

# Catalonia needs to improve knowledge transfer to small and medium-sized enterprises

**EULÀLIA FURRIOL**

Economists Joaquim Oliveira Martins, head of the Regional Development Policy Division of the OECD, and Karen Maguire, head of the Regional Innovation Department within the same division, visited Barcelona in June 2010 to present the report *Review of Regional Innovation: Catalonia, Spain* by the Organisation for Economic Co-operation and Development (OECD), in which the Catalan research and innovation system is analysed.

In a joint interview, Joaquim Oliveira Martins and Karen Maguire state that overcoming the current economic crisis in developed countries requires innovation, a concept with a multidisciplinary vision that is not restricted to high technology or investment in research and development.

Their personal experience and career within the OECD as experts providing advice to governments of the organisation's thirty-three member states provides them a simultaneously global and local perspective of the regions of the world.



**How can the current crisis be overcome?**

*Joaquim Oliveira (J.O.):* To overcome the crisis **OECD** countries – basically developed economies to a larger or lesser extent – cannot count on the traditional growth model based on investment in traditional production factors only, which is physical capital (e.g. machinery, buildings and equipment) and labour. On the one hand, although in some countries the working population is likely to continue growing (like in the United States), this will not be the case of others, for instance some countries in Europe and even less Japan. On the other hand, capital investment in growth machinery is limited and the benefit obtained from it tends to diminish.

**Joaquim Oliveira: «To overcome the crisis OECD countries cannot count on the traditional growth model only.»**

**How has growth to be generated?**

*J.O.:* Future growth will increasingly come from productivity growth through innovation. Production factors need to be better used in what economists call *multi-factor productivity* (**MFP**), in which capital and labour production is related with innovation and efficiency increase. Innovation, understood as introduction of new products, processes or production methods, is the key to foster productivity.

**Joaquim Oliveira: «Future growth will increasingly come from productivity growth through innovation.»**

**Here we look with admiration at the innovating spirit of the United States.**

*J.O.:* In fact, the forms of innovation have evolved very rapidly. From a world in which innovation was basically related with patent registration, individual appropriation of income and individual production of knowledge, we are moving to an environment of networks in which patents are increasingly made on a cooperative basis. In a recent study published by the OECD, a considerable increase of copatents is stated, often as a result of cooperation between different regions.

There are also other forms of innovation that are not articulated through markets nor income appropriation but almost as a common good. This is the case of Wikipedia, a knowledge product created in a totally decentralised way by a network of people providing their work and knowledge for free. This sort of innovation is growing and developing spectacularly as do, especially in this case, interaction and the power given to people. These different ways of being entrepreneurial also need to be taken into account.

**When talking of innovation, what are we talking about?**

*J.O.:* Innovation is not just high technology. It is currently understood as a wider concept encompassing many activities besides research and development (R&D), such as organisational change, training, marketing and design. In fact, a considerable part of innovation that is very important for our society is related with organisation, people, the way we organise our society.

**Joaquim Oliveira: «Innovation is currently understood as a wide concept encompassing many activities besides research and development.»**

**What is Catalonia's position in terms of innovation?**

*Karen Maguire (K.M.):* Although Catalonia is well positioned compared to Spain, there is quite a lot to do to catch up with other OECD regions. This is the conclusion from comparison with other European countries and regions based on statistics commonly associated with innovation: investment in research and development, patent data, education of the working population, rate of technology in exports...

**Which has to be Catalonia's priority to reach the level of other European regions?**

*K.M.:* Knowledge transfer and its exploitation system is the area Catalonia needs to work in. There is a certain number of multinational companies in the region as well as private investment, but the business fabric shows that there are many small and medium-sized enterprises, which are precisely

those having most difficulties in having access to innovation systems. There are some with a technological base, others perhaps not so much but they have a high share in the economy. So knowledge transfer from research to companies and the ability of firms to create innovation and implement it is an area on which Catalonia should concentrate more efforts in the future.

### What is being done in this field?

*K.M.:* In the current plan of the Department of Innovation, Universities and Enterprise of the Government of Catalonia (2010-2013 **Research and Innovation Plan**) we observe that measures have been provided for to correct these shortcomings and that there are agencies like ACCIÓ with the specific purpose of giving support to these companies as well as other efforts to help build these bridges between both worlds: research and the industrial fabric in the region.

### What would you highlight most of this new plan?

*K.M.:* Another thing that seems interesting to me in this new plan is the effort to have a more territorial approach of Catalonia. Let's not forget that Catalonia has a size comparable with some small EU countries in terms of area, population and economy. That is, it is a big area with many different specificities. Well, to be effective in knowledge exploitation and transfer, it is necessary that many of these innovation systems located in different places work efficiently so small companies close to universities and other innovation centres may benefit from growth generated there.

**Karen Maguire: «Although Catalonia is well positioned compared to Spain, there is quite a lot to do to catch up with other OECD regions.»**

### Coming back to innovation, in how far is it statistically quantifiable?

*J.O.:* The OECD just published one first report on innovation strategy in the OECD and within this study, which is the result of a dialogue between all OECD member countries to set common criteria, a publication has been made on how to measure innovation: *Measuring Innovation: A New Perspec-*



▲ Knowledge transfer from research to companies is a priority, according to Karen Maguire.

*tive.* Many gaps occurring in the innovation measurement process are identified in this book. This is the case of open and shared knowledge, innovation in open networks, a sort of good in public knowledge that is extremely difficult to measure.

*K.M.:* In this respect, the OECD, together with other international institutions like the European Union, fostered definitions that are being used in market studies. For instance, companies are directly asked: Did you start or participate in an innovation process recently? Have you included or involved research and development (R&D)? When talking of innovation it can be something new either to a company or to the market or the world. And in fact, it is stated that there is a considerable degree of innovation in companies without research and development.

**Karen Maguire: «It is stated that there is a considerable degree of innovation in companies without research and development.»**

*J.O.:* Let's take one of the main threats and challenges for our society, which is the health and elderly care system, two items that will become very important for public finance. We need to find ways of generating these services that are currently covered by families but in the future will probably need to be generated in a different way, and if the public sector needs to do this it will be very difficult to fund. So we need to find new ways of organising the society in order to provide this service. This is also innovation, and it's very important.

*K.M.:* In this matter, long-term elderly care services may require some very developed hi-tech devices, like universal health care services require a combination of technological and non-technological innovation.

#### What other novelty provide new innovation systems?

*J.O.:* This set of new ways of innovating we just mentioned also creates interesting links between economic efficiency and rather social issues. If you are in a network and want to cooperate to produce knowledge, you need a certain balance in terms of

education, access to public services, etc. You need to connect, and a good connection level does not fit well into major social gaps. It is interesting to state how in the new forms of innovation there is a much stronger relation between efficiency – in its strictest economic conception – and issues like social and economic equality. In this world of network knowledge production, efficiency and equality are much more integrated.

#### In how far shall education from early years contribute to and participate in a model of growth based on innovation?

*K.M.:* There is increasing acknowledgement that a big number of skills needed in an economy of innovation require not only science or maths but also involve a learning approach from an interdisciplinary perspective, in which wish for learning, relating science with management, helping people adapt to the changing world of innovation, etc. is fostered. It involves providing students with learning skills and allowing them to implement the new skills they acquire during their life. It is crucial to highlight the need for skills like critical thinking, creativity, communication, teamwork, besides command of certain specific and linguistic skills.



▲ It is very important to innovate in the way basic services like health are provided.

#### Joaquim Oliveira: «In the world of network knowledge production, efficiency and equality are much more integrated.»

#### And what lessons do we still need to learn?

*K.M.:* Education of the population is essential for innovation. It is about thinking not only of education quality but also the sort of education. The OECD makes the Pisa Report that helps measure the results in different areas of education, like reading, maths, etc., at which Catalonia is not among the best in Spain, which is an alarm signal as it is the future working population.

#### What impact does migration have in this field?

*K.M.:* One of the interesting points of the study done on Catalonia is related with massive immigration. In Catalonia, the rate of uneducated or poorly educated working population of foreign ori-

gin is higher than the Spanish average, whereas the rate of those highly educated is only slightly above that.

**Karen Maguire: «Education of the population is essential for innovation. It is about thinking not only of education quality but also the sort of education.»**

#### How should this issue be tackled?

*K.M.:* The population grew by over a million people in the last decade, so education and training not only needs to be approached in terms of policies for the younger population but there also needs to be some thought about what to do with the current working population so it can also contribute to the economy of innovation. This requires different initiatives focused on vocational issues, training, life-long learning, etc.

#### In the current situation of crisis, how do you think governments will react regarding public investment in innovation?

*J.O.:* We are probably experiencing one of the worst and most difficult tax adjustments in modern history. In the next years and even decades, each euro the public sector spends will be scrutinised very carefully to make sure the maximum yield is taken from it. In a certain way, it will be doing more with less, and the only possible way of maximising the yield of each euro invested will be maximising its completion, that is, the euro invested in a road or a school is completed with other investment allowing to take the expected yield from it. To do so, investment of this euro needs to be done by regional authorities, not central or sectorial ones, as the different investments from different sectors need to be coordinated.

**Joaquim Oliveira: «Investment needs to be done by regional authorities, not central or sectorial ones, as the different investments from different sectors need to be coordinated.»**



#### Joaquim Oliveira Martins

Head of the Regional Development Policy Division of the OECD. During his professional career at this international organisation he led the Economic Structural Statistics Division as well as

studies on education, population ageing and growth as well as health systems, among others. Born in Portugal, he obtained a PhD in Economics from the University Paris-I, Panthéon-Sorbonne.

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#### Karen Maguire

She is the head of the Regional Innovation Department of the Regional Development Policy Division of the OECD. Her current work focuses on regional innovation systems and clusters. Born in the United States,

she obtained a degree in Economics and Sociology from the University of Chicago and in Public Policies from the Kennedy School of Government at Harvard University. She authored the report Review of Regional Innovation: Catalonia, Spain.

[http://www.oecd.org/home/0,2987,en\\_2649\\_201185\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/home/0,2987,en_2649_201185_1_1_1_1_1,00.html)

## Balance between regions

#### What action should be taken to foster balance between regions?

*J.O.:* It was formerly considered that to solve the growth and potential gap of the different regions – which in a way come from normal functioning of the market and the economy – these gaps had to be adjusted by means of transfers. But this way of understanding the economy of regions cannot be maintained as this transfer system is not sustain-



▲ According to Mr. Oliveira, green with growth and growth with green is a priority on the OECD agenda.

able over time. So the way of understanding development and regional policies now is rather based on competitiveness and growth potential, and this approach is valid at both country and region level.

#### What role does innovation play?

*J.O.:* In every region, the sources of productivity are those that will determine its potential to a certain point, based on capital, human resources, working population, the degree of connectivity, proximity... Factors are multidimensional and manifold, but the idea is to build the growth potential of regions based on these sources of competitiveness. And innovation is of course one of the main sources of competitiveness and growth potential.

## Innovation and growth

#### To what extent do innovation and growth need to be related with sustainability?

*J.O.:* Due to the economic crisis and the global warming threat, at the OECD we are challenging

our growth and development model. The discussion is leading us towards conceiving and supporting a new development model somehow including to a larger degree three cornerstones of societal progress: equality, efficiency and sustainability. The increasing conviction is that we need all three.

**Joaquim Oliveira: «A new development model includes to a larger degree three cornerstones of societal progress: equality, efficiency and sustainability.»**

#### How relevant is this inside the OECD?

*J.O.:* In fact, it is a priority on the OECD agenda: *green with growth and growth with green*, as we say. We know that if we have growth causing much damage on the environment our model is not sustainable, and we also know, especially due to the crisis, that we are focusing a lot on reducing emissions, which doesn't take us to create neither growth nor jobs, and this cannot work either. So we need growth and sustainability at the same time, and this is a big challenge.

#### What countries or regions would it be interesting to observe in this respect, for one reason or another?

*J.O.:* Some OECD countries are adopting this new model very actively. For instance, Korea has made sustainable growth its national priority and approaches the topic not only as a way towards a more sustainable society with a better quality of life but also as a way of generating innovation, goods and services that shall also create growth. In fact, Korea is one of the OECD countries most committed to this new sustainable growth model.

## Innovation in Catalonia

#### Which is Catalonia's record in investment in innovation?

*K.M.:* What we observe in Catalonia in the report *Review of Regional Innovation: Catalonia, Spain* is

impressive progress in recent years in terms of investment in research and development. Total investment has multiplied by four since 1996, that's a lot. Roughly two thirds come directly from the private industry, and this ratio has been maintained in the last years, which shows that as public investment grew, so did private. However, despite this rapid growth, Catalonia is still below OECD average.

**Karen Maguire: «Catalonia has a long history of political support to innovation systems focusing on the priority given to research.»**

**And is Catalonia above OECD average in any field?**

*K.M.:* One topic in which Catalonia stands out from within other European regions is the rate of working population with higher education. And it is obvious that human capital is one of the main drivers of innovation systems.

**Karen Maguire: «One topic in which Catalonia stands out from within other European regions is the rate of working population with higher education.»**

**How do you assess the way gone so far?**

*K.M.:* Catalonia has a long history of political support to innovation systems, in which different research plans have been drafted focusing on the priority given to research in what we call the knowledge side of the innovation system. In this respect, support has been given to different research institutions both inside and outside universities and they proved to be effective. This is shown for instance in the ability to attract EU funds as initiatives to provide support for research and development, like the programme of the Catalan Institution of Research and Advanced Studies (ICREA) to attract talent or the creation of research centre infrastructures, have contributed towards strengthening the knowledge innovation system.

## Clusters

**What are clusters and how can they contribute to innovation?**

*K.M.:* Cluster is a concept that has been existing for many years, which the English economist Alfred Marshall talked of in the early 20th century and became more recently especially popular thanks to the economist Michael E. Porter, who in fact had an influence on Catalan policies in the 1990s.

The cluster concept refers to a group of companies interacting and benefiting from sharing a labour market and links created among themselves, although there are different definitions among academics and stakeholders.

What is important in relation with this topic is that as we progressively understand innovation processes we notice that it is not only interaction between companies and service providers that is working for these firms but that you need interaction between companies, universities and also intermediary research centres helping to bridge the gaps.

**And what about risks?**

*K.M.:* There are certain risks. If the cluster policy promoted by public bodies strengthens a specific industry it can lead to the creation of lobbies trying to protect an industry that in fact needs to evolve to be able to follow international trends.

**What is a good cluster?**

*K.M.:* A good cluster policy needs to try and make sure that not only winners are selected but also companies with room for improvement, although unnecessary protection of industries should be avoided.

You need to admit that the innovation process is interdisciplinary, it requires different sorts of companies to prevent a too sectorial focus not allowing to actually seize trends in the innovation process. It needs to be multisectorial and multidisciplinary, combining for instance scientific activity with social sciences.

**Any case of a cluster you consider interesting?**

*K.M.:* There is one centre in Sweden that in fact does not correspond to the idea we usually have of a cluster. It's a kindergarten around which there are

toy companies, health professionals... This is the future trend of clusters.

**So the more traditional concept is not applicable anymore?**

*K.M.:* We need to consider that there are different development stages and although in some cases

you can be very sophisticated, in others the goal can simply be to facilitate trade of small and medium-sized enterprises with local production systems. These more traditional clusters, by which different companies are located geographically close to offer certain services, still provide a value serving a specific need.



**Vídeo Part 1**



**Vídeo Part 3**



**Vídeo Part 2**



**Vídeo Part 4**

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**EULÀLIA FURRIOL**

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An independent journalist, she has been working for *La Vanguardia* newspaper for over twenty years and published in many media, among which *The Guardian*. She has worked at the press office of several international events such as the 1992 Olympic Games and different international meetings organised by the Department of Culture of the Government of Catalonia. She also collaborates with corporate magazines.





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