Scalable, Integrated Software Simplifying I4.0 Adoption

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Digital Manufacturing Challenges

- Valuable sources of data on the shopfloor but no unified approach to access, store and analyse
- Describing and acting upon production situations not easily achievable across platforms
- Interfacing with legacy equipment proves difficult
- Knowledge from human stakeholders often fails to be captured
- Enterprise solutions often expensive and encourage additional changes to systems

“What is required is a platform to join existing technologies and connect new technology, that can act as a toolkit to capture data, solve problems and improve production efficiency”
Manufacturing Stakeholders

• Operators
  • Need to be supported and guided to avoid production errors. Their knowledge relating to production issues can be valuable

• Engineers Staff
  • Reducing downtime, production errors, increasing quality, meeting production schedules

• Plant Management
  • Meeting customer demands / audits balanced with maximising operation profit. Implement new standards e.g. IATF16949:2016
Features

- Common system interfaces (S7, OPC)
- Support for Legacy systems
- Real-time responsive Web based user interface with 3D support
- Alerts and notifications
- Media management (pdf, videos, audio)
- Security framework + Audit trail
- Administration tools to allow engineering staff to configure
- Modular software framework that is flexible to future-proof for additional modules
IndustreWeb Configuration

- Pre-installed at the machine builder
- Retro fitted to existing machines

Single Cell Configuration

Single Line Configuration

Distributed Configuration
I4.0 Applications

Industreweb 4.0 Data Engine

- Asset tracking
- KANBAN
- ANDON
- Virtual Factory
- KPI / OEE
- Error Proofing
- Work Instructions

The Digital Factory
ANDON

• “System to notify management, maintenance, and other workers of a quality or process problem”

• Traditionally using a light-stack on the machine + button box

• I4.0 offers:
  • Real-time visualisation on any web enabled device
  • Alert escalations
  • Support for integration into the Virtual Factory
Virtual Factory

• Visualise the digital factory in real-time on any device

• I4.0 offers:
  • Production status visualisation
  • Physically Twinned Assets
  • Virtual Assets
  • Support for simulation and prototyping
Poka-Yoke - Error Proofing

• “To eliminate product defects by preventing, correcting, or drawing attention to human errors as they occur”
• Traditional approached e.g. colour coding
• 4.0 offers:
  • Real-time asset position tracking
  • Alert based on zones coupled with business logic
  • Support for smart devices e.g. Smart Glove
Work Instructions

• Support Machine operators in their job by giving them the work instructions

• Traditionally sheets / workbooks which can be lost damaged and become outdated

• I4.0 offers:
  • Electronic documents that don’t “wear-out”
  • Rapid rollout with built in audit trail
  • Trigger documents when they are required
Industreweb 4.0 next steps

• **Deep Learning**
  • Self-Optimisation – smart machines
• **Supporting Environmental Strategies**
  • Energy Conservation / Recovery
  • Optimisation of approaches such as AD
• **Big Data Analytics**
  • Predictive – know when problems will occur before they happen
• **Next event: SMECluster Event 4 – Nov 16th**
  • Pragmatically Stepping into the Twinned Digital World of 4IR
Thank you

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