

## Response to consultation DEI WG2 – 21/10/2016

(DEI – WG2 – FoF PPP – Manufacturing)

### Where do we want to go?

There is a need for holistic interoperability solutions spanning all communication channels and interfaces (M2M, HMI, machine to service) in the factories and supply chains.

This involves:

- Empowering of platform inter-connectivity by common API definition and usage
- Introduction of semantic meta models to exchange information across domains
- Creation of integration layers which provide extended interoperability between systems and platforms
- Consideration of all industrial communication technologies leading to the cloud
- Use of appropriate cloud architecture
- Application and clustering of established and emerging standards and identification of gaps in relevant and established standards
- Strengthening and ensuring data security in a connected industry by protection against external cyberattacks as well as ensuring data integrity within the supply chain.
- Identification and analysis of relevant manufacturing and business processes (and the boundary conditions)
- Testing and experimentation

Development of large platforms as such is not required. Industry needs targeted demonstrators where manufacturing companies can merge expertise in manufacturing with advanced digital approaches, this way providing services that before were impossible to provide. . Focus should be on supporting the ecosystems where platforms can grow, in particular on involving the users and suppliers of platforms. The success of platforms depends mostly on the acceptance between users and how they 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
- Supporting a European Circular Economy Platform (product loop in the value chain)
- 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 for increased quality, productivity and process chain flexibility
- 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 are:

- Integration with physical legacy machines in factories
- Security, Privacy and Liability – Cybersecurity and Industrial Safety

Interconnection of digital platforms and services will be enabled through deploying common language ('dictionaries').

## Who are the main stakeholders to be involved?

As far as 'smart factory' is concerned, 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.

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