

Towards what Horizon is EU headed by 2020?

An overview of the new EU financial program

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Horizon 2020, is a legislative package that succeeds the current FP7, with a proposed budget of EURO 70.9 billion and it has been seen as a response measure to the economic and financial crisis, by creating the possibilities to invest in future jobs and growth, while addressing EU citizens about their safety, livelihoods and environment. Relying on a three pillar structure, the funding model focuses on providing the participants similar funding rates according to the undertaken activities, while taking into consideration stakeholders' preferences for reimbursement. Horizon 2020 is open to any project that is based on competitive initiatives; however, each country's experience and economic development will influence its' participation to the "Horizon 2020" funding program.

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Introduction

The main objective of Europe 2020 Strategy focused around creating a smart, sustainable and inclusive economy that should help EU to face the challenges of the current dynamic world. Europe 2020's first flagship initiative – "*Innovation Union*" focused around innovation and research, which are independent concepts, but are strongly linked together (COM(2010) 546, p. 6). The main goal of this flagship initiative relies in shifting Research Development Innovation (RDI) policies in order to overcome the challenges that EU faced: climate change, limiting natural resources, demographic and financial system changes, emphasizing on the importance of innovation chain to turn the innovative projects of sensitive EU areas into tangible competitive goods and services.

The main condition for achieving a high degree of competitiveness is the existence of labor productivity, which is strongly linked to EU's population skills and education. From this point of view, the Europe 2020 Strategy has underlined (as its' predecessor, the Lisbon Strategy) the importance of knowledge and innovation to achieve economic growth and a high degree of employment (Jurlin, 2010, p. 100). The entire RDI process helps create jobs, leads to prosperity and a higher quality of life, but also helps facing EU's society challenges, by developing scientific and technological findings (COM (2011) 808, p. 2).

Economic development is one of the main goals of Europe 2020 Strategy and was based on two key elements: research and innovation. Research relies on resources investment in the attempt to expand the existing scientific and technological base, while innovation requires the knowledge results to create value and to introduce new products, services and processes (COM(2010) 546, p. 6).

As a part of Europe 2020's main objectives – new growth and jobs – the EU's new programme for research and innovation relies on its financial instrument – *Horizon 2020* – to implement "*Innovation*

Union” flagship initiative, which is concerned about turning EU into a world-class science performers, help turn innovative project into competitive goods and services through the removal of innovation obstacles and better regulate the legislative framework for public and private actors, by promoting Innovation Partnerships between stakeholders, national and regional authorities and European Institutions.

II What is *Horizon 2020*?

Being placed at the center of Europe 2020 Strategy to promote smart, sustainable and inclusive growth, the RDI process included as headline objectives increasing spending on R&D to 3% of GDP by 2020, therefore, the “*Innovation Union*” provided, besides a set of actions to improve performances in research and innovation, an instrument of funding that was meant to invest in Europe’s future (COM (2011) 808, p. 2) – *Horizon 2020*.

The newest European Commission’s approach, *Horizon 2020 – The Framework Programme for Research and Innovation*, was set on October 14th 2012 (***, Council of the European Union, 2013, p. 1) and is a legislative package that succeeds the Framework Programme 7 and it will be launched at the end of 2013, being scheduled to run from 2014 to 2020, with a proposed budget of EURO 70.9 billion.

Horizon 2020 has been seen as a response measure to the economic and financial crisis, by creating the possibilities to invest in future jobs and growth, while addressing EU citizens about their safety, livelihoods and environment. Also, *Horizon 2020* aims to strengthen EU’s global position in areas like research, technology and innovation, so, its main challenge is to stabilise the financial and economic system at the same time with creating new economic opportunities (***, EC, 2013, p.2, p. 4).

Horizon 2020 plans to act in areas where the EU has a clear added value, therefore, it focuses on three distinct, but mutually reinforcing priorities (***, COM(2011) 808 final, pp. 4-5):

excellent science: creating an EU science base that would lead to long-term competitiveness,

industrial leadership: promoting activities where businesses are the most important element,

societal challenges: covering innovation-related activities.

Basically, *Horizon 2020* is the successor of the current Seventh Framework Programme for Research, Technological Development and Demonstration Activities (FP7) and it represents a key element to deliver Europe 2020's "Innovation Union" and to develop a regular European Research Area.

Horizon 2020 relies on a three pillar structure, that has similar rules for the entire programme, a unique and more simple set of Participation Rules, the funding model focuses on providing the participants similar funding rates according to the undertaken activities (***, SDEO, p. 7), while taking into consideration stakeholders' preferences for reimbursement. Alongside these elements of novelty, *Horizon 2020* strongly recommends a revised control strategy that would lead to a new equilibrium between risk taking and risk avoidance and between trust and control (COM(2011) 808 final, p. 8). Table No. 1 presents the main differences regarding the thematic areas of the two programs.

Table No 1

Compared Analysis of the 7th FP and Horizon 2020

	FP7	H2020
Time period	2007-2013	2014-2020
Budget (€ bn.)	50	79
Thematic areas	<i>Ideas</i> <i>People</i> <i>Cooperation:</i> health, food, agriculture & biotechnologies, ICT, NMP, energy, environment (climate), transport, space, security, socio-economic sciences and humanity <i>Capacities:</i> research in infrastructure, Research for the benefit of SMEs, regions of knowledge, research potential, science in society, international cooperation, support to the coherent development of research, JRC – Joint Research Centre	<i>Excellent Science:</i> ERC, Marie Skłodowska-Curie, FET, research infrastructure, <i>Industrial Leadership:</i> ICT, NMP, Biotechnology, space, access to risk finance, SME, <i>Societal Challenges:</i> health, transport, climate actions, inclusive and innovative societies, secure societies JRC – Joint Research Centre

Source: Own conception based on information from: ***, FP7 in Brief, How to get involved in the EU 7th Framework Programme for Research, European Commission, Community Research, 2007, available on http://ec.europa.eu/research/fp7/pdf/fp7-inbrief_en.pdf, accessed on October 21st 2013, E.L., Abnström, Horizon 2020 – the new EU research and innovation programme, Blekinge Tekniska Högskola (BTH), June 2013, slide No. 7, available on [http://www.bth.se/exr/grantsoffice.nsf/bilagor/H2020_bth_juni2013.pdf/\\$file/H2020_bth_juni2013.pdf](http://www.bth.se/exr/grantsoffice.nsf/bilagor/H2020_bth_juni2013.pdf/$file/H2020_bth_juni2013.pdf), accessed on October 21st 2013

III The need of Horiozon 2020

With the end of EU's current multi-annual financial framework coming closely to an end, the European Commssion has observed the existant Communitiy's innovation gap that places it behind the USA

and Japan. The R&D area, namely the percentage of GDP expenditures, reflected in a small number of registered patents and of medium-high and high-tech product exports keep the Member States from delivering the Europe 2020 general support for development objective (Clarke, p. 4).

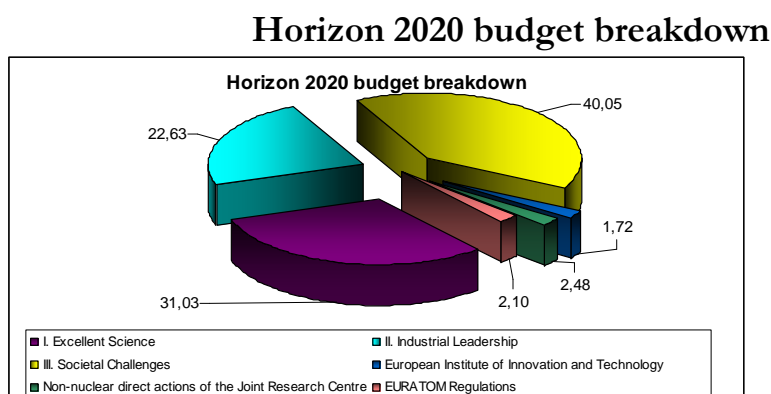
Europe 2020 flagship initiatives have proven a high degree of correlation, by analysing them in pairs. The most obvious correlation among Europe 2020 flagship initiatives is the consistency between the technologic objective and the general support for development objective. By increasing the R&D funding, the Community encourages identification of technical solutions needed for achieving the "20x20x20" goal, which generates, in return, additional financial resources to ensure EU's funding for R&D. Achieving the technology goal creates monetary resources that reduce the risk of poverty and social exclusion phenomenon. By reducing energy consumption and providing alternative energy sources the costs will be also reduced and the prices lowered, leading to an increased purchasing power of the population, thus reducing the risk of poverty. The positive influence of the technological and social goal of Europe 2020 is underlined by the reduction of greenhouse gas emissions that lead to the issue of monetary reserves for the State that focuses on the reduction of poverty and increases the social inclusion for the disadvantaged groups. The interdependency of the technological and educational goals is based on a direct relation: by implementing the technologic objective, the prior used financial resources for delivering this goal, can be reoriented towards the education sector, for better education conditions, that lead to an increased professional quality of labor force. Increasing the qualification level for services and IT&C will directly and positively influence the employment of these areas, because of an increased focus around delivering the technological objective. The general support of development goal has also proven a strong connection with the social objective, on medium and long turn:

increased R&D funding allows identifying new technological management solutions and develops new institutional mechanisms that create an increased productivity level, meaning higher revenues for the population, while reducing the risk of poverty encourages an active participation to the R&D activities, which means supplementing financial resources (Dinga, 2010, pp. 172-174).

Horizon 2020 represents a key tool for delivering the "Innovation Union" flagship initiative and aims to help achieving the commitments made therein (***, COM(2011) 808 final, p. 2)

The budget for this financial instrument was set at nearly EUR 70 billion, being funded by general EU budget through the Multiannual Financial Framework – MFF for each of the Strategy's three pillars. As Figure No. 1 shows, nearly 31% of the budget (meaning EUR24,598 mill.) was directed towards the first objective – excellent science.

Figure No.1



Source: ***, *Breakdown of the Horizon 2020 Budget*,

http://ec.europa.eu/research/horizon2020/pdf/press/horizon_2020_budget_constant_2011.pdf, p. 1, accessed on October 20th 2013, S. Ringer, *Horizon 2020*, Department for Business Innovation & Skills, UKRO Conference, Edinburgh 13 June 2013, slide no. 7, available on http://www.ukro.ac.uk/aboutukro/conference/Documents/130613_ringer_future_european_funding.pdf, accessed on October 20th 2013.

Industrial Leadership received EUR17,938 million (representing 22.63% of the budget) and the highest amount was directed towards Societal Challenges (EUR31,784 million, up to 40% of the total budget). Reiterating the objective to develop an European Institute of Innovation and Technology (EIT) has brought in front the need to allocate funding sources, therefore, for this goal have been allocated EUR1,360 (representing 1.72% out of the *Horizon 2020* budget), with the possibility to supplement it with another EUR1,440 million which will be available from the budgets of the Societal Challenges and Industrial Leadership, on an indicative basis and being subject of further review based on the provisions of Article 26(1) of the Horizon Regulation (***, *Breakdown of the Horizon 2020 Budget*, p. 2). The maximum *Horizon 2020* contribution for the European Institute of Innovation and Technology is set at EUR3,194 million (COM(2011) 809 final, Article 6(2), p. 13). The budget allocates 2.48% (EUR1,962 million) for Non-nuclear direct action of the Joint Research Centre, while EURATOM Regulations received EUR1,665 million, meaning 2.10% of the budget (***, *Breakdown of the Horizon 2020 Budget*, p. 1).

IV The Transition from FP7 to Horizon 2020

EU Framework Programs' main goal was to support the development of the European Research Area and they followed a strategic research plan established by the European Commission (Podhora, Helming, Adenäuer, Heckeley, Kautto, Reidsma, Rennings, Turnpenny, Jansen, 2013, p. 86).

EU's set objective to increase R&D up to 3% of GDP had economic consequences: the market equilibrium level of R&D spending can be lower compared to the social equilibrium, leading to increased R&D subsidies in order to correct this situation and generate a significant increase in the EU's per capita income (Chu, 2009, p., 582). *The 7th Framework Program for Research and technological Development* was developed for seven years, starting 2007 to 2013, with a budget of

over EUR50 billion and it represented a key tool to respond to EU's needs regarding jobs and competitiveness, while promoting and maintaining leadership in the global knowledge economy (***, *FP7 in Brief*, 2007, p. 6)

With a budget of nearly EUR55 billion established for 14 funding section, FP7 focused on "cooperation" for creating and compiling scientific knowledge that could support innovation, address societal challenges and allow policy-making actions to concentrate on sustainable development (Podhora, Helming, Adenäuer, Heckelei, Kautto, Reidsma, Rennings, Turnpenny, Jansen, 2013, p. 86). Being EU's main instrument for R&D funding, FP7 was also the result of political negotiations concerning the research priorities, as a result of interest groups representing their own governments' pressure on EU Institutions (Chu, 2009, p., 583).

The main common feature is the "European added value", because both FP7 and Horizon 2020 provide funding on grants and national research programs that involve also the transnationality of their actions. It is compulsory that the eligible research project include participants from different EU Member States, because of the complexity of the research challenges these programs address (***, *FP7 in Brief*, 2007, p. 6). RDI represents an area that is of high importance to EU citizens, so the research and innovation activities are central to Europe 2020 Strategy. A better understanding, engagement and debate of the new *Horizon 2020* is needed, so the European Commission underlines the importance of informational transparency for a better implementation of the strategy, by communicating the results of research to companies, authorities, stakeholders and other interested economic actors (COM(2011) 808 final, 2011, p. 13).

It is clear that *Horizon 2020* tackles more areas compared to the previous FP7, being a program that is connected to Europe 2020 goals. FP7 prescribed the specific research topics that had to be

addressed and in comparison, *Horizon 2020* addresses projects that solve specific challenges or their particular issues, but based on a simplification of rules and procedures, as the FP7 interim evaluation report underlined.

The funding is allocated based on competitive calls and the decisions on financing are taken by the European Commission after an independent evaluation. The calls are open to everyone (EU organizations or individuals, or outside the EU borders), without discrimination. *Horizon 2020* has a more simpler program architecture, facilitating future participants to identify funding opportunities and is based on a single set of rules (derogations are possible only if they are justified by specific needs), the administrative activities are also simplified (by the use of the electronic signature), with simpler funding rules and a reduced burden on financial controls and audit (***, EC, 2013, p. 3)

Horizon 2020 provides a simpler program architecture (allowing participants to identify funding opportunities), there is a single set of participation rules applied to all components of the program and the existence of electronic signature of grants and amendments that simplify the administrative procedures (***, Factsheet, EC, 2013, p. 2). *Horizon* also encloses new forms of funding especially designed to ease the participation of SMEs, aiming to fill gaps in funding for early-stage, high-risk RDI by SMEs at the same time promoting breakthrough innovation (***, EC, *SMEs in Horizon 2020*, p. 1), targeting highly innovative SMEs focused on their own development, growth and internationalization, regardless of their area of activity.

FP7 funding rules were more complex and turned the budget table for a typical collaborative project into a matrix, while the participants had to provide extensive documentation to certify their financial capacity, which would be also checked by especially competent authorities. *Horizon 2020* provides one reimbursement rate and a single flat rate for indirect costs, which transforms the budget table into a more

simpler one and reduces the time to grant to a general maximum of eight months (***, Factsheet, EC, 2013, pp. 4-5).

V. What are the potential beneficiaries of Horizon 2020?

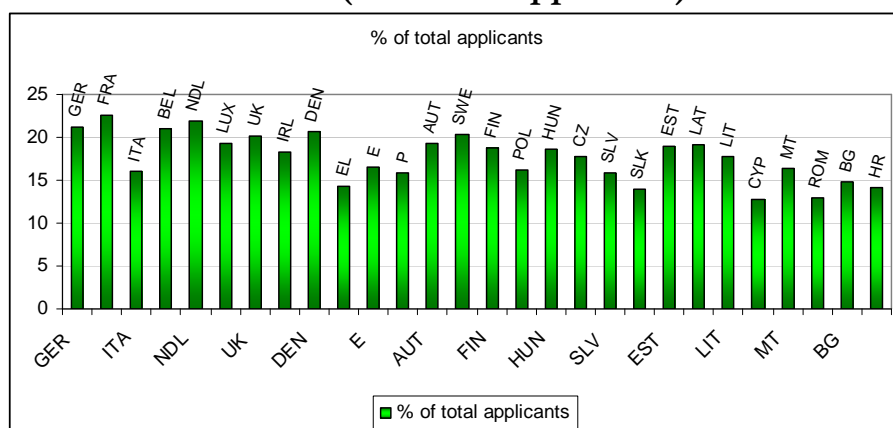
Analyzing each country profile on Horizon 2020 website (http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=countr y-profiles), the EU Member States can be divided into four distinct categories: Innovation Leaders, Moderate Innovators, Modest Innovators and Innovation Followers.

At EU level (year 2011), out of 479,779 applicants, only 90,698 received FP7 funding, meaning that only 17.72% EU citizens were beneficiaries of this program. The highest gap was registered in UK (where 53,408 applicants out of 66,949 did *not* receive FP7 funding), while in Luxemburg, out of a total of 976 applicants, only 189 benefited from EU funding (meaning that 80.64% applicants were not eligible), ranking the country on place 28, while Germany, out of 66,238 applicants accepted funding only for 14,034 participants.

Romania ranks as the 18th country with signed contracts, meaning that 13% out of the total number of applicants (6,601) have turned into participants to FP7. Analyzing the performances of the newest EU Member State, Croatia, it has the 22nd place on the Innovation Scoreboard and the 25th EU Member State with signed contracts: out of 2,197 applicants, 309 became participants (14.06%) to FP7. Figure No. 2 presents each Member State ranks in signed contracts.

Figure No 2

**Total applicants during FP7 at EU₂₈ level
(% of total applicants)**



Source: Own conception based on each country profile available on

http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=country-profiles

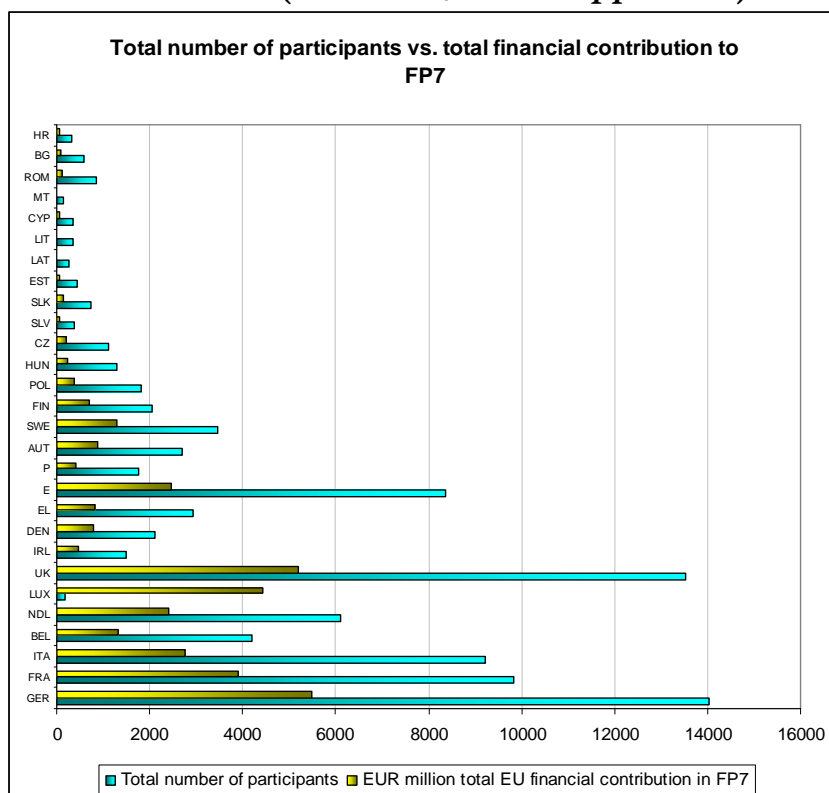
Countries like Sweden, Denmark, Germany and Finland are Innovation Leaders, where R&D investments have faced a growth in both public and private R&D sector. Even though Sweden is ranked No. 1, Germany has the highest financial contribution (5,489.6 mill EURO). Moderate innovators are considered Slovakia, Italy, Portugal, Spain, Czech Republic, Hungary, Greece, Malta, Croatia and Poland, while Romania, Lithuania, Bulgaria and Latvia are "Modest innovators". Countries such as Belgium, UK, the Netherlands, Luxembourg, Austria, Ireland, France, Cyprus, Estonia and Slovenia are Innovation Followers, where the R&D investments did not have high growth during FP7.

Horizon 2020 is open to any project that is based on competitive initiatives; however, each country's experience and economic development will influence its' participation to the "Horizon 2020" funding program. Even though the European Commission decided to widen the access, by simplifying the participation rules, the evaluation

and ranking will be made at EU level, meaning that a less competitive country will have fewer chances to access these funds. The administrative and audit burden is also a real challenge, especially to countries that are Moderate or Modest Innovators. Most of these countries had slow performances also in delivering the Europe 2020 Strategy Flagship Initiatives. Experience and increased R&D investments would also facilitate to the Innovation Leaders to easily access Horizon 2020, however, this eventual situation might lead to a discriminatory situation and to increase the political burden.

Figure No. 3 presents the performances of the EU Member States in participating to FP7 from the participants and financial perspective.

Figure No 3
EU Member States performances in participating to FP7 and
financial contribution
(EUR mill/No. of applicants)



Source: Own conception based on each country profile available on
http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=country-profiles

The total number of EU participants to FP7 was 90,698, summing a total of 34,862.98 mill EUR, leading to an average of 1,245.106 mill EUR at EU level. Analyzing their performances, it is possible to estimate that the main beneficiaries of Horizon 2020 would be the Innovation Leaders, second in rank would be the Innovation

Followers and on the third place would be the Moderate Innovators followed closely by the Modest Innovators.

Germany (5,489.6 mill EUROS), UK (5,205.57 mill EUROS) and Spain (2,462.86 mill EUROS) had the most financial contribution from FP7, followed by France (3,900.95 mill EUROS), Italy (2,766.97 mill EUROS) and the Netherlands (2,399.51 mill EUROS), while Latvia received only 35.63 mill EUROS, Lithuania 43.84 mill EUROS and Malta only 15.25 mill EUROS. This translates into the existence of small projects that were also eligible for FP7 for these last countries.

Horizon 2020 is not a continuation of FP7, but its successor and not all Member States have completely understood the mechanisms of FP7, in order to adapt more easily to Horizon 2020. Even though this financing program underlines its simplicity, the moderate innovators and modest innovators will have to face the challenge to better fit the provisions of Horizon 2020.

VI. Conclusion

EU's new financial program, that will start at the end of 2013, Horizon 2020, has developed a new set of more simple rules, that would provide a higher flexibility to adapt the ongoing projects to changing needs and circumstances as requested by EU's R&D environment, helping it to become a more dynamic environment. The single set of rules applied to all beneficiaries would allow to identify more funding opportunities and to reduce the administrative burden.

Horizon 2020 is seen as an investment in EU's future to support innovation and to develop new breakthrough projects, ideas and patents that would be turned into competitive goods and services.

Horizon 2020 was designed to support the Europe 2020 Flagship Initiative "Innovation Union", adopting a more strategic approach to RDI and to develop the European Research Area. Also, this financial program promotes the cooperation with third countries or

international organizations on a bilateral basis, undelining the mutual benefit that can be developed from these collaborations.

Compared to the previous financial programs, Horizon 2020 is more flexible and it encourages and facilitates the participation of all research stakeholders (including SMEs).

Horizon 2020 is open to any competitive project, because it has a more simple set of participation rules, however, the Member States that are considered to be Innovation Leaders would have more experience and a higher R&D intensity target (close to 3% out of GDP), therefore, it is more likely to easily adapt to Horizon's 2020 provisions. For the Modest Innovators, this financial program means a new set of rules and also the importance to focus around *competitive* projects, because starting 2014 they "compete" directly with experienced countries, that developed competitive products and services even before the existence of Lisbon Strategy.

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