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**The Andalusian Technology Network. RETA's evolution,
transformation, learning process and adaptation to the needs of the
regional innovation system.**

Roundtable 1

Cooperation among Innovation Support Structures

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Executive summary

In the region of Andalusia, Spain, cooperation and networking have proven to be efficient tools to boost and increase the role of Science and Technology Parks (STPs) in the innovation framework. Despite recent deep regional government cuts, the Andalusian Technology Network -RETA- has achieved important results in fostering the recognition of the role of STPs in the regional economy. An analysis of the needs of the regional innovation stakeholders brings about actions to be taken.

The regional framework

The region of Andalusia, Spain, has undergone remarkable growth during the last decade. The catch-up process with the rest of Spain has been particularly significant since the mid 1990s. Despite this positive record, though, convergence has not yet been attained and Andalusia has never managed to reach 80% of Spain's GDP per capita. The recent economic crisis has worsened this situation, striking Andalusia harder than the rest of Spain, which has been in itself severely hit by recession.

The recent economic history of the region has two different stages. The first wave of modernization -until late 1990s- was largely based on investments in infrastructure. Highways, roads, high speed trains and harbors were built in order to place the region in a position where it could compete with other similar regions without the burden of outdated infrastructures. The second wave builds on the main principles set out in the 2000 Lisbon Agenda -prioritization of the knowledge-based economy-, emphasizing the role of public and private investments in R&D. On the belief that Science and Technology Parks and innovation-oriented entities strengthen a region's economy, a wide innovation system was put in place with the cooperative effort of the public administration, private companies and the academic world.

The Andalusian economy is dominated by SMEs with over 99% of firms having less than 500 employees. This places the region well below both European Union and Spanish averages. Of even greater significance is the proportion of micro-firms (self-employed or employing less than 10 people), accounting for over 95% of enterprises in the region.

Nowadays, there are many tendencies that believe a robust economy needs tractor companies with medium and small sized companies working in an organized manner, mixing together in a stew of innovation to create dynamic and thriving ecosystems around an industry or a specific sector. Andalusia has the ingredients for this recipe but still needs to blend it all together with cooperation. Until recently, all these small sized firms have operated independently, disregarding the benefits of a proper organization, which has led them to be unprotected in the wake of an endearing recession like the one that is currently at the core of our economy.

How to face the difficult times

RETA has been operating from the belief that innovation is a basic practice for the economic development of Andalusia. It is of paramount importance to support the creation of new jobs, the weakest spot of the Andalusian economy, which faces a breathtaking 30% unemployment rate, especially hard on ages below 25, with a stunning 45%.

Science and Technology Parks are the engines of creation of innovative companies. There are 11 STPs in Andalusia, present in all 8 provinces. They are host to 1.155 companies, employing 34.027 workers. An investment in R&D and innovation in Andalusian STPs reaches a total of 313 million EUR, accounting for 20% of the total in the region.

Companies located in Andalusian STPs are surviving the current economy crisis much better than companies situated outside of them. Preliminary estimates show that the number of jobs and the number of companies in Andalusian STPs not only did not shrink, but grew in spite of the difficult circumstances. This is clearly a sign of the evolution of the STPs in Andalusia, where only two of the eleven of them are mature enough. In the recent years, the efforts made to create and develop the STPs are paying off and they are incorporating new companies in a constant manner.

Andalusia also has 23 Technology Centers. With their sector orientation, these Centers are the combination of the effort of the public administration and the leading private companies in those sectors, together with the Technology Transfer offices of Andalusian Universities, in order to spur the Research and Development around the activity of those companies. Among the most important sectors represented in the Technology Centers are Aerospace, IT, Plastic, Marble Stone, Olive Oil, and Agribusiness.

Within this framework, a number of programmes and strategies have been deployed by the regional government to support innovative firms. STPs have been one of the main instruments for the promotion of business modernization, the underlying rationale being that clustering of technology-

intensive firms enhances their growth and expansion. Those firms have benefited from the excellent facilities and infrastructure available in the regional STPs.

Nowadays, at the core of the regional innovation policy are 11 STPs, alongside 22 technology centers, which have a more sector-oriented focus, and 3 European Business Innovation Centers which act as incubators.

It is important to point out the amount of private R&D+i carried out in Andalusian Science and Technology Parks: Around 40% of all private R&D+i in Andalusia is made in Science and Technology Parks. According to a study by RETA, Science and Technology Parks already account for 3,13% of Andalusia's GDP, adding up direct and indirect jobs and impact. According to the latest Survey from Spain's National Institute of Statistics, (INE), there are more than 4.000 innovative companies in Andalusia. RETA works with them through its members. The strong bet for R&D+i in Andalusia is a constant one. According to the latest INE survey on R&D, private spending in R&D grew by 23% in 2010 alone.

RETA- The Andalusian Technology Network

RETA was established in 2005, with a two-fold role. Firstly, to coordinate the whole of actors of the regional innovation system and, secondly, to introduce all regional firms to innovation and R&D activities.

The first task has resulted in the creation of RETA as a non-profit association currently with 53 affiliated members, among them, the 11 STPs, 22 Technology Centers and 3 Business Innovation Centers which comprise the regional innovation framework. This makes RETA a peculiar association. In contrast with most regional models, RETA is not just an association of STPs. It associates also other actors, mainly the technology centers which provide innovation services to local companies. All of them sit together in RETA to decide a common strategy. This has allowed RETA to maintain close linkages with the main innovation actors, putting the focus on STPs.

The second task has been primarily fulfilled by a network of "innovation agents" who were delocalized all over the region. Thanks to this, over the period 2005-10, RETA assessed in different depths the innovative need of approximately 80.000 regional firms. This network of "innovation agents" was financed through regional programmes. It enabled the regional government to extend the scope and outreach of its innovation policies. These programmes were established with the main goal of democratizing innovation policies, that is, making them widespread available to as many companies as possible, regardless of their activity, location or innovative orientation. This network run effectively until mid-2010 when, under severe financial cuts, the regional government decided to end these programmes. The economic crisis affected RETA significantly. A clear indication of this is the annual budget managed by the association in executing those regional programmes, which went from around 14 million EUR in 2008, to some 500.000 EUR in 2011.

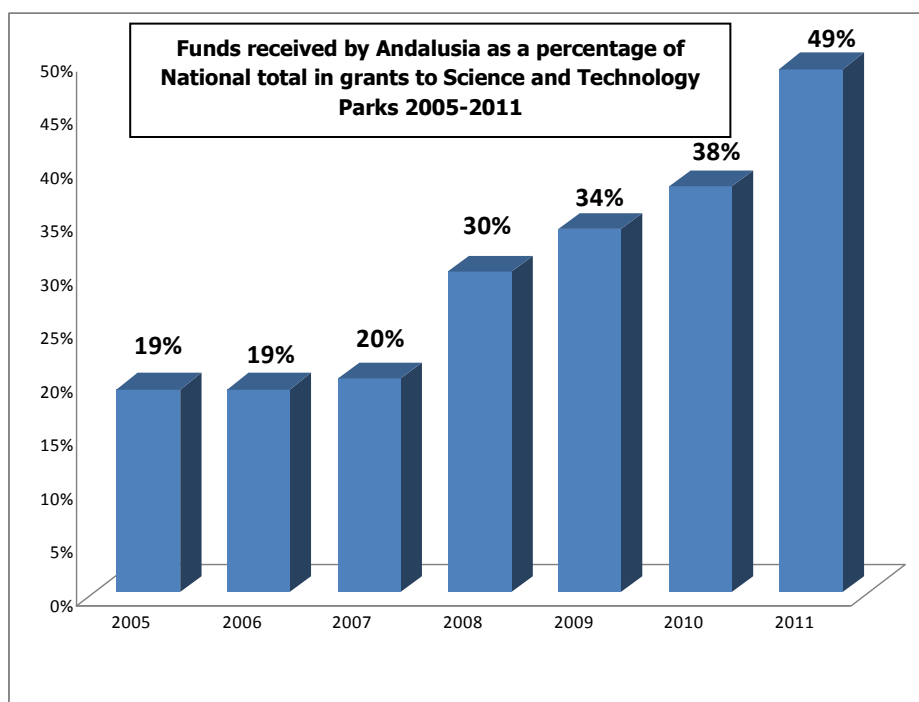


Fig. 1 - Evolution of Funds received by Andalusia as a percentage of National total in grants to Science and Technology Parks 2005-2011

Amidst this situation, RETA was naturally forced to change its strategy. Affected by the government cuts, RETA needed to rationalize its mission and reorient the scope of its work. Considering the close linkages of RETA with the regional innovation actors, the decision of keeping the focus on innovative firms through STPs and Technology Centers appeared to be the right choice. Cooperation made possible this important change of strategy.

RETA's main achievements

As mentioned, RETA's strategy until mid-2010 was based on a network of innovation agents which enabled the regional government to extend the scope of innovation policies. This can be regarded as a success in itself.

But probably the main achievement to this point is the establishment of a network which coordinates and connects the policy support to innovative firms provided by STPs and technology centers, thus ensuring that such support is in itself coherent. Thanks to the network's strong links, RETA is now able to cater for the innovative potential of the region. In a region with a weak innovation framework and few innovative companies, a network where STPs and Technology Centres sit together and take decisions jointly is a competitive advantage.

In RETA's model STPs are the "hub" of the regional innovation system. It makes STPs the core of the innovation system but working in cooperation with the rest of the innovation actors through RETA. This has significantly helped to create close connections and further cooperation between STPs and other actors.

This model, designed by RETA, was set into law in 2009, classifying the different innovation agents and describing their functions in the regional innovation system. This regulation of the model of RETA has extraordinarily eased the clarification of the framework for innovation and the role that STPs must play in it. It has been undoubtedly a step welcome by all stakeholders.

Another one of RETA's main successes has been the coordination of regional STPs' action at the national level, helping to have a coordinated regional strategy. As part of this effort, RETA has attracted from 2005 to 2011 around Euro 600 million of national government's funds for R&D

investments by firms hosted in the regional STPs, both public and private, which represents 30% of the national amount. When RETA was established, this figure was merely 4% of the total national amount. Thanks to RETA's support, regional STPs have been able to pull in much financial support and show significant dynamism. Andalusian Science and Technology Parks have received 105,6 million euro during 2011 alone.

Andalusian Science and Technology Parks account for nearly 21% of all companies in Science and Technology Parks nationwide. Turnover of Andalusian Science and Technology Parks represents 19% of turnover of all national Science and Technology Parks. Employment in Science and Technology Parks represents 23% of total employment in Spain's Science and Technology Parks. R&D jobs in Andalusian Science and Technology Parks adds up to nearly 19% of R&D jobs in Science and Technology Parks nationwide.

New Strategy and the seven keystones for innovation in this situation

Within its new strategy, RETA has rationalized and streamlined its activities, one of the most important being lobbying for STPs. Thanks to its previous work, RETA now represents the innovation actors and is considered a key speaker in the regional innovation strategy. This has resulted, for example, in the legal recognition of investments in STPs as "strategic regional investment". Thus, in moments when the lack of finance from the banking system is raising serious difficulties for business investments, RETA's work has focused in lobbying for specific measures to help investments and locations in STPs, such as to make banks financing for investments in STPs enjoy special regional tax reductions.

In the wake of an election period, RETA has clearly defined a collection of key points that, in its opinion, strongly need to be faced in order to turn the difficult present economic situation around and create an economy that is well protected against a new economic downturn. These arguments are available for discussion and discussed in different forums, given the positive results obtained by the economic activity carried out in the innovative environment created by RETA. Innovative culture can only be incremented and thus, companies will be stronger and more agile in the times to come by applying these principles:

First, education must be oriented to innovation and entrepreneurship. This is a very important point in order to make society evolve and perform a generational change. An orientation to economic activity must start in the schools and children need to be taught to deal with real life situations with an entrepreneurial viewpoint that enables them to face the transition from academia to enterprise in a natural manner. Nowadays, where 5% of students in Andalusia go into business upon finishing their college grades, 65% of them do so in the United States. This is a situation that must clearly be reversed in order to create an innovative economy.

Second, universities must be much more entrepreneurship oriented. Andalusia has 10 public universities, where a huge effort is made to prepare students with a high quality education. Andalusian Engineers work for the best companies in the world, due to their talent, of course, but also to a premium technical education in which important amounts of public funds are invested year after year. Andalusia needs to have an economic structure that allows the very-well-prepared students that leave our classrooms every year to absorb that talent and preparation for its own benefit, and also allow those who leave to work for the best to return to their home land and be able to work in good conditions and apply the skills learned worldwide. An entrepreneurial orientation that is built right into the college classrooms will ease the way for our talented individuals to be able to apply their skills and knowledge into innovative economic activity within the region, thus creating an economic structure that is much more resistant to the threat of another crisis like the one that is under way.

Third, the support to Science and Technology Parks from the public administration is of the utmost importance. These parks are the engines of creation of innovative companies and have proven to resist the effects of negative growth and tough economic times, not only by not losing jobs and companies, but by experimenting a slight growth in them, whereas the general economic figures show strong decline in both figures. Also Technology Centers play an essential role in dynamizing strategic sectors to the Andalusian economy, by setting an order in the innovative efforts and

creating benefits for all companies in the scope of their effort. The aforementioned role of innovation hub that is played by the Andalusian STPs in their province, as leader of the innovative activities, is also a practice that has shown significantly good results in their environments, bringing together innovative companies, research players and public administration into a combined effort to create an innovative inertia. RETA plays a key role there, by setting an order in the system and maximizing the result of the effort placed into the agents.

Fourth, an orientation to global markets as a need in order to survive and grow. The idea of internationalization is one that has been embraced only by the most audacious and the fearless. Only in the most recent times is the idea of internationalization of local businesses one that is starting to not sound wild to the entrepreneur in general. It is already known to most that competition has gone global and that there is no reason why most products and services cannot be sold overseas. The strong competence in global markets brings together the need for internationalization together with the need for innovation, as a basic vector in a new model of economic development for the region. New products, new services and new markets, combined with the need for new organizational practices and new forms of cooperation between companies is what will make the economic activity thrive. This is all very much at hand in the scope of Andalusian STPs, where much of the effort that would need to be made in order to find information, people, products, services, ideas and cooperation opportunities is spared because the activity of STPs in Andalusia already comprise that for the companies. Therefore, entrepreneurs can dedicate much less resources to carry out those activities and focus on their innovations and progress, since much of what they need is already there, and networking efforts in RETA help make those combinations possible by streamlining the communication between the STPs and the companies located within them.

Fifth, bureaucracy. Nowadays, companies that want to carry out Research and Development and Innovation activities face daunting paperwork, formalities and endless idle periods between the different stages of the processes. This drives many companies away from any or many efforts to do R&D and to innovate due to the difficulties present at the time of relying on the public administrations to lower their barriers to these activities. A new paradigm where procedures are much more simple, clear, better known and less unexpected is very much needed.

Sixth, effectively receiving the amounts pending by the public administrations is another dire need of the innovative companies. Many projects have been carried out in the frame of public administration programs that allocate funds payable upon completion of the activities described in them. Due to the current liquidity problems of public administrations in Andalusia, many innovative companies are struggling financially because they relied upon the receiving of such funds in order to approach new projects, that are no longer at hand because the system is no longer working for them.

Seventh, financial credit must reach innovative companies urgently. Innovative companies have a special approach to projects, where a certain risk must be taken and a financial effort must be made in order to continue with the innovation cycle. These companies work closely with financial entities to plan, estimate, invest and fund their initiatives, defining risks and timing returns and payback periods. Cutting off access to regular funding for innovative activities is very harmful to innovative economic activities in the scope of STPs and innovation agents, since it disables innovative companies to perform their activities, thus extending its negative impact on to the rest of the system that cooperates in the entire cycle of innovation.

Conclusion

RETA's future will partly depend on the network's ability to learn from its previous work. The need to streamline its role due to government cuts in funds for innovation has been the key to take this new direction. In RETA's experience, networking has proven to be essential to make STPs key players in the regional innovation framework. Probably, none of these results could have been achieved had the regional STPs worked in an isolated manner. The decision to cooperate within a network -RETA- has been a wise one.