The Concept of Innovation
Innovation concepts and innovation policy

Webinar – May 20th 2015
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NCP Academy aims to...

- bring together **NCP Coordinators and NCPs for Legal and Financial aspects of Horizon 2020**
- develop and implement **training courses on cross-cutting issues** for Horizon 2020 advisors
- address **quality standards and good practice** as well as routes to feedback and communication for this community
- significantly enhance the performance of NCPs and does so by harnessing the knowledge base already existing within this community
## Training Modules

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<th>“Legal and financial issues”</th>
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<td>“Synergies between Horizon 2020, European Structural and Investment Funds and other measures”</td>
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<td>“Cross-cutting Issues”</td>
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<td>Title/Content</td>
<td>Type of training</td>
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Agenda

I. The concept of innovation

1. Defining innovation
2. Innovation policy of the EU
   - Legal basis
   - Europe 2020-strategy
   - Innovation Union
   - Monitoring innovation

II. Innovation support

- H2020 in a nutshell
- Innovation chain
- Funding instruments
- Strategic positioning – SME Innovation Support
The concept of innovation

1. Defining innovation

Definition by John Kao (author of “Innovation Nation” and strategic advisor):

“My definition of innovation is the capability of continuously achieving a desired future.” (www.johnkao.com/services)

“What I have learned is that innovation – creating what is both new and valuable – is not a narrowly defined, technical area of competence. (...) Rather, innovation emerges when different bodies of knowledge, perspectives, and disciplines are brought together.” (Innovation Nation, 2007, p. 9)
The concept of innovation
1. Defining innovation

Definition of Disruptive Innovation by Clayton Christensen:
A process by which a product/service takes root in simple applications at the bottom of a market and then moves up market, eventually displacing established competitors.

Source: Clayton Christensen: The Innovators Solution
The concept of innovation
1. Defining innovation

Approach to define innovation by Hutch Carpenter (Senior Consultant, HYPE Innovation)

→ 25 definitions of innovation with 5 major patterns of thought
The concept of innovation
1. Defining innovation – in the context of the EU

• (...) Europe (...) requires a competitive industry that builds its competitiveness on innovation in all its forms: Development and application of
• technologies at the technology frontier,
• new business models and
• organisational models
• reaching out new geographic markets.

The concept of innovation

2. Innovation policy of the EU - Legal basis

• „Innovation“ is used for many areas, e.g.
  • Eco Innovation
  • Social Innovation
  • Open Innovation
  • Disruptive Innovation...

• Legal Basis of the EU: Treaty of Lisbon
  • References to the word innovation: 1
The concept of innovation

2. Innovation policy of the EU - Legal basis

Treaty of Lisbon – two main areas covering innovation

<table>
<thead>
<tr>
<th>Article 173 TFEU</th>
<th>“in accordance with a system of open and competitive markets, [Union and Member States] action shall be aimed at: speeding up adjustment of industry to structural changes, – encouraging an environment favourable to initiative and to the development of undertakings throughout the Union, particularly small and medium-sized undertakings, – encouraging an environment favourable to cooperation between undertakings, – fostering better exploitation of the industrial potential of policies of [innovation], research and technological development.”</th>
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| **Articles 179-189 TFEU** | - realisation of the European Research Area (ERA)  
- coordination of activities concerning research and technological development amongst EU and the Member States  
- the European Commission can set out guidelines and indicators for monitoring and evaluation of the progress in cooperation with the Member States (Art. 181 II TFEU)  
→ long-term framework programme |
The concept of innovation

2. Innovation policy of the EU - Europe 2020

<table>
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<th>Europe 2020-strategy</th>
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<tbody>
<tr>
<td><strong>3 Priorities</strong></td>
<td><strong>7 Flagship initiatives</strong></td>
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<td>Smart growth</td>
<td>Innovation Union</td>
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<tr>
<td>Sustainable growth</td>
<td>An industrial policy for the globalisation era</td>
</tr>
<tr>
<td>Inclusive growth</td>
<td>An agenda for new skills and jobs</td>
</tr>
<tr>
<td><strong>5 Targets</strong></td>
<td><strong>7 Flagship initiatives</strong></td>
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<tr>
<td>75% of the 20-64 year-olds to be employed</td>
<td>3% of the EU's GDP to be invested in R&amp;D</td>
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<tr>
<td>Acheiving the 20-20-20 climate-protection objectives</td>
<td>Rates of early school leaving below 10%; &gt;= 40% of 30-34-year-olds completing 3rd level education</td>
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<tr>
<td>At least 20 million fewer people in or at risk of poverty and social exclusion</td>
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The concept of innovation

2. Innovation policy of the EU - Innovation Union

Source: http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=key
The concept of innovation

2. Innovation policy of the EU – SWD/ Policy Paper

The concept of innovation
Monitoring innovation

• How is innovation capacity being measured?

• **European Innovation (Union) Scoreboards:**
  → provide assessment of R&I performance in Europe
  → focus on the relative strengths and weaknesses
  → help countries and regions identify the areas they need to address

• They consist of:

  **Innovation Union Scoreboard (IUS)** – covers the Member states and further EU states and global benchmarks (published every year)

  **Regional Innovation Scoreboard (RIS)** – covers regions across the EU, Norway, and Switzerland (published every two/three years)

  **European Public Sector Innovation Scoreboard (EPSIS)** – looks at innovation in the EU’s public sector (published every two years, methodology still developing)

Innovation Union Scoreboard (IUS) 2015
Measurement framework of the IUS

Source: IUS 2015 p. 7
The concept of innovation

Monitoring innovation

Innovation Union Scoreboard (IUS) 2015
EU Member States’ innovation performance

The concept of innovation
Monitoring innovation

Innovation Union Scoreboard (IUS) 2015
Benchmarking with global competitors

Figure 27: Global innovation performance

Figure 28: Global innovation growth rates

Source: IUS 2015 p. 32
II. Innovation support

H2020 in a nutshell

- Close to €80 billion research and innovation funding programme (2014-2020)
- At least €8.6 billion for SME (20%-target)

- Core part of Europe 2020, Innovation Union & European Research Area
- Emphasis on innovation, with continuing support for R&D
- Integrated and simplified support throughout the innovation cycle ("from lab to market")
### H2020 in a nutshell

#### Programme Structure

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<th>I. Excellent Science</th>
<th>II. Industrial Leadership</th>
<th>III. Societal Challenges</th>
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<tr>
<td>European Research Council</td>
<td>Leadership in enabling and industrial technologies (LEIT)</td>
<td>Health, demographic change and wellbeing</td>
</tr>
<tr>
<td>Future Emerging Technologies</td>
<td>ICT, Nanotechnologies, Materials, Biotechnology, Manufacturing and Processing, and Space</td>
<td>… Bioeconomy</td>
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<tr>
<td>Marie-Skłodowska-Curie</td>
<td>Access to risk finance</td>
<td>Energy</td>
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<td>Research Infrastructures</td>
<td>Innovation in SME</td>
<td>Transport</td>
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<td>Climate action, Environment…</td>
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<td>…Societies</td>
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<td>Secure Societies…</td>
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#### Widening Participation

- Science with and for Society
- JRC
- EIT
II. Innovation support
Innovation in Horizon 2020

Different approach towards research results

- Quicker exploitation of research results for new technologies, products, procedures, and services
- „Valley of death“: market uptake of good ideas needs to be improved – beneficial for companies and society
- Coupling research to innovation
  - Intensify cooperation between science and economy
  - Reduce obstacle for companies to bring good ideas to the market
- Stronger linkage with Technology Readiness Levels
II. Innovation support

Innovation chain

Fundamental research | Feasibility | Validation (lab scale) | Demonstration (large scale) | Commercialisation

Research | Development | Innovation | Commercialisation

1. Basic Principles Observed
2. Technology Concept Formulated
3. Experimental Proof of Concept
4. Technology Validation in lab
5. Tech valid. in relevant environment
6. Demonstration in relevant environment
7. Demonstration in operational environment
8. System complete and qualified
9. Successful mission operations

DLR – May 20th
II. Innovation support

Funding instruments

IA: Innovation Actions

- Activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services
- E.g. prototyping, testing, demonstrating, piloting, large-scale product validation and market replication
- may include limited research and development activities

Funding rate: 70% (except for non-profit legal entities, where a rate of 100% applies)
II. Innovation support
Funding instruments – SME Instrument

The instrument is structured in three phases, with the aim of transforming disruptive ideas into concrete, innovative solutions with a European and global impact. SMEs are recommended to apply for Phase 1, but may also apply directly for subsequent phases:

**PHASE1**
Concept & Feasibility Assessment
Idea to concept (6 months)

- The SME will draft an initial business proposal.
- The European Union will provide €50 000 in funding and business coaching.

**PHASE2**
Demonstration, Market Replication, R&D Concept to Market-Maturity (1-2 years)

- The SME will further develop its proposal through innovation activities, and draft a more developed business plan.
- The EU may contribute between €0.5 million and €2.5 million* and provide business coaching.

**PHASE3**
Commercialisation
Prepare for Market Launch

- The SME will receive extensive support to help polish its concept into a marketable product, and have access to networking opportunities.
- The EU will not provide funding in this phase.

min. TRL 6

21.05.2015
Fast Track to Innovation Pilot

THE ULTIMATE BOOST FOR OUTSTANDING BUSINESS INNOVATORS WITH A NEED FOR SPEED.

**Preparation**
- Build your industry-intensive consortium
- Minimum 3 partners - maximum 5 partners (all based in the EU and/or in Horizon 2020 associated countries)

**Development**
- Receive an EU grant of EUR 1 million to 3 million (70% of funding, 100% of funding for non-profit entities)

**Launch**
- Start your commercial activities

Proposals:
- Outstanding Business Innovation Concept (high readiness level / TRL 6, meaning demonstrated in a relevant environment)
- Continuous open call until end 2016
- 6 months time-to-grant

Demonstration:
- Market-Oriented R&D to Market-Mature Innovation
- 12-24 months for implementation

...AND EAGER TO COMPETE ON GLOBAL MARKETS...

**Activities Supported**
- Systems validation in real working conditions
- Testing
- Piloting
- Business model validation
- Standard setting
- Pre-normative research
- EU quality label


For more details join “Submodule 2 SME Innovation Support”
On-site training Nov 2015
II. Innovation support
Acess to risk finance

• Around 2.7 billion euro in total
• No grant funding but risk-sharing finance
• Loans and guarantees and equity
• Indirect funding managed by EIB and EIF

➢ Debt finance: loans & guarantees for investments in R&I
➢ Equity finance: early stage finance for innovative enterprises; Venture Capital, Business Angels, Crowd Funding etc.

For more details join “Risk Finance Instrument” On-site training Jan 2016
**Aim:** Strengthen the innovation capacity within the EU by integrating the three sides of the knowledge triangle – (higher) education, research, and innovation

**Means:** Knowledge and Innovation Communities (KICs), i.e. cluster networks good fit with both the themes of the German **Hightech-Strategy** and the character of the German **leading edge clusters** (cluster approach)

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<thead>
<tr>
<th>Existing KICs</th>
<th>Planned KICs</th>
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<tr>
<td>KIC InnoEnergy</td>
<td>Food4Future (2016)</td>
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<tr>
<td>EIT ICT Labs</td>
<td>Added-value manufacturing (2016)</td>
</tr>
<tr>
<td>Climate-KIC</td>
<td>Urban Mobility (2018)</td>
</tr>
<tr>
<td>EIT Health</td>
<td></td>
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<tr>
<td>EIT Raw Materials</td>
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II. Innovation support
Innovation Procurement in H2020

• Two new instruments introduced in Horizon 2020:
  • Pre-Commercial Procurement Cofund (PCP) Funding rate max. 70%
  • Public Procurement of Innovation Cofund (PPI) Funding rate max. 20%

For more details check out the documentation of the On-site training “Public Procurement Instruments” held in Vienna in May 2015
II. Innovation support
Further Funding instruments

• Marie Skłodowska-Curie actions (MSCA)
• Research and Innovation Actions (RIA)
• Future and Emerging Technologies (FET)
• Eurostars2
III. Strategic positioning
finding the most appropriate instrument for SMEs

1. Type of funding
- Grants (non-refundable)
- Access to finance [www.accesstofinance.eu]
- Investors
- Loans

2. Number of partners
- Several (national)
- 1 partner
- 2 (EU)
- At least 3 out of 3
- Individual
- CF Crowd Funding
- BA Business Angels
- VC Venture Capital
- MSCA (graduates/post doctorands)

3. TRL Technology readiness level
- National funding consultation
- FET/RIA
- Eurostars 2
- IA Innovation Actions
- SME Instrument
- FTI
- Commercialisation

TRL 1
- Research

TRL 2
- Development

TRL 3
- Innovation

TRL 4
- Commercialisation
“The ability to innovate will more and more become a key to competitiveness. Half of the products we want to sell in 5 years are yet to be developed.“

Karl Heinz Beckurts, 1930-1986
German Manager
Documents and Dates

www.ncpacademy.eu
Thank You

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