



EUROPEAN COMMISSION

Directorate-General for Communications Networks, Content and Technology

Digital Industry

Technologies and Systems for Digitising Industry

Workshop “Digital Manufacturing Platforms for Connected Smart Factories”

19 October 2017, Thon Hotel EU, Brussels

Terms of Reference

Organised by the European Commission CONNECT Unit “Technologies & Systems for Digitising Industry” and the European Factories of the Future Research Association (EFFRA).

Objective

The objective of the workshop is to discuss what future-looking digital manufacturing platforms would need to be addressed, developed and piloted at EU level, taking into account previous and ongoing activities and opportunities in future.

Context

Industry is faced with new generations of information technologies such as the Internet of Things (IoT), cloud computing, 5G, big data and data analytics, robotics and artificial intelligence, and 3D printing. These technologies open new possibilities for industry to become more competitive, more efficient, to improve processes, and to develop innovative products and services.

In April 2016, the European Commission launched the [Digitising European Industry](#) (DEI) initiative. It builds on and complements various national initiatives for digitising industry. The Commission uses its policy instruments, financial support, co-ordination and legislative powers to trigger further public and private investments in industrial sectors and create the right framework conditions for industry to grasp the opportunities of digital technologies.

As part of the DEI implementation, a [working group](#) was tasked to support the creation of next-generation digital platforms by defining possible next-generation platforms, reflecting on how building platforms should be approached on European level, and considering how existing and planned EU-wide, national, and/or regional platform development activities could contribute. Next-generation digital platforms were studied

for the vertical sectors of Connected Smart Factories, Smart Agriculture, and Digital Transformation of Health and Care, and for the horizontal topics of Industrial Data Platforms and the Internet of Things.

A selection of focused platform development and large-scale piloting activities in sectors important for Europe are reflected in a dedicated Focus Area in the R&I Horizon 2020 work programme 2018-20. In addition to platform development and large-scale piloting, they address ecosystem building and standardisation. A total amount of 300 MEuro is available for these projects.

One of the topics in the Work Programme 2018-20 is on Digital Manufacturing Platforms for Connected Smart Factories. In accordance with the strategy defined in the [multi-annual roadmap](#) of the Factories of the Future Public-Private Partnership, this topic requests proposals that target at least one of the following ‘grand challenges’:

- Agile Value Networks: lot-size one
- Excellence in manufacturing: zero-defect processes and products
- The human factor: human competences in synergy with technological progress
- Sustainable Value Networks: manufacturing in a circular economy

A previous workshop on “[Platforms for connected Factories of the Future](#)” took place on 5-6 October 2015. The purpose of the workshop was to feed the discussion on the Digitising European Industry strategy. The workshop gave an overview of existing activities in industries and research regarding platforms for the manufacturing area.

Under the FoF PPP, a set of [ten projects](#) were started in autumn 2016 that develop reference implementations of platforms in multi-sided market ecosystems. These projects focus on factory automation or collaborative manufacturing and logistics. They are possible starting points for the projects from the Work Programme 2018-20.

In addition to the ten projects above, the Coordination and Support Action [ConnectedFactories](#) identifies manufacturing industries’ future needs and challenges in order to define possible scenarios related to how digital platforms will enable digital integration and interoperability of manufacturing systems and processes.

Format

The workshop, entitled “Digital Manufacturing Platforms for Connected Smart Factories” will be held on 19 October 2017, in the [Thon Hotel EU](#), in Brussels, from 09:00 to 17:00.

Participation is open but will be limited by available room capacity (first come, first served).

Agenda

08.30 – 09.15 Welcome coffee and registration

09.15 – 09.45 Welcome and introduction

- Zeljko Pazin, Chris Decubber (EFFRA),
- Max Lemke, Arian Zwegers (European Commission)

09.45 – 10.15 ConnectedFactories scenario building exercise, mapping, first analyses

The ConnectedFactories CSA is mapping ongoing projects and initiatives on a reference structure, which allows positioning and comparison of projects/initiatives between each other. The results so far, including future scenarios will be shown.

- Chris Decubber (EFFRA)

10.15 – 12.00 Baseline results from ongoing projects (incl. break for morning coffee)

Results from past or ongoing projects are a possible basis for future projects. What can be used from these projects, what is the availability of their results, etc? What needs are identified by ongoing projects that should be addressed in future?

- FAR-EDGE, by Mauro Isaja (Engineering)
- vf-OS and CREMA, by Stuart Campbell (ICE)
- Lighthouse Initiative Industry4.E, by Berta Ferrer Llosa (ECSEL)
- Productive 4.0, by Knut Hufeld (Infineon)
- Boost 4.0, by Oscar Lazaro (Innovalia)

12.00 – 12.45 Industrial Platform Approaches

Some vendors already have digital manufacturing platforms available. What trends do they see? What needs do they have for their future product offerings? How do these technology providers cooperate with other providers?

- Johan Peeters (Bosch-Rexroth)
- Hadrien Szigeti (Dassault Systèmes)
- Nemrude Verzano (SAP)

12.45 – 13.45 Lunch

13.45 – 15.00 Grand challenges and future digital manufacturing platforms

Different company strategies may lead to needs for different manufacturing platforms. The four Grand Challenges identified in EFFRA's recommendations for the H2020 Work Programme 2018-20 (see document "Factories 4.0 and Beyond" on the EFFRA website) may result in different platforms, pilots, applications, and standards.

Agile Value Networks: lot-size one

- Arnd Schirrmann (Airbus)

Excellence in manufacturing: zero-defect processes and products

- Jan Post (Philips)

The human factor: human competences in synergy with technological progress

- Monica Bellgran (KTH)

Sustainable Value Networks: manufacturing in a circular economy

- Konstantinos Georgoulas (University of Patras)

15.00 – 15.15 Afternoon tea

15.15 – 16.30 Elements of future platform development

Only building platforms is not enough; they need to be piloted, validated and standardised. Activities such as piloting, standardisation, and ecosystem building should be considered as well. In addition, links with national and/or regional initiatives could be useful.

Piloting

- George Beers (DLO)

Ecosystem building

- Wernher Behrendt (Salzburg Research Forschungsgesellschaft)

Standardisation

- Franco Cavadini (Synesis)

Reference implementations

- Sergio Gusmeroli (Politecnico di Milano)

16.30 – 17.00 Discussion

17.00 Closing

Results

The outcome of the workshop will be a further understanding of what digital manufacturing platforms should be developed and piloted and of the effectiveness of various approaches towards platforms and pilots.

A rapporteur will summarise the discussions, and will write a 10-15 pages report on the basis of the workshop presentations and discussions. This report and the workshop presentations will be made publicly available.