

HORIZON 2020

THE NEW EUROPEAN FRAMEWORK PROGRAMME FOR R&D&I

A Complete Guide

Authors: Eva García Muntión Mario Aznar Granados Victoria Rigual Hernández

Research Development Technology and Innovation S.L. – RTDI C/ Mozart, 42. 7C 28008 Madrid Teléfono: (+34)915485459

http://www.rtdi.eu

ISBN13: 978-84-616-6878-6

Any use or transformation of this work is prohibited without the express permission of the owner of its intellectual property, RDTI. The infringement of the use and dissemination rights of this work may constitute a crime against intellectual property (Arts. 270 et seq. of the Spanish Penal Code).

INDEX

PR	F٩	FN	ΙTΑ	TI	വ	N
		_13			$\mathbf{-}$	

INTRODUCTION	11
Introduction to the structure of Horizon 2020	12
Guide structure	13
I. GENERAL ASPECTS	15
I.I European R&D and innovation priorities and the Horizon 2020 conte	ext16
The Europe 2020 Strategy	16
Flagship Initiatives	17
Innovation Union	17
■ Horizon 2020	18
Strategy Programme and Work Programme	18
I.2 General features of H2020 projects	21
2. WHAT'S NEW?	23
2.1 Structural differences	24
2.2 New features of instruments (types of projects and financial aspects)	27
2.3 New programme management features	31
2.4 New administrative features	32
3. GENERAL STRUCTURE AND OBJECTIVES OF H2020	35
3.1 Objectives and budget of Horizon 2020	36
3.2 The 3 Pillar structure	37
4. PILLAR: EXCELLENT SCIENCE	43
Approach objectives and subprogrammes	44
4.1 European Research Council (ERC)	46
4.2 Future and Emerging Technologies (FET)	48
4.3 Marie Sklodowska-Curie Actions (MSCA)	50
4.4 Research Infrastructures	53
Document sources and essential pillar policies	54

5.	PIL	LAR: INDUSTRIAL LEADERSHIP	. 57
	Ap	proach, objectives and subprogrammes	58
	5.1	Leadership in Enabling Industrial Technologies (LEIT)	59
	•	KET I: Information and Communication Technologies (ICT)	61
		Policies, document sources and relevant links	63
	•	KET 2: Nanotechnologies	63
		Policies, document sources and relevant links	64
	•	KET 3: Advanced Materials	65
		Policies, document sources and relevant links	66
	•	KET 4: Manufacturing and Advanced Processing	67
		Policies, document sources and relevant links	68
	•	KET 5: Biotechnology	69
		Policies, document sources and relevant links	69
	•	KET 6: Space	70
		Policies, Document sources and relevant links	71
	5.2	Innovation in SMEs	72
	5.3	Access to Risk Finance	72
	•	Debt Facility	73
	•	Equity Facility	74
6.	PIL	LAR: SOCIETAL CHALLENGES	77
	Ap	proach, objectives and subprogrammes	78
	6. I	CHALLENGE I: Health, Demographic Change and Well-Being	79
	Rel	evant documents	81
		CHALLENGE 2: Food Security, Sustainable Agriculture and Forestry, Marine a ritime Research and Bioeconomy	
	Rel	evant documents	84
	6.3	CHALLENGE 3: Secure, Clean and Efficient Energy	85
	Rel	evant documents	88
	6.4	CHALLENGE 4: Smart, Green and Integrated Transport	89
	Rel	evant documents	91
	6.5	CHALLENGE 5: Action for Climate Resource Efficiency and Raw Materials	92

	Relevant documents	94
	6.6 CHALLENGE 6: Inclusive, Innovative and Reflective Societies	95
	Relevant documents	98
	6.7 CHALLENGE 7: Secure Societies: Protecting Europe and its Citizens' and Security	
	Relevant documents	101
7.	. INSTRUMENTS	103
	7.1 Funding instruments in H2020	104
	Eligible and non-eligible costs	104
	Direct and Indirect costs	104
	Type of funding and maximum percentages	105
	■ Technology Readiness Levels – TRLs	106
	H2020 Financial instruments or type of actions	108
	7.2 Who can participate?	115
	7.3 The Consortium	116
8.	. INITIATIVES	119
	8.1 Initiatives	120
	ETPs – European Technology Platforms	121
	JPIs - Joint Programming Initiatives	122
	P2P - Public To Public Partnerships	123
	PPP - Public-Private Partnerships	124
	■ JTIs - Joint Technology Initiatives	125
	EIP – European Innovation Partnerships	127
	■ KICs – Knowledge Innovation Communities	128
9.	. SMEs in H2020	131
	9.1 SMEs support in H2020	132
	9.2 Instrument for SMEs	132
	PHASE I: Concept and feasibility assessment	132
	PHASE II: Development, demonstration and market replication	133
	PHASE III: Commercialisation	133
	■ Mentoring & Coaching	136

9.3	Other European programmes and SME support networks	137
•	EUROSTARS	137
•	COSME	139
•	The Enterprise Europe Network – EEN	140
ANN	IEXES	143
•	Glossary of Acronyms	144
•	Tables and Figures Index	145

PRESENTATION

From 2014 onwards the framework of European R&D&I programmes will undergo some significant changes: the 7th European Framework Program for R&D and the European Competitiveness and Innovation Programme, which have covered the period 2007-2013, will end and the new Horizon 2020 programme, which will cover both R&D and Technological Innovation, will start and will cover the period from 2014 to 2020.

This is a full-scale programme, whose total budget exceeds € 70,000 million and therefore is a great opportunity to create future through technological development and innovation. But it is also a complex programme, and it is important to understand the new rules and focus priorities in order to participate.

Horizon 2020 differs significantly from its predecessors, especially in the keys that will determine a successful participation and the probabilities of starting projects with its financial support.

This guide's aim is helping to understand those changes and rules, and to identify priority themes in which your organization can participate.

Eva García Muntión Managing Partner of RTDI

INTRODUCTION

How this guide has been organized following Horizon 2020's structural axes

INTRODUCTION TO THE STRUCTURE OF HORIZON 2020

Horizon 2020 arises in the context of the strategy or macro-policy for the whole European Union **Europe 2020**¹ which will be valid for the period 2014-2020 and is a continuity of the Lisbon Strategy². Its goals and priorities and also its structure are defined by this strategy.

This policy and its initiatives, which are called Flagship Initiatives, form the nucleus of Horizon 2020. It has **3 main pillars** or general priorities: Excellent Science, Industrial Leadership and Societal Challenges.

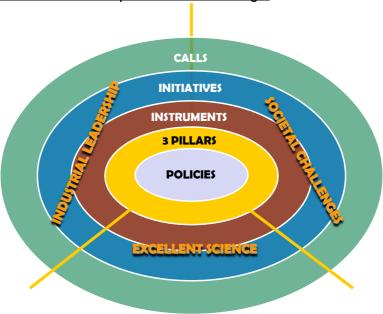


Figure 1: Basic elements in Horizon 2020 structure. Source: RDTI

These pillars reunite the whole structure of programmes or subprogrammes that shape Horizon 2020, for which a number of **instruments** or **types of projects** are defined, and around which exists a number of very important initiatives, which are discussed in depth in a separate chapter.

_

 $^{^{\}rm I} \ \underline{\text{http://europa.eu/legislation_summaries/institutional_affairs/treaties/lisbon_treaty/index_en.htm}$

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF

Finally, the schedule for the **submission** of projects and related work plans must be based on the programmes in each pillar.

Like it happened with its predecessors (mainly the 7th European Framework Programme for R&D and the European Programme for Innovation and Competitiveness), in Horizon 2020 the submission of projects related to the different technological areas has to follow a fixed biennial schedule.

GUIDE STRUCTURE

A parallel structure to Horizon 2020 has been used to write this complete guide, in order to <u>facilitate understanding and location of different contents</u> and to try to maximize its usefulness as a reference document for any organization interested in participating in the Programme.

Thus, we have started with the description of the main **policies** and initiatives around which Horizon 2020 has been built. The understanding of this context is important as it forms the nucleus of the programme and will have a direct impact on the rest of "layers" or structural elements of Horizon 2020, including work plans and calls' terms.

Now we're going to describe in detail the programmes included within each **pillar**, dedicating specific sections to each one of them. The good knowledge of this structure and the way it works is essential in order to <u>understand well the differentcalls and be able to "browse" it and find opportunities for the focus areas of each organization.</u>

Once this range of programmes is well understood, we will go on to describe the different **initiatives** that exist around them, and their implications when participating in Horizon 2020.

Horizon 2020 differs significantly from its predecessors because of the number of initiatives that can have different operating rules from each other and from the general rules of the programme. They will directly manage a large part of the available funds (at least 60%) using them for internal projects that will reduce the traditional open and competitive project calls. Promoters will have a clear advantage, and some initiatives are closed to the participation of other

entities. It is therefore essential to define strategies for participation in the Programme which will take into account these initiatives as a key factor.

Finally, we'll explain the different kinds of projects (they're called instruments in Figure 1) and the way **project calls** and related work plans will work. Furthermore, we'll also describe in these sections the most purely financial aspects of Horizon 2020.

Chapter 1

GENERAL ASPECTS

European R&D&I priorities and the Horizon 2020 context



I.I EUROPEAN R&D&I PRIORITIES AND THE HORIZON 2020 CONTEXT

THE EUROPE 2020 STRATEGY

In order to understand properly the contents, changes and objectives of H2020 it's necessary to identify them and also the origin of European priorities in R&D &I. These priorities are mainly defined in the **Europe 2020 Strategy**³ (E2020), which sets the targets Europe must achieve by 2020:

AREA	TARGET FOR 2020
Employment	Achievement: employment rate of 75% among the population aged between 20 and 64.
R&D	Achievement: A minimum investment in R&D of 3% of GDP for each Member State
Climatic change and energy policy	Achievement: A 20% reduction in CO2 emissions. 20% of energy coming from renewable sources. 20% increase in efficient use of energy.
Education	Achievement: A school dropout rate of less than 10%. At least 40% of people aged until 40 years old must complete higher education cycles.
Poverty and social exclusion	Achievement: A 20 million reduction in the number of Europeans in poverty or social exclusion situation or risk.

Table 1: Europe Objectives for 2020. Source: Europe 2020 Strategy

In order to achieve these objectives, E2020 proposes an <u>European common strategy</u>, based on three main *types of growth*:

• **Intelligent growth**: developing a knowledge and innovation-based economy.

³ http://ec.europa.eu/europe2020/index en.htm

- **Sustainable growth**: promoting a kind of economy that makes more efficient use of resources, more competitive and "green".
- **Inclusive growth**: fostering of a high employment economy with social and territorial cohesion.

FLAGSHIP INITIATIVES

In order to develop each of these types of growth and achieve the H2020 objectives, the EU has set 7 sub-strategies called **Flagship Initiatives**⁴, which will be used for the development and achievement of each type of growth:

E2020	Intelligent growth	Sustainable growth	Inclusive growth
LAGSHIP ITIATIVES	- A Digital Agenda for Europe	- A Resource Efficient Europe	- An Agenda for New Skills and Jobs
FLAGS	- Innovation Union	- An Industrial Policy for the Globalisation era	- European Platform Against Poverty.
_	- Youth on the Move		

Table 2: Growth objectives and their Flagship Initiatives. Source: EC

INNOVATION UNION

Innovation Union⁵ is one of the seven Flagship Initiatives of the Europe 2020 Strategy, and its main aim is to re-focus the R&D&l policies concerning the challenges European society is facing from 2014 to 2020: climatic change, energy and efficient use of resources, health, demographic evolution. Its ultimate purpose is to reinforce each one of the links of the innovation chain, from basic research to commercialisation.

⁴http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/flagship-initiatives/index en.htm

http://ec.europa.eu/research/innovation-union/index en.cfm

	and the second s
	aspects will have more importance than implementation texts,
Reduction of administrative burdens	Aiming to alleviate the administrative burden inherent to participation in the programme, in Horizon 2020 some accounting practices will be reduced, for example, requirements for full time personnel timesheets (they will only have to sign a declaration), minimization of the necessity to submit audit certificates, or use of the Participant Portal as a common platform for all the programmes in H2020. As to what concerns audits, only beneficiaries who receive more than € 325.000 will be required to submit an audit certificate at the end of the project. In addition, the period in which the EC may request audits to completed projects will decrease from 5 to 2 years from date of completion. The obligation to declare bank interests on the project current account will also disappear, and new ways to guarantee financial capacity of a project partner will be allowed (for example, another partner of the same consortium may do it). An important aspect is that reviews of financial position taken by the EC before approving a project (financial feasibility check) will decrease for projects with budgets under € 500.000. This will be especially relevant for the new SMEs instruments which will be detailed in chapter 9.
Different guidelines for the management of property rights	In the 7th Framework Programme there were general guidelines for the management of property rights on the project results, which applied in all cases. As H2020 uses different kinds of instruments and its priority is result exploitation, it will set specific guidelines with different rules for specific subprogrammes.
Scientific publications	Aiming to promote a wider dissemination of the knowledge generated in H2020 financed projects, open access to scientific publications will be emphasized. Furthermore, open access to research data will be promoted.

Table 3: Main new features of Horizon 2020

Chapter 3

GENERAL STRUCTURE AND OBJECTIVES OF H2020

Explaining Horizon 2020 structure and deepening its objectives

3.1 OBJECTIVES AND BUDGET OF HORIZON 2020

H2020 will be the main instrument for funding Research, Technology Development and Demonstration projects in the EU for the period 2014-2020. Its total budget is nearly € 80.000 million (€ 70.000 in constant prices) and its structure consists of three pillars or priorities:

- Excellent Science
- Industrial Leadership
- Societal Challenges

These pillars summarize the main objectives of Horizon 2020:

- Promoting scientific excellence and the European research system.
- Increasing and supporting competitiveness and European industrial leadership.
- Responding to the major societal challenges Europe is facing.

Each of these three pillars has been assigned a percentage of the total budget of the programme, as shown in the following figure:

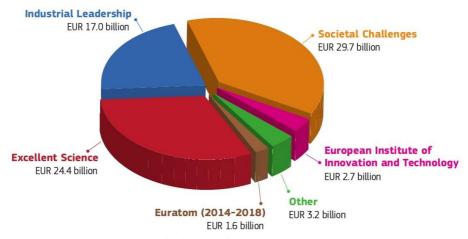
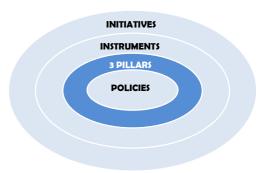


Figure 7: H2020 budget distribution in current prices. Source: EC.

Chapter 4

PILLAR: EXCELLENT SCIENCE

Approach, objectives and subprogrammes



APPROACH OBJECTIVES AND SUBPROGRAMMES

One of the main objectives of the new programme Horizon 2020 is increasing science-based excellence at European level. This is essential for long term sustainability and prosperity in Europe. There is a <u>critical need to strengthen and extend the EU's scientific excellence</u> and ensure support for research and talent in order to maintain European competitiveness and prosperity.

The answers to these needs come from H2020 and its Excellent Science pillar, whose aim is to reinforce and extend the Union's science excellence, and also to consolidate the European Research Area (ERA)⁸ in order to make the innovation and research system more competitive. Its activities pursue to lay the foundations on which European competitiveness will be built and strengthened in the long term, mainly focusing of new generation science, systems and researchers and providing support for talent in the EU and associates.

Objectives and subprogrammes

The Pillar pursues 4 general objectives, from which each of its four main <u>subprogrammes</u> derive:

- Supporting talent and creativity, strengthening frontier research through activities carried out by the European Research Council (ERC).
- Funding research through collaboration in order to open new research fields in Future Emerging Technologies (FET).
- Strengthening training and staff exchange through the Marie Skłodowska-Curie (MSCA) Activities
- Guarantee and promote the existence of world-class research infrastructures, available to all researchers, and support the use and development of e-infrastructures.

Each of these subprogrammes must also achieve a number of specific impacts:

http://ec.europa.eu/research/era/index en.htm

⁸ European Research Area: The European Research Area aims to create a common framework for research in Europe, generating an "internal market" in research, the restructuring of the European research forces and the convergence of research and innovation policies at national and EU level. More on ERA:

SubProgramme	Specific Impact
European Research Council (ERC)	 I,6% of the most cited publications must be the result of ERC projects. I 00 institutional and national/regional policies based on the ERC.
Future Innovative Technologies (FET)	 25 publications in high impact magazines for every € 10 million. I patent request for every € 10 million.
Marie Curie Activities (MSCA)	 Allowing the mobility of 65.000.researchers (40%) between sectors and between countries, including doctoral candidates.
European Research Infrastructures	 1000 research infrastructures available for all European and non European researchers through the EU's support 60% of ESFRI infrastructures must be launched by 2015

Table 4: Expected impact of Excellent Science pillar. Source: EC

Budget

The Excellent Science pillar has a total budget of € 24.441 million, which in turn is divided among the pillar's 4 major subprogrammes. Excellent Science's budget is 32% of the total H2020 budget.

Activities	Budget in H2020 (€ millions)
ERC	13.095
FET	2.696
Marie Curie	6.162
Infraestructuras	2.488
Total	24.441

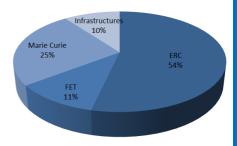


Figure 11: Excellent Science pillar budget distribution. Source: EC

4.1 EUROPEAN RESEARCH COUNCIL

The European Research Council (ERC)9's goal is promoting technology and scientific excellence and improving the impact of science on society. Its main aim is to promote and support the researchers' career and develop their full potential and talent.

These objectives increase their relevance in H2020 in comparison to previous programmes, as reflected in the fact that ERC receives 54% of the Excellent Science pillar budget.

As to what concerns its instruments, ERC has five main types of grants:

ERC Starting Grants

Aimed at researchers of any nationality with 2-7 years of experience since PhD completion and a promising scientific career.

The research must be carried out in a public or private research centre (host institution) located in a Member State or Associate State.

Aid: grants up to €1,5 million

Duration: up to 5 years

 Evaluation criteria: scientific excellence

Calls: annual

ERC Consolidator Grants

Aimed at researchers of any nationality with **7-12 years of experience since PhD completion** and a promising scientific career

The research must be carried out in a public or private research centre (host institution) located in a Member State or Associate State.

- Aid: grants up to €2 million
- Duration: up to **5 years**
- Evaluation criteria: scientific excellence
- Calls: annual

⁹ http://erc.europa.eu/

They're based on partnerships which allow the linking of the EU contributions with other public and private contributions. They require the cooperation of all actors around a series of disciplines, communities and programmes. Features:

- Project type: Collaborative Project
- Funding: from €10M to €20M
- Duration: 2 to 4 years
- Average consortium: 17 partners.

FET Flagship are shaped in the work plan as theme areas with continuity, on which periodic project calls that contribute to their scientific and technological development are released. In this sense the main FET Flagship are:

- Future ICT
- Graphene
- HBP
- CA Robocom
- Guardian Angels
- ITFoM

Any FET proposal is to be aligned with the following 6 linked aspects, called 'gatekeepers':



All FET projects are articulated through H2020's biennial work plan in competitive calls. Excellence is a key factor in evaluation criteria (60% excellence, 20% impact and 20% implementation). The financing instruments are the same as in the rest of H2020 projects, and the most representative one is the medium and large Research & Innovation Projects (RIA). The three types of FET projects also make calls for Coordination and Support Actions (CSAs)¹⁰

¹⁰ See chapter "Instruments" for more information about Project types and features.

5.2 INNOVATION IN SMEs

This subprogramme provides a number of mechanisms to support innovation in European SMEs. It has a total budget of €616 million, representing 4% of the total budget of the Industrial Leadership pillar. Innovation in the SMEs includes three main measures of support:

- **Eurostars:** dedicated to finance intensive European R&D SMEs in the starting up of fully market-oriented innovative projects. It continues the programme in its earlier period, 2007-2013, so in H2020 it has been called Eurostars-2.
- Innovation capacity building, through a mentoring & coaching scheme that provides the necessary vision and guidance to SMEs in different stages.
- Support to Innovation through EEN¹⁴: the Enterprise Europe Network, as a means to approach and support European SMEs in their processes and needs of innovation, giving them direct assistance from the different national and regional network nodes.

Due to the expansion and diversification of measures in support of SMEs included not only in this subprogramme, but in the entire H2020, Chapter 9 has been created exclusively for the in-depth analysis of the opportunities offered by Horizon 2020. Refer to this chapter to learn about this subprogramme and its associated measures.

5.3 ACCESS TO RISK FINANCE

This programme has a budget of approximately €2,842 million, which represents 17% of the total budget of the Industry Leadership pillar. Access to risk finance seeks to overcome deficits in the availability of debt and capital funding for businesses and R&D projects driven by innovation in all stages of development. In particular, it has a double goal:

 Facilitate fund access for innovative and R&D intensive SMEs and small midcaps (with less than 500 employees).

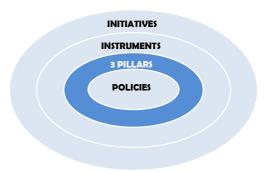
_

¹⁴ http://een.ec.europa.eu/

Chapter 6

PILLAR: SOCIETAL CHALLENGES

Approach, objectives and subprogrammes



APPROACH, OBJECTIVES AND SUBPROGRAMMES

This Pillar's goal is to stimulate the critical mass for research and innovation necessary to achieve political objectives and societal challenges of the EU identified in the Europe 2020 strategy.

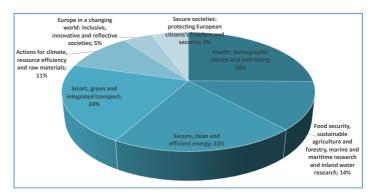
Activities will focus on challenges, without preset technologies or solutions, and this will involve bringing together resources and multidisciplinary knowledge. In addition, they will cover the complete cycle from research to market, with a new emphasis on innovation measures.

Budget

This pillar has **the highest Budget of H2020**: €29.679 million (39%) of the total). It's divided into seven challenges, with the following budget distribution:

CHALLENGE	BUDGET (€ millions)
I Challenge: Health, demographic change and well-being	7.472
2 Challenge: Food security, sustainable agriculture and forestry, marine and maritime research and inland water research	3.851
3 Challenge: Secure, clean and efficient energy	5.931
4 Challenge: Smart, green and integrated transport	6.339
<u>5 Challenge</u> : Actions for climate, resource efficiency and raw materials	3.081
<u>6 Challenge</u> : Europe in a changing world: inclusive, innovative and reflective societies	1.309
7 Challenge: Secure societies: protecting European citizens' freedom and security	1.695

Figure 14: Societal Challenges Pillar, budget breakdown. Source: EC



6.6 CHALLENGE 6: INCLUSIVE, INNOVATIVE AND REFLECTIVE SOCIETIES

This challenge mainly supports research on horizontal issues in the field of **socio-economic sciences and humanities - SSH**, such as the generation of intelligent and sustainable growth, societal behaviour and cultural transformations in European societies, societal innovation, innovation in the public sector or Europe's position at an international level.

In particular, it intends to promote a better understanding of Europe, offering solutions and supporting the development of reflective, innovative and inclusive European societies in a context of unprecedented transformations and growing interdependencies at a global level.

Social innovation and **creativity** are particularly relevant in this challenge, as part of the <u>Europe 2020 strategy</u> and the flagship initiative <u>Innovation Union</u>, so they must be always two basic reference documents when presenting any project within this challenge.

The challenge is structured in three main areas:

Inclusive societies	 Promoting an intelligent, sustainable and integrating growth Building an European society based on integration and with recoverability Reinforcing the participation of Europe in the World scene Closing the gap in research and innovation in Europe
Innovative societies	 Exploring new forms of innovation, including social innovation and creativity Keeping the social commitment with research and innovation Promoting a coherent and efficient cooperation with other countries

Reflective societies

- Contributing to the understanding of the intellectual and cultural basis in Europe
- Studying Europe's cultural legacy
- Investigating European countries and regions' history
- Investigating Europe's role in the world

In each one of these we can find cross elements. The most important ones are:

- Activities of statistic analysis and prospective.
- The **relevance** and **transversality** of ICT in our societies, as a tool upon which to build inclusive, innovative and reflective societies, for example through the development of new forms of access to culture and education (<u>e-learning</u>) or encourage the participation of citizens in society, transparency and interaction with the Administration (<u>e-government</u>)
- International cooperation activities.
- Approach and coordination of scientific action and research for the benefit of our societies.

The specific priorities of these points are detailed in the following table:

	achieve and/or define its strategic objectives of R&D&I (Support Actions). Another objective is to promote the coordination of research and innovation activities (Coordination Actions). They cover activities such as conference and events organization with the active participation of R&D&I projects financed through the program, promotion of personnel exchanges and/or good practices, the creation of information systems, networks or transversal groups of experts, technology foresight studies, or other aspects related to the standardization of R&D&I results. In general, these projects require the participation of at least 3 legal entities from 3 different Member States, although there may be support actions that involve a single entity
Duration	12 to 36 months
Budget	€ 0,5 to 3 million
Funding	100%

PUBLIC PROCUREMENT OF INNOVATION

A new instrument has been designed with the objective of promoting the role of the public administrations in market launching stages of new technologies and facilitating the innovation processes in Europe: the innovative public procurement, which has already been tested in some of the latest calls of previous programmes (for example, in the Competitiveness and Innovation Programme (CIP).

Features

These projects are promoted by the EC, its agencies, Member States or regions in order to make coordinated public procurement of innovation and technology at pre-commercial stage in different sectors, such as health, ICTs, sustainable transport, energy efficiency, security or military field.

There are two types of actions:

 PPI – Public Procurement of Innovation: they do not require further development of R&D, but are used as demonstrators. They are already validated solutions that

ETPs - EUROPEAN TECHNOLOGY PLATFORMS

Technology Platforms are groups of entities belonging to a particular sector and led by industry who get together in order to define a Strategic Research Agenda (SRA) with the aim of responding to sector problems, improving competitiveness and promoting research and innovation.

European Technology Platforms, ETPs, were promoted by the European Commission (especially at the beginning of the 7th European Framework Programme for R&D) as consultative bodies on European R&D&I priorities, for the preparation of periodic work plans for the implementation of the programme. In many cases, national "mirrors" were created in different Member States.

Bio-based economy	Energy	Environment	ICT	Production and processes	Transport
EATIP	Biofuels	WssTP	ARTEMIS	ECTP	ACARE
ETPGAH	EU PV TP		EUROP	ESTEP	ERRAC
Food for Life	TPWind		ЕТР4НРС	EuMaT	ERTRAC
Forest-based	RHC		ENIAC	FTC	Logistics
Plants	SmartGrids		EPoSS	SusChem	Waterborne
FABRE TP	SNETP		ISI	Nanomedicine	
TP Organics	ZEP		Net!Works	ETP-SMR	
			NEM	Manufuture	
			NESSI		
			Photonics 21		

Table 18: ETPs list. Source: European Commission

On the basis of the Europe 2020 strategy and the Innovation Union, the H2020 programme recognizes the role of European technology platforms as external consultation bodies with the required social commitment to carry out the program. The platforms are therefore independent structures that influence the orientation of the areas of focus and definition of priorities of R&D&I in biennial work programmes.

EIP on Raw Materials

http://ec.europa.eu/enterprise/policies/raw-materials/innovation-partnership/index_en.htm

Table 22: EIPs list at the beginning of H2020. Source: EC

Link to the official web site of the EIPs Commission:

http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=eip

KICs – KNOWLEDGE INNOVATION COMMUNITIES

Knowledge Innovation Communities (KICs) are the operational tool of the European Institute of Innovation and Technology (EIT). They are an instrument for the implementation of its strategic agenda and the achieving of its objectives, of which the main one is acting as a catalyst and increasing the capacity of innovation and real impact on the European research society.

Within this context, KICs, wouldn't really be an initiative (in comparison to the initiatives discussed in the previous sections), but the means by which the EIT can permanently set public-private consortia formed by research centres, higher education centres and companies who work together in order to develop innovative projects and who form the three sides of the knowledge triangle:

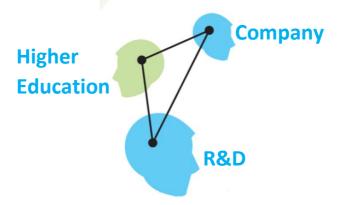


Figure 18: KICs and the Knowledge Triangle. Source: EC

Capítulo 9

SMEs in H2020

The SME role in H2020: summary of the main support mechanisms and other available programmes

9.1 SMEs SUPPORT IN H2020

SMEs have a great relevance in all the world's economies (for example, in Europe at least 97% of all businesses are SMEs) and play an essential role, because they form a crucial link in the chain of economic activity producing and supplying goods and services, or demanding and buying products.

The EU also understands this and it is reflected in H2020:

- The programme's priority is to grant a minimum of 20% of the total budget of societal challenges and LEIT (Industrial leadership pillar) programme to SMEs
- Instrument for SMEs: dedicated specifically to support SMEs in their innovation and internationalization projects, individually or in consortium, assisting them in all stages: from the idea to its commercialisation. It provides different kinds of support, including refund of 70% of the costs of the project and provision of expert advice in the design, development and commercialisation of the product.
- Access to risk finance: a specific programme providing debt and loans to SMEs within the Industry Leadership pillar. See Chapter 5 for more details.

Other programs and measures of support to SMEs: COSME and EUROSTARS programmes, or the European Enterprise Network (EEN), which are explained in detail in the following sections.

9.2 INSTRUMENT FOR SMEs

The **instrument for SMEs** provides SMEs with a funding scheme for business innovative technology-based projects. The type of funding is non-refundable grant, with different amounts depending on the phase of the project. In particular the instrument sets 3 phases, covering the entire cycle of innovation:

PHASE I: Concept and feasibility assessment

 <u>Concept:</u> Starting from an initial idea of innovative business on an already developed technological basis, analyzing its technical and/or commercial

ANNEXES

Glossary of Acronyms Tables and Figures Index

Glossary of Acronyms

Acronym	Definition	Additional details / examples
CP	Collaborative Projects	
CSA	Coordination and Support Action	
RIA	Research & Innovation Action	
IA	Innovation Action	
<u> </u>	illiovation Action	SetPLAN:
		European Bioenergy Industrial Initiative
		European CCS Industrial Initiative
EII	European Industrial initiatives	European Electricity Grids Industrial Initiative
	·	European Sustainable Nuclear Industrial Initative
		European Solar Industrial Initiative
		European Wind Industrial Initiative
EIPs	European Innovation Partnerships	AHA - Active and Healthy Ageing
EIT	European Institute of Innovation & Technology	
ERA-Net	European Research Area project	
		EERA - European Energy Research Alliance
		DETRA - Developing the European Transport Research Alliance
ERAs	European Research Areas/Alliances	EREA - European Research Establishments in Aeronautics
		ECRA - European Climate Research Alliance
FDC	5 0 10 1	
ERC	European Research Council	
EUROPA 2020	Estrategia general Europea para el período 2014-2020	It is the continuation of the Lisbon's Agenda
FET	Future and Emerging Technologies	
JPI	Joint Programming Initiatives	JPND - Joint Programme Neurodegenerative Disease Research
		IMI - Innovative Medicines Iniciative
	Joint Technology Initiatives	CS - Clean Sky
JTI / JU	(also known as JU " Joint Undertakings" or IPPs	SESAR - Single European Sky Air Traffic Management
,,-	"Institutional PPPs")	FCH - Fuel Cells and Hydrogen
	,	ARTEMIS - Embedded computing systems IS
		ENIAC - Nanoelectronics
		-Information and Communication Technologies -Advanced Manufacturing and Processes
		-Biotechnology
KETs	Key Enabling Technologies	-Space
		-Nanotechnology
		-Advanced Materials
KICs	Knowledge & Innovation Communities	
KPI	Key Performance Indicator(s)	
LEIT	Leadership in Enabling Industrial Technologies	
		EDCTP - European and Developing Clinical Trials Partnerships
	Public-Public Partnership	EMRP - European Metrology Programme for Research and
P2P		Innovation
		EUROSTARS - Research-performing SMEs
		AAL - Ambient Assisted Living
PCP	Pre-commercial procurement	
PCP PPI	Pre-commercial procurement PPI: Public Procurement of Innovation	
	PPI: Public Procurement of Innovation	FoF - Factories of the Future
	PPI: Public Procurement of Innovation Public-Private Partnership	E2B - Energy Efficient Buildings
PPI	PPI: Public Procurement of Innovation	E2B - Energy Efficient Buildings FI - Future Internet
PPI	PPI: Public Procurement of Innovation Public-Private Partnership (also known as CPPs "contractual PPPs")	E2B - Energy Efficient Buildings
PPI PPP SBIR	PPI: Public Procurement of Innovation Public-Private Partnership (also known as CPPs "contractual PPPs") Small Business Innovation Research	E2B - Energy Efficient Buildings FI - Future Internet
PPI	PPI: Public Procurement of Innovation Public-Private Partnership (also known as CPPs "contractual PPPs")	E2B - Energy Efficient Buildings FI - Future Internet

Tables and Figures Index

Figures	
Figure 1: Basic elements in Horizon 2020 structure	12
Figure 2: Definition of theme priorities and action lines in the WP	20
Figure 3: Triennial Strategy programming and definition of the Biennial \	Work
Programme in the period 2014-2020	20
Figure 4: General Horizon 2020 structure	25
Figure 5: Structure of European R&D&I programmes	27
Figure 6: European funding instruments for R&D&I projects	28
Figure 7: H2020 budget distribution in current prices	
Figure 8: The 3 pillars and their programme substructure	38
Figure 9: The three pillars and their programme substructure	39
Figure 10: General relationship between the FP7's main technology area	as and
the KET and societal challenges structure of H2020	40
Figure 11: Excellent Science pillar budget distribution	45
Figure 12: Budget for the Industrial Leadership Pillar	58
Figure 13: LEIT programme - Budget breakdown	60
Figure 14: Societal Challenges Pillar, budget breakdown	78
Figure 15: Technology Readiness Level. – TRLs	106
Figure 16: H2020 coverage in the innovation chain	107
Figure 17: H2020 funding instruments and their use in each subprogram	me . 115
Figure 18: KICs and the Knowledge Triangle	128
Figure 19: Phases of the SME Instrument	136
Figure 20: SME support measures from in the Mentoring & Coaching act	ion. 137
Tables	
Table 1: Europe Objectives for 2020	16
Table 2: Growth objectives and their Flagship Initiatives	17
Table 3: Main new features of Horizon 2020	34
Table 4: Expected impact of Excellent Science pillar	45
Table 5: Marie Curie – Individual Actions	51
Table 6: Marie Curie – Actions for Organizations	52

A Complete Guide

Table 7: Theme priorities Challenge: Health, demographic change and well-	
being	80
Table 8: Theme priorities. Challenge: Bioeconomy	83
Table 9: Theme priorities. Challenge: Clean, secure and efficient energy	87
Table 10: Theme priorities. Challenge: Smart, green and integrated transpor	t.90
Table 11: Theme priorities. Challenge: Actions for climate, resource efficienc	у
and raw materials	93
Table 12: Theme priorities. Challenge: Inclusive, innovative and reflective	
societies	97
Table 13: Theme priorities. Challenge: Secure societies	100
Table 14: Eligible and non eligible costs	104
Table 15: Summary of finance intensity for different entities and actions	106
Table 16: Grant levels for TRL scaled activities	.108
Table 17: Main H2020 initiatives, their scope, actors, opening degree and	
management	.120
Table 18: List of European Tecnology Platforms	.121
Table 19: JPIs approved for the beginning of H2020	.123
Table 20: PPPs list already approved for the beginning of H2020	.125
Tabla 21: JTIs list already approved for the beginning of H2020	.126
Table 22: EIPs list at the beginning of H2020	.128