INDUSTRY 4.0
AND THE FUTURE OF
THE PLASTICS INDUSTRY
Representing the Instrumentation, Control, Automation and Laboratory Technology industries in the UK

- **200+ Members**
- **Industry turnover**: £6.9b
- **Export value**: £3.7b
- **40,000 Industry employees**
- **Standards committee representation**: 100+
- **GAMBICA member industry representation**: 75%

Ranked 2nd by BSI
Industry 4.0

The Fourth Industrial Revolution

1st: Mechanization, water power, steam power
2nd: Mass production, assembly line, electricity
3rd: Computer and automation
4th: Cyber Physical Systems

Networking of human beings and smart objects
Convergence of the physical world and virtual world

Collaboration
Also known as.....

Industry 4.0

Internet of Things

Digital Manufacturing

IIoT

Machine to Machine

Smart Factory

The Fourth Industrial Revolution

Connected Factory

Smart Manufacturing
Benefits of automation

- Automation delivers:
  - Productivity
  - Throughput
  - Quality
  - Repeatability
  - Energy Efficiency
  - Safety
  - Reliability
  - Control
Benefits of Industry 4.0

Connected and autonomous

- Manufacturing Systems
- Business Systems
- People

Delivers

- Increased Flexibility
- Customised Products
- Localised Manufacturing
- Shorter Lead Time
Networked Business Processes

- Production Planning
- Maintenance
- Resource Planning
- Safety Systems
- Goods In
- Manufacturing
- Assembly
- Despatch
- Logistics
- Quality Systems
- Energy Management
- Human Resources
Networked Value Chain
Through-life connected products

Design

Manufacturing

Use

Dispose/Recycle

Maintenance
Resource Planning
Production Planning
Safety Systems
Quality Systems
Energy Management
Human Resources
Logistics

GAMBICA
Benefits of Industry 4.0

Connected and autonomous

- Manufacturing Systems
- Business Systems
- People

Delivers

- Increased Flexibility
- Customised Products
- Localised Manufacturing
- Shorter Lead Time
Benefits of Industry 4.0

Increased Flexibility

Quick reactions to breakdowns and unexpected events

Rescheduling based on supply chain availability and delivery

Autonomous maintenance scheduling and spares ordering based on condition monitoring

Flexible employee work patterns
Benefits of Industry 4.0

Customised Products

Multiple variants on the same machines, lines, cells

Bespoke designs, mass-customised

Customer design tools

Unique product variants in small batch sizes
Benefits of Industry 4.0

**Localised Manufacturing**

Distributed manufacturing in locations close to market

Contract manufacturing locations – Uber factories

Mobile manufacturing on customer site
Benefits of Industry 4.0

Shorter Lead Time

Modelling and simulation of products and manufacturing process

Design to Manufacture time shortened

Quicker set up / product change cycles
Industrial Strategy

Several aspects

Green Paper
Challenge Fund
Digital4Industry

Industrial Digitalisation Review
A REVIEW OF INDUSTRIAL DIGITALISATION HAS BEEN COMMISSIONED TO INFORM THE UK’S INDUSTRIAL STRATEGY

Digital technologies are transforming our world, disrupting business operations and driving new value propositions. Whether known as Industrie 4.0, the Industrial Internet of Things or Smart Manufacturing, the future of manufacturing is already being shaped by this revolution.

Keeping the UK competitive in this fast moving landscape is vital. As part of developing a UK Industrial Strategy, the Government has commissioned a Review of Industrial Digitalisation, led by Juergen Maier, UK CEO of Siemens.

“Our review is about defining how the UK can best adopt radical new technologies that will boost productivity and create new high tech jobs across manufacturing and industry”

Juergen Maier
The proposal is for the UK to create and utilise 3 regional Smart Manufacturing Living Laboratories with a focus on:

- Improving productivity
- Inspiring ambition
- Developing skills
- Developing capability

The project budget is for £30m over 5 years, using a matched funding model – 50% from industry, 50% from government.
Events and Publications

15-16 Nov 2017
Liverpool

28 Feb - 1 Mar 2018
Manchester