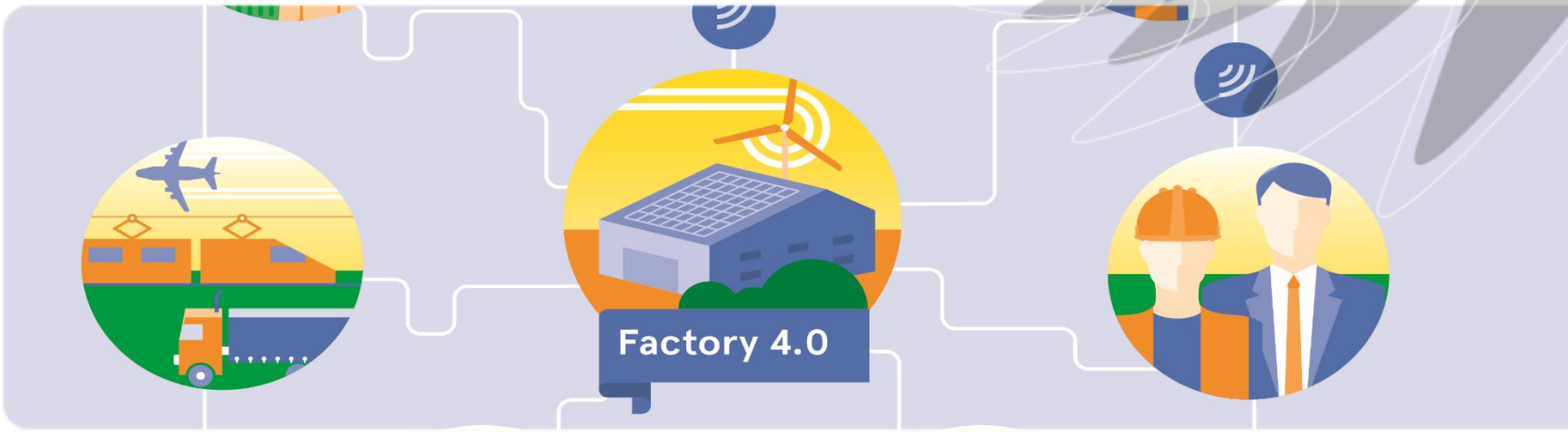
Digitising European Industry Stakeholder Forum, Feb 2017

EFFRA and the Factories of the Future PPP



Speaker:

Maurizio Gattiglio

EFFRA Chairman

Factories of the Future
Public Private Partnership

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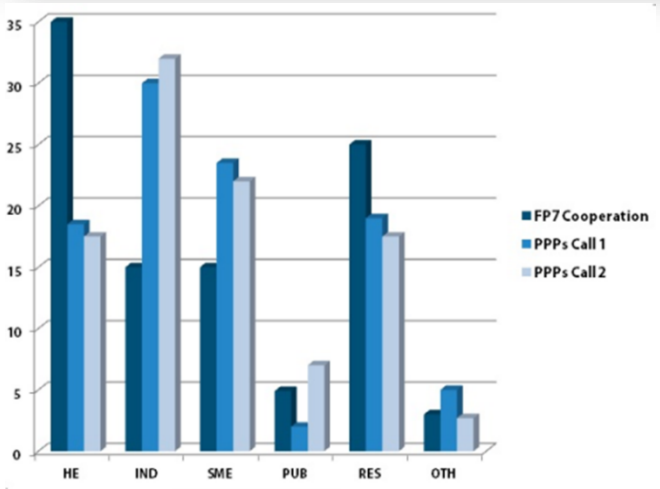
EUROPEAN FACTORIES OF THE FUTURE RESEARCH ASSOCIATION

Who We Are

- Industry-led association representing private side in the ‘Factories of the Future’ Public-Private Partnership with European Commission

- Members include large, small & medium industrial enterprises, research organisations, universities, industrial associations and clusters

- Full time secretariat: Connecting with members, coordinating research agenda & liaising with the European Union



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Manufacturing High on Agenda

Manufacturing is high on political agenda

Re-enforced by Commissioner opening the EFFRA Conference 2016

In his opening speech, Commission Oettinger stated:

- Manufacturing is at centre of transformation of industry
- The role of the PPP is key & should be supported
- National & regional activities can coordinate through the PPP
- Digitisation is realised possible through research & innovation
- FoF projects are clearly delivering

Factories of the Future & EFFRA

Connecting National & Regional Programmes

Progress

- *1.150 M€ program within Horizon 2020, of those 110 m€ for I4MS (ICT for Manufacturing SMEs) program*
- *250+ projects*
- *2000+ organisations participating*
- *60% industrial participation*
- *>30% of funding to SMEs*
- *Partnership is addressing all multiple topics to transform manufacturing (from CPS to zero-defect factories)*

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Factories 4.0 & Beyond

- The ‘Factories of the Future 2020’ is constantly being updated by EFFRA
- Future of industry (e.g. Industry 4.0) requires continuation of successful programme
- Factories of the Future is already realising the potential of this next industrial revolution

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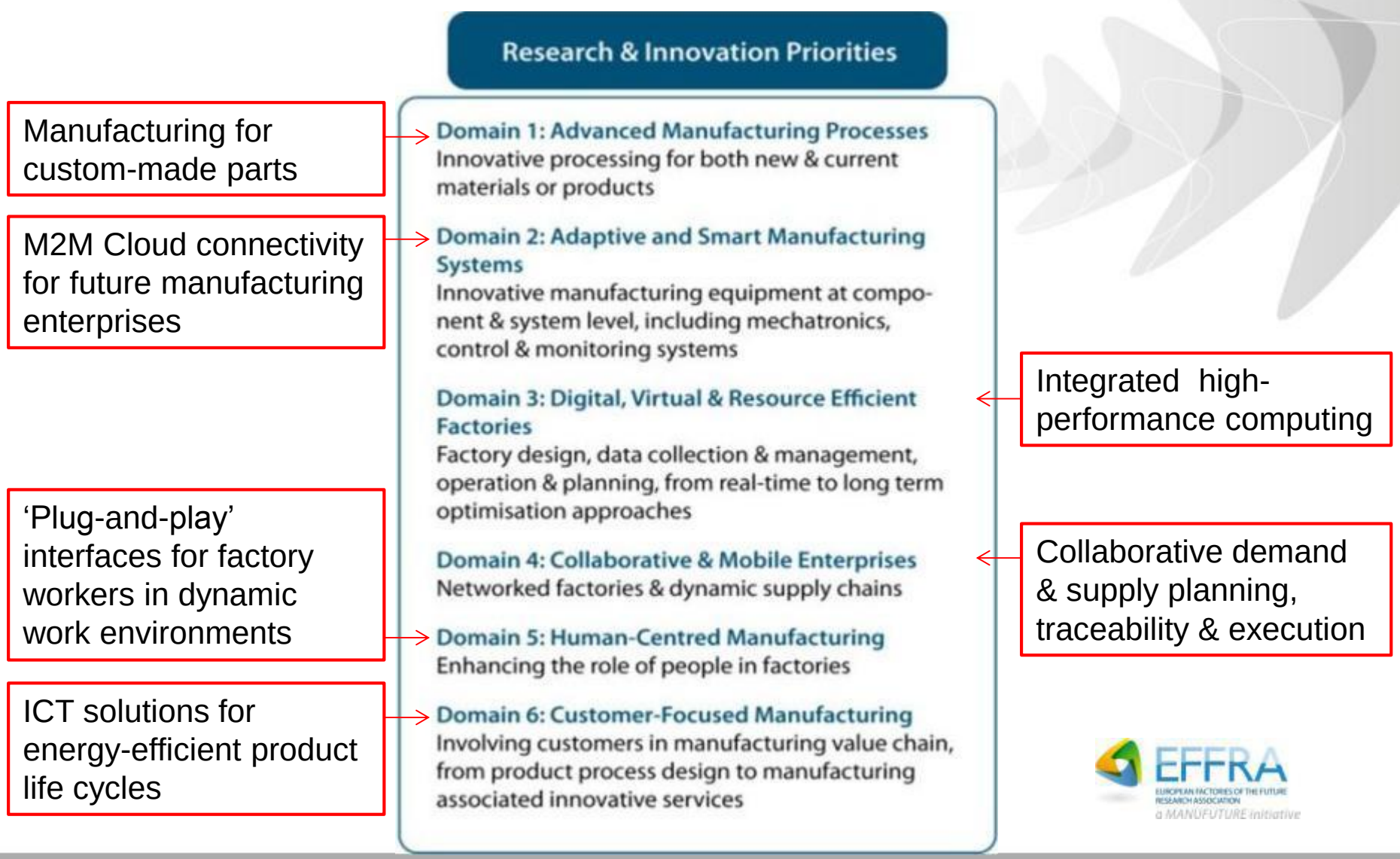
Factories of the Future PPP

ICT in ‘Factories of the Future 2020’



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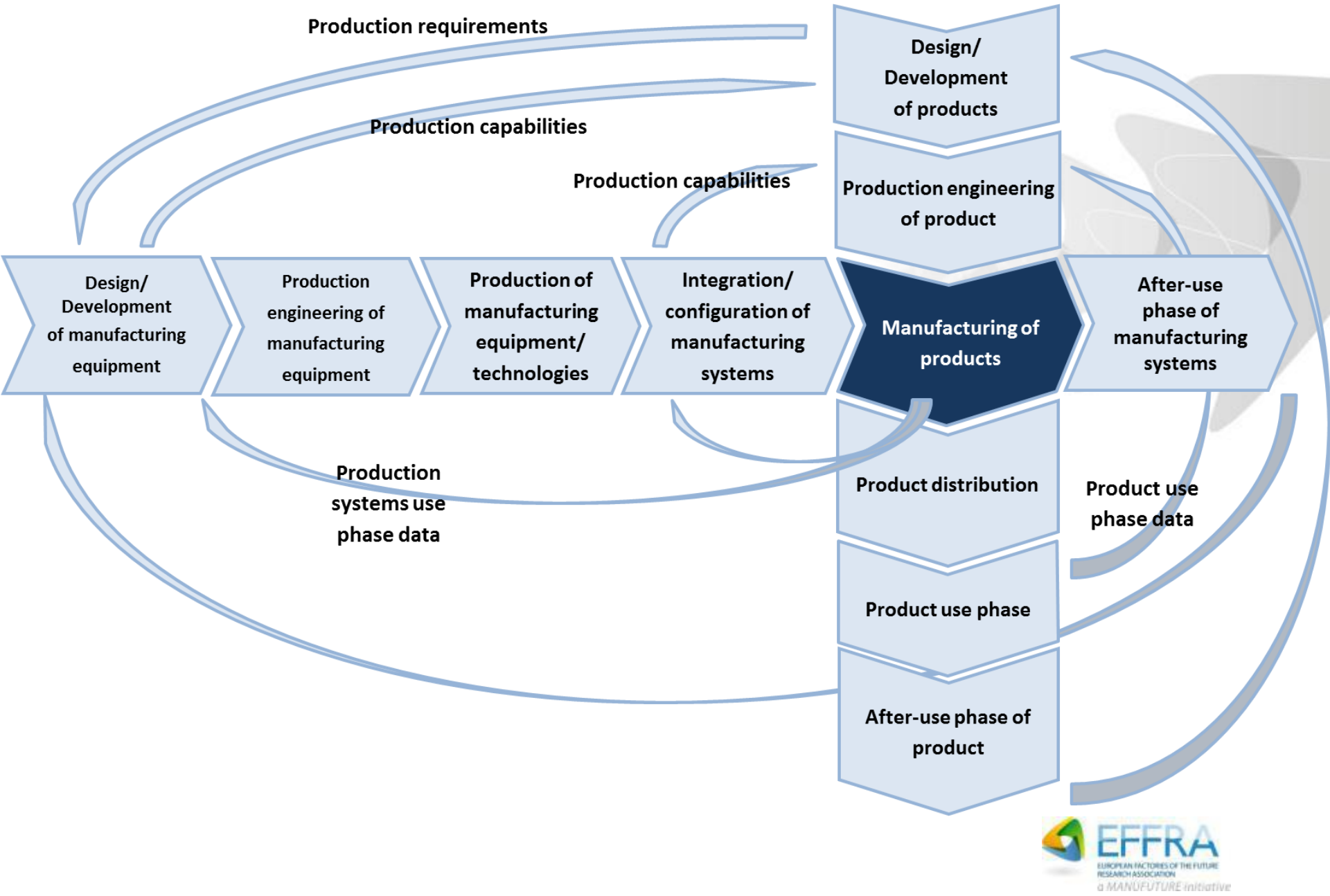
Production requirements
Production capabilities
Production capabilities
Design/ Development of products
Production engineering of product
Design/ Development of manufacturing equipment
Production engineering of manufacturing equipment
Production of manufacturing equipment/ technologies
Integration/ configuration of manufacturing systems
Manufacturing of products
After-use phase of manufacturing systems
Production systems use phase data
Product distribution
Product use phase data
Product use phase
After-use phase of product
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Factories 4.0 & Beyond

Building on the vision of the FoF 2020 roadmap and public consultation in 2016

→ **Key priorities for FoF 18-19-20**

Vision of the factories of the future: the challenge perspective

Vision of the factories of the future: the technology perspective

Agile value networks: Lot-size one - distributed manufacturing

Excellence in manufacturing: Advanced manufacturing processes and services for zero-defect processes and products

The human factor: Human competences in synergy with technological assets

Sustainable value networks: Manufacturing in a circular economy

Interoperable digital manufacturing platforms: connecting manufacturing services

Factories 4.0 & Beyond

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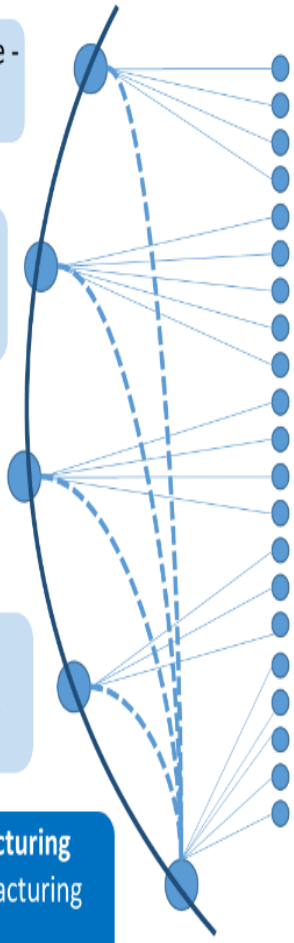
Interoperable digital manufacturing platforms: connecting manufacturing services

Research headlines for FoF 18-19-20



- HL02 - Quality Controlled and Integrated Additive Manufacturing
- HL12 - Reconfigurable cells, self-reconfigurable cells through smart sensors/devices
- HL19 - Digitisation of the Supply Chain – Manage complex customer-driven value networks
- HL22 - Manufacturing as a Service (MaaS) – Servitisation of autonomous and reconfigurable production
- HL01 - Manufacturing for complex and/or multi-material components
- HL03 - High precision manufacturing
- HL07 - Zero-defect manufacturing – quality assurance – self-learning systems
- HL08 - Upgrading of factories
- HL30 - New methodologies for introducing innovative production technologies
- HL10 - Supporting the human in the workplace – Manufacturing training/re-skilling
- HL11 - Human machine/robot cooperation for flexible and evolving factories
- HL24 - User Centric Product and Production Equipment Engineering
- HL23 - Collaborative Engineering
- HL04 - Material and resource efficiency in manufacturing
- HL06 - Energy efficiency on factory level
- HL28 - European Circular Economy Open Platform
- HL16 - Digital Factory Modelling and Simulation
- HL17 - Multiple Source (Big) Data Mining and Real Time Analysis
- HL18 - CPS: Integration with physical legacy machines in factories
- HL26 - Security, Privacy and Liability – Cybersecurity and Industrial Safety
- HL25 - Digital Platform Interoperability

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Industry needs for realising Factories 4.0

Manufacturing companies are the key stakeholders that point out the challenges that need to be addressed ***by digital enablers***

The Factories of the Future PPP can contribute through:

- Targeted Innovation Actions, focusing on bringing validation of digital platforms as close as possible to the manufacturing environment
- Research & innovation actions that focus on specific challenges such as security, data liability, data analytics,… (see above)

The consultation and associated roadmapping activities of PPP associations are important tools, while information exchange among PPP associations will further increase complementarity and efficiency.

Industry needs for realising Factories 4.0

Industry needs targeted **demonstrators**

The success of platforms depends mostly on the **acceptance between users** and how the **overcome the barriers** to connect

Services and functionalities include:

- Digitisation of the Supply Chain – Manage complex customer-driven value networks
- Manufacturing as a Service (MaaS) – Servitisation of autonomous and reconfigurable production systems
- Collaborative Engineering
- Digital Factory Modelling and Simulation, including access through cloud to modelling for process improvement and control, e.g. using machine learning methods
- Multiple Source (Big) Data Mining and Real Time Advanced Analytics at the Factory and Value Network Levels
- Servitisation of maintenance (where data is shared between manufacture and maintenance supplier)
- Redesign of the manufacturing system taking into account feedback from data acquired (machine loop in the value chain)

Other key aspects : Security, Privacy and Liability – Cybersecurity and Industrial Safety


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