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How to Write a Competitive Proposal for Horizon 2020

COURSE PRESENTER

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**Hyperion Website
www.hyperion.ie**

(Version 1.0)

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Structure of the Workshop

1	From Framework 7 and Horizon 2020
2	New Issues in Horizon 2020
3	How European Research Proposals are Evaluated
4	The One Page Proposal
5	Discussion

**Horizon 2020 – the Framework Programme for Research
and Innovation in the European Union (2014-2020)**

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Hyperion's Training Courses

Getting Ready for Horizon 2020

How to Write a Competitive Proposal for Framework 7

How to Write the Abstract and Impact of a Research Proposal

How to Negotiate and Administer Framework 7 Grant Agreements

Training Course for European Research Advisors

How to Present Research Activities to non-Research Audiences

Details on www.hyperion.ie

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Experience of Participants

Who attended a previous Hyperion training course?

Beginners ?

National Contact Points ?

Research Support Office?

Partner in an EU Project ?

Legal Advisor on FP7?

Financial Advisor on FP7?

Worked in Commission ?

Trainers (our competitors) ?

Companies? (Large/SME?)

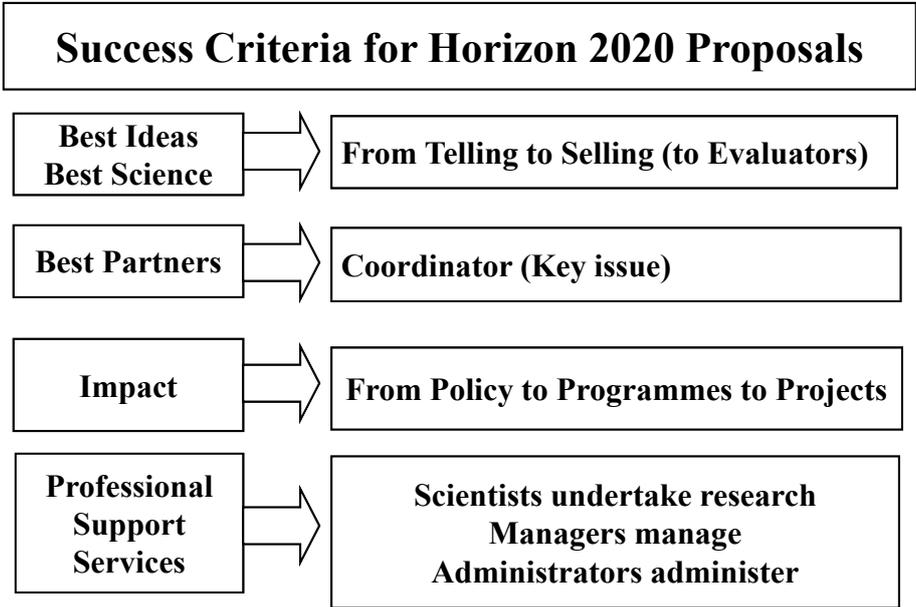
Regional Body?

Private Consultants?

Basic Research?

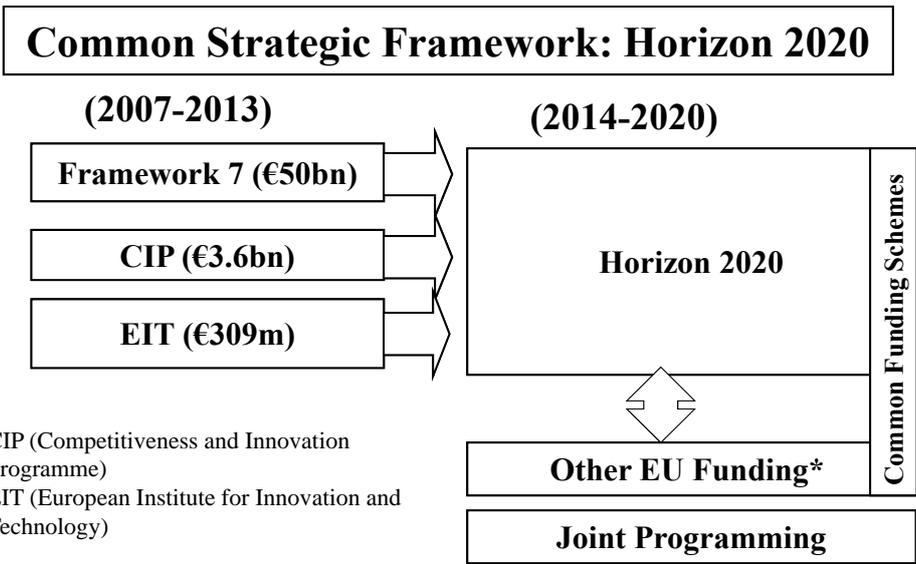
SME(Small and Medium Sized Enterprise)

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EU (European Union) EC (European Commission)
*“Chasing Sheep is Best Left to Shepherds”** music by Michael Nymam

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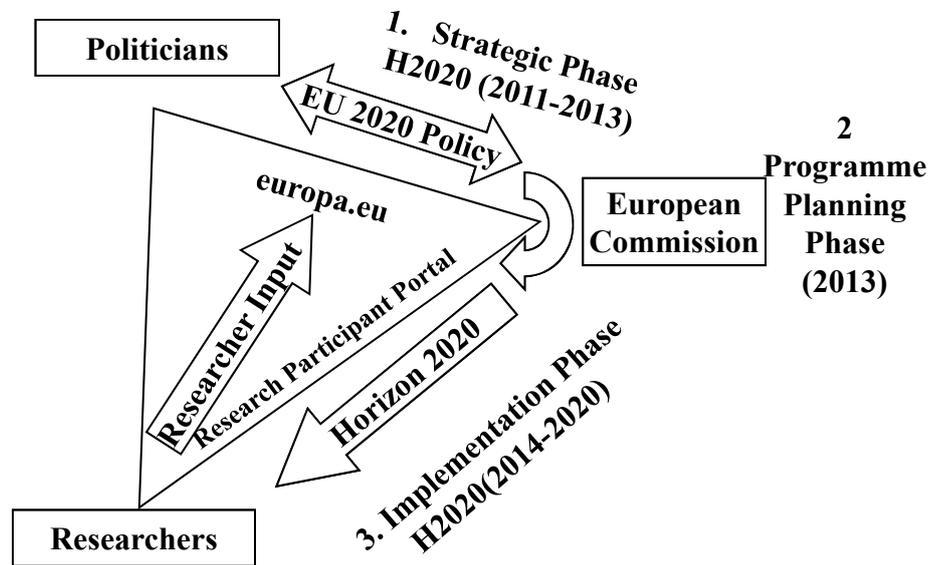


CIP (Competitiveness and Innovation Programme)
 EIT (European Institute for Innovation and Technology)

* COSME, Erasmus for All, Life + Structural Funds etc.

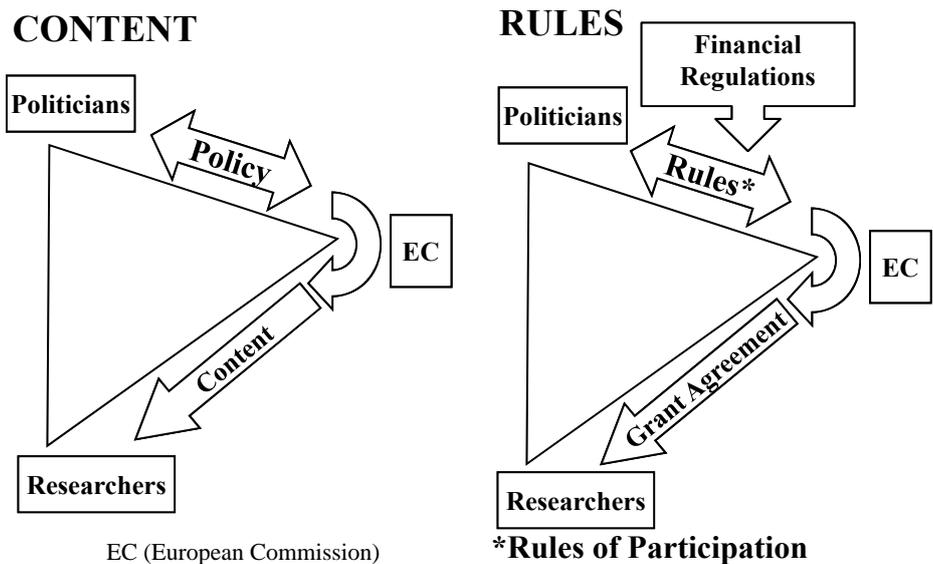
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How Horizon 2020 will be Prepared



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The Preparation of Horizon 2020

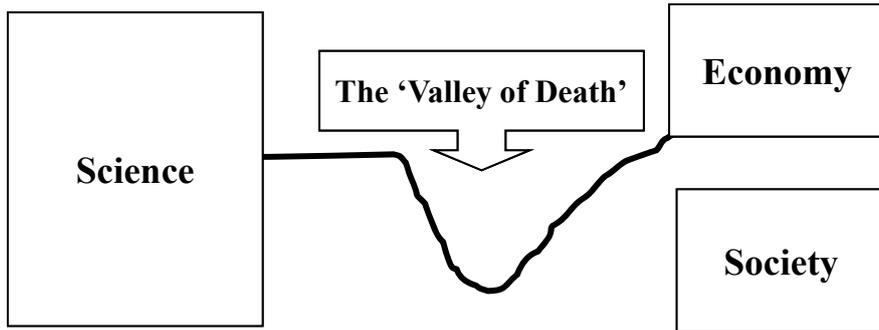


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Poor Exploitation and Low Impact

1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008... 2013

European Science Paradox: Good at Science - Poor at Exploitation

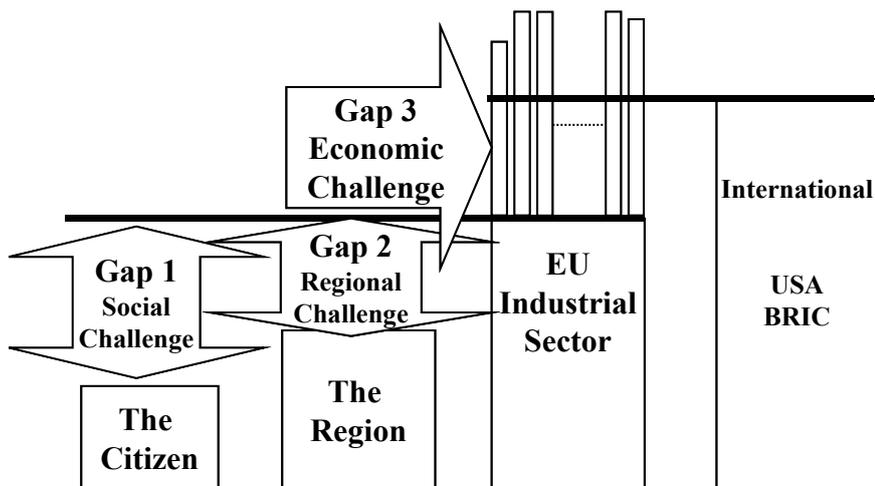


Psalm 23

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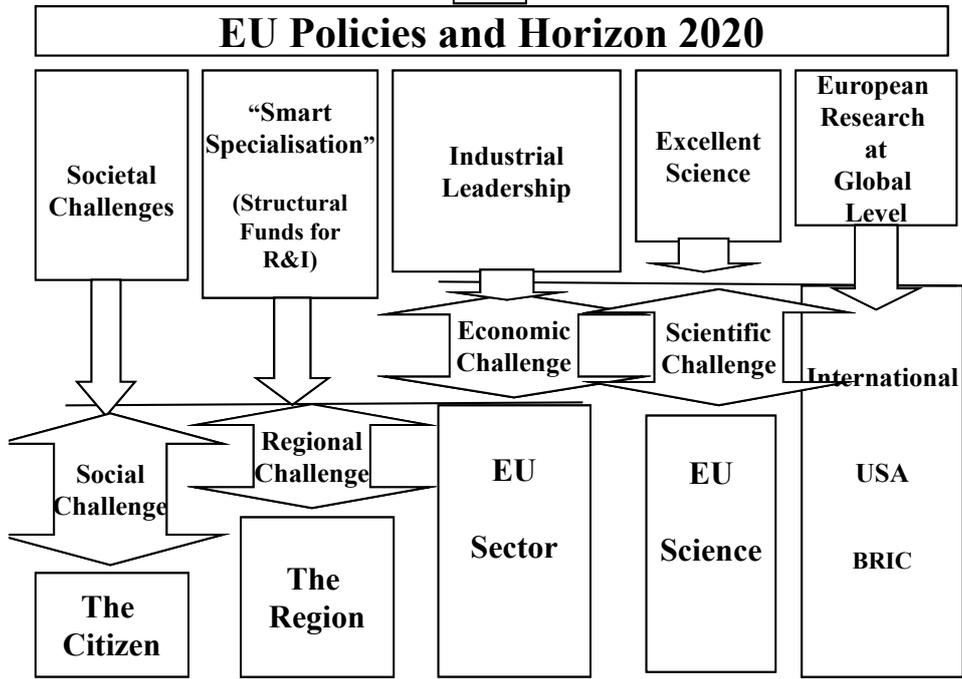
EU Policies and Horizon 2020

'Lead Markets'*

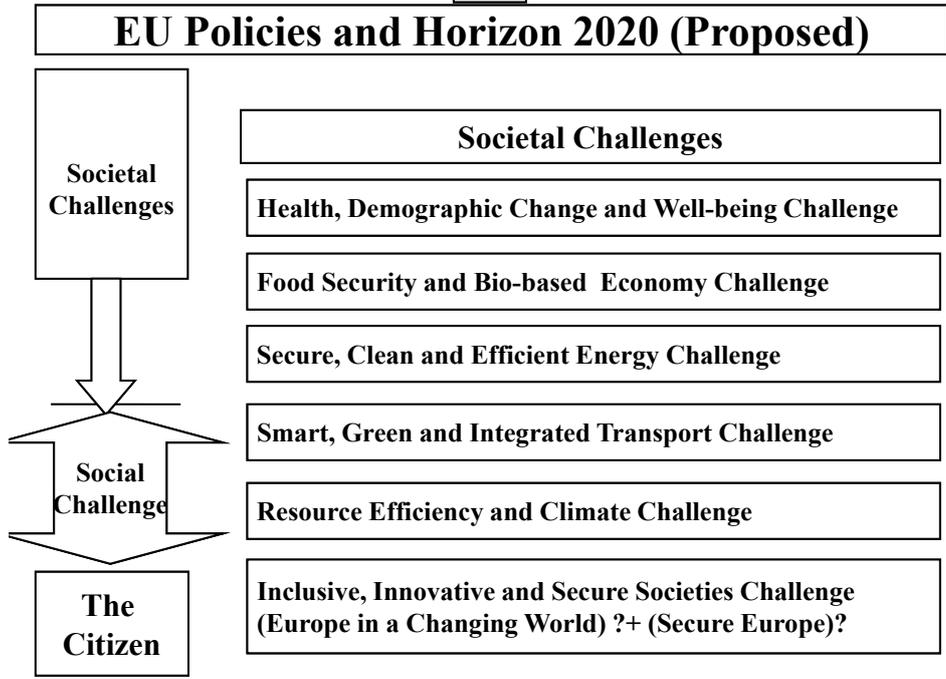


* Aho Report -Creating an Innovative Europe(2006)
BRIC (Brazil, Russia, India, China)

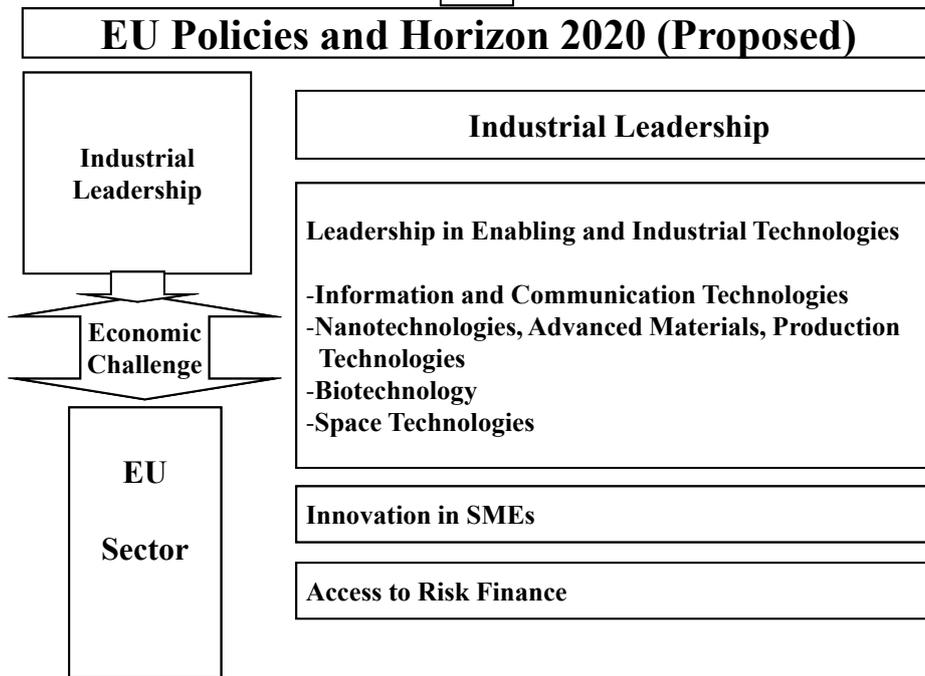
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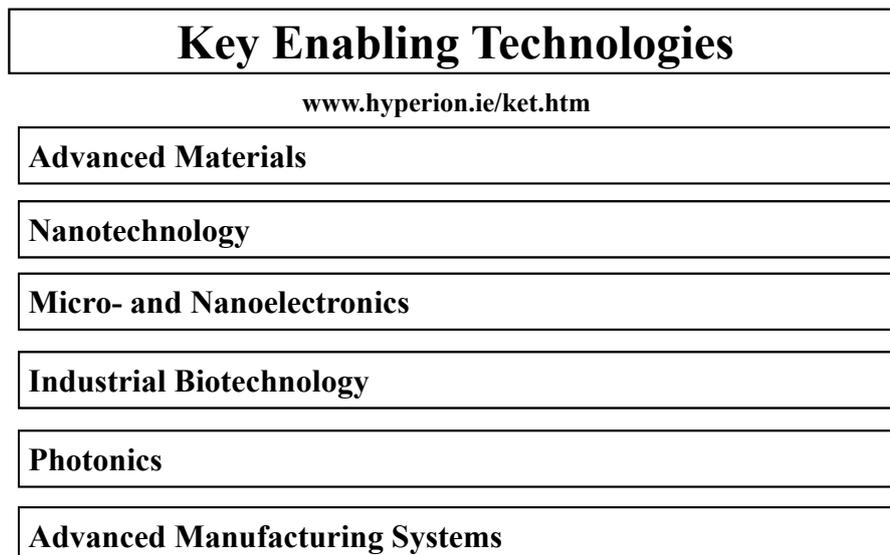
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H2020 Proposal (30th November 2011) €6.7 billion for KETs

Innovation in SMEs

Only SMEs will be allowed to apply

SME Instrument (SBIR Model)

Phase 1: Concept and feasibility assessment

Phase 2: R&D, demonstration, market replication

Phase 3: Commercialisation (only support)

Specific Support

Support for Research Intensive SMEs (Eurostars)

Enhancing the innovation capacity of SMEs

Supporting market driven innovation

SBIR (Small Business Innovation Research)

SME Instrument

The SME instrument will cover all fields of science, technology and innovation in a bottomup approach within a given societal challenge or enabling technology so as to leave sufficient room for all kinds of promising ideas, notably cross-sector and inter-disciplinary projects, to be funded.

– Phase 1: Concept and feasibility assessment:

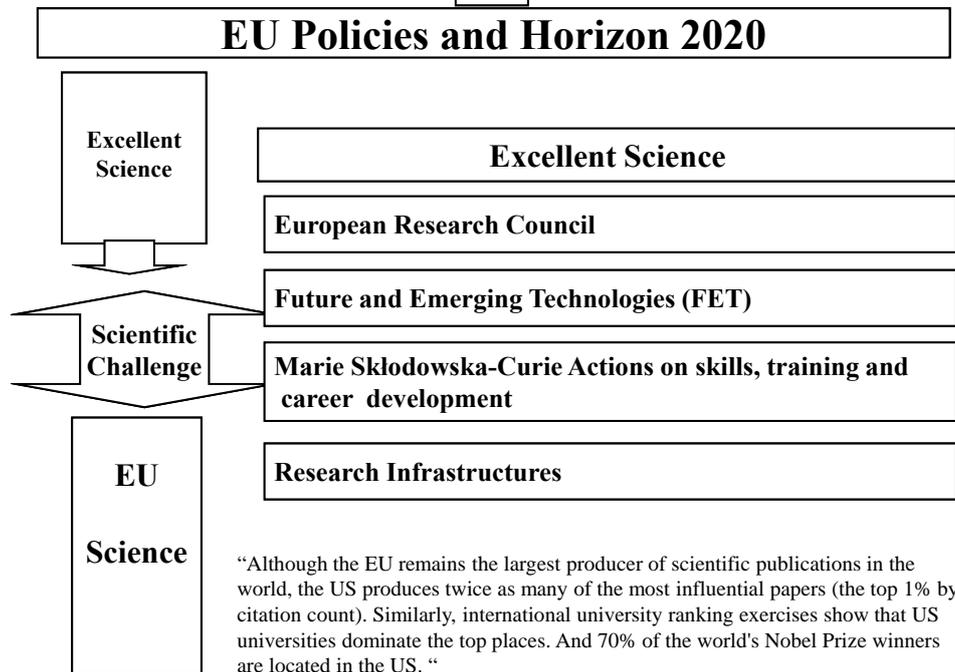
SMEs will receive funding to explore the scientific or technical feasibility and the commercial potential of a new idea (proof of concept) in order to develop an innovation project. A positive outcome of this assessment will allow for funding under the following phase(s).

– Phase 2: R&D, demonstration, market replication:

Research and development will be supported with a particular focus on demonstration activities (testing, prototype, scale-up studies, design, piloting innovative processes, products and services, performance verification etc.) and market replication.

– Phase 3: Commercialisation:

This phase will not provide direct funding other than support activities, but aims to facilitate access to private capital and innovation enabling environments. Links to the financial instruments are foreseen, for example by giving SMEs that have successfully completed phases 1 and/or 2 priority within a ring-fenced volume of financial resources. SMEs will also benefit from support measures like networking, training, coaching and advice. In addition this part may connect to measures promoting pre-commercial procurement and procurement of innovative solutions.



Excellent Science

Excellent Science Base

This programme aims at reinforcing and extending the excellence of the EU’s science base and consolidating the European Research Area to make the EU’s research and innovation system more competitive on a global scale. It consists of four parts:

- *The European Research Council (ERC)* will provide attractive and flexible funding to enable talented and creative individual researchers and their teams to pursue the most promising avenues at the frontier of science, on the basis of EU-wide competition,
- *Future and Emerging Technologies* will foster radically new, high-risk ideas and accelerate the development of the most promising emerging areas of science and technology, and the corresponding cross-national communities of knowledge, to extend Europe’s capacity for advanced and paradigm-changing innovation.
- *Marie Curie Actions* will provide excellent and innovative research training as well as attractive career and knowledge exchange opportunities to ensure the availability of highly skilled and competent researchers best prepared to face current and future challenges.

Research Infrastructures will promote world-class European research infrastructures and ensure EU-wide access for researchers, exploiting their human and innovation potential and reinforcing the consistency of related EU policy

Proposed Structure of Horizon 2020

Industrial Leadership €20.3 bn	-Leadership in enabling and industrial technologies (LEIT) (Information and communication technologies, Nanotechnology, Advanced Materials, Biotechnology, Advanced Manufacturing Processes, Space) -Innovation in SMEs - Access to Risk Finance				
Societal Challenges €35.9 bn	Health, demographic change and wellbeing Food security, sustainable agriculture and the bio-economy Secure, clean and efficient energy Smart, green and integrated transport Climate action and resource efficiency + raw materials Inclusive, innovative and secure societies				
Excellent Science €27.8bn	European Research Council Future and Emerging Technologies Marie Skłodowska Curie Actions Research Infrastructures	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">EIT</td></tr> <tr><td style="text-align: center;">Euratom (2014-18)</td></tr> <tr><td style="text-align: center;">JRC</td></tr> </table>	EIT	Euratom (2014-18)	JRC
EIT					
Euratom (2014-18)					
JRC					

‘Bottom Up’ Versus ‘Top Down’

Industrial Leadership	-Leadership in enabling and industrial technologies: (Information and communication technologies, Nanotechnology, Advanced Materials, Biotechnology, Advanced Manufacturing Processes, Space) -Innovation in SMEs - Access to Risk Finance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Top Down</td></tr> </table>	Top Down		
Top Down					
Societal Challenges	Health, demographic change and wellbeing Food security, sustainable agriculture and the bio-economy Secure, clean and efficient energy Smart, green and integrated transport Climate action and resource efficiency + raw materials Inclusive, innovative and secure societies	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Top Down</td></tr> </table>	Top Down		
Top Down					
Excellent Science	European Research Council Future and Emerging Technologies Marie Skłodowska Curie Actions Research Infrastructures	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">EIT</td></tr> <tr><td style="text-align: center;">Euratom</td></tr> <tr><td style="text-align: center;">JRC</td></tr> </table>	EIT	Euratom	JRC
EIT					
Euratom					
JRC					

Structure of the Workshop

From Framework 7 and Horizon 2020

2

New Issues in Horizon 2020

PPP (Public Private Partnerships)

FET (Future and Emerging Technologies)

EIT (European Institute of Innovation and Technology)

JPI (Joint Programming Initiatives)

Horizon 2020 – the Framework Programme for Research and Innovation in the European Union (2014-2020)

Public Private Partnerships (PPP)

Framework 7	Horizon 2020
Institutional PPP (JTI's)	Institutional PPP (JTI's)
IMI ARTEMIS ENIAC Clean Sky Hydrogen Fuel Cells	IMI ARTEMIS/ENIAC Clean Sky Hydrogen Fuel Cells Railways Bio-based industries (2014+)
Contractual PPP	Contractual PPP
Energy Efficient Buildings Green Cars Factory of the Future Future Internet	Energy Efficient Buildings Green Cars Future Internet Factory of the Future Sustainable Processes (SPIRE) (2014) Photonics + Robotics (2014) Security -Maritime Borders (2014+)

JTI (Joint Technology Initiative)

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Future and Emerging Technologies (FET)

Framework 7 ‘Cooperation’

1. Health

2. Food, agriculture and biotechnology

3. Information/communication **FET (Topic 8.0)**

4. Nanosciences + nanotechnologies,
Materials+new Production technologies

5. Energy

6. Environment and climate change

7. Transport

8. Socio-economic sciences + the humanities

9. Space

10. Security

Horizon 2020

FET*
Programme
(Covering all Areas)
€3.5 bn (proposed)

***FEST?**

Future
Emerging
Science and
Technology

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FET (Future and Emerging Technologies)

FET Open

FET Proactive

FET Flagships

FET Young Explorers

High-tech Research Intensive SMEs in FET Research

International Cooperation on FET Research:

Examples of FET Projects (FP7)

Novel design principles and technologies for a new generation of high dexterity soft-bodied robots inspired by the morphology and behaviour of the octopus (ICT)

The Body-on-a-Chip (BoC) (ICT)

The Listening Talker (ICT)

PLants Employed As Sensor Devices (ICT)

Forecasting Financial Crises (ICT)

Synthetic pathways to bio-inspired information processing (ICT)

Reverse Electrodialysis Alternative Power Production (Energy)

PlantPower - living plants in microbial fuel cells for clean, renewable, sustainable, efficient, in-situ bioenergy production (Energy)

FET Flagships

FuturICT

GRAPHENE-CA

Guardian Angles (Zero power intelligent systems of systems)

HBP-PS (The Human Brain Project)

CA-ROBOCOM (Robot Companions for Citizens)

ITFoM (Modelling in health and medicine)

FET Flagship Initiatives are large-scale, goal-oriented, science-driven research initiatives putting Europe in the forefront of science, providing a strong and broad basis for future technological innovation. The objective is to launch at least 2 flagships by 2013. The funding of these flagships is expected to be up to EUR 100 million per year over a period of up to 10 years.

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EIT
(European Institute of Innovation and Technology)



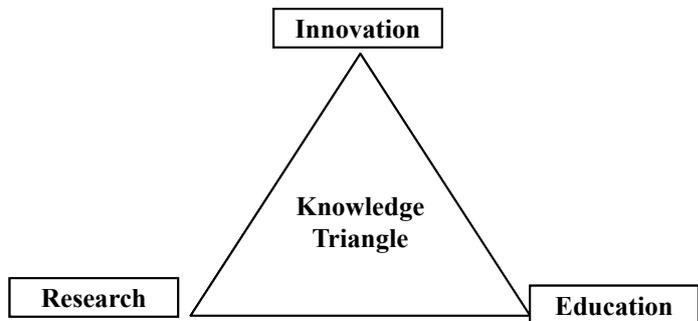
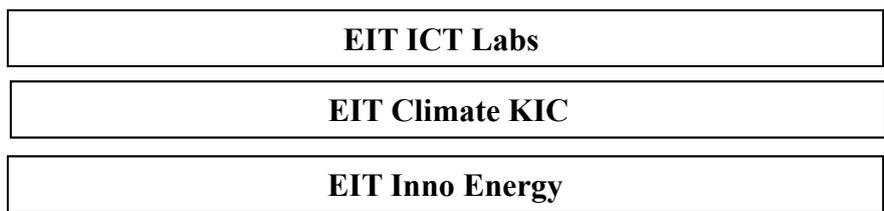
* €1542m direct + €1652m from Industrial Leadership and Societal Challenges

EIT(European Institute of Innovation and Technology)

KIC Website <http://eit.europa.eu/kics1/>

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Knowledge and Innovation Communities (KIC)



http://ec.europa.eu/education/policies/eit/index_en.html

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EIT ICT Labs

Berlin	Fraunhofer SAP Siemens TU Berlin DFKI Deutsche Telekom
Helsinki	VTT Nokia Aalto (TKK)
Stockholm	SICS KTH Acreo TeliaSonera Ericsson
Eindhoven	Philips 3TU.NIRICT Novay TNO-ICT
Paris	Université Pierre et Marie Curie Université Paris-Sud INRIA Institut Telecom Alcatel-Lucent Orange-France Telecom Thomson
Trento	Trent RISE ????

“Representing 2/3 of European R&D spending in ICT”

Website: <http://eit.europa.eu/kics1/eit-ict-labs.html>

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EIT Climate KIC

London	Thames Gateway Institute for Sustainability LSE Imperial College National Centre for Earth Observation ESA University of Reading UK Met Office Porter Alliance
Randstad	Wageningen University Alterra TNO Province of Utrecht Region of Rotterdam- Rijnmond Deltares Utrecht University Delft University of Technology
Zurich	ETH WSL IBM MeteoSwiss Siemens City of Zürich Techno Park Zürich Eawag Viva! campus AG PSI
Berlin	Albert-Einstein-Campus Postdam ZAB PIK SAP GFZ UnternehmerTUM TU München Berlin Partner GmbH Charlottenburg Campus Business Location Center TU Berlin Center of Entrepreneurship TU Berlin Berlin
Paris	CEA Campus Saclay plateau INRA ABA IncubAlliance Polystart UPMC University of Versailles St-Quentin en Yvelines Agoranov VC funds (Emertec) Paris-Est Campus Marne-la-Vallée IPSL ParisTech Advancity MeteoFrance UVSQ

Website: <http://eit.europa.eu/kics1/climate-kic.html>

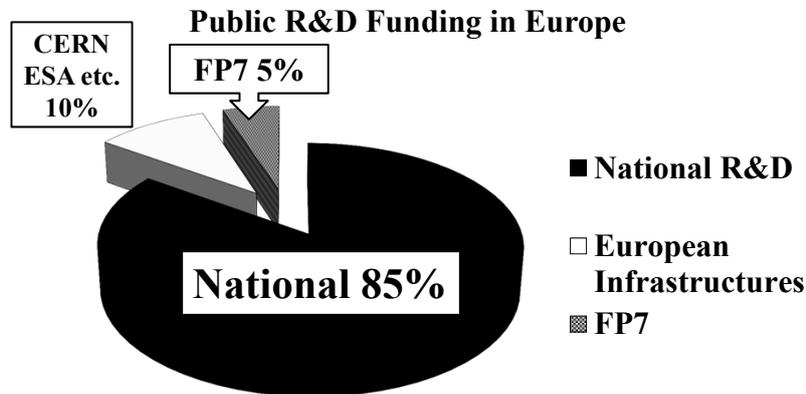
KIC INNO Energy	
Karlsruhe	SAP Karlsruhe University (UKA) Stuttgart University (US) Karlsruhe Institute of Technology (KIT) EnBW Forschungszentrum Karlsruhe (FZK)
Alps Valleys (Grenoble)	Schneider Electric CEA EDF AREVA Carnot Institute Grenoble INP CCIE/GEM Vattenfall CNRS INSA Lyon
Sweden	ABB KTH Vattenfall Uppsala University (UU)
Poland Plus	The Institute for Chemical Processing of Coal (IChPW) ZAK Kędzierzyn Central Mining Institute (GIG) AGH University of Science and Technology Silesian University of Technology (SUT)
Benelux (Eindhoven/Leuven)	K.U. Leuven TNO EANDIS VITO ECN TU/e
Iberia (Barcelona)	Iberdrola ESADE CIEMAT IREC Tecnalia Technical University of Catalunya (UPC) Instituto Superior Técnico de Lisboa (IST) Gas Natural

Website: <http://eit.europa.eu/kics1/kic-innoenergy.html>

Future Knowledge Innovation Communities	
1. Innovation for healthy living and active ageing	2
2. Raw materials- sustainable exploration, extraction, processing, recycling and substitution	0
3. Food 4 Future -sustainable supply chain from resources to consumers	1
4. Added-value manufacturing	4
5. Smart secure societies	2
6. Urban mobility	0
7. Marine and Sustainable use of the seas (possible)	1
	8

Source: EIT Strategic Innovation Agenda (2011)

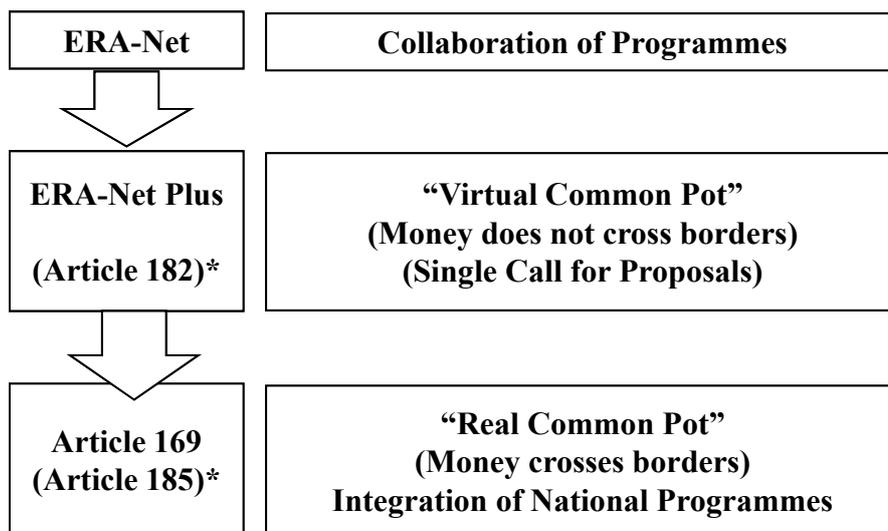
Background to Joint Programming



More than 95% of National R&D budgets are spent nationally without coordination across countries. (European Commission)
 Only 11% of National R&D budgets are fully Open to non-national researchers

* Source: TOWARDS JOINT PROGRAMMING IN RESEARCH :
 Working together to tackle common challenges more effectively. {SEC(2008) 2281}
http://ec.europa.eu/research/press/2008/pdf/com_2_008_468_en.pdf

ERA-Net, ERA-Net Plus and Article 185



* Lisbon Treaty Calls may cover subjects beyond Framework 7 themes

Article 185 (formerly 169) Initiatives

Framework 6 (Article 169 Nice Treaty)

EDCTP European and Developing Countries Clinical Trials Partnership

Framework 7 (Article 185 TFEU)

AAL Ambient Assisted Living

Bonus 185 Baltic Sea Research

EMRP Metrology

Eurostars Eureka programme for SMEs

<http://cordis.europa.eu/coordination/art169.htm>

TFEU (Treaty on the Functioning of the European Union)

Joint Programming (Possible Future Topics)

Topic Urban Europe - Global Challenges, Local Solutions

Topic Connecting Climate Knowledge for Europe

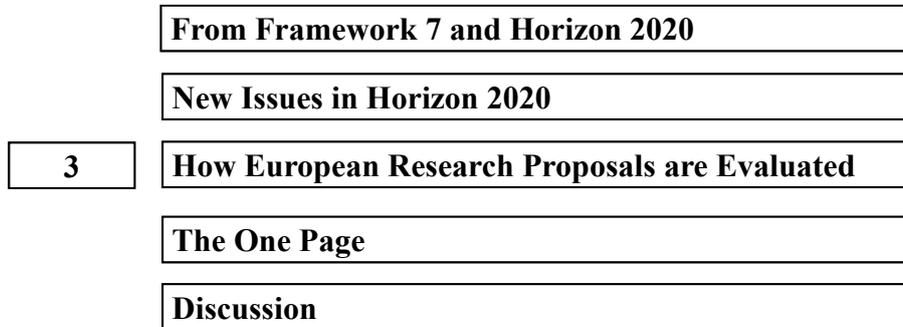
Topic The microbial challenge – an emerging threat

Topic More Years, Better Lives – Potential and Challenges

Topic Water Challenges for a Changing World

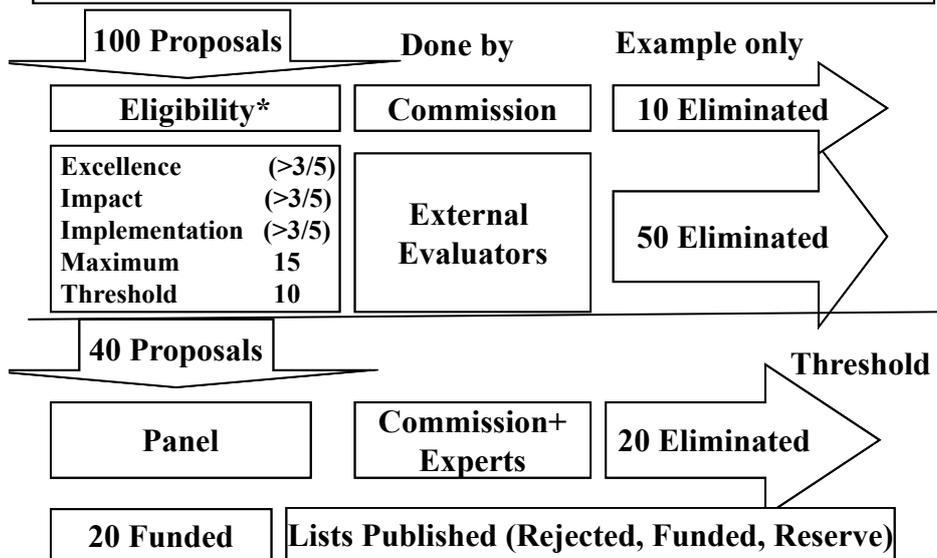
Topic Health and Productive Seas and Oceans

Structure of the Workshop



Horizon 2020 – the Framework Programme for Research and Innovation in the European Union (2014-2020)

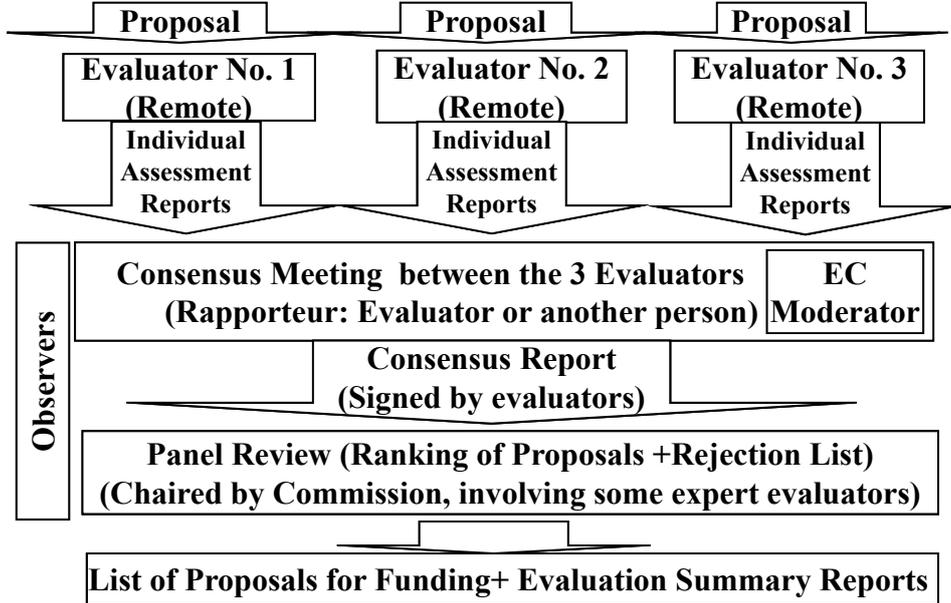
Evaluation of European Research Proposals



* Eligibility Criteria (deadline, number of partners, Form A/B, Funding Scheme, Content)

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Forms used by the External Evaluators



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Evaluation of Proposals (Possible Scenario)

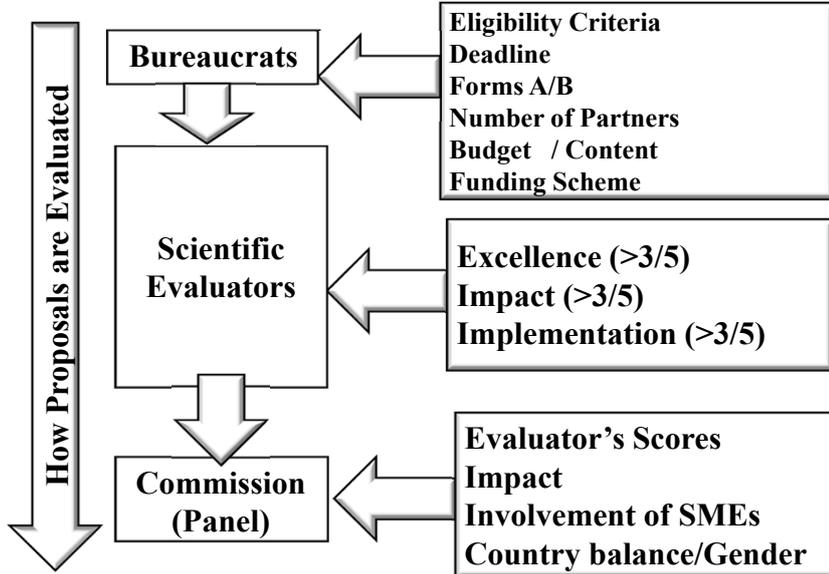
	Highest Score			
Topic 1	15.0	14.5	14.0	Extra Criteria (Political Priorities) 'Unfilled' Topics* Scientific Excellence Impact SME involvement Country balance International Partner
Topic 2	14.5	14.0	14.0	
Topic 3	15.0	14.5	14.0	
Topic 4	14.0	14.0	14.0	
Topic 5	13.5	12.5	10.5	
Topic 6	13.5	12.0	11.0	
Topic 7	9.5	9.0	9.0	
Topic 8	13.5	12.0	11.0	

Recommended for Funding

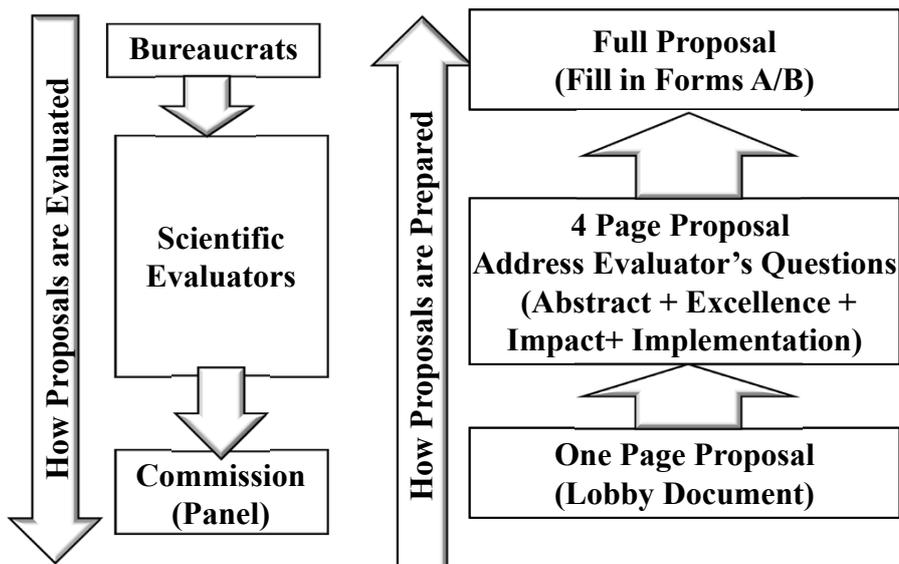
*Topics that did not have successful proposals in previous calls.
SME (Small and Medium Enterprise)

“Unfilled Topic”

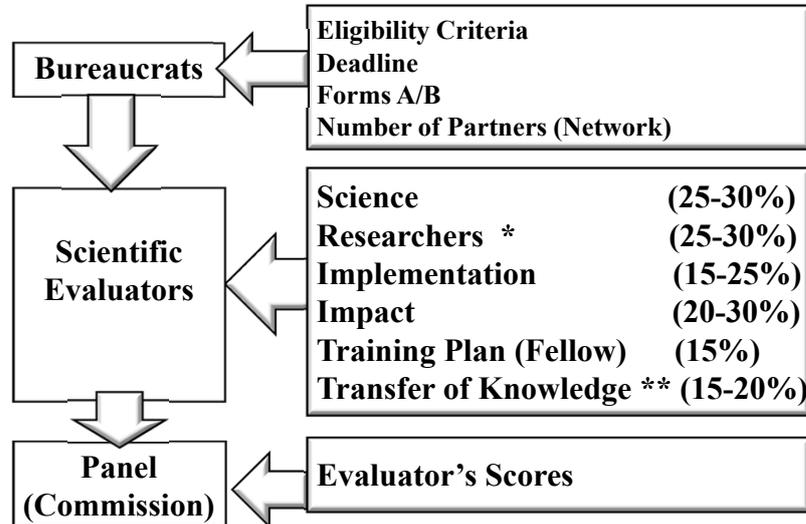
How FP7 Cooperation Proposals are Evaluated



How to Prepare a Cooperation Proposal



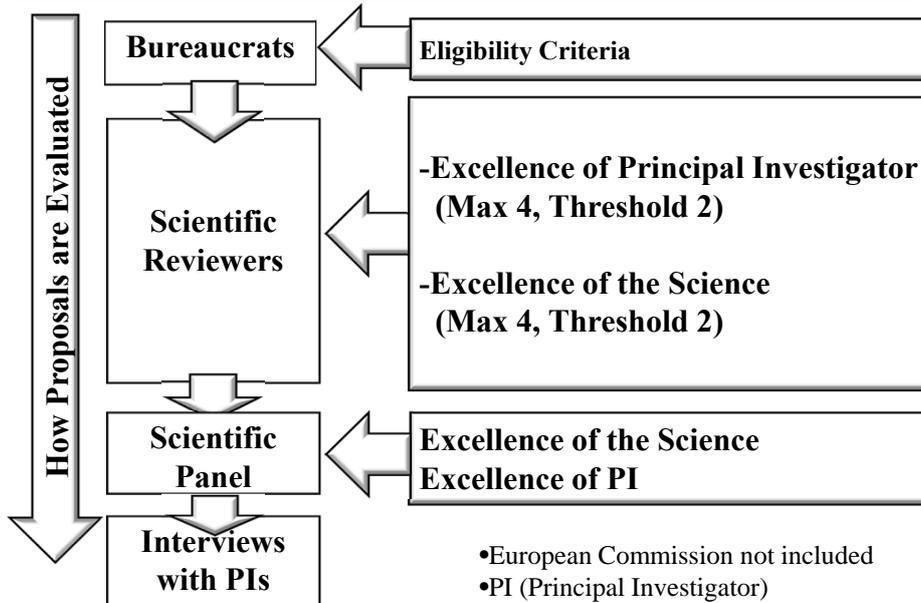
How Marie Curie Proposals are Evaluated



* IEF, ERG, IOF, IIF, IRG ** IAPP, IRSES, IIF,

“Training should aim at making them more independent and providing them with the skills to become team leaders in the near future.” Marie Curie Guide for Applicants

Evaluation of ERC Grants



- European Commission not included
- PI (Principal Investigator)

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4	The One Page Proposal
	Discussion

Horizon 2020 – the Framework Programme for Research and Innovation in the European Union (2014-2020)

Role of the One Page Proposal

Self	Put complex concept on paper
Advisor	Discuss idea with Research Support Services
NCP/ National Delegate	Discuss idea with NCP Get topic into next Call for Proposals
Project Officer	Discuss idea with Project Officer of topic Help select appropriate evaluators
Partners/ Competitors	Discuss idea with potential partners (While being careful they are not competitors)
Abstract	The One Page Proposal leads to the Abstract

NCP (National Contact Point) PO (Project Officer)

Structure: One Page Proposal

Number	Official Number of the Proposal
Topic/Grant	Topic Number: e.g. 4.3.1
Title	Title (Slogan) ACRONYM (Brand name)
Objective	What we are planning to do
Background	Why we are doing it (5 Key Questions)
Results	Results ? + Who wants them ? (Impact)
Phases	How the work will be done (Science)
Consortium	Who will do the work (Consortium)
Cost/Duration	How much it will cost and duration

Structure of the 'One Page Proposal'

		How to Prepare
	Official Number (if available)	
↓ How Summary is Written	Work Programme + Funding Scheme	1
	Title of Proposal + ACRONYM	4
	Objective of the Proposal	5
	Background	3
	Impact (Expected Results + Lead Users)	2
	Phases of the Work	6
	Organisations involved and their roles	7
	Expected Cost+Duration	8

TITLE

The title should be based on the impact

Development of a Sensor to Measure Hydrocarbons in Water

ACRONYM: Must make sense e.g. *Hydrocarbex Sensor*

Title could be used in a sentence + self explanatory

The TITLE is usually written last

Title= Slogan for the Project Acronym = Brand

Examples of Titles and Acronyms

Title	ACRONYM
Social Platform on Research for Families and Family Policies	FAMILYPLATFORM
Gross Inequality Impacts	GINI
Work Organisation and Restructuring in the Knowledge Society	WORKS
A Micro-Level Analysis of Violent Conflict	MICROCON
Debates about Female Muslim Headscarves in Europe	VEIL
Platform of Local Authorities and Cities Engaged in Sciences	PLACES
Code of Conduct for Responsible Nanosciences and Nanotechnologies Research	NANOCODE
Science Teacher Education Advanced Methods	S-TEAM
Learning, Teaching, Research and Policy in Inquiry-Based Science Education	Mind the Gap

The Objective of the Proposal

A short clear description of the proposed work

The aim of this proposal is to develop a technical prototype of an infrared sensor that will measure hydrocarbons in water. The sensor will use a fibre-optic cable, coated with a polymer and the level of the hydrocarbons will be determined by measuring the changes in refractive index. The key research challenges will be: assessing the use of infrared to measure the level of hydrocarbon in water; identifying a range of polymers that could be used in the sensor and finally assessing the accuracy of the sensor.

This should be the last paragraph written !!

Questions to Assess ‘Impact’

What will come out of your project (‘Expected Results’)

Who wants these results?(‘Lead Users’ or ‘Lead Stakeholder’)

Why do they (Lead User) want the results?

How do you plan to tell the ‘Lead Users’ about the results?

What further development (steps) will be needed?

5 Key Questions (Applied Research)

Educate the Evaluator with ‘Facts’ and ‘Figures’

Why bother? (what problem are you trying to solve?)

Is it a European priority? Could it be solved at National level?

Is the solution already available (product, service, transfer)?

Why now? (What would happen if we did not do this now?)

Why you? (Are you the best people to do this work?)

Questions must be answered in the first 15 seconds of the proposal!

TELES (Technical Economic Legislation Environment Social)?

5 Key Questions (Basic Research)

Educate the Evaluator with ‘Facts’ and ‘Figures’

Why bother? (what new knowledge are you generating?)

Will this establish Europe as International leader?

Is the knowledge already available (state-of-the art)?

Why now? (Why was this not done before now?)

Why you? (Are you the best people to do this work?)

Questions must be answered in the first 15 seconds of the proposal!

5 Questions (Example 1)

Solar Disinfection of Drinking Water (SODIS)

According to the World Health Organisation (WHO), over 1 billion people around the world have no access to any kind of treated drinking water. Every year 1.6 million people, most of them young children, die of diseases such as cholera which are attributable to a lack of access to safe drinking water and basic sanitation. Millions more are infected with water borne parasites. The United Nations Millennium Development Goals call for the proportion of people without access to safe drinking water and basic sanitation to be halved by 2015.

Harnessing the power of the sun to disinfect water is nothing new; the technique was used in India 4000 years ago. In recent years solar water disinfection has undergone something of a revival, as its ease of use and low costs make it ideal for use in poor, developing countries.

The only equipment used in this projects is a water bottle and a steady supply of sunlight. This work has been approved by the WHO. In this project research will be undertaken on the use of catalysts to speed up the process of disinfection and to provide the WHO with scientific data to support their guidelines.

Source: CORDIS Focus No 272 November 2006

5 Questions (Example 2)

Development of an Infrared Sensor to Measure Hydrocarbons in Water

In 1999 the European Commission published the 'Water Framework Directive (COM 2000/60). Annex 1 of this legislation lists 11 parameters that must be continuously monitored to meet the legislation. One of these parameters is hydrocarbon. The sensors that are used today to monitor hydrocarbons in water are laboratory based, they require regular calibration and are operated by specialist personnel. The sensors cost over €3000 each and can measure to an accuracy of 2000 parts per billion (ppb). If the legislation is enforced it will cost water companies throughout Europe hundreds of millions of euros to monitor this one parameter.

The aim of this proposal is to develop a low cost infrared sensor that can monitor hydrocarbons to meet the legislation. The proposed sensor will be located in the water system and will provide continuous signals to a central control unit. The estimated cost of the sensor will be less than 50 euro per sensor and it will measure to an accuracy of 1000 ppb.

Strategy for Research Groups

Mapping	Clarify scientific ‘niche within a niche’
	Identify Relevant Topics and Funding Schemes
Strategic Networking (Visibility)	Identify EU officials, best scientists, gurus
	Join EU Associations/Networks/Platforms
	Promote expertise through EU conferences
EU Policy	Study relevant European Policy Documents
Procedures	Participate in EU Evaluations, Committees

EU (European Union)

Strategy for Newcomers

Challenges

Learning the Rules, Procedures and Secrets (unwritten rules)

Competing with established networks and experience

How to Start

Mapping: Who’s Who in EU Research (your niche)

Visibility via Networking (Networks, Conferences, Evaluation)

Easy Start: Fellowships (Euraxess), Access Infrastructures

Minor Partner to Work-package Leader to Coordinator

Links on www.hyperion.ie/beginners.htm

What was the Key Message from the Workshop?

Any Comments or Questions?

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