OPC UA Webinar
Episode 1

The global Production Language!
The VDMA

» Most important industrial association in Europe.
» The VDMA represents over 3,300 member companies in the engineering industry
» The VDMA is structured in
  – 38 trade associations,
  – 6 regional subsidiaries,
  – Berlin, Brussels and foreign subsidiaries (Brazil, China, India, Japan, Russia, Austria)
  – Working groups and forums,
  – Departments and competence centers and
  – Companies and foundations.
» The VDMA is host of several European and global sector committees

The VDMA represents the broad machine building industry and parts of the process industry
The VDMA contributes to the mission statement 2030

2030 VISION FOR INDUSTRIE 4.0
Shaping Digital Ecosystems Globally

Autonomy
Self-determination and free scope for action guarantee competitiveness in digital business models.
- Technology development
- Security
- Digital infrastructure

Interoperability
Cooperation and open ecosystems permit plurality and flexibility.
- Regulatory framework
- Standards and integration
- Decentralised systems and artificial intelligence

Sustainability
Modern industrial value creation ensures high standard of living.
- Decent work and education
- Climate change mitigation and the circular economy
- Social participation

Hartmut Rauen
Innovation System Germany -
the mechanical engineering is in the centre

Mechanical and plant engineering
» Integrates latest technologies
» Realized by means of intelligent production /
industry 4.0
» Production must be understood holistically
» Transports to all branches of industry

Enabler for all future topics
Value creation in Germany
Standardized Communication is the Key to Success

Babylonian Clamour

standardized vocabulary
The global Production Language!

Andreas Faath
Project Manager OPC UA
Project Manager umati
VDMA Forum Industrie 4.0
Andreas.faath@vdma.org
Need of Standardized Interfaces

OPC UA is the favorite interface standard
» Open Platform Communication Unified Architecture

The requirements of mechanical engineering are met
» Communication on an open platform
» Security by design
» Support of different Protocols
» Semantical machine description

Benefits for mechanical engineering
» Manufacturer independent communication
» Reduction of Interfaces and supported protocols
» Plug & Work, Condition monitoring and predictive maintenance
» Optimization of production
Manufacturer neutral interoperability
- Everyday life in the consumer goods industry

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<thead>
<tr>
<th>Working Groups</th>
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Manufacturers view on OPC UA

OPC UA is a communication architecture
» OPC: Open Platform Communications
» UA: Unified Architecture
» Protocol independent, many protocols supported
» Security of investment for companies

OPC UA is favored in mechanical engineering industry (VDMA) and German Plattform Industrie 4.0

Companion Specifications
» Describe the product and its features (terms and contents)
» Industry know-how is important!
» Companion specifications have to be described by manufacturers
No replaceability due to OPC UA

Vendor Specific Extensions

OPC UA Companion Specifications

Built-in Information Models

OPC UA Meta Model
Status of OPC UA Activities in Q1 2017

- Agricultural Machinery
- Air Conditioning & Ventilation
- Air Pollution Control
- Automated Guided Vehicles
- Battery Production
- Building Control and Management
- Building Materials
- Ceramic Machinery
- Cleaning Systems
- Compressors, Compressed Air and Vacuum Technology
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**OPC UA CS Released**
- Release Candidate
- Joint Working Group with OPC Foundation
- OPC UA CS in work
- Aware of OPC UA
Status of OPC UA Activities in Q2 2020

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OPC UA CS released
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Status of OPC UA Activities in Q2 2020 affecting Process Industry
Overview of OPC UA in the VDMA organizations

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Rapid increase of new OPC UA CS working groups

- More than 23 VDMA sector branches under discussion
- Over 22 VDMA sector branches in active (international) implementation
- About 35 OPC UA CS working groups existing
- Over 550 companies are involved
  - ME, PA, ET, IT, Automotive, ...

Andreas Faath | Project Manager OPC UA
Phases of the Development of an OPC UA CS

1. Preliminary work
   - Notification of demand from industry
   - Involvement of all interested parties

2. Content work
   - Unification of terms, functions and properties

3. Design in OPC UA
   - Transfer of contents to OPC UA CS

4. Publication
   - VDMA- Spec
   - Free Download

5. Use in industry
   - Implementation of OPC UA CS in products

Consistency
   - Development of a generalizing architecture
   - Interaction of the industry-specific CS

Internationalization
   - Activities to reduce market barriers
   - International trade fair activities and B2B events
VDMA OPC Workgroups involve different stakeholders
- Workgroup Plastics and Rubber Machinery

**MES suppliers:**
- ARBURG GmbH + Co KG
- bfa solutions ltd
- BMS bvba
- INCLUDIS GmbH
- inray Industriesoftware GmbH
- MPDV Mikrolab GmbH
- ProSeS BDE
- RJG Germany
- Steinberger Software
- Stöckeler Software Services e.U.
- TIG – Technische Informationssysteme Ges.m.b.H.

**Controller manufacturers:**
- B&R Industrial Automation GmbH
- Beckhoff Automation GmbH & Co. KG

**User:**
- LEGO Systems A/S

**Injection moulding machine manufacturers:**
- ARBURG GmbH + Co KG
- ENGEL AUSTRIA GmbH
- FANUC Germany/EUROPE
- Ferromatik Milacron GmbH
- KraussMaffei Technologies GmbH
- NEGRI BOSSI S.p.a.
- Netstal-Maschinen AG
- Sumitomo (SHI) Demag Plastics Machinery GmbH
- Wittmann Battenfeld GmbH
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Upcoming Webinars focus on content work and design in OPC UA

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<td>Photovoltaic Equipment</td>
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<td>Plastics &amp; Rubber Machinery</td>
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<td>OPC UA for Machinery</td>
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<td>OPC UA CS released</td>
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<td>Release Candidate</td>
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<td>Joint Working Group with OPC Foundation</td>
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<td>OPC UA CS in work</td>
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<td>Aware of OPC UA</td>
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Phases of the Development of an OPC UA CS

1. Preliminary work
   - Notification of demand from industry
   - Involvement of all interested parties

2. Content work
   - Unification of terms, functions and properties

3. Design in OPC UA
   - Transfer of contents to OPC UA CS

4. Publication
   - VDMA- Spec
   - Free Download

5. Use in industry
   - Implementation of OPC UA CS in products

Consistency
- Development of a generalizing architecture
- Interaction of the industry-specific CS

Internationalization
- Activities to reduce market barriers
- International trade fair activities and B2B events
OPC 40077 (Edition 1.0) is identical with VDMA 40077 May 2019
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Demonstrators
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OPC UA for Machinery

- Cross domain harmonized information models
- Domain specific harmonized information models
- Meshed communication network
- Proprietary communication
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The VDMA is Developing International Standards
- VDMA OPC Vision Initiative leverages its international network

Machine Vision
- 60 Involved companies world wide
- over 100 participants

OPC Vision is an accepted G3 Standard -
the group of leading machine vision associations:
- AIA (USA)
- EMVA (EUROPA)
- JIIA (JAPAN)
- VDMA (EUROPA)
- CMVU (CHINA)
Thank you for your attention!

Andreas Faath
Project Manager OPC UA
VDMA Forum Industrie 4.0
andreas.faath@vdma.org