Andreu Mas-Colell – President, BIST, Spain



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Andreu Mas-Colell, former minister of finance for Catalonia and president of the Barcelona Institute of Science and Technology (BIST), discusses the mission and activities of the institution as a driver of multidisciplinary research in the region. Mas-Colell also describes the condition of innovation and technology in Catalonia, highlights the region's competitiveness as a European research player, and explains how the ecosystem can be developed further.

What have been the main activities and milestones accomplished by BIST since you joined in 2016?

The Barcelona Institute of Science and Technology (BIST) could be described as a bootstrapping device for Catalonian research centres of excellence. It groups seven of them, being: Centre for Genomic Relations (CRG), Institute for Bioengineering of Catalonia (IBEC), Institute of Photonic Sciences (ICFO), Institute of Chemical Research of Catalonia (ICIQ), Catalan Institute of Nanoscience and Nanotechnology (ICN2), Institute for High Energy Physics (IFAE), and Institute for Research in Biomedicine (IRB). They cover areas such as biotechnology, chemistry, life sciences, and even astrophysics. Not all of our centres operate in the biosciences sector, yet all of them have some angle in health and medicine. The vision of BIST is to bring together these institutions to promote multidisciplinary research activities, an approach which has delivered many successful projects over the years.

BIST is also developing training initiatives at the pre and post-doctorate levels. We have received substantial funding from the Horizon 2020 program of the EU; nearly EUR 10 million. At the predoctoral level, we have established a hands-on research master's program. Participants in the program will have the opportunity to work across several of BIST's institutions over the course of one year. As for the post-doctorate level, we intend to focus on the often-unaddressed area of future career paths for young researchers (we have over 500 post-doctorates): research, research management and policy, teaching, or entrepreneurship.

Our agenda also includes the capitalization and transfer of knowledge to the market. We have been quite successful in capturing ERC grants, including Proof of Concept Grants. Our seven centres operate under a mandate on deliverables which emphasizes basic science but extends all the way to the market. So far, the centres have produced 23 spin-offs under the mandate.

How important are the research initiatives in Catalonia to the healthcare and life science sectors of the region?

In the healthcare system of Catalonia, as well as for its stakeholders, scientists and health professionals, research is truly essential. The medical doctors in hospitals have similar values as the university professors: both have a dual vision of patient care (or teaching) and medical research (or other). There is, indeed, a strong commitment to research in the public sector among health players.

The pharmaceutical industry also holds an important stake in the research environment. By and large, the classic paradigm of research carried out internally by big pharma companies is shifting. Funding for research is increasingly outsourced to research organizations, university labs, or start-ups. This is also happening among us.

Spain is known for being a country strong in initial research, but it faces challenges in translating this knowledge into results. How can the gap between laboratory innovations and the consumer market be bridged?

In the first place, we must recognize that continuing to build a strong frontier research system is indispensable. It is also necessary to have an internationally competitive economy. Fortunately, this is developing. Unavoidably, this will lead to the incorporation of knowledge content into productive activities. It is reasonable to expect that this will be sourced, at least partly, from our

own research centres. This will be especially so if we manage to foster a strong bond between research institutions and industry players. Their collaboration on a global scale should lead to tangible results. But, to repeat, the key is indirect: a competitive economy and a strong research environment. It is not just a matter of setting up committees and of spending money.

As the former minister of finance for Catalonia, what is your opinion on the role the administration can play to nurture the environment of innovation and accelerate the transformation of research to results?

There are two factors that should be leveraged: funding and organization. As for funding, there is a need for greater public (and private) resources to be allocated to research. This has been a challenge since the economic crisis of 2008. From 2007 to 2015, only two European countries lowered the percentage of GDP being allocated to R&D: Spain and Finland. Fortunately, Catalonia is competitive in the European research ecosystem and has been able to partly compensate, with EU funds, for the decline of Spanish funds. Catalonia compares well with countries like Denmark, France or Austria in terms of EU funds received per inhabitant.

An equally important factor is the organization of the research environment. In Catalonia, we have been particularly sensitive to this factor. Our seven research centres are public entities. They have strong boards which appoint the Director, always a scientist. The Director responds only to the board and receives from it a mandate of excellence. Researchers are hired with labour, not civil service, contracts. In contrast, BIST is a private foundation. This public-private arrangement allows for great flexibility and overall agility.

How ready is Catalonia to accept the new trends in technology such as a big data, digitalization, and industrial internet?

We are very prepared for this so-called fourth industrial revolution. As an example: Barcelona host the main Spanish super-computer (at the Barcelona Supercomputing Center, which, by the way, features in the latest Dan Brown novel). It has a bio and health program. The two BIST centres involved in biotechnology, IRB and CRG, collaborate closely with the centre. The aim is to allow researchers to share resources and knowledge toward the pursuit of new bioinformatic solutions and the advancement of computational biology. Additionally, we also count with the National Genome Analysis Center (CNAG). It is embedded into CRG and is carrying out large-scale DNA

analysis initiative.

What is your vision for the biotech and innovation environment of the region?

Optimistic. Catalonia plays a significant part in both the international entrepreneurial and biotechnology landscapes. We have 12 universities and dozens of research centres. We publish very well and we have received over 200 ERC grants. We have two top business schools in Barcelona, ESADE and IESE. They have been instrumental in driving the entrepreneurial ecosystem of the region. But, of course, there is still room for further growth.

What final message would you like to share on behalf of Catalonia as the president of BIST?

If you are looking for a place where exciting research is all over town and entrepreneurship thrives, come to us. You will not be disappointed. The innovative environment is excellent and talented scientist abound. At BIST we are at your disposal for any help you may need.

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