



Factories of the Future Manufacturing in Horizon 2020 and beyond

Dr Gustaf Winroth

Advanced Manufacturing Systems
and Biotechnologies

DG Research and Innovation,
European Commission

*Research and
Innovation*

Contractual Public-Private Partnerships (cPPPs)

- ***Industry** plays **leading role** in defining research priorities*
- ***Pre-defined budget** ensures continuity and commitment*
- *Focused on **enabling industrial technologies***
- *Increased use of **SME-friendly** instruments and **demonstration***
- *Roadmaps prepared with large stakeholder involvement and public consultation*
- *Concrete technological and sector related objectives – commitment from industry to reach them and to provide necessary R&D+I investments*
- *Using fully open H2020 calls*
- *Industry **commitment** for leverage and further investments*

PPPs in Horizon 2020

Joint Technology Initiatives

- Innovative Medicines (IMI)
- Clean Sky
- Single European Sky ATM Research (SESAR)
- Fuel Cells and Hydrogen (FCH)
- Electronic Components and Systems (ECSEL - old ARTEMIS + ENIAC)
- Bio-based Industries (BBI)
- Shift2Rail

Contractual PPPs

- **Factory of the Future (FoF)**
- Energy-efficient Buildings (EeB)
- Green Vehicles (EGVI)
- Future internet (5G)
- Sustainable Process Industry (SPIRE)
- Robotics
- Photonics
- High Performance Computing
- Big Data
- Cybersecurity

Strategic context – Importance of EU Manufacturing

- **64%** of private R&D investment
- **2.1 million enterprises** (9% of total)
- **32 million jobs** (14% of total + many indirect jobs via related services)
- Turnover: **EUR 7.11 trillion**
- Manufacturing added value: **EUR 2.13 trillion** (16% of European GDP)

Roadmaps and strategic agendas in the partnership

- *Factories of the future*: <http://effra.eu/factories-future-roadmap>
- *Manufuture*: <http://www.manufuture.org/>

Status – Factories of the Future

Horizon 2020:

- *94 projects from calls 2014-2016 (428 M€)*
- *18 projects starting from 2017 call (~90 M€)*

Overall*:

- *~2.3 patent applications per project*
- *~7.5 new systems and techs per project*
- *30% reduction in waste*
- *22% reduction in material use*
- *27% reduction in CO₂ emissions, 22% reduced energy use*

Projects

- *CORDIS*: <http://cordis.europa.eu/>
- *EFFRA innovation portal*: <https://portal.effra.eu>
- ***Examples:***
 - Eco-Solar: <http://ecosolar.eu.com>
 - Flexicast*: <http://flexicast-euproject.com>
 - NanoMaster*: <http://www.nanomasterproject.eu>
 - Safire: <http://www.safire-factories.org/>

Work Programme 2018-20 - DRAFT

- *Draft pre-published:*
<http://ec.europa.eu/programmes/horizon2020/en/what-work-programme>
- *12 (+3 NMBP, +ICT) FoF topics between 2018-2020*
 - **Ambitious**
 - **Large/holistic challenges**
 - **System-level approaches**
- *Showcasing the Factories of the Future*

Opportunities for 2018-2019, FoF

Topic Title	Year	Type
DT-FOF-01-2018: Skills needed for new Manufacturing jobs	2018	CSA
DT-FOF-02-2018: Effective Industrial Human-Robot Collaboration	2018	RIA
DT-FOF-03-2018: Innovative manufacturing of opto-electrical parts	2018	RIA
DT-FOF-04-2018: Pilot lines for metal Additive Manufacturing	2018	IA (50%)
DT-FOF-05-2019: Open Innovation for collaborative production engineering	2019	IA
DT-FOF-06-2019: Refurbishment and re-manufacturing of large industrial equipment	2019	IA
DT-FOF-08-2019: Pilot lines for modular factories	2019	IA (50%)
DT-FOF-12-2019: Handling systems for flexible materials	2019	RIA
DT-NMBP-20-2018: A digital 'plug and produce' online equipment platform for manufacturing	2018	IA
DT-NMBP-18-2019: Materials, Manufacturing processes and devices for organic and large area electronics.	2019	IA
DT-NMBP-19-2019:Advanced materials for additive manufacturing	2019	IA
ICT Topics 2018	2018	
ICT Topics 2019	2019	

cPPP mid-term review

- *One single report for nine cPPPs*
- *Report available online: <https://publications.europa.eu/s/dPIo>*
- *6 recommendations:*
 - 1. More participatory processes**
 - 2. More transparent processes**
 - 3. Increase links between EU instruments and the cPPPs**
 - 4. Redesign the key performance indicators**
 - 5. Enhance national/regional impact together with Member States**
 - 6. Progress with the cPPPs through "missions" of societal, industrial, and scientific nature**

cPPP mid-term review - FoF

- *Good, mature performance*
 - **Important private investments**
 - **Good coherence with other programmes**
 - **Open participation, high count of SMEs and partners from newer EU member states**
- *Improve through the cPPP recommendations*
 - **Expand the stakeholder base, incl. with member states**
 - **Improve the reporting of the key performance indicators**
 - **Increase links with industrial/scientific/societal challenges**

Beyond Horizon 2020

- *Business as usual not possible*
- *Rationalisation based on:*
 - Outcome of the Interim evaluation of Horizon 2020:
https://ec.europa.eu/research/evaluations/index_en.cfm?pg=h2020evaluation
 - Links to the Lab-Fab-App, "Lamy report": <https://publications.europa.eu/s/dPIv>
- *Alignment to Commission priorities*
 - Openness: the "three O's"
 - Open Science
 - Open Innovation
 - Open to the World
- *Citizen involvement – Sustainable development goals*

Upcoming preparation

- *Multiannual Financial Framework to be settled*
- *Stakeholder consultations*
- *Impact assessments*

- **Please support us and engage with your stakeholders**
- **Industry Day 22-23 February 2018**



European
Commission

Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020

Research and
Innovation