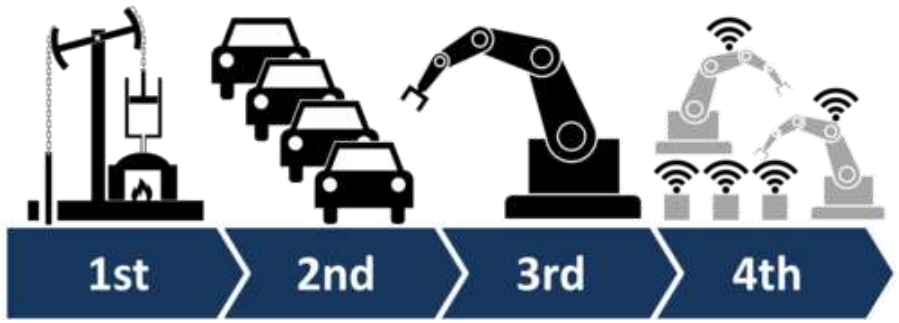
It's about the 4th industrial revolution

1st was steam power

2nd was assembly line

3rd is automation

4th will be cyber physical systems



What means Industry 4.0

- It’s a Holistic Approach
- It’s an Integrated Approach
- It’s a Standardised Approach

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Integrated / Standardised Approach

Level 5 - Business Systems
Level 4 - Plant Level (ERP, MRP, and MES)
Level 3 - Operation Unit Level
Level 2 - Machine/Process Automation Level
Level 1 - Controller Level
Level 0 - Sensor/Actuator Level

Engineering Base

PROTOCOL - ISO15926, IEC62424, NAMUR……
Cyber Security
Cloud Computing – Big Data

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Digitalisation as the Key Factor

Whatever you want to achieve, you need a new quality of data

To analyze, calculate, communicate - data has to be accessible and prepared for interpretation

So far data of production and of the production plant is often only available as (digital) documents

Digitalisation – an old Story?

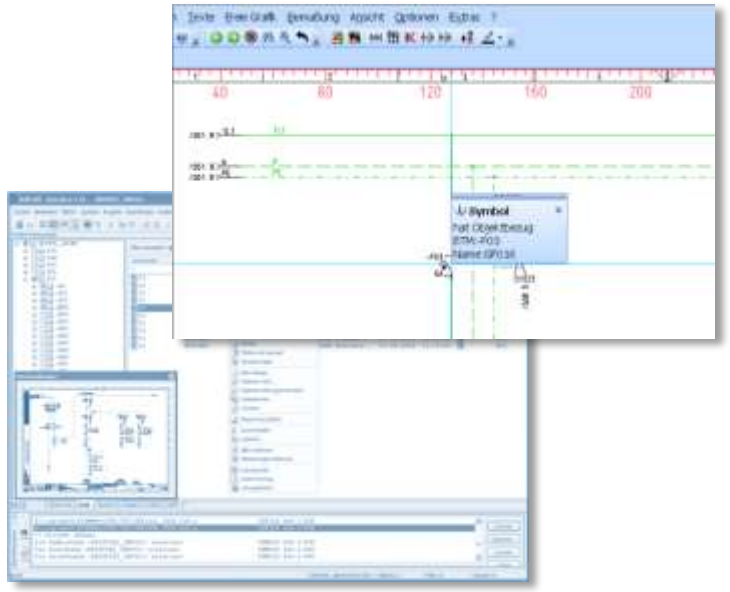
Since the middle of the 1980ies documents are created by software

The results are „digital“

Binary data

printed (analog)

as PDF, DWG, … (digital)



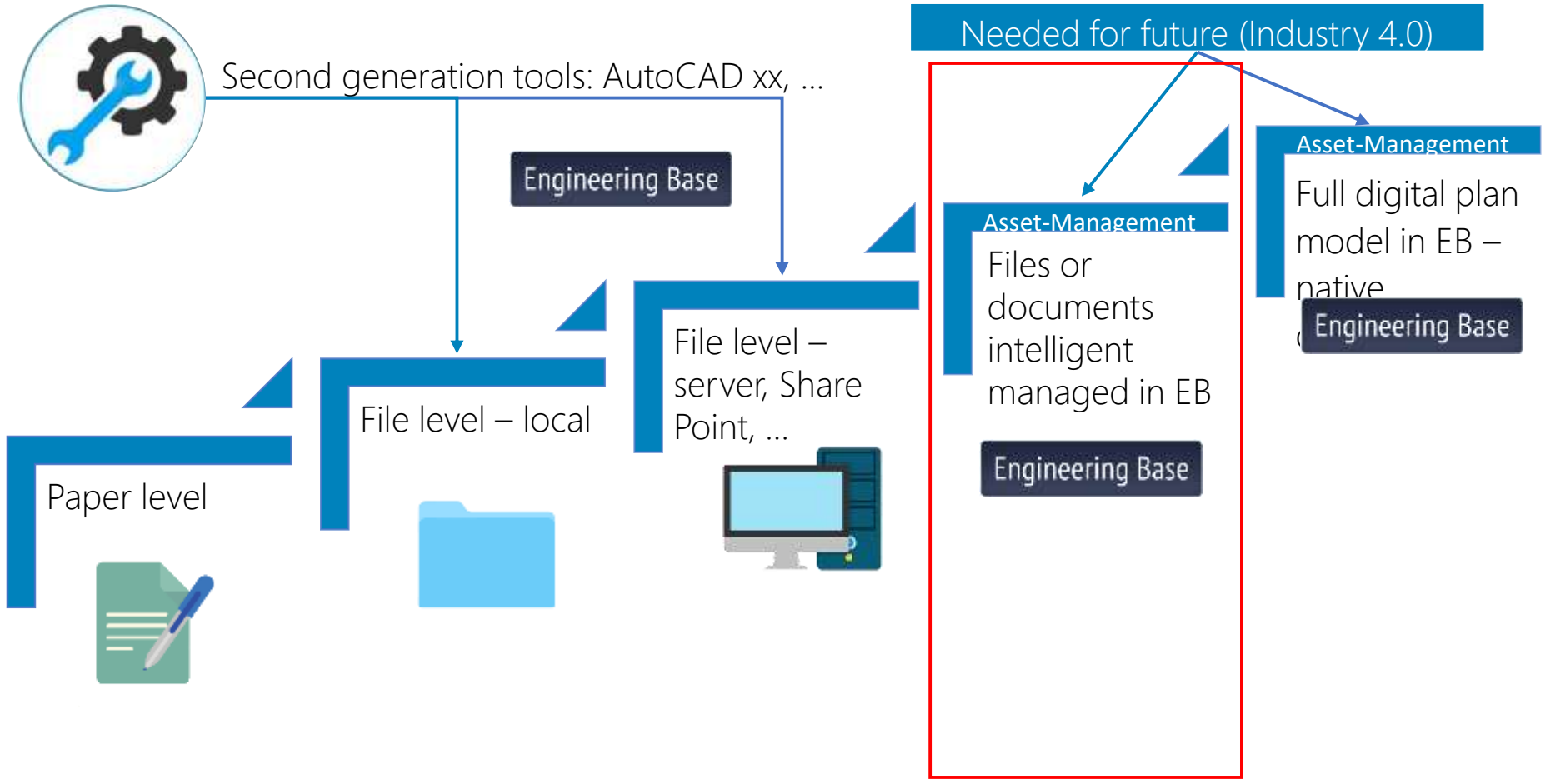
“Digitalisation“ means more

Digitalization today requires intelligent data

Navigation systems do not run on photographs

A virtual model of reality is needed – the digital twin

Digitalisation Level –> 5.0 or 6.0



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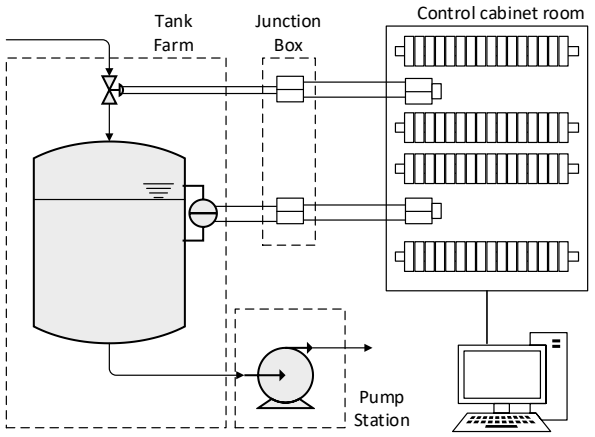
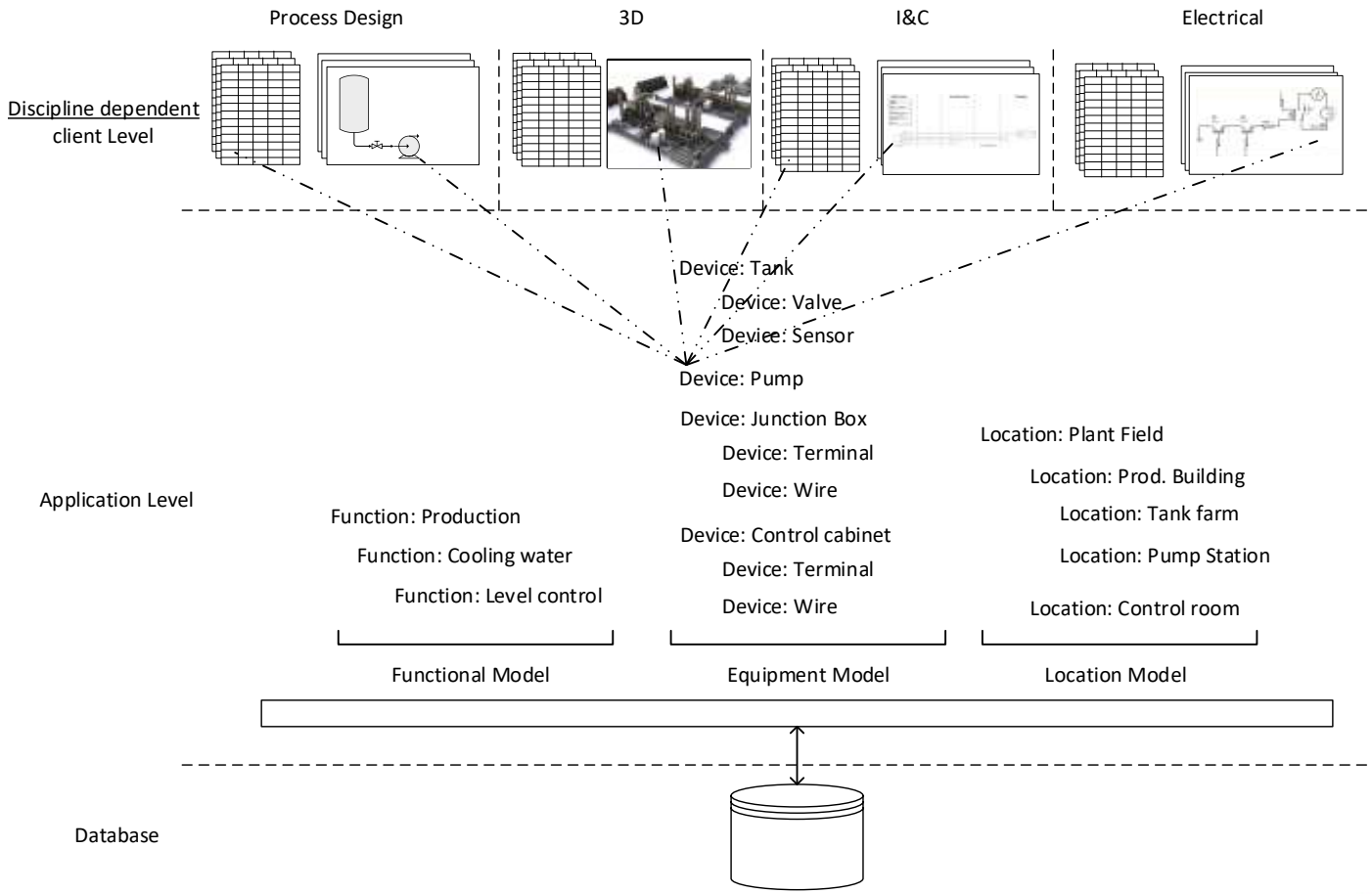
Digitalisation of Engineering





Big Data

Transform the vast amount of data to useful information

- Engineering and construction projects for huge plants today contain big data to be managed
  - Thousands of assets have to be specified plus their dependencies, interconnections and automation

- During operation of a plant big data produced by the automation system that is of value
  - A data model as single source is the enabler for later analysis tools (e.g. for predictive maintenance solutions)

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Value of the Digital Twin

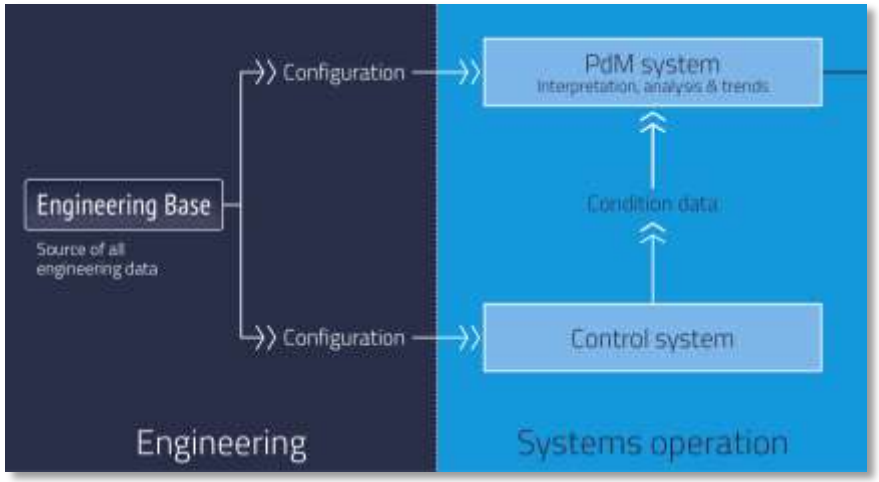
During engineering and construction

The reliable single source of truth as condition for simultaneous engineering and tracking of changes

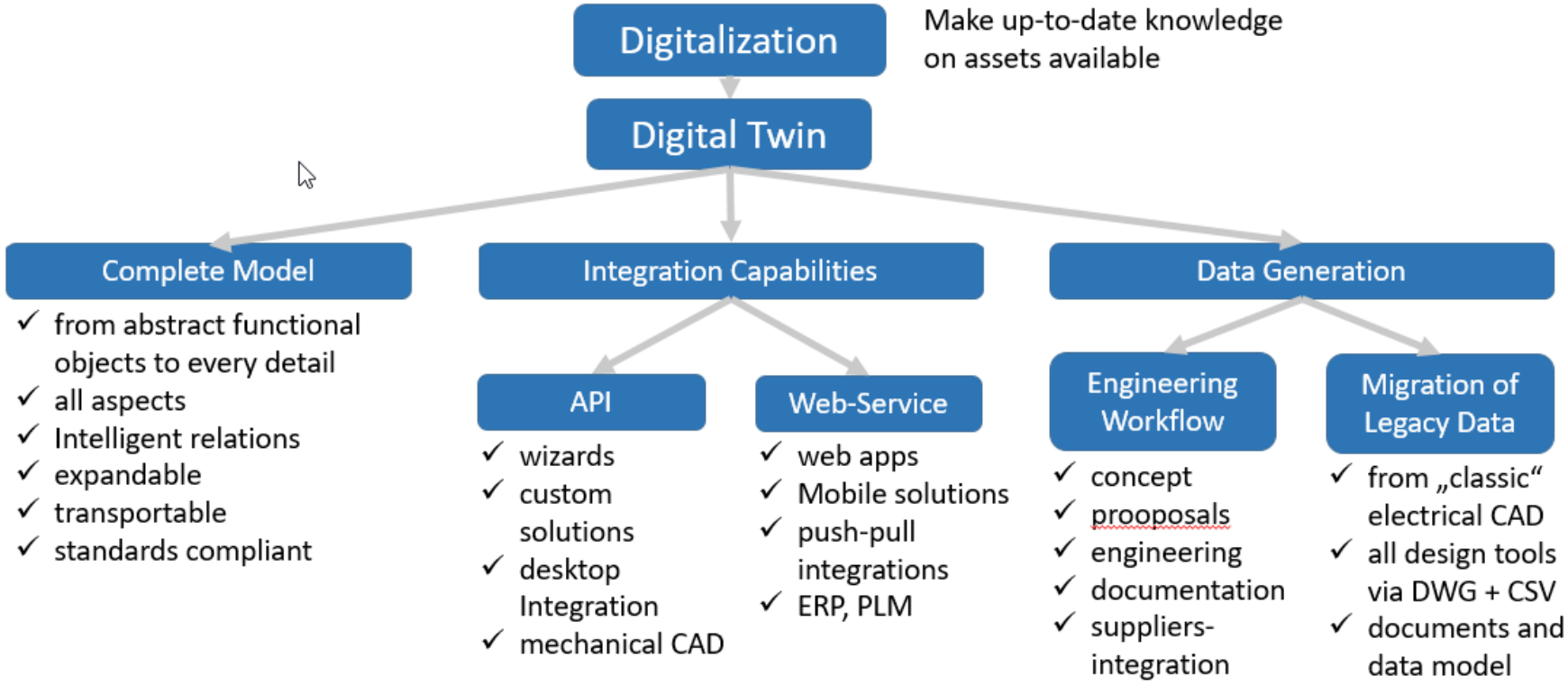
During plant operation

The “As Built” model is basis for maintenance information

Single source for configuration of DCS and predictive maintenance tool



Criteria for appropriate Engineering Platform



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AUCOTEC's Role in Industry 4.0

Help companies in their transformation from current state to Ready for Industry 4.0

Provide Engineering Base as cooperative platform to design and maintain the digital twin

Support companies to implement new processes based on that platform with a global consulting network

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Cooperation Platform enables Industry 4.0

Concept design

RFP

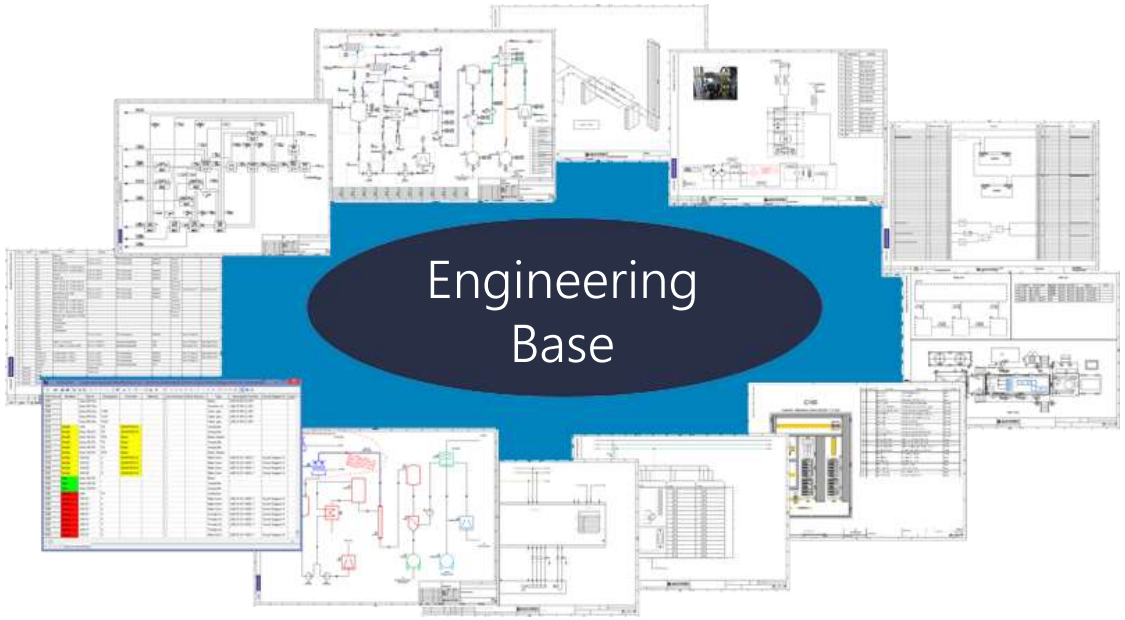
Engineering

Supplier - Integration

Documentation

Maintenance

Turnaround



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