

# INDUSTREWEB 4.0

CONNECTING INDUSTRY

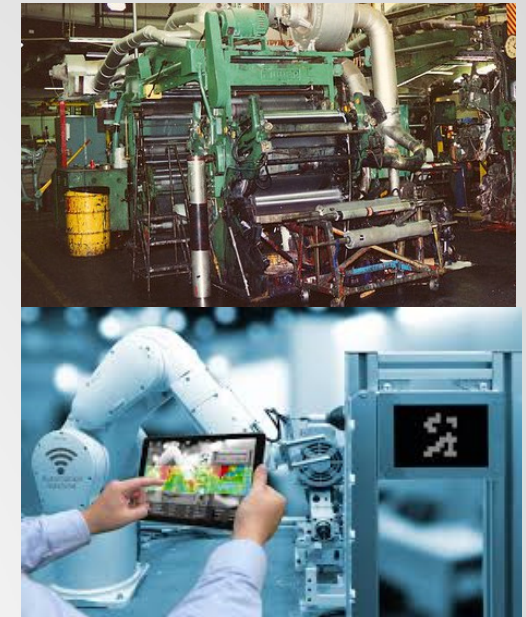
Scalable, Integrated Software  
Simplifying I4.0 Adoption

Simon Osborne

[sosborne@controlzk.co.uk](mailto:sosborne@controlzk.co.uk)

# 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

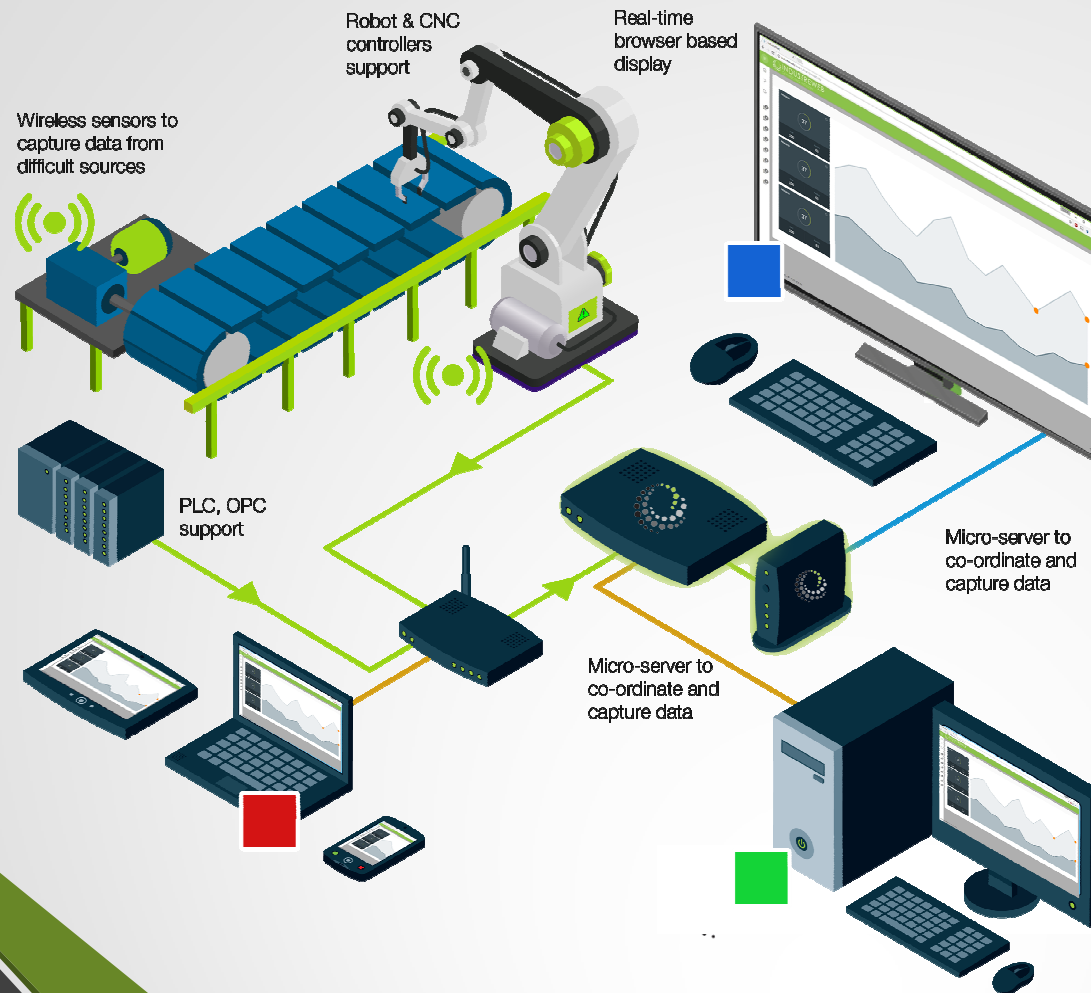


*"What is required is a platform to join existing technologies and connect new technology, that can act as a toolkit to capture data, solve problems and improve production efficiency"*

# 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

# System Architecture

**IW Display**  
[Real-time Responsive HTML5 Web UI]

**Industreweb Thin Client**  
**IW Display**  
Web UI

[Ethernet]

**Industreweb Server**

**IW Global**  
Workflow

**IW Collect**  
Engine  
Programs Events Actions

**Data Vault**



REST / SOAP / AMQP / MQTT



iFog

IW Collect

SiemensS7 PLC

OPC compatible Devices  
e.g. Drives, PLC's

Database

<Text>

csv, xml...

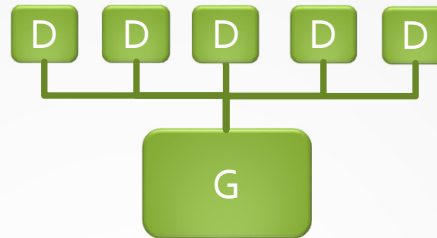
# IndustreWeb Configuration

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

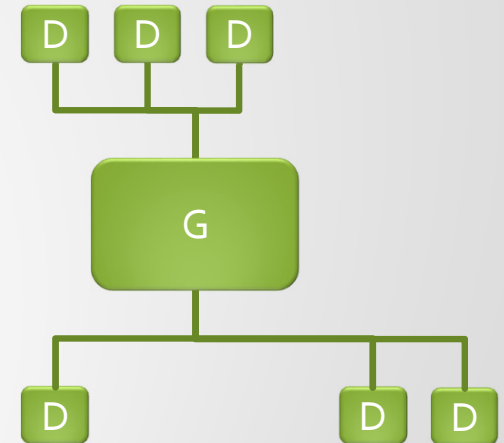
Single Cell Configuration



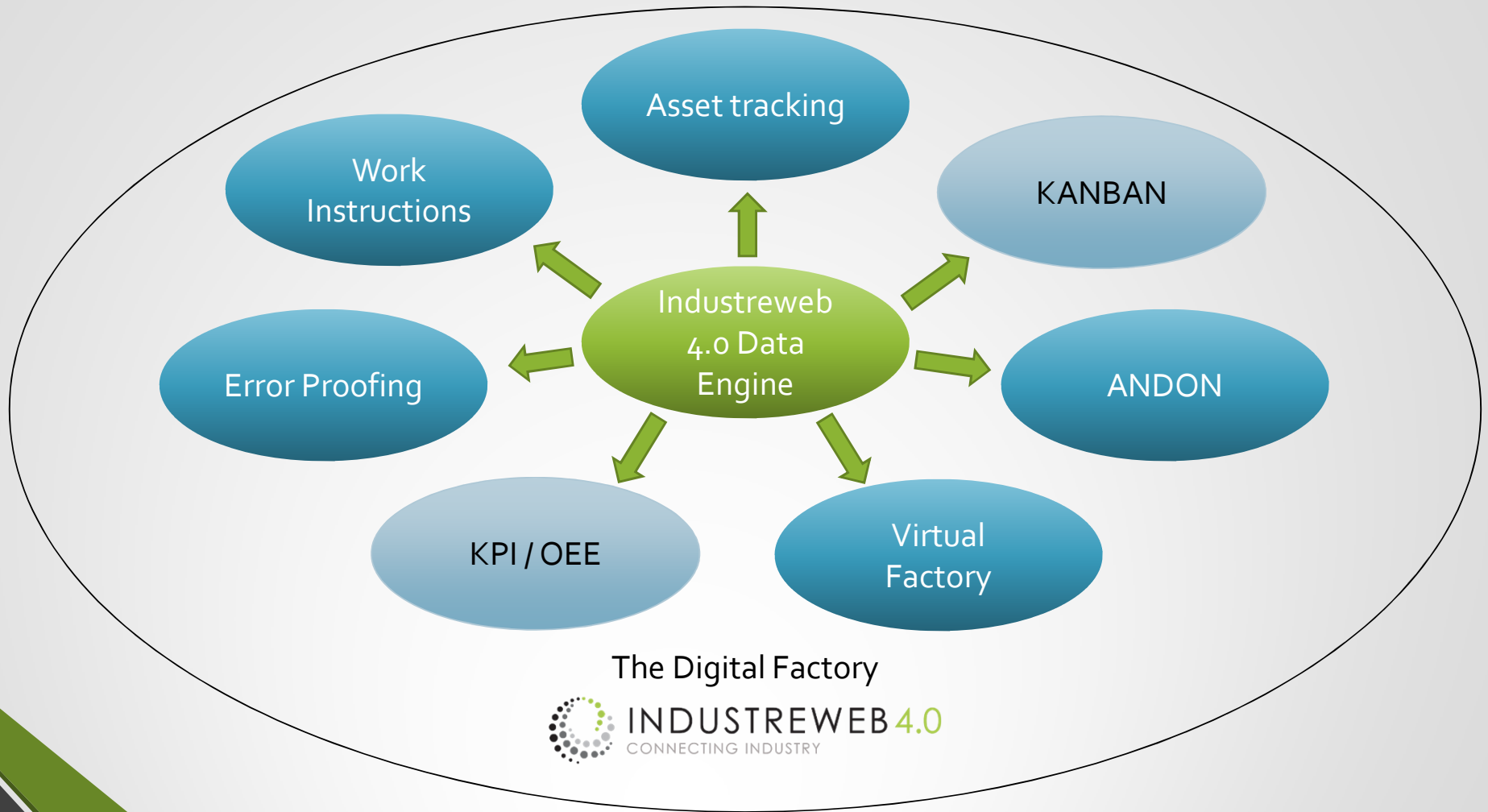
Single Line Configuration



Distributed Configuration



# I4.0 Applications



# ANDON

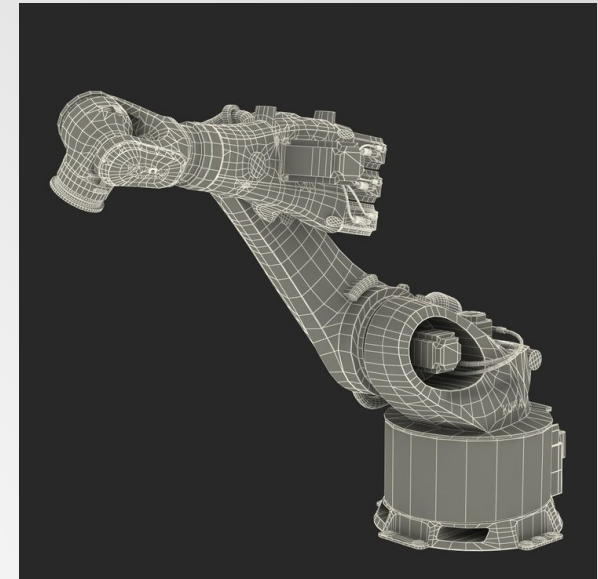
- “System to notify management, maintenance, and other workers of a quality or process problem”
- Traditionally using a light-stack on the machine + button box
- I4.0 offers:
  - Real-time visualisation on any web enabled device
  - Alert escalations
  - Support for integration into the Virtual Factory





# 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



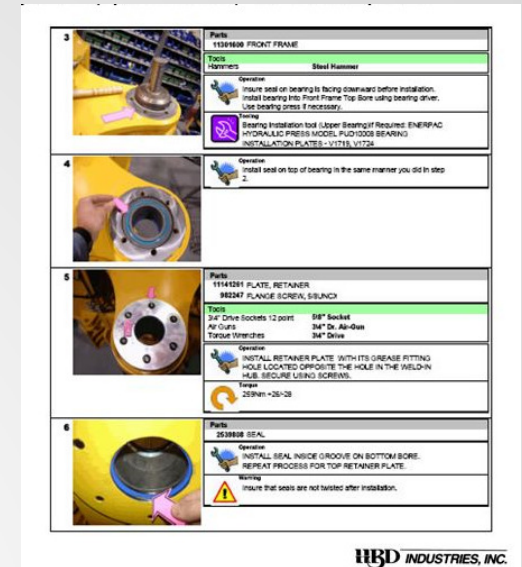
# Poka-Yoke - Error Proofing

- “To eliminate product defects by preventing, correcting, or drawing attention to human errors as they occur”
- Traditional approaches e.g. colour coding
- I4.0 offers:
  - Real-time asset position tracking
  - Alert based on zones coupled with business logic
  - Support for smart devices e.g. Smart Glove



# Work Instructions

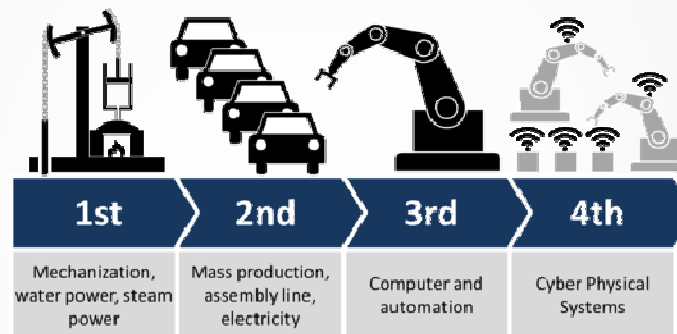
- Support Machine operators in their job by giving them the work instructions
- Traditionally sheets / workbooks which can be lost damaged and become outdated
- I4.0 offers:
  - Electronic documents that don't "wear-out"
  - Rapid rollout with built in audit trail
  - Trigger documents when they are required



HBD INDUSTRIES, INC.

# 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

**Simon Osborne**

**e:** [sosborne@control2k.co.uk](mailto:sosborne@control2k.co.uk)

**s:** [simon.osborne](https://www.linkedin.com/in/simon-osborne)

[www.Industreweb.com](http://www.Industreweb.com)

