

A leading advocate for research, development and innovation policy in Europe, Maria da Graça Carvalho offers her thoughts on Horizon 2020's first year and Portugal's research ambitions

First year reflections

Maria da Graça Carvalho was fundamental in securing the final deal for Horizon 2020. During her five years as an MEP, she championed the role of innovation, entrepreneurship and SMEs in European policy making. As the rapporteur for the Specific Programme Implementing Horizon 2020, she was a powerful advocate for the simplification of the research and innovation framework programme and reducing bureaucracy when accessing EU science and innovation funding, major reforms that have now been translated into Horizon 2020. Carvalho has also been recognised by José Manuel Barroso for her work on the European Institute for Innovation and Technology, creating the body 'Group of Friends of EIT' and acknowledging the important connection between higher education, research and business in the knowledge triangle.

Carvalho now serves as principal advisor to the Bureau of European Policy Advisers in the European Commission, specialising in the areas of science, higher education, and innovation, amongst others. At her office in Brussels, Portal sat down with the former MEP, who began by providing her assessment of the first year of Horizon 2020.

"Horizon 2020 opened for applications in December 2013, and the first results are very positive, especially in terms of turnout. There is a lot of hope and enthusiasm amongst the stakeholders, and participation has

increased considerably compared to FP7. Collectively, this justifies what we have said in the European Parliament, as well as me personally, that it was important to increase the budget. A bigger budget has allowed greater capacity in Europe in terms of research and innovation as there is a great need for more funding, particularly in the applied phases of the innovation cycle, which are very expensive.

"As Horizon 2020 extends across the whole cycle of innovation, we have needed a bigger budget to realise these additional opportunities now available. Stakeholders have responded very well to the first calls of Horizon 2020, which is a fantastic programme, both well designed and comprehensive, as well as being very ambitious and balanced; it has proven itself in the first year.

"Yet Horizon 2020 should have had the budget that we, as the Parliament, first suggested, which was €100bn. It was unfortunate that we



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could not achieve this during negotiations. A final budget of €80bn is the absolute minimum.”

New Commission

The European Commission of Jean-Claude Juncker sees Portuguese representative Carlos Moedas as the new Commissioner for Research, Science and Innovation. Sharing nationality with Moedas, Carvalho said she had great confidence in the EU's new research representative.

“Research and innovation is a central policy area for Europe. We have a very committed and competent European Commissioner for Research, Science and Innovation: Carlos Moedas. He is very committed to the promotion of research and innovation. As he said in his speech in the Parliament, he will have three key priorities, namely promoting fundamental knowledge and research, implementing Horizon 2020 and, in policy, to build the European Research Area and further the Innovation Union.

“Moedas comes from the private sector and has very concrete plans on how to implement and improve the innovation environment in Europe, which itself is a challenge because it does not only depend on the Commission, it depends on the EU member states and the private sector. Many reforms need to be completed by national governments, as well as some at supranational level. When Moedas served in the Portuguese Government, he was co-ordinating the structural reforms in the

Carvalho has welcomed the appointment of Carlos Moedas (right) to the research portfolio in the European Commission led by Jean-Claude Juncker

country following the country's bailout from the European Commission, European Central Bank and the IMF. He has the right background, together with the right experience in the private sector, to help Europe build a friendly environment for innovation.”

Another priority for Moedas and the wider Commission noted by Carvalho is that of knowledge transfer, in particular from research and education, to the economy and society. Encouraging greater collaboration between higher education, research and business is vital, she says.

“It is a question of implementation and being pragmatic towards these measures. The Barroso II Commission focused heavily on the Innovation Union, addressing many of these problems. Effective implementation will ensure greater private sector involvement as well as knowledge development. We need to monitor the actions of EU member states in order to assess which countries have not implemented the necessary reforms to create a more innovative environment.”

Budget

The final budget of Horizon 2020 was a key point of negotiation between the Commission, Parliament and Council of the European Union. Despite a decrease in the EU's 2014-2020 Multiannual Financial Framework (MFF), legislators were still able to pass an increased budget to the successor of FP7.

“For the first time, we have seen a 10% cut in the MFF. Even with this reduction, we were able to secure a budget increase of 30% for R&I, though the Parliament did want more. MEPs believed that €100bn for Horizon 2020 would have been a more appropriate funding package because Horizon 2020 covers the whole cycle of innovation; it is a different programme and not comparable to FP7. We hope we have set a precedent and that we can have an even greater budget for European R&I programmes in the future.”

Horizon 2020 is heavily supported by other European funding programmes that also have provision for research and innovation funding, notably the European Structural and Investment Funds. The Parliament has particularly encouraged other EU funding streams to support R&D.

"The European Structural and Investment Funds, including the European Regional Development Fund, have a collective budget of more than €300bn, and their priorities are decided in negotiation between the Commission and EU member states. It was at the request of the Parliament that a high percentage of the funds, around 30%, are devoted to research and innovation and related activities. Consequently, we have at least another Horizon 2020 funding package available for R&I through the Structural Funds.

"MEPs have emphasised R&I as a priority to assist with capacity building and prepare regions to be more competitive when applying for Horizon 2020 funding and to better downstream Horizon 2020 and regional funds," said the former MEP.

"In the past, European regions have had ambitions concerning the expenditure of EU funds in regards to research and innovation. However, executing the budget has been rushed in the past, with the money often spent on large, less innovative projects such as building large infrastructures and helping speed up implementation; we hope that in the future more regional funds will be applied to R&D."

Business environment

A key aim of Horizon 2020 is encouraging the greater participation of business in research and innovation. During the legislative process, MEPs emphasised such measures as a key priority, yet such measures are only part of the solution – creating the right environment for SMEs to prosper is also important.

Carvalho explained "One of the objectives of the Parliament during the Horizon 2020 legislative process was to increase the budget that was devoted to SMEs. We were able to successfully raise the budget compared to the initial proposal of the Commission, and overall we increased the budget specifically for SME participation from 15% to 20%. We have also increased the budget for the SME Instrument.

"These measures do not alone solve all the problems. A lot of the financial support for SMEs comes from regional and national budgets, yet more important than money is to create the right conditions for SMEs to prosper. In some countries where SMEs have grown fast, there is no direct public financial support for the private sector. This is, for example, the case of Switzerland, which has the right framework conditions to encourage innovation.

"To create the right environment, we need to reduce bureaucracy, in particular from member state to member state, where there are difficulties at present for SMEs wishing to expand abroad. We also need to improve the mobility of researchers inside Europe, as well as the conditions to attract the best engineers and scientists from outside Europe, and to have a fiscal system that is friendly towards investors and SMEs; we also need better regulation. SMEs are very important as they are one of the priorities of the new Commission and particularly Moedas.

A lot of work needs to be done at national and supranational level to improve the conditions for SMEs in the EU."

'Valley of death'

Whilst Horizon 2020 has increased the support available to SMEs, another priority of the framework programme is bringing more new products and services to market. As Carvalho explained, multiple reforms need to be made simultaneously.

"We need to develop three specific pillars in order to overcome the difficulties in the so-called 'Valley of death'. The first is research: we need an efficient, well-financed system. We need a programme that covers the whole cycle of innovation, such as Horizon 2020, and we hope that this is a catalyst for member states to develop similar programmes. Second is the education pillar – we need an efficient system of education that produces well-educated engineers and scientists. Finally, we need the right conditions for the private sector to operate in an efficient way.

Receiving an award
for best MEP in the
area of research
and innovation

"If we only complete two of these factors, such as developing a well-financed research system and investing in education, we will not make



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the necessary progress. If the conditions for growth of the private sector are not able to attract the good scientists and engineers that our education system has produced, then we risk losing this knowledge to North America and Asia. Knowledge and people are very mobile.

"We really need to develop the perfect conditions for innovation and private investment so companies that are innovative and utilise the knowledge that is produced in Europe can then lead the way in developing new products and services, helping encourage economic growth."

Portugal's aspiration

During her time in the European Parliament, Carvalho represented the Partido Social Democrata, or Social Democratic Party, in the Group of the European People's Party. Portugal is looking to take particular advantage of the EU's research environment and funding opportunities following many decades of underinvestment in science and innovation. Through its membership of the Union, Portugal is redefining its research capabilities.

"Portugal is starting from a very low state of R&I," Carvalho explained. "Prior to joining the EU, there was little research capacity due to a regime which for up to 40 years did not encourage science and research. Following the revolution of 1974, overthrowing the Estado Novo regime, Portugal subsequently joined the EU in 1986 with a very low dependence on science and technology. Since acceding to the Union, Portugal has dedicated a significant proportion of the regional funds it has received to education, including higher education, and developing its research and innovation base.

"Portugal is now one of the fastest growing countries in Europe in terms of R&I. Portugal now has the fifth highest number of

Set up in 2007, the private biomedical Champalimaud Foundation in Lisbon has quickly become a leading scientific research centre in Europe

researchers per 1,000 works in Europe; only Finland, Denmark, Sweden and France precede us. We have constantly evolved and used the regional funds every year to educate researchers and create PhD holders. Portugal has also focused on building its capacity in the number of scientists and engineers, using regional funds to help construct the new research institutions and laboratories. We also now offer a high number of scholarships to PhD holders and postdoctorates."

Concurrent with Europe, Portugal is now setting its ambitions on increasing the participation of the private sector in innovation.

"Portugal does not have a big private sector involvement in innovation. Many scientists and academics that have been trained in the public sector have stayed in the public sector. At the time of the economic crisis, the public sector was unable to attract more scientists or employ more researchers, leading to a Portuguese 'brain drain'; national investment we had made had partially been lost. Whilst researchers should move, we also need to create the right conditions nationally to encourage scientists to return home.

"Portugal has been able to create excellent universities and research centres, for example the Champalimaud Foundation, helping both the Portuguese and wider European economies. We need to create the right conditions to have more SMEs and companies in general that will absorb the knowledge and employ the people that have been trained. This will translate into economic growth and will help increase society's wellbeing."

Future success

Through Carvalho's leadership and the support of her European Parliamentary colleagues, Horizon 2020 has secured a well-financed budget with new support mechanisms for SMEs and new instruments to help cross the valley of death. The first year of the EU's new kind of research and innovation framework has been widely considered successful, and member states, which for many years have been unable to capitalise on the opportunities and benefits that science offers, are now driving national reforms and inspiring enthusiasm for EU research opportunities.

Whilst Horizon 2020 has made substantial progress in helping to create the right environment for science and innovation in Europe, it is clear that additional changes need to be introduced to help further increase the value of R&D being undertaken and ultimately increase the continent's international competitiveness, economic growth and job creation. With new leadership at the top in the form of Jean-Claude Juncker and Carlos Moedas, there is fresh scope for making Europe the world's premier research and innovation hub.

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