DIGITAL TRANSFORMATION

The Pragmatic Approach to Industry 4.0 Implementation - "Productivity Boosts and Quick Wins"

Waterton Technology Centre

Bridgend

25th May 2017

A partnership event:

2020 astute®
ADVANCED SUSTAINABLE MANUFACTURING TECHNOLOGIES
TECHNOLEGAU CYNHYRCHU CYNALIADWY UWCH

TATA STEEL

Wales Quality Centre

CONTROL 2K
total solutions provider

University of South Wales
Prifysgol De Cymru

bcs
The Chartered Institute for IT

BALLUFF
sensors worldwide

IET Communities
The Institution of Engineering and Technology

Rexroth
Bosch Group

- Inspiring the next generation of engineers and technicians
- Informing the wider engineering community
- Influencing government and standards to advance society

Here today:
IET Manufacturing Technical and Professional Network
IET Wales South West and Wales South East
IET Manufacturing and Management Specialist Section
IET Electronics and Communications Specialist Section

IET Manufacturing

www.theiet.org/manufacturing

Technical and Professional Network

- Exchange knowledge and information amongst the community
- Develop and extend existing engineering knowledge within Manufacturing
- Network with like-minded individuals to share knowledge and experiences

Technical Community

- Online community >350 members
- Blogs, videos and interviews with Manufacturing professionals
- Regular events

Upcoming events

- Technology Pathway for Implementation
- Bringing Manufacturing Technologies to Life
- Tell us what you want from the network:

Communities Manager: Gemma Hadley
ghadley@theiet.org

A Partnership Event:

High impact: learn and grow together

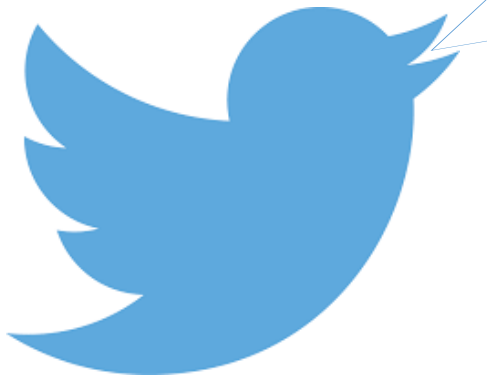
Get involved online!

Please tweet comments and photos of the event using:

@iet_mfg

@walesquality

@smecluster



THE DAYS AGENDA – Gash Bhullar

DIGITAL TRANSFORMATION - The Pragmatic Approach to Industry 4.0 Implementation - “Productivity Boosts and Quick Wins”

Thursday 25th May 2017 – Waterton Technology Centre, Bridgend. CF31 3WT

AGENDA

Stage 1 – Presentations

09:00 – 09:10	Introduction and Formalities – Susan Jones
09:10 – 09:30	Introduction “Identifying day to day challenges round the current environments” how are we going to move from today’s problems to tomorrow’s solutions – Paul Davies / Lee Bennett / Neil Wilkins / Kirk Dranfield / Daniel Lilygreen
09:30 – 09:45	Taking the Negative situation and turning it Positive – Gash Bhullar
09:45 – 10:00	Industreweb 4.0 – A Potential Solution for SMEs – Simon Osborne
10:00 – 10:15	Utilising Data – Populating your Management System with Quality Data satisfying QS standards – David Phillips
10:15 – 10:30	Cyber Attacks and Digital Forensics on Industrial Systems – Daniel Lewis
10:30 – 10:40	Astute 2020 Collaboration opportunities – Dr. Jonathan James / Dr. Cinzia Giannetti
10:40 to 11:00	Tea / Coffee Break

A partnership event:

TATA STEEL

BALLUFF sensors worldwide

IET Communities The Institution of Engineering and Technology

Rexroth Bosch Group

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Stage 2 – Demonstrations and Clinic (2 hr)

11:00 – 12:10 Rotation of 6 Groups (15 mins each) across the following areas:

Group 1: TATA Steel – 3D Print Technologies / I4.0 Demo 1
Group 2: C2K – Affordable Production Monitoring / Alerting
Group 3: C2K – Asset tracking / Man-Machine interfaces / Smart Devices
Group 4: BALLUFF – I4.0 Demo
Group 5: Wolfberry – Cyber-Security Demo
Group 6: Bosch Rexroth I4.0 Training Kit / Demo

12:10 – 13:00 Round Up and Feedback

Capture thoughts and ideas / Panel discussion / Feedback
Moderator – Gash Bhullar

13:00 – Close of Formal Session

Feel free to revisit Demonstrators throughout the afternoon

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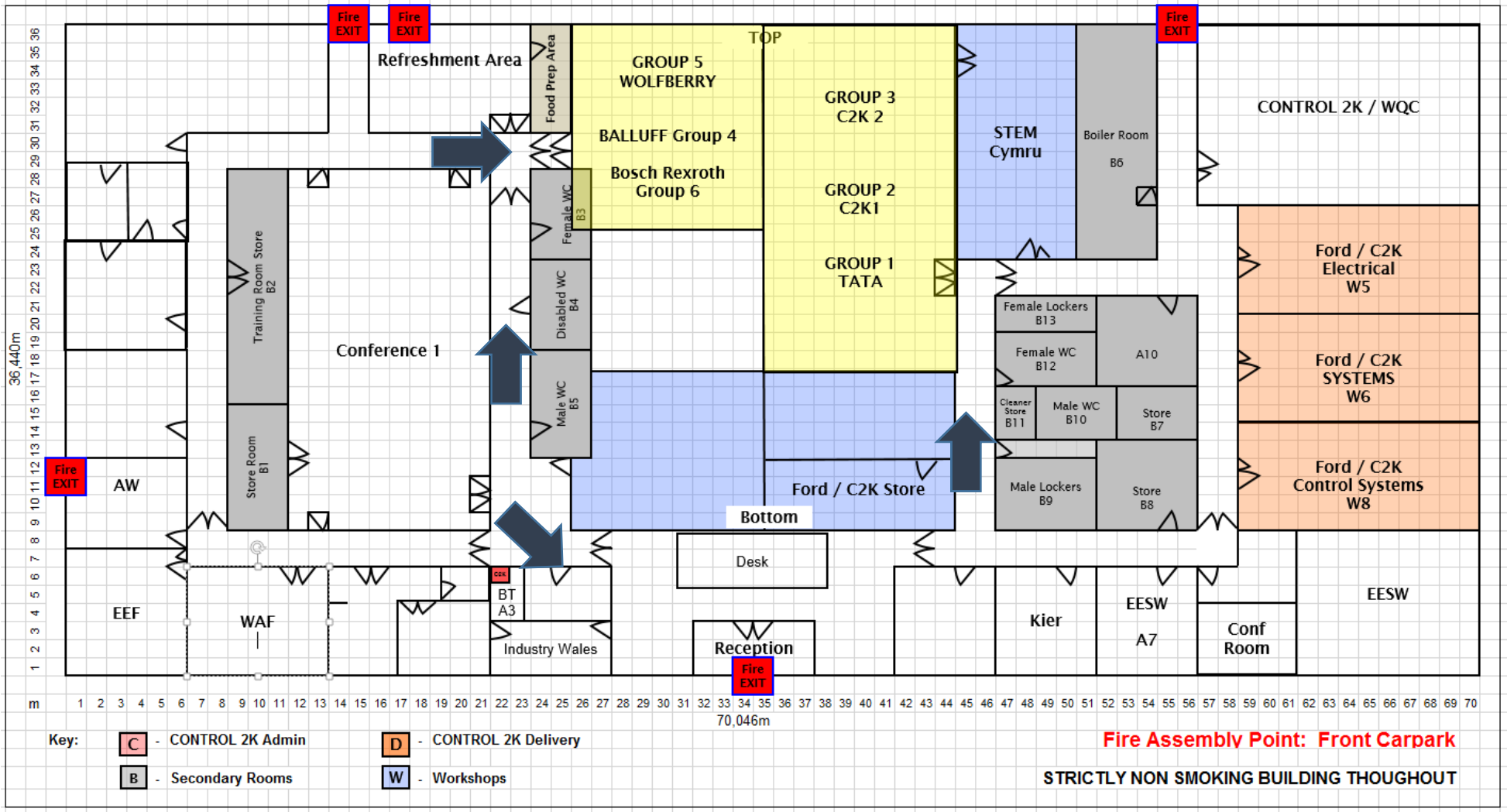

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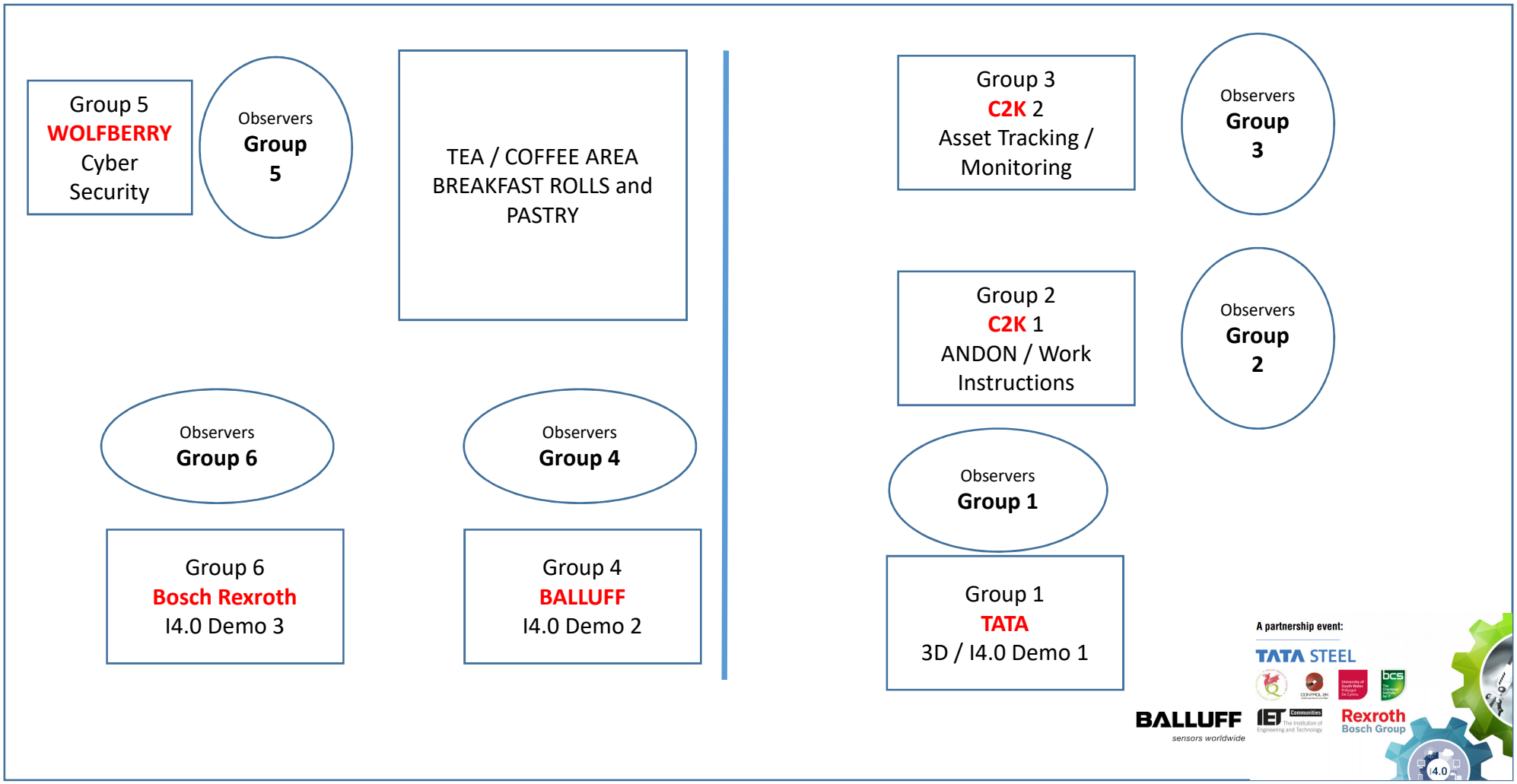

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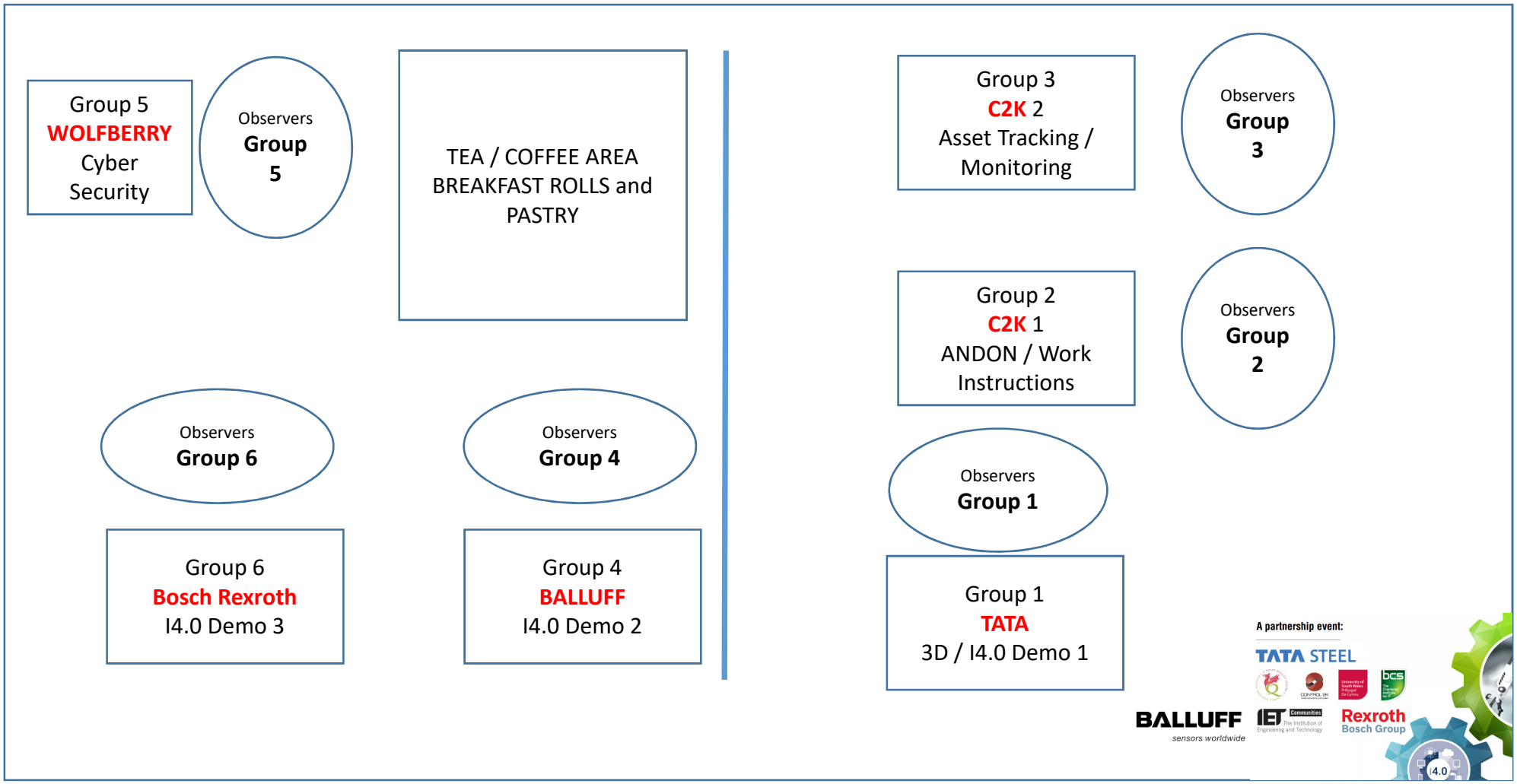

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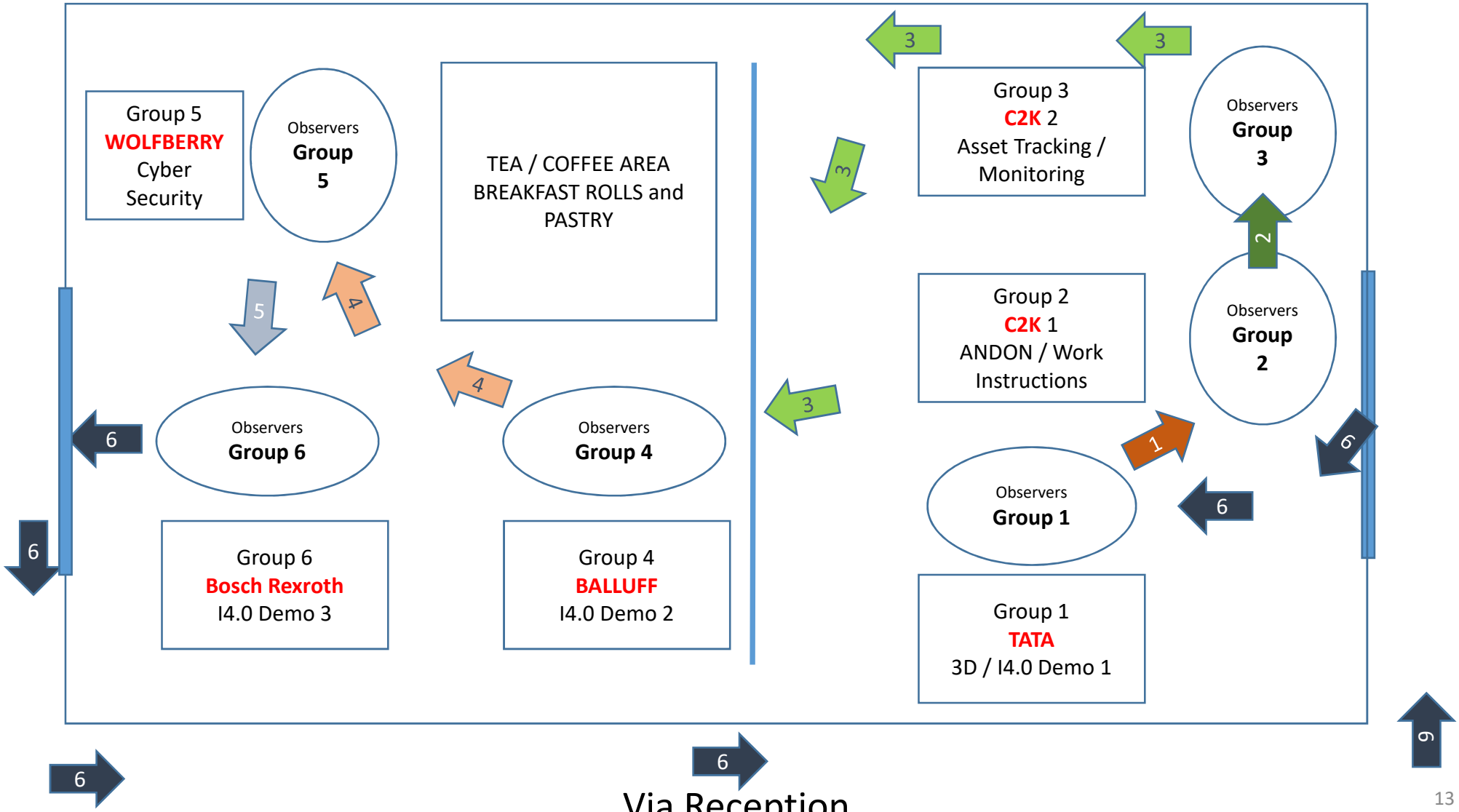
When you hear the Whistle every 15 mins – Rotate Anti-Clockwise as below

PLEASE ADHERE TO STRICT TIMING RULES



TATA STEEL

TATA

DIGITAL TRANSFORMATION

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Gash Bhullar

Control 2K Limited

Member of TANet and EFFRA

Featuring: SMECluster Event 4 – Pragmatically Stepping into the Twinned Digital World of 4IR - Thurs 16th November 2017

A partnership event:

TANet / Control 2K / Sematronix EU Projects

http://www.crema-project.eu/

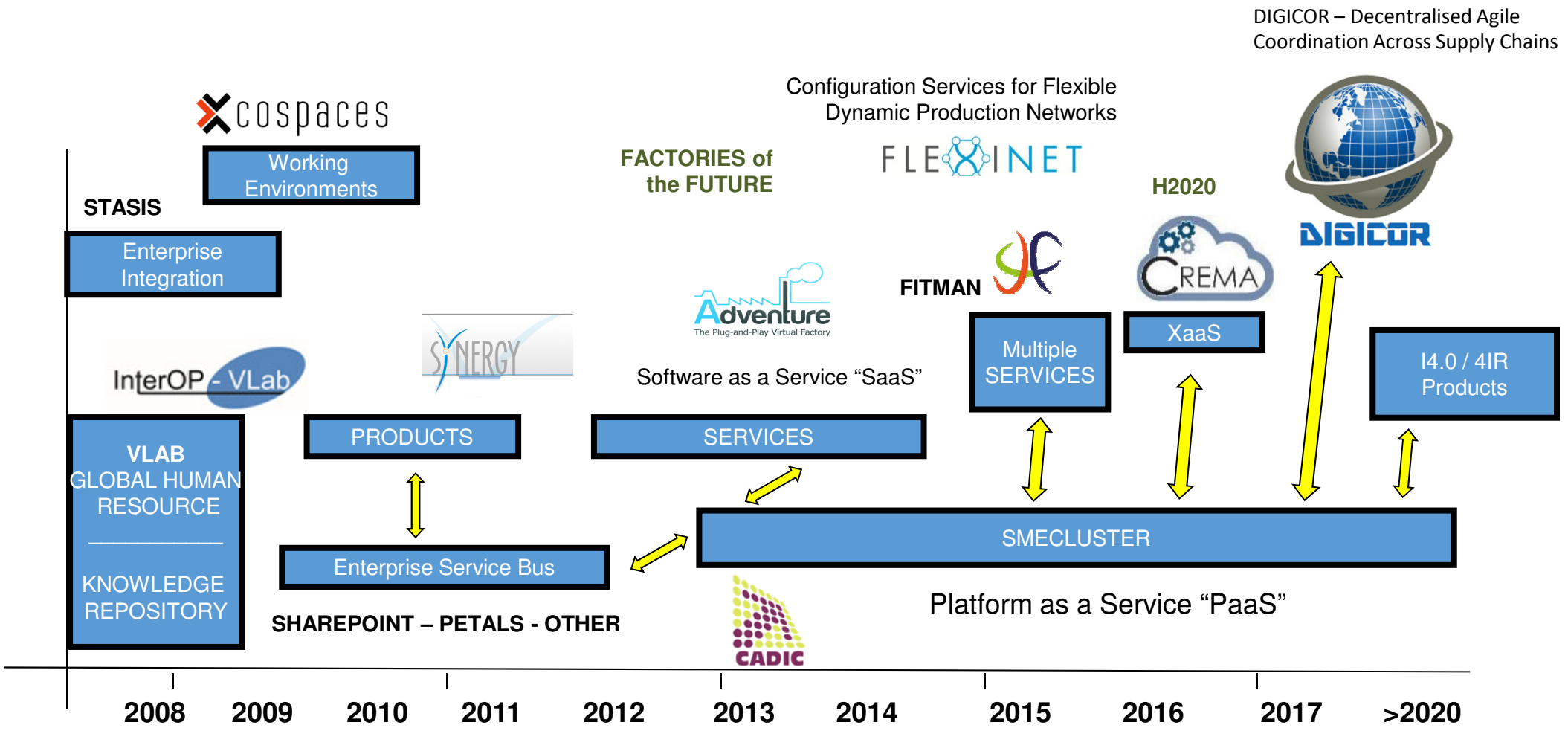
Intelligent Systems Configuration Services for Flexible Dynamic Global Production Networks

http://www.flexinet-fof.eu/Pages/FlexHome.aspx

http://www.digicor-project.eu/

http://www.fp7-adventure.eu/project/

HEADING TOWARDS THE 4th REVOLUTION



Focus Area for Manufacturing

Living on the Edge of the Cloud

INDUSTREWEB 4.0
CONNECTING INDUSTRY

Middleware

Cloud Based Rapid Elastic Manufacturing
Industry 4.0 - Everything as a Service

- Virtualize manufacturing assets in Cloud
- Connect virtual assets to real world systems
- Design & Execute processes using assets in Cloud
- Pay-per use, on-demand leasing on Marketplace
- Add Collaboration Tools
- Real-time Big Data Analysis

Digitisation
Servitisation

Living on the Edge of the Cloud

FOG Computing links to Manufacturing Systems

INDUSTREWEB 4.0
CONNECTING INDUSTRY

TAMET
technology application network

CONTROL 2K
total solutions provider

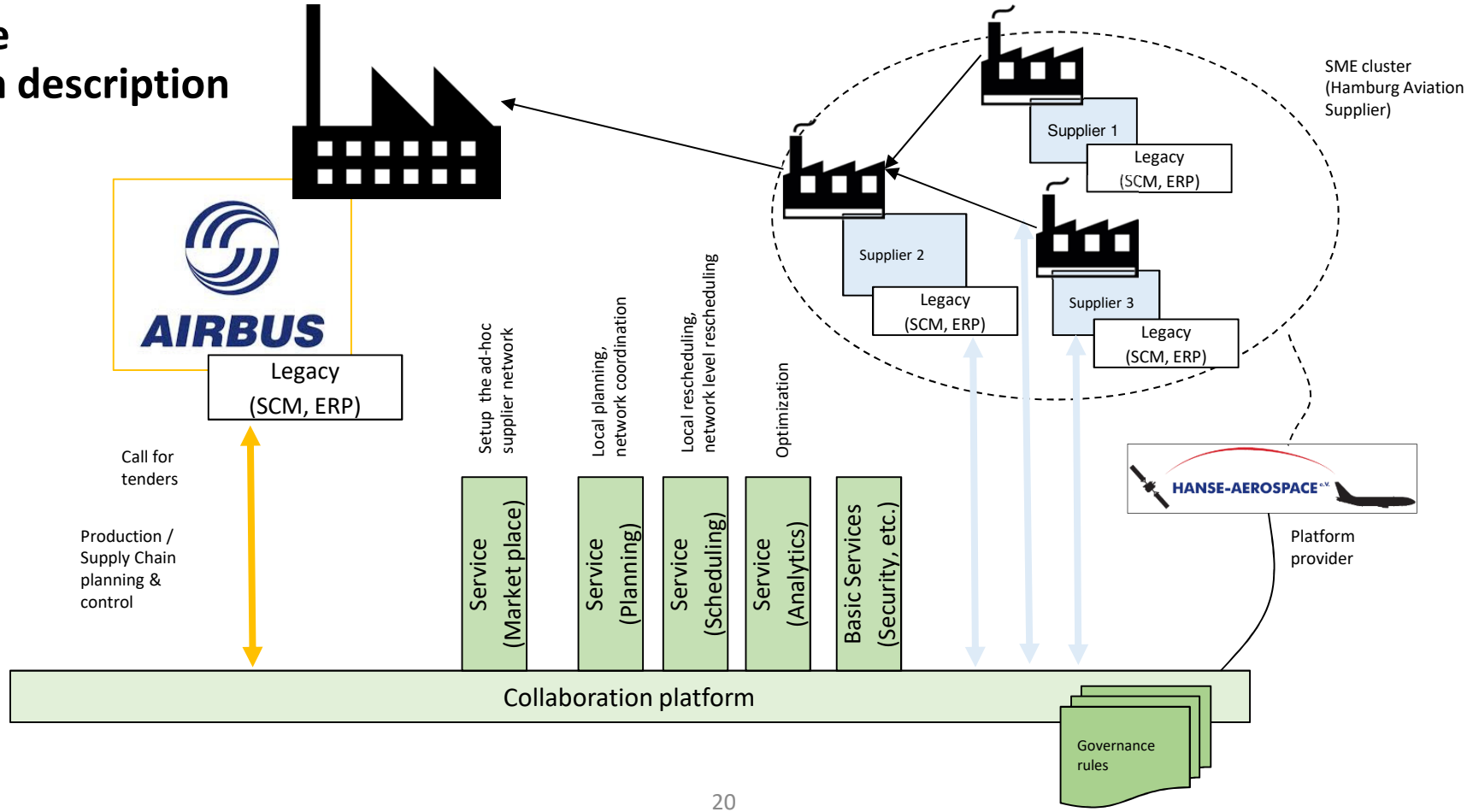
Middleware

CREMA – Developing a system in the context of Industry 4.0, which enables manufacturing processes to establish, manage and automate work processes in a cloud environment.
Aims in making processes more elastic and more flexible by using the XaaS and Cloud model.

Industrial Use Cases

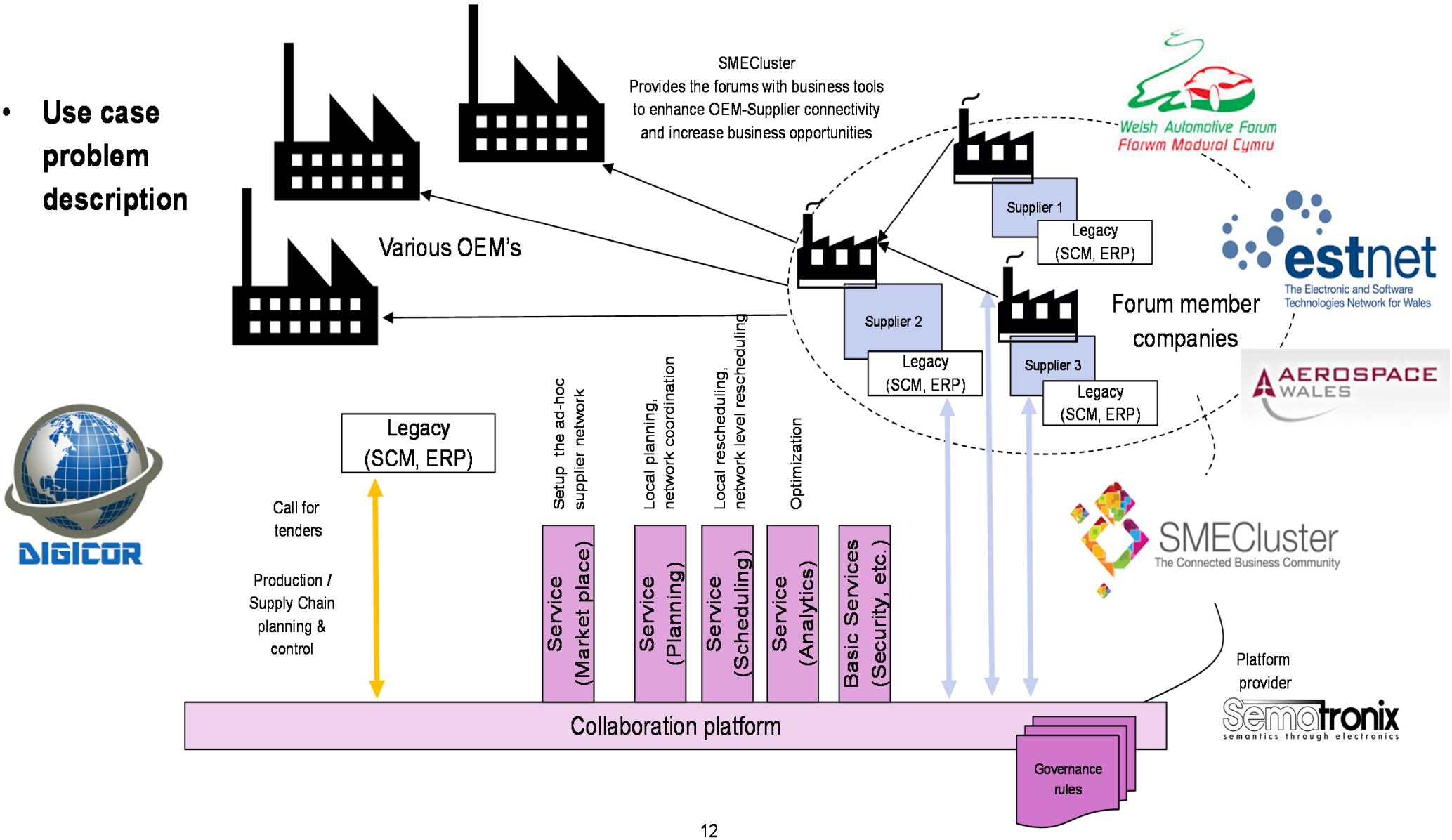
Airbus / Hanse Aerospace

- **Use case problem description**



SMECluster – Welsh Cluster Support Portal

- **Use case problem description**



Exploitation Route Identified: Cluster services for Business

PROJECT PORTAL

Strategy and Vision

SMECluster

Welsh Cluster

www.dmiw.co.uk

Provides IT Services

SMECLUSTER.COM

Provides Marketing And New Customers

SME CLUSTER

Legal Entity

CONTROL 2K total solutions provider

TANet Member

CONTROL 2K LIMITED

Technology and Services Providers

Sematronix semantics through electronics

TANet Member

SEMATRONIX LIMITED

Cluster / Strategy Managers

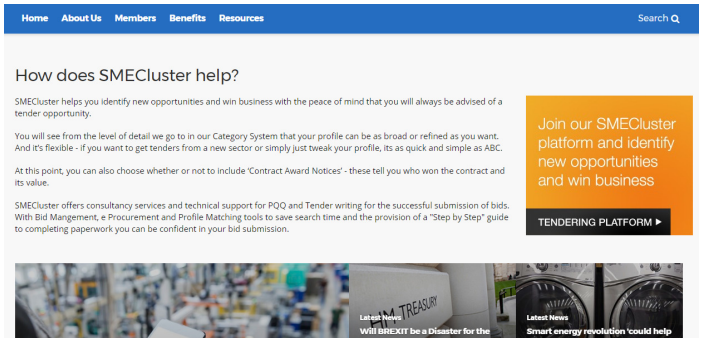
PROJECT PORTAL

SMECluster is a commercial platform Owned by Sematronix and supported by Control 2K which can offer a range of services built on successive EU Projects

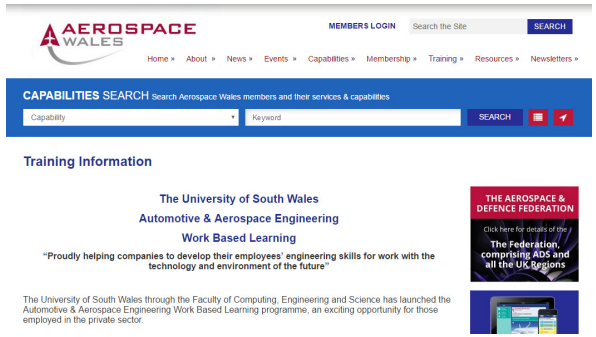
Sematronix
semantics through electronics

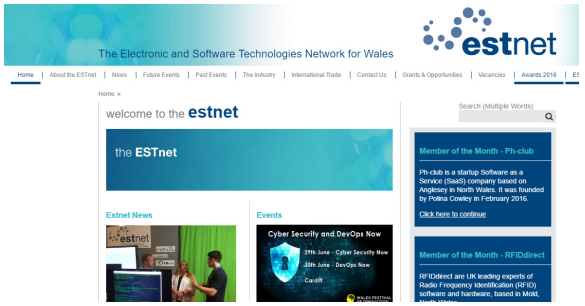
Welsh Cluster – 4IR

- Looking for new business
- Opportunities to learn best practice
- Reduce overheads and share resource
- Need to connect to value chain
- Governance Models for working in the new economy
- Collaboration across sectors
- Learn about new technology such as wearables

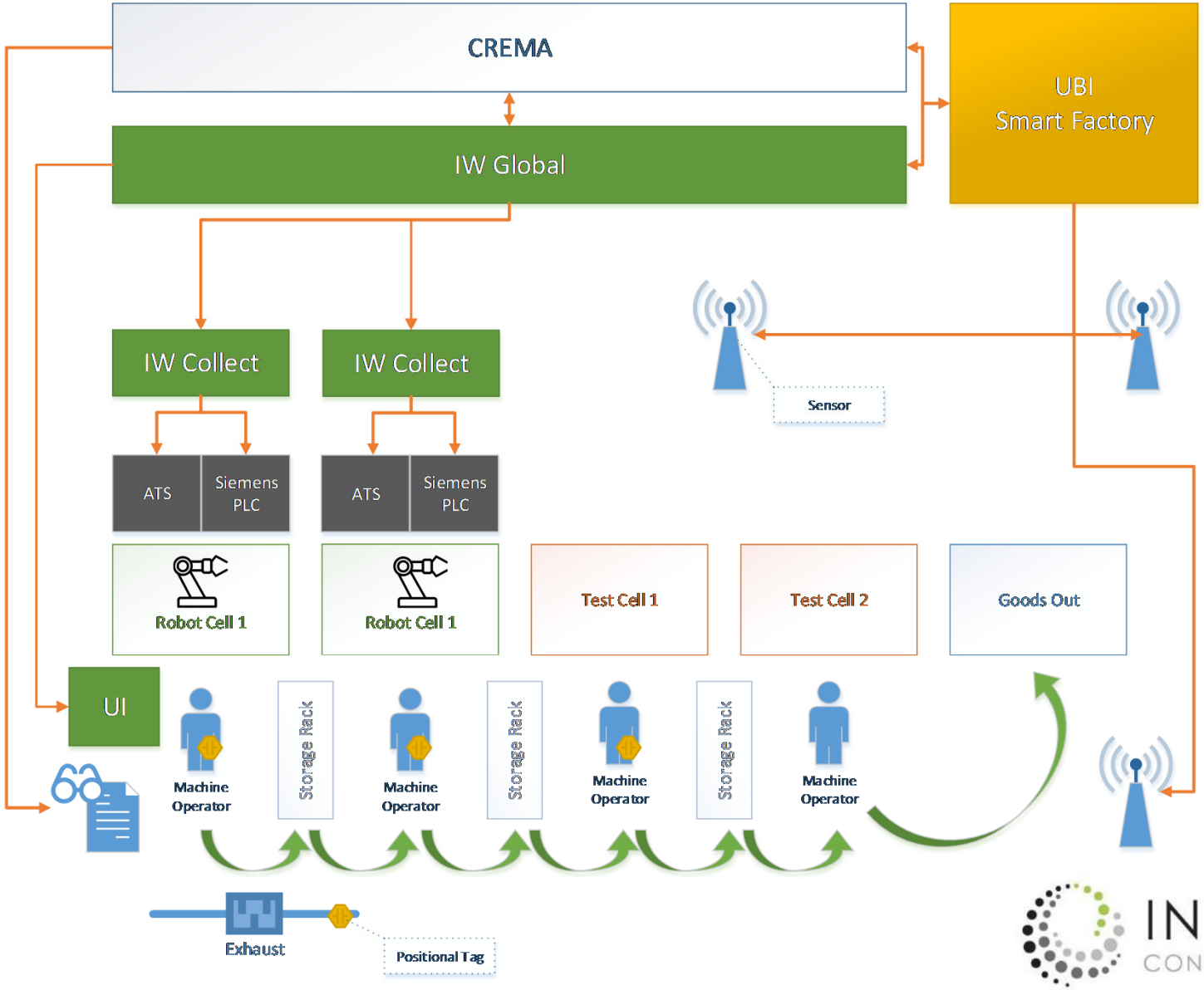


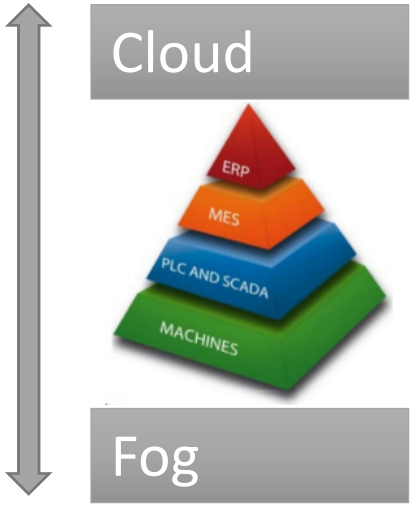
MARKETING OPPORTUNITY AND SERVICE DELIVERY VIA TENDERING PLATFORM





Industreweb 4.0





Industrial Internet of Things

INDUSTREWEB 4.0
CONNECTING INDUSTRY

CN management service

Create Company Node

GUI aggregation service

Create GUI mash-up

Collaboration management service

Create collaboration (COLN instance)

Discover collaboration node

Store

Download tools

Selected tools are downloaded to the company node

Rules/ workflow template ?

Route messages (inside CN and to COLN) / control visibility

Install tools

Hold company data & tools

Provide service discovery

Send production events & data

Factory Node (FN)

Data integration

Data abstraction

Data matching

Data transformation

Factory data source modeling

Data connection to factory data source

Factory data source

Factory data source

Company infrastructure

Communicate with other CPs through COLN

Collaboration Node (COLN)

Collaboration profile (status, rules)

Select & instantiate collaboration workflow

Assign roles (in COLN)

Hold collab. data

Route messages to CNs

Instantiate/manage governance rules

Control message routing

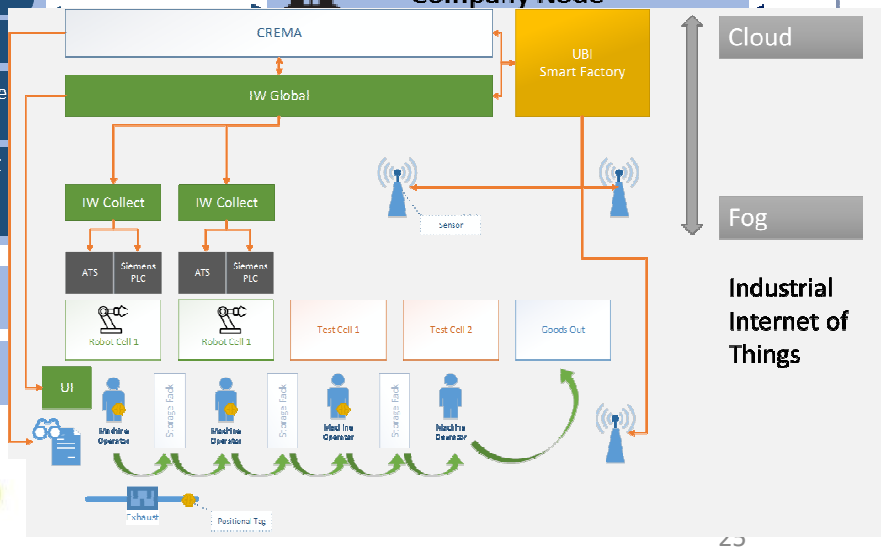
Provide document repository (edit, upload…)

Collaboration Node

Collaboration Node

Company Node

Company Node



INDUSTREWEB 4.0
CONNECTING INDUSTRY

Clearing up what is or is not I4.0 / 4IR

What it is:

- The Virtualisation of Assets
- The Twinning of Real life processes
- Disruptive
- Challenging and requiring a vast array of skills

What it is not:

- The complete IT solution to plant problems
- The replacement of good engineering skills and technics
- A simple plug and play solution – Although the marketing world would tell you otherwise.

Taking the Negative situation and turning it Positive

The Negative Side to I4.0:

- Difficult to know where to start deployment
- No real cost of final deployment
- Who fixes it when it goes wrong
- Where do all these skills come from

The Positive:

- Clear deployment of I4.0 would completely transform the business
- New markets open up
- Brexit will bring the focus of manufacturing back to the UK

Search

I4MS

About Experiments Events Open Calls Videos News Regional Hubs

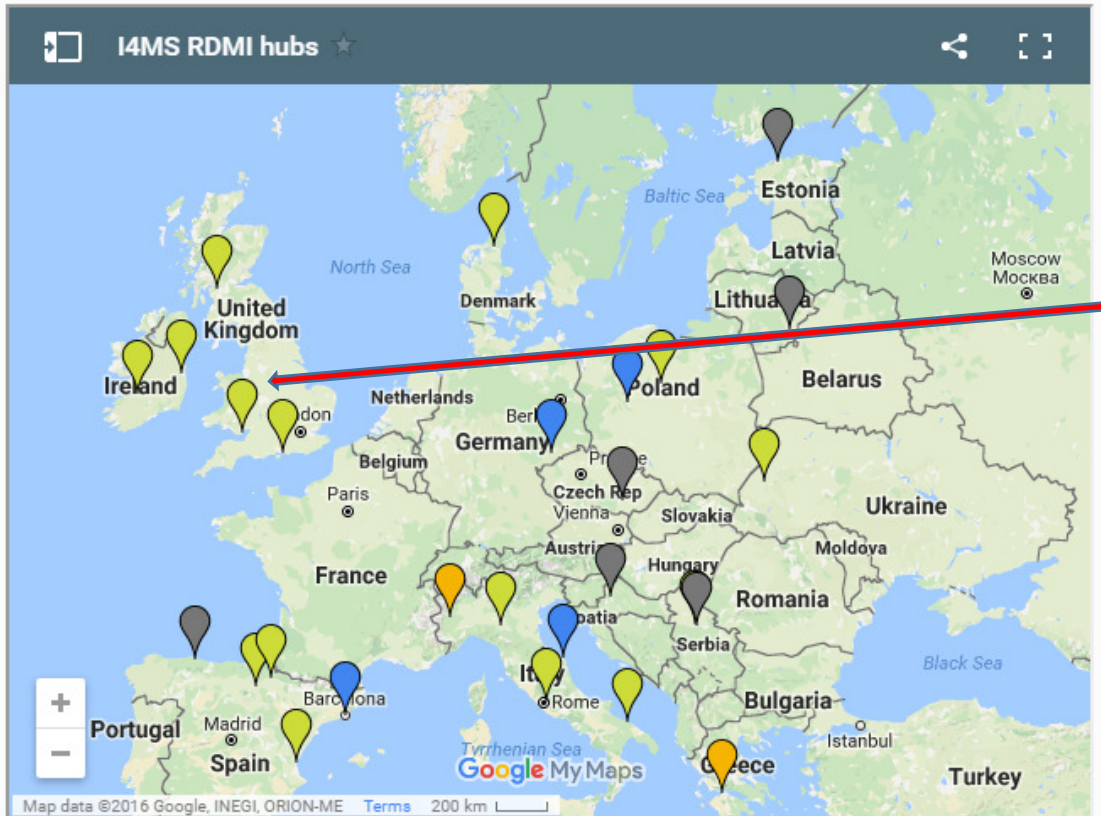
REGIONAL HUBS

Home / Regional hubs

Open call process Digital Innovation Hubs successfully completed

In the two phases of the open call process, a total number of 41 consortia submitted proposals to prepare feasibility studies to establish Digital Innovation Hubs (DIH) in their regions. The evaluation process resulted in the selection of 29 proposals which will receive financial support as well as mentoring and coaching services. Contracts will be established between relevant I4MS projects and the DIH consortia. The mentoring and coaching will start at a summer school which will also serve as the kickoff meeting and which is to be held in September.

For more information please contact the XS2I4MS coordinators Maurits Butter (maurits.butter@tno.nl) and Govert Gijsbers (govert.gijsbers@tno.nl)



Digital Manufacturing Innovation Hub Wales
DMIW – Waterton, Bridgend UK

www.dmiw.co.uk

Digital Manufacturing Innovation Hub Wales
DMIW – Waterton, Bridgend UK

www.dmiw.co.uk

Facilities for Demonstration of Industry 4.0 (4IR) Methodologies and Technology

Industrial Workshop for CREMA / DIGICOR / C2NET

16th November 2017

See www.smecluster.com for details and registration (Opening soon)

- **See also: www.linkedin.com for an article on:**
- **"A Pragmatic Approach to the Fourth Industrial Revolution (4IR / I4.0)"**

Panel Discussion

1. What advice would you give to a company looking to deploy I4.0?
2. How will we address the increasingly skills base required to embrace I4.0
3. What are the next steps to create a critical mass for Wales to deploy I4.0 and reap the benefits
4. How will Brexit shape the manufacturing future of UK

Paul Havbro – Welsh Government
Paul Davies – Industry Wales
Mark Thomas – Ford Motor Company
Sara Nicholls – Siemens
Lee Bennett – TATA
David Stirling – Bosch Rexroth
Russel Smith - Balluff

A partnership event:

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THANK YOU

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www.smecluster.com