FoF, EeB, EGVI & SPIRE

Implementation of the four cross-cutting Contractual PPPs under Horizon 2020

PPPs Information days
16-17 December 2013

José-Lorenzo Vallés
DG Research and Innovation
Experience until now: PPPs in FP7

<table>
<thead>
<tr>
<th>Joint Technology Initiatives</th>
<th>&quot;Contractual&quot; PPPs</th>
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<tbody>
<tr>
<td>• Innovative Medicines Initiative (IMI)</td>
<td>• Factory of the Future (FoF)</td>
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<td>• Clean Sky</td>
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<tr>
<td>• Single European Sky ATM Research (SESAR)</td>
<td>• Green Cars (GC)</td>
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<tr>
<td>• Fuel Cells and Hydrogen (FCH)</td>
<td>• Future internet (FI-PPP)</td>
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<tr>
<td>• Embedded Computing Systems (ARTEMIS)</td>
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<td>• Nanoelectronics (ENIAC)</td>
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Outcome of "contractual" PPPs in FP7

- Quick response in defining the strategy via Roadmaps
- Efficient calls with better success rates and time-to-grant
- 366 projects supported, with 4409 participations
- Increased participation of industry (57%) and SMEs (25%)
- More innovation related activities, including demonstration
- The full EC contribution of € 1.6 billion has been provided, resulting in a combined investment of €2.4 billion
Why Public-Private Partnerships in Horizon 2020?

- To solve problems together with industry
- To strengthen European industrial leadership
- To facilitate prioritisation of R&I in line with the Europe 2020 objectives and industry needs
- To leverage research and innovation elements
- To strongly commit industry to joint objectives
Two types of PPPs in Horizon 2020

- **Contractual PPPs:** budget is only committed on an annual basis through H2020 calls in WPs, prepared on the basis of an industry-developed multi-annual roadmap and a contractual arrangement which specifies an indicative 7 years EU funding, and the commitments of industry to match this and to additional investments outside the PPP calls with high leverage factors, but not legally binding.

- **Joint Technology Initiatives:** like the contractual PPPs, but with ring fenced 7 year budget, the JU launching the calls (where derogations to H2020 are possible) and with the additional commitments of industry outside the calls inserted in the legislation.
Criteria in Article 19

Public-private partnerships shall be identified in an open and transparent way based on all of the following criteria:

a) the **added value** of action at Union level;

b) the **scale of impact** on industrial competitiveness, job creation, sustainable growth and socio-economic issues, including societal challenges;

c) the **long-term commitment** from all partners based on a shared vision and clearly defined objectives;

d) the **scale of the resources** involved and the ability to leverage additional investments in research and innovation;

e) a clear **definition of roles** for each of the partners and agreed **key performance indicators** over the period chosen.
Establishment of the contractual PPPs

- Based on ETPs and taking into account policy documents the Commission identified possible areas for a contractual PPP
- Stakeholders were invited to prepare a PPP proposal
- The private sector organised stakeholder consultations, in an open and transparent way, covering the whole value chain
- The private sector delivered the proposal to the Commission
- The Commission checked compliance with H2020 criteria for the PPPs (art. 19) with the help of high-level external experts
- Commission decision to launch the contractual PPP
- Signing of the Contractual arrangement
## PPPs in Horizon 2020

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<td>• Single European Sky ATM Research (SESAR)</td>
<td>• Green Vehicles (EGVI)</td>
</tr>
<tr>
<td>• Fuel Cells and Hydrogen (FCH)</td>
<td>• Future internet (5G)</td>
</tr>
<tr>
<td>• Electronic Components and Systems (ECSEL - old ARTEMIS + ENIAC)</td>
<td>New:</td>
</tr>
<tr>
<td>New:</td>
<td>• Sustainable Process Industry (SPIRE)</td>
</tr>
<tr>
<td>• Bio-based Industries (BBI)</td>
<td>• Robotics</td>
</tr>
<tr>
<td></td>
<td>• Photonics</td>
</tr>
<tr>
<td></td>
<td>• High Performance Computing</td>
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</table>
Rationale of the FoF PPP

• Manufacturing contributes with 23% of European jobs (or over 30 million) directly and twice as many jobs indirectly. The vast majority are in SMEs. Manufactured goods amount to 80% of EU exports.

• Advanced manufacturing is a complex R&D-intensive activity, requiring a long term horizon. Innovative and green EU factories to make high added-value products need to be developed and deployed, but the R&D costs and risks are high.

• Technological capabilities and supply chains are dispersed across the EU. A critical mass of stakeholders at EU level is needed.
Rationale of the EeB PPP

- The construction sector is the largest EU single activity (€1.2 trillion, 9.6% of GDP) and biggest industrial employer (14.6 million direct jobs).
- The sector is highly fragmented and 95% of the 3.1 million enterprises (EU-27) are SMEs. Turnover has decreased significantly during the crisis.
- Buildings account for 40% of total energy use and 1/3 of Greenhouse Gases in Europe.
- Very low replacement rate of the existing stock. Energy-efficient solutions are found at present too expensive by homeowners. Novel approaches can be optimised with research at EU scale.
Rationale of the EGVI PPP

- EU automotive industry is a key sector, with 12 million direct jobs and over € 500 billion/year in turnover. The Smart Systems Industry has 1 million direct jobs and € 10 billion/year in turnover, additionally. The vehicle market is facing a lasting crisis in Europe.

- The quick introduction of new green vehicles with higher energy efficiency and alternative powertrains is needed to support the EU policy targets.

- Technological complexity, initial low market acceptance and low return on investment call for public support. These challenges can only be met with innovation coming from several technology areas and with EU industries joining R&I forces.
Rationale of the SPIRE PPP

- **EU process industries sit at the core of most industrial value chains and are highly dependent on resources (energy, materials and water).**

- **Eight EU industrial sectors are covered (chemical, steel, cement, ceramics, minerals, non-ferrous metals, industrial water and process engineering). They represent together 6.8 million jobs in 450,000 enterprises and turnover of over €1,600 billion/year.**

- **They are struggling with competitiveness at global level and striving for long-term sustainability. High risks and long-term investments. There is a need for co-operation along the value chains.**
Contractual arrangement

• **Main roles in a contractual PPP**
  - Private sector partners advise the Commission on R&I priorities for the Horizon 2020 work programmes
  - Implementation via Commission WPs for R&I using Horizon 2020 Rules for Participation and with comitology

• **Content of the document:**
  - Scope and Specific Objectives,
  - Activities, investment and outputs,
  - Governance and openness,
  - Specific commitments of each side,
  - Monitoring and Key Performance Indicators,
  - Duration and review
  - The Multi-annual roadmap is an Annex
The contractual PPP approach

- **What is the same as in normal Horizon 2020:**
  - The financial rules are those of Horizon 2020
  - Final responsibility for the Work Programme stays with the European Commission and is subject to Comitology
  - Implementation remains with the Commission: selection of proposals, negotiation, review of progress and payments

- **What is different from normal Horizon 2020:**
  - Long-term commitment by Commission to support the field
  - Long-term commitment by industry to invest, with a need to demonstrate its fulfilment (monitoring & KPIs)
  - Roadmap-based strategy. Close interaction in the Partnership Board to prepare the content of the calls.
## Indicative EC funding

<table>
<thead>
<tr>
<th>H2020 funding</th>
<th>NMP RTD</th>
<th>ICT CNECT</th>
<th>Transport RTD</th>
<th>Energy RTD + ENER</th>
<th>Environment RTD</th>
<th>TOTAL M€</th>
</tr>
</thead>
<tbody>
<tr>
<td>FoF</td>
<td>700</td>
<td>450</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,150</td>
</tr>
<tr>
<td>EeB</td>
<td>400</td>
<td>-</td>
<td>-</td>
<td>75+75</td>
<td>50</td>
<td>600</td>
</tr>
<tr>
<td>EGVI</td>
<td>70</td>
<td>80</td>
<td>600</td>
<td>-</td>
<td>-</td>
<td>750</td>
</tr>
<tr>
<td>SPIRE</td>
<td>700</td>
<td>-</td>
<td>-</td>
<td>50+50</td>
<td>100</td>
<td>900</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1870</td>
<td>530</td>
<td>600</td>
<td>250</td>
<td>150</td>
<td>3,400</td>
</tr>
</tbody>
</table>
Core Key Performance Indicators

- **At PPP implementation level**
  - New systems and technologies developed in the relevant sectors
  - Participation and benefits for SMEs
  - Contribution to the reduction of energy use
  - Contribution to the reduction in the use of material resources
  - New high-skilled profiles and new curricula developed
  - Private investment mobilised in relation to the PPP activities
  - Contributions to new standards

- **At project impact level**
  - Scale of reduction in energy, material resources and waste
  - Project results taken-up for further investments
  - Trainings for a higher quality workforce
  - Patents and activities leading to standardisation
The FoF Roadmap

• Part 1: Vision
  • 4 paradigms: Factory and Nature (green/sustainable), Factory as a good neighbour (close to the customer), Factories in the value chain (collaborative), Factories and humans (human-centred)

• Part 2: Research and Innovation Strategy
  • 6 domains: Advanced manufacturing processes, Adaptive and smart manufacturing systems, Digital, virtual and resource-efficient factories, Collaborative and mobile enterprises, Human-centred manufacturing, Customer-focused manufacturing

• Part 3: Expected Impacts
  • Employment and Value-Added (back to the levels in 2007)
  • Environmental: reducing emissions, energy consumption, waste generation in line with Europe 2020 targets
  • Leveraging additional investments (factor 5 to 10)
The EeB Roadmap

- Part 1: Vision
  - An innovative high-tech energy-efficient European Construction industry (regarding buildings and districts)
- Part 2: Research and Innovation Strategy
  - Main drivers: Design, Structure, Envelope, Energy equipment, Construction Process, Performance Monitoring, Building's end of life, Cross-cutting challenges and integration along the value chain
- Part 3: Expected Impacts
  - Reduce by 2020 energy use by 50% compared to 2010 levels
  - Adequate rate of renovation: ideally up to a yearly 4% of the foreseen 2020 building stock
  - Leveraging additional investments (factor 4 or higher)
The EGVI Roadmap

• Part 1: Vision
  • Developing energy-efficient road vehicles and alternative powertrains ("Green vehicles")

• Part 2: Research and Innovation Strategy
  • Required technologies (for passenger cars, two-wheelers, trucks and buses) will be considered at all product layers from modules to systems and vehicles. Innovative solutions for powertrain systems and in electric storage systems, electric components and interface between vehicle and infrastructure

• Part 3: Expected Impacts
  • An energy efficiency improvement of the transport system by 50% from 2010 to 2030. Battery life-time and energy density doubled, at 30% lower cost, in 2020 compared to 2009 Li-ion technology
  • Leveraging additional investments (factor 5 to 10)
The SPIRE Roadmap

• Part 1: Vision
  • A Sustainable Process Industry for a resource-efficient and low-carbon economy: Rejuvenate the European process industry base and help decoupling economic growth from resource impact

• Part 2: Research and Innovation Strategy
  • 6 Key-components: Feed, Process, Applications, Waste2Resources, Horizontal and Outreach

• Part 3: Expected Impacts
  • Up to 30% reduction in fossil energy intensity from current levels
  • Up to 20% reduction in non-renewable, primary raw material intensity compared to current levels
  • Up to 40% improvement in CO2-equivalent footprints
  • Leveraging additional investments (factor 5 to 10)
Horizon 2020: Key elements

- A single programme with three pillars: societal challenges, industrial competitiveness and excellence in science

- More emphasis on innovation

- More involvement of industry via the industrial deployment of key enabling technologies, and through PPPs - institutional and contractual

- Simplified access for all stakeholders
Horizon 2020 Rules apply to the cPPPs

Types of action
- RIA: Research and innovation actions
- IA: Innovation actions
- CSA: Coordination and support actions

Minimum participation conditions
- At least three legal entities each established in a different Member State or an Associated Country, for collaborative actions (and minimum one entity for CSAs)

Evaluation criteria
- Excellence – Impact – Quality and efficiency of the action (similar with FP7)
- Thresholds are depending on the call conditions

Time to Grant shortened
- Maximum 8 months (5 to evaluation results and 3 to Grant Agreement)
- Grant preparation rather than negotiation (proposals are evaluated "as is" and not "what could be")
Simplified funding rates

**FP7**

<table>
<thead>
<tr>
<th>Maximum reimbursement rates</th>
<th>Research and technological development activities (*)</th>
<th>Demonstration activities</th>
<th>Other activities</th>
</tr>
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<tbody>
<tr>
<td>Network of excellence</td>
<td>50%</td>
<td>75% (**)</td>
<td>100%</td>
</tr>
<tr>
<td>Collaborative project(****)</td>
<td>50%</td>
<td>75% (**)</td>
<td>100%</td>
</tr>
<tr>
<td>Coordination and support action</td>
<td></td>
<td></td>
<td>100% (**)</td>
</tr>
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**Horizon 2020**

**One project = One rate**
- For all beneficiaries and all activities in the grant.
- Defined in the Work Programme:
  - Up to 100% of the eligible costs; but limited to a maximum of 70% for innovation actions (non-profit organisations to a maximum of 100%).

**Single indirect cost model**
- 25% flat rate for all
FoF - Call topics for 2014

- **Total EC funding:** €116 million
- NMP (82 M€)
  - 3 topics RIA
  - 2 topics IA
  - 1 topic CSA
- ICT (34 M€)
  - 1 topic RIA & CSA
- **Common deadline:** 20 March 2014
- **Areas covered include:** process optimisation; manufacturing of complex structures; energy and other resource efficiency; worker-attractive factories; product-service design; and human-robot collaboration
FoF - Call topics for 2015

• **Total EC funding:** €145 million
• NMP (77 M€)
  3 topics RIA
  2 topics IA
• ICT (68 M€)
  1 topic RIA & CSA (32 M€)
  1 topic IA & CSA (36 M€)
• **Common deadline:** 9 December 2014
• **Areas covered include:** modelling and simulation; ICT for manufacturing SMEs; manufacturing of personalised products; flexible production; joining & assembly processes; re-use & re-manufacturing; and integrated design & management of production
EeB - Call topics for 2014

- **Total EC funding: €62,5 million**
- **NMP (49,5 M€)**
  - 2 topics RIA
  - 1 topic IA
  - 1 topic CSA
- **Energy (8 M€)**
  - 1 topic IA
- **Environment (5 M€)**
  - 1 topic RIA
- **Common deadline: 20 March 2014**
- **Areas covered include:** materials for the building envelope; adaptable envelopes; self-inspection; manufacturing of prefabricated modules; and energy strategies for renovation of historic buildings
EeB - Call topics for 2015

- **Total EC funding: €73 million**
  - NMP (64 M€)
    - 4 topics IA
  - Energy (9 M€)
    - 1 topic IA
- **Common deadline: 9 December 2014**
- **Areas covered include:** design tools for refurbishment; thermal energy storage; energy performance assessment; retrofitting of residential buildings; and design for new highly energy performing buildings
EGVI - Call topics for 2014

- **Total EC funding: €145 million**
- **Transport** (129 M€) – deadline 28 August 2014
  - 2 topics RIA
  - 4 topics IA
- **NMP** (16 M€) – deadline 7 October 2014
  - 1 topic RIA
- **Areas covered include:** lithium batteries; energy management in electrical vehicles; natural gas powertrains and components for cars and vans and also for heavy duty vehicles; hybrid light and heavy duty vehicles; and electric two-wheelers & light vehicles
EGVI - Call topics for 2015

- **Total EC funding: €30 million**
  - Transport (10 M€)
    - 1 topic IA
  - Transport-DG CNECT (20 M€)
    - 1 topic RIA
- **Common deadline: 27 August 2015**
- **Areas covered include:** powertrain control for heavy-duty vehicles; and electric vehicles performance and integration into the transport system and the grid
SPIRE - Call topics for 2014

- **Total EC funding**: €116,3 million
- **NMP (60,3 M€)** – deadline 20 March 2014
  - 1 topic RIA
  - 2 topics IA
  - 1 topic CSA
- **Energy (12 M€)**
  - 1 topic IA (8 M€) – deadline 20 March 2014
  - 1 topic RIA (est. 4 M€) – 2 stages: deadlines 1-4-2014/23-9-2014
- **Environment (44 M€)** – 2 stages: deadlines 8-4-2014/16-9-2014
  - 1 topic IA

**Areas covered include**: integrated process control; processes using renewables as flexible feedstock; downstream processing of mixtures; heat recovery; solar cooling systems; and moving towards a circular economy through industrial symbiosis
SPIRE - Call topics for 2015

- **Total EC funding: €89 million**
- NMP (77 M€) – deadline 9 December 2014
  - 2 topic RIA
  - 2 topics IA
- Energy (12 M€)
  - 1 topic IA (8 M€) – deadline 9 December 2014
  - 1 topic RIA (est. 4 M€) – 2 stages: deadlines 3-9-2014/3-3-2015
- **Areas covered include:** process intensification; energy and resource management systems; metal & minerals recovery; solids handling; heat recovery; and solar heating for industrial processes
Thank you for your attention

More information:

HORIZON 2020:

Contractual Public-Private Partnerships in research and innovation:
Afternoon parallel sessions

<table>
<thead>
<tr>
<th>Rooms</th>
<th>SPIRE</th>
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<tbody>
<tr>
<td>13.45-17.45</td>
<td>Lord Jenkins – Sicco Mansholt</td>
<td>Alcide De Gasperi</td>
<td>Centre Albert Borchette 1A-1D</td>
<td>Thon Hotel</td>
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- Detailed information on the Call topics (with Q & A)
- Brokerage event (with presentations of ideas)