Factories of the Future
Manufacturing in Horizon 2020 and beyond

Dr Gustaf Winroth
Advanced Manufacturing Systems and Biotechnologies
DG Research and Innovation, European Commission
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

<table>
<thead>
<tr>
<th>Joint Technology Initiatives</th>
<th>Contractual PPPs</th>
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<tbody>
<tr>
<td>• Innovative Medicines (IMI)</td>
<td>• <strong>Factory of the Future (FoF)</strong></td>
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<td>• Clean Sky</td>
<td>• Energy-efficient Buildings (EeB)</td>
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<td>• Single European Sky ATM Research (SESAR)</td>
<td>• Green Vehicles (EGVI)</td>
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<td>• Fuel Cells and Hydrogen (FCH)</td>
<td>• Future internet (5G)</td>
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<td>• Electronic Components and Systems (ECSEL - old ARTEMIS + ENIAC)</td>
<td>• Sustainable Process Industry (SPIRE)</td>
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<td>• Bio-based Industries (BBI)</td>
<td>• Robotics</td>
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<td>• Shift2Rail</td>
<td>• Photonics</td>
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<td>• High Performance Computing</td>
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<td>• Big Data</td>
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<td>• Cybersecurity</td>
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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

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

*survey answers only
Projects

• **CORDIS:** [http://cordis.europa.eu/](http://cordis.europa.eu/)
• **EFFRA innovation portal:** [https://portal.effra.eu](https://portal.effra.eu)

• **Examples:**
  • Eco-Solar: [http://ecosolar.eu.com](http://ecosolar.eu.com)
  • Flexicast*: [http://flexicast-euproject.com](http://flexicast-euproject.com)
  • NanoMaster*: [http://www.nanomasterproject.eu](http://www.nanomasterproject.eu)

*Completed*
Work Programme 2018-20 - DRAFT

- 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

<table>
<thead>
<tr>
<th>Topic Title</th>
<th>Year</th>
<th>Type</th>
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<tbody>
<tr>
<td>DT-FOF-01-2018: Skills needed for new Manufacturing jobs</td>
<td>2018</td>
<td>CSA</td>
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<td>DT-FOF-02-2018: Effective Industrial Human-Robot Collaboration</td>
<td>2018</td>
<td>RIA</td>
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<td>DT-FOF-03-2018: Innovative manufacturing of opto-electrical parts</td>
<td>2018</td>
<td>RIA</td>
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<td>DT-FOF-04-2018: Pilot lines for metal Additive Manufacturing</td>
<td>2018</td>
<td>IA (50%)</td>
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<td>DT-FOF-05-2019: Open Innovation for collaborative production engineering</td>
<td>2019</td>
<td>IA</td>
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<td>DT-FOF-06-2019: Refurbishment and re-manufacturing of large industrial equipment</td>
<td>2019</td>
<td>IA</td>
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<tr>
<td>DT-FOF-08-2019: Pilot lines for modular factories</td>
<td>2019</td>
<td>IA (50%)</td>
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<tr>
<td>DT-FOF-12-2019: Handling systems for flexible materials</td>
<td>2019</td>
<td>RIA</td>
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<tr>
<td>DT-NMBP-20-2018: A digital 'plug and produce' online equipment platform for manufacturing</td>
<td>2018</td>
<td>IA</td>
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<tr>
<td>ICT Topics 2018</td>
<td>2018</td>
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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:**
- **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
Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020