European Commission

HORIZON 2020

SME participation in collaborative projects: Industrial Technologies

Information Day
SMEs and Horizon 2020
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Research and Innovation

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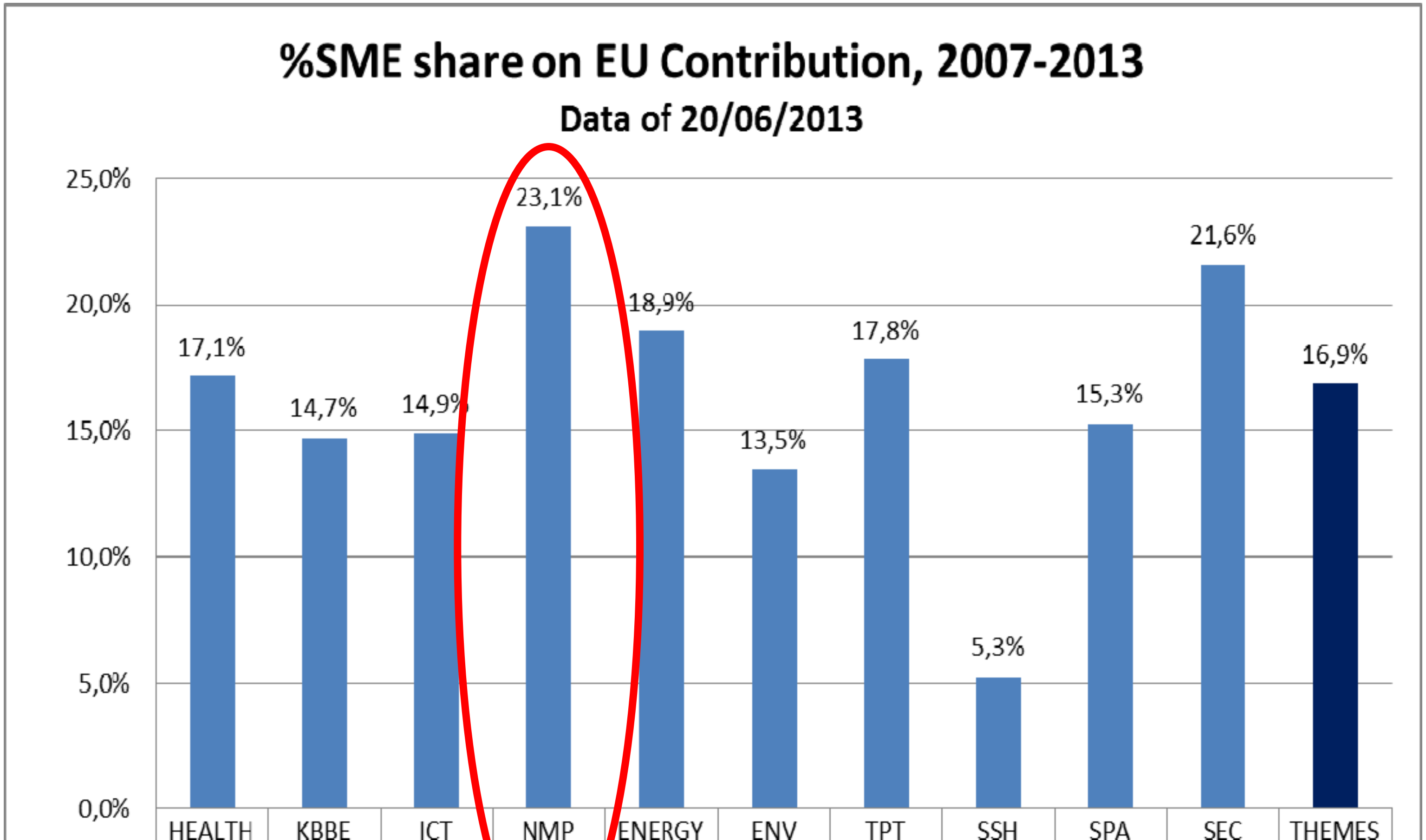


	HEALTH	KBBE	ICT	NMP	ENERGY	ENV	TPT	SSH	SPA	SEC	THEMES
%EU €	17,1%	14,7%	14,9%	23,1%	18,9%	13,5%	17,8%	5,3%	15,3%	21,6%	16,9%

Source: SME participation in FP7 – Report June 2013

Research and Innovation

SME friendly Work Programmes since the beginning of FP7 – dedicated calls

"SMEs

The **NMP Theme is particularly relevant to SMEs of all industrial sectors due to their needs and roles with respect to advanced technologies**. SMEs can participate in each and every call for proposals implemented by Theme 4.

In addition, **dedicated calls for collaborative projects targeted to SMEs** will be implemented in specific areas with the aim of reinforcing the scientific and technological base of SMEs and of validating innovative solutions. SME projects **should be led by SMEs with R&D capacities** and, obviously, include the participation of universities, research centres and other industries or industrial associations as appropriate. **In each project, at least 35% of the EC contribution is expected to be allocated to the participating SMEs**."

Source: NMP WP 2007

Examples of SME-targeted topics

2007:

Equipment and methods for nanotechnology

New added-value user-centered products and product services

2013:

2.2-1 Biomaterials for Advanced Therapies and Medical Devices in the neurological/neuromuscular or cardiovascular fields

3.0-2 Integrated processing and Control Systems for Sustainable Production in Farms and Forests

4.0-3 From research to innovation: substantial steps forward in the industrial use of European

intellectual assets, stimulating the use of newly developed materials and materials technologies by the industry

FoF-11 Manufacturing of highly miniaturised components

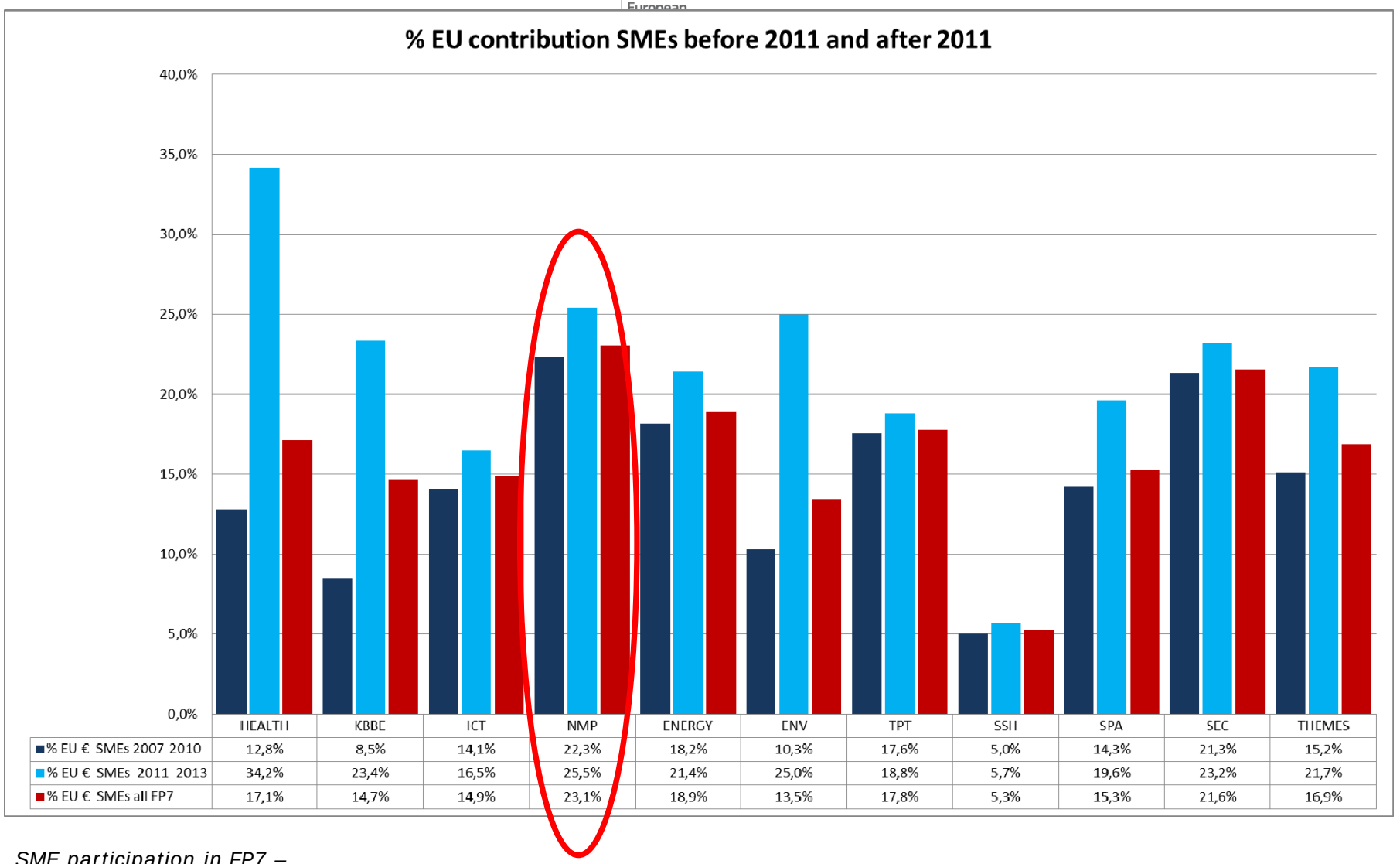
15% of the total budget

SME friendly Work Programmes since the beginning of FP7 – 2-stage evaluations

"For the NMP Theme, the **evaluation** of proposals for Collaborative projects (including those dedicated to SMEs) and Networks of Excellence will be organised in **two stages**. The rationale for this is due to the specific nature of Theme 4 – NMP, which is multidisciplinary, cross sectoral and **SME intensive**, for which a “bottom-up” approach is encouraged.

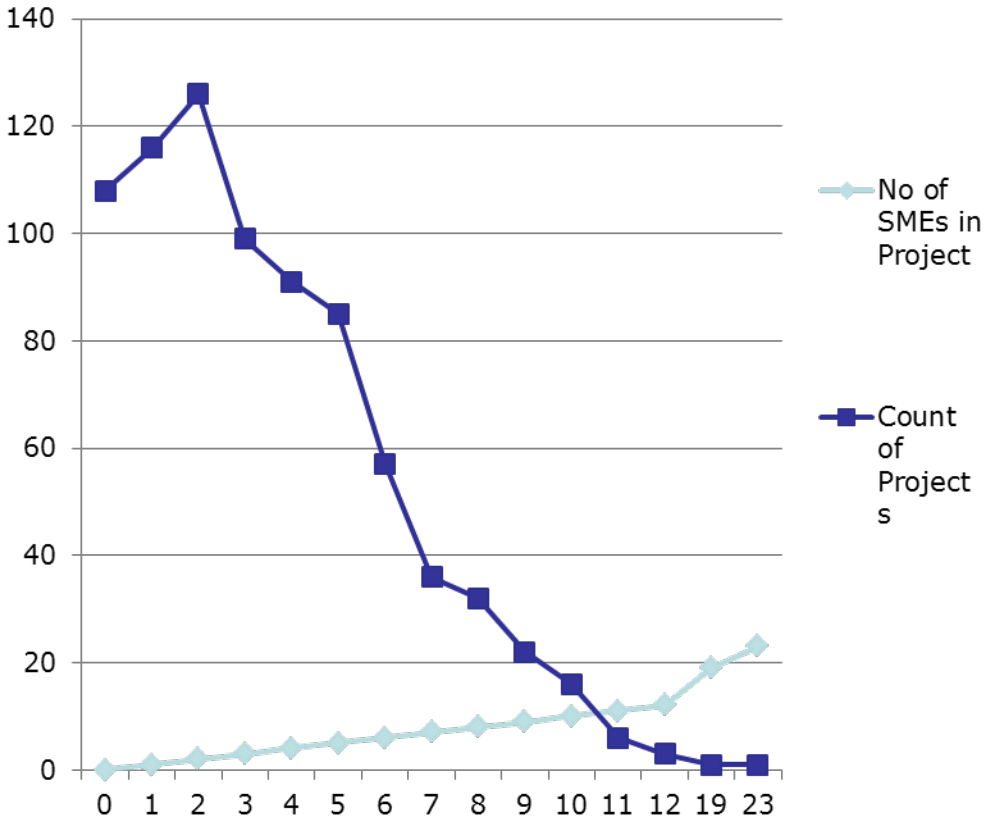
The **first stage proposal should focus on the S & T content and** on clear identification of the intended results, their intended use, and the expected (economic, social, environmental, etc.) **impact**. It will be evaluated on the basis of two criteria: scientific quality and expected impact. Coordinators of retained proposals in stage 1 will be invited to submit a complete proposal that will then be evaluated against the entire set of evaluation criteria."

Source: NMP WP 2007



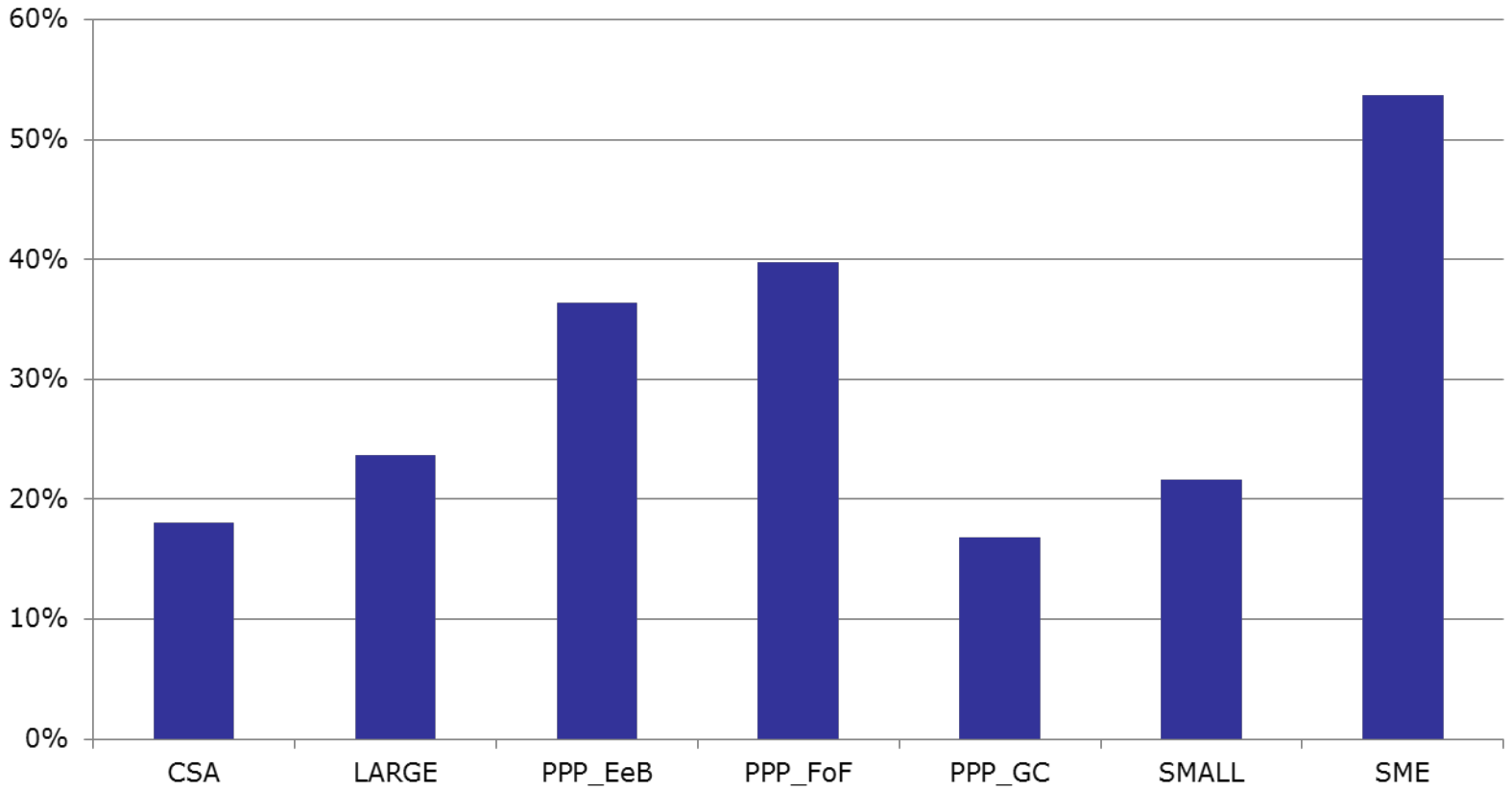
	HEALTH	KBBE	ICT	NMP	ENERGY	ENV	TPT	SSH	SPA	SEC	THEMES
% EU € SMEs 2007-2010	12,8%	8,5%	14,1%	22,3%	18,2%	10,3%	17,6%	5,0%	14,3%	21,3%	15,2%
% EU € SMEs 2011-2013	34,2%	23,4%	16,5%	25,5%	21,4%	25,0%	18,8%	5,7%	19,6%	23,2%	21,7%
% EU € SMEs all FP7	17,1%	14,7%	14,9%	23,1%	18,9%	13,5%	17,8%	5,3%	15,3%	21,6%	16,9%

NMP theme SME numbers



% of SME participants	27,3%
Average number of SMEs in a project	3,4
Average size of consortia	12,5
Average SME EU contribution	263 212€
Average SME contribution of average contribution	85%
% of EU contribution going to SMEs	23,1%

NMP SME participants by project type



SME participation in PPPs

- Higher than average SME participation in PPPs (except Green Cars)
- With their generally **faster innovation cycles and the ability to open niche markets and to bring disruptive technologies to the market and grow employment**, this is a promising development.
- However, further work needs to be done to increase SME participation. Evidence from the PPP assessment questionnaire suggests that this could partly be achieved through greater awareness activity among SMEs and SME networks: **the benefits of access to new supply chains and being able to play a stronger role in supply chains need to be made more visible**.
- A second method suggested is to **use the existing supply and value chains of larger companies to construct projects which address the whole chain** and thereby bring benefits to all participants, including the SMEs.

Lessons learned from earlier programmes – Innovation Study

- **Involvement of industry in R&D consortia increases the success rate of market-oriented exploitation**
- When companies are involved as **customers** it enabled the consortium to almost constantly to check for its alignment with (potential) customer needs. Those customers usually become early adopters
- Involving **end-users** to safeguard the actual application of knowledge produced was another approach. Given the uncertainly to outcome, some cases suffered from the fact that the involvement of end-users can limit the scope of thinking when it comes to market-oriented exploitation.

⇨ **Important to involve all relevant elements of the value chain**

Source: Austrian Institute of SME Research 2012

Involvement of SMEs in R&D consortia – Innovation Study

- SMEs are **faster** and more **flexible** to innovation and commercially exploiting research outcome. Most important whenever **speed** is important to arriving at the market before a competing organisation or technology does.
- Often able and willing to **find and utilise market niches** creating commercial opportunities missed by others
- However, their intrinsic limit of resources can become a **risk**. SMEs' are easier bought/sold, they get into economic trouble more easily and often cannot acquire additional personnel as easily as larger organisations.
- Whenever a SME has a crucial function within a consortium (e.g. industrial scale-up), the R&D project and the market-oriented exploitation can either benefit from this circumstance or become severely endangered.

⇨ **Importance of risk management**

Source: Austrian Institute of SME Research 2012

The benefits for SMEs?

Impacts (FP6)

- Main motivations to apply: possibility to co-operate with international partners , technological ambition, funds not available at national level.
- Main benefits: creation of new knowledge/new research approaches, integration/exploitation of new knowledge
- BUT ALSO community/network building, better access to international knowledge, creation of sustainable relationships for research, and possibility to work in big consortia, with a higher scientific level

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Industrial mastering and deployment of Key Enabling Technologies (KETs)

What are KETs?

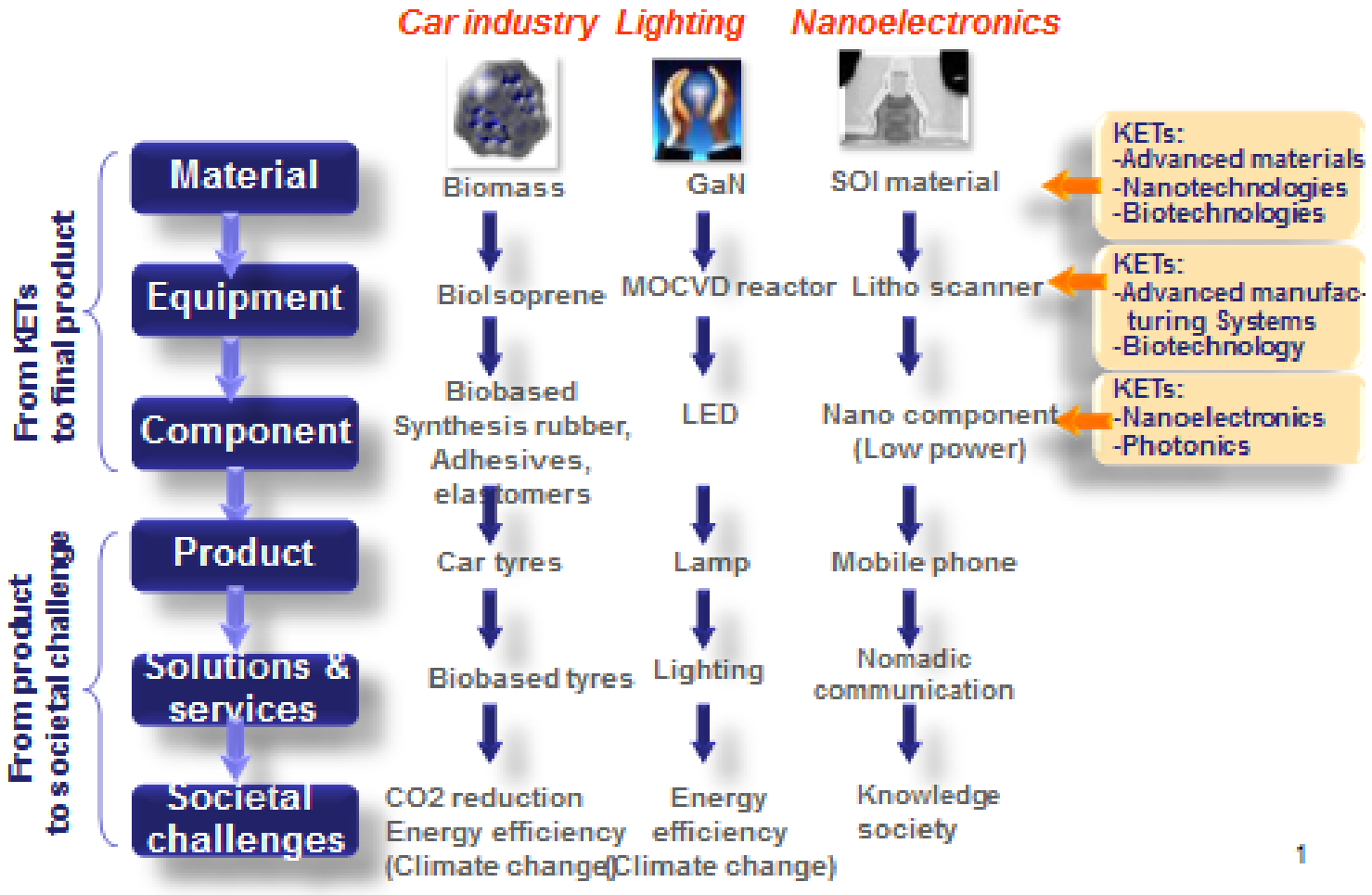
- Six strategic technologies
- Driving competitiveness and growth opportunities
- Contributions to solving societal challenges
- Cut across many sectors

- **Nanotechnologies**
- **Advanced Materials**
- **Micro- and nano-electronics**
- **Photonics**
- **Biotechnology**
- **Advanced Manufacturing**

Selection of KETs

	Economic Potential	Value adding enabling Role	Technology-Intensity	Capital Intensity
Economic criteria	•GDP contribution •Employment •Market Growth •Systemic relevance	•General Purpose Technology •Innovation driver •Productivity driver •Spill-over effects	•R&D-Intensity •Innovation cycles •Know-how intensity •IPR/ Patenting •High-skill ratio	•Initial investments •Capital expenditure/ Production costs •Amortisation rates •Investment per employee

KETs are strategic all along value chains



HLG Final Report and two Communications to support the KETs strategy

EUROPEAN COMMISSION

Brussels, 26.6.2012
COM(2012) 341 final

COMMUNICATION FROM THE COMMISSION

TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

'A European strategy for Key Enabling Technologies – A bridge to growth and jobs'

(Text with EEA relevance)

'A European strategy for Key Enabling Technologies
A bridge to growth and jobs'
COM(2012) 341

EN EN

EUROPEAN COMMISSION

Brussels, 10.10.2012
COM(2012) 582 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Stronger European Industry for Growth and Economic Recovery

Industrial Policy Communication Update
{SWD(2012) 297 final}
{SWD(2012) 298 final}
{SWD(2012) 299 final}

'A Stronger European Industry for Growth and Economic Recovery'
COM(2012) 582

EN EN

Objective: To boost industrial deployment of KETs in Europe

- **Adaptation of EU instruments and policies in support of KETs deployment**
- **Coordination of EU and national policies to des activités nationales et européennes achieve synergies**
- **Dedicated governance structure to ensure sound implementation of the KETs strategy**
- **Mobilisation of trade mechanism to ensure fair competition and an international playing field**

Adaptation of EU instruments and policies in support of KETs deployment:

- **Horizon 2020:** Allocation of € 6.7 bln to KETs; rebalancing towards pilot lines and demonstrator projects; promotion of cross-cutting KETs activities; selection criteria
- **ERDF**: KETs as priority investment area; financing up till first production; combined financing; KETs integration in regional smart specialisation strategies
- **European Investment Bank**: MoU agreement with the EIB prioritises KETs
- Modernise **state aid rules** to sustain EU growth
- Promote necessary multidisciplinary technology **skills** and training

Objective: To boost industrial deployment of KETs in Europe

Adaptation of EU instruments and policies in support of KETs deployment

Coordination of EU and national policies to des activités nationales et européennes achieve synergies

Dedicated governance structure to ensure sound implementation of the KETs strategy

Mobilisation of trade mechanism to ensure fair competition and an international playing field

Coordination of EU and national policies to achieve synergies

- Synergies with **national and regional** industrial innovation policies
- Invite **industry** to express its commitment to KETs investment

The issues regarding KETs

- Europe has strong position in science and in patenting activity
- EU actors are at top of patent ranking in each KET
- But there is a gap between the technology base and the manufacturing base
- We need to add product development (e.g. demonstrators) and competitive manufacturing to the technologies

From Lab to Industry to Market

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Horizon 2020 is different

- A strong challenge-based approach, allowing applicants to have considerable freedom to come up with innovative solutions
- Less prescription, strong emphasis on expected impact
- Broader topics
- Cross-cutting issues mainstreamed (e.g. social sciences, gender, international…)

Three Pillars of Horizon 2020

1

Excellent science

- *European Research Council*
- *Future and EmergingTechnologies*
- *Marie Curie actions*
- *Research infrastructures*

Indicative Budget:
24,4 M€*

2

Industrial leadership

- ***Leadership in enabling and industrial technologies***
- *Access to risk finance*
- *Innovation in SMEs*

Indicative Budget:
17,0 M€*

3

Societal challenges

- *Health, demographic change and wellbeing*
- *Food security, sustainable agriculture, marine and maritime research & the bioeconomy*
- *Secure, clean and efficient energy*
- *Smart, green and integrated transport*
- *Climate action, resource efficiency and raw materials*
- *Inclusive societies*
- *Secure societies*

Indicative Budget:
29,7 M€*

* 2014-20, actual budget, without EIT, "widening"

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II. Leadership in enabling and industrial technologies

HORIZON 2020

Priority 1: Excellent Science

Priority 2: Industrial Leadership

Leadership in enabling and industrial technologies (LEIT) *(i) ICT including micro- and nano-electronics and photonics* **(ii) Nanotechnologies** **(iii) Advanced Materials** **(iv) Biotechnology** **(v) Advanced Manufacturing & Processing** *(vi) Space*	**This Work Programme**
Access to risk finance *Leveraging private finance and venture capital for R&I*	
Innovation in SMEs *Fostering all forms of innovation in all types of SMEs*	

Priority 3: Societal Challenges

A strategic programming approach

- Work programme preparation based on guidance obtained from strategic programming exercise
- To increase impact of the funding, and a more integrated approach
- Work programmes with 2 year-duration
- Leitmotif of the first work programme : **economic crisis and the path to sustainable growth -** Horizon 2020 can make a significant contribution to this effort

Focus Areas

- Strategic programming identifies focus areas that:
  - Bring together activities from different challenges and enabling technologies
  - Provide support across the innovation chain from research, to development, to proof of concept, piloting, demonstration projects, and to setting standards and policy frameworks.
  - Make use of the full spectrum of funding schemes and types of action e.g. research and innovation actions, innovation actions, ERANETs, SME instrument…
  - Integrate different perspectives, including from the social sciences and humanities, gender perspectives, and international strategy

Work Programme emphasis

- Key enabling technologies and support to innovative SMEs to exit economic crisis

- Emphasis on R&D and innovation areas with strong industrial dimension.
  Activities primarily developed through relevant industrial roadmaps. (ETPs)

- Involvement of industrial participants and SMEs to maximise expected impact => evaluated in proposal !

Funded projects will be outcome oriented.

LEIT projects to develop key technology building blocks and bring them closer to applications and market to pave way for industrial and commercial implementation.

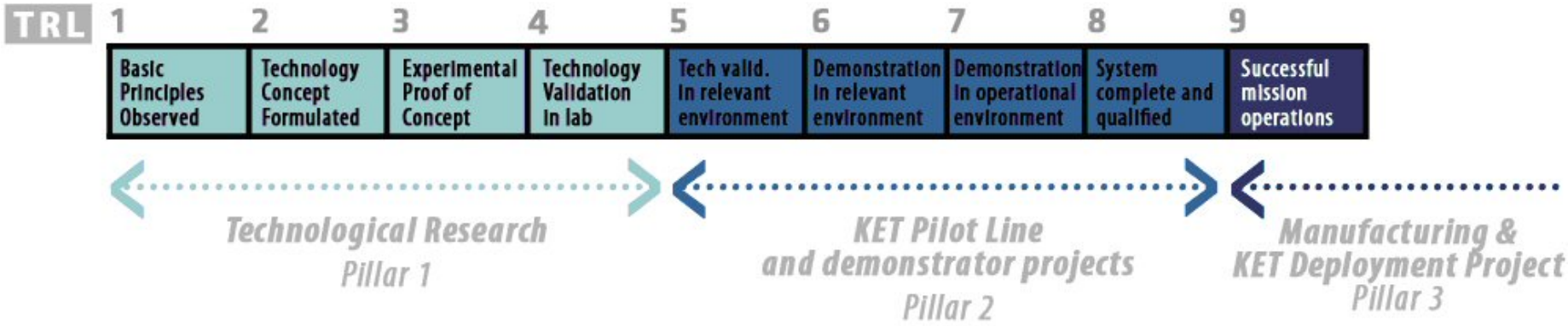
Proposal should describe

- Exploitation and/or business plans
- Engagement of partners along industrial value chain
- Standardisation
- IPR
- Dissemination of know-how
- Support for education and training
- Expected impact

Cross-Cutting KETs in H2020

- 30% of KETs budget to integrated KETs projects
- Activities closer to market and applications
- Pilot activities to combine at least 2 different KETs and integrated advanced manufacturing technologies/processes

Technology Readiness Levels (TRLs) – a useful tool in development and deployment of KETs



- NMP in FP7: TRLs 1 – 4;

  up to 5-6 in 2012-13 (pilots and demonstrators)

- LEIT KETs: TRLs 3/4 – 8; centre at TRLs 5-7

Covering the innovation cycle from research to market

H2020 – LEIT/KETs: From R&D to close-to-market activities

- Use of Technology Readiness Levels (TRLs from 3-4 to 8)
- Both funding rates
  - **100%** funding: TRLs 3-6
  - **70%** funding : TRLs 5-8
- Cross-cutting KETs (combinations of KETs)
- Seamless coverage provided by FETs/ERC – LEIT – Societal Challenges
- Ground prepared in FP7 (first pilots and demonstrators, innovation activities)

Work Programme topics

Structure reflects the challenge based approach

3 key features :

- **Specific Challenge**
  - sets context, problem to be addressed, why intervention is necessary
- **Scope**
  - delineates the problem, specifies the focus and the boundaries of the potential action BUT without overly describing specific approaches
- **Expected Impact**
  - describe the key elements of what is expected to be achieved in relation to the specific challenge

H2020 types of action

Simplified list of possible types of action (e.g. research and innovation -100%; innovation actions - 70%,...)

SMEs still flagged in scope: "..projects should...address in particular the needs of SMEs active in this sector..", impact, or as "particularly suitable for SME participation"

SME specific instrument

- Fast track – bottom-up
- Initially, 5% of the combined budget of LEIT and Societal Challenges will be distributed through the SME instrument, and this will rise to at least 7% averaged over the duration of the programme.

In general SME target of at least 20% of the combined budget of LEIT and Societal Challenges (first and second pillar) to SMEs.

A Fast Track to Innovation pilot to be launched in 2015

- Aimed at 'innovation actions' with a maximum of 5 partners and a maximum of EUR 3 million per project
- Bottom-up driven logic
- Continuously open call with three cut-off dates per year
- Higher weighting on impact (impact, implementation, excellence)
- Covering all fields across LEITs and Societal Challenges

Public Private Partnerships (PPPs) - Special characteristics

- **Industry has a leading role** in defining research priorities Concrete technological and sector related objectives – commitment from industry to reach them and to provide the necessary RDI investments
- **Pre-defined budget** ensures continuity and commitment
- Focused on **enabling industrial technologies**
- Increased use of **SME-friendly** instruments and **demonstration**
- **H2020:** Roadmap with large stakeholder involvement and public consultation

Two types of PPPs

- **Contractual PPPs:** the 7 year indicative budget is periodically committed by the WPs through H2020 calls, based on an industry developed multi-annual roadmap and a contractual arrangement

- **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 stronger commitments of industry outside the calls.

PPPs included in the Communication of July 2013 on "PPPs in H2020"

- JTIs/JUs: Continuation of existing ones in FP7 and new JTI initiative on Bio-based industry (BBI)

- Contractual PPPs:
  - Continuation of existing ones in FP7: Factories of the Future (FoF), Energy-efficient Buildings (EeB), Green Vehicles (EGVI), Future Internet (5G)
  - New initiatives: Sustainable process industry (SPIRE), Photonics, Robotics, High Performance Computing (HPC)

cPPP Calls in Horizon 2020

- H2020 proposal fixes scope and criteria for cPPPs
  - Article 19: PPPs can be arranged on a contractual arrangement between public and private actors
- Under LEIT
  - FoF, EeB and SPIRE (NMP+B coordinated)
  - Future Internet (5G-PPP), Robotics, Photonics (ICT coordinated)
- Under Transport Challenge: Green Vehicle (EGVI)
- Under FET: High Performance Computing (HPC)

Synergies with Structural Funds

- Support from other EU, national or regional programmes encouraged (supported or not by ESIF)
- Some topics particularly suitable for additional funding

  ⇒ e.g. to explore paths to commercial exploitation or to deploy H2020 funded technologies

Time planning towards WP adoption

- Consultation of Member States : September-November 2013
- Launch of Inter-Service Consultation (internal): September 2013
- Adoption of (provisional) work programme: 10 December 2013
- Publication of calls for proposals: 11 December 2013

Conclusions

- H2020 increased opportunities for SMEs
  - New instruments
  - Simplification
  - Synergies with other funding sources

- SMEs are an essential part of the value chain in R&D&I projects

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Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020

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