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Master Thesis

The role of sub-regional governments[1] in RIS3[2] in Catalonia

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[1] Municipalities, counties and provinces
[2] Research and Innovation Strategy for Smart Specialization (European strategy for smart growth 2014-2020)

1. Summary

The research wants to contrasts the key elements for successful development of local RIS3 projects leaded by local governments in Catalonia (Spain). It is analyzed through three case studies based on recent proposals responding to a call for projects to be funded by ERDF. Four big issues appear as conclusions; all related to the need of better understanding and putting into practice the meaning of SPECIALIZATION, TERRITORIALIZATION, COLLABORATION and INNOVATION. Thus, an emerging common new integrative model is drawn to explain the brand new local economic development policies, with the aim to assist the multilevel public representatives in the difficult role of boosting innovation ecosystems.

Acknowledgments

The author is grateful to the team he has worked with in the RIS3 field for the past 4 years. This research also has been possible thanks to Milena Verrié, Laura Capel, Alain Jordà, Ricard Esparza, Olga López and Ariadna Hinojosa, the Prysma consulting team in Barcelona, people who have shared with passion the challenge to design brand new territorial specialization and competitiveness projects in Catalonia. The author is also grateful with Xavier Ferràs, the inspiring tutor and mentor of this research initiative and with the three cases' representatives who have shared the information and the discussion generously.

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3. Introduction (justification of the issue selected and content explanation)

A general description of the learning process of sub-regional (or local) governments in Catalonia (Spain) in their way to implement RIS3 is needed to facilitate the decision of keep investing in these new kind of policies in this territorial scale by the public administration with competences on innovation policies (the region of Catalonia in this case).

RIS3 is an ex-ante conditionality to receive ERDF funds for all UE regions, especially in actions related to the development of research and development (objective 1 in Europe2020 strategy)[3]. The concrete vision of RIS3 in Catalonia, RIS3CAT[4], includes, within others, an inedited tool to launch it through the territory, through local RIS3 projects. They are called PECT[5] (Territorial Plans for Specialization and Competitiveness) and the call invites the sub-regional governments to prepare their own RIS3 strategy and action plan in order to receive the European structural funds.

In this learning process of preparation of a new generation of local policies, the author has assisted as an observer to some of these local governments through consulting professional services. It has been a co-generation of a brand new model of public-private collaboration to foster innovation, specialization and competitiveness in each of these territories. From summer of 2013 to summer of 2016 the different actors of what is called quadruple helix have jointly discussed the multiple aspects of their specialization process through what RIS3 call entrepreneurial discovery process (EDP).

The hypothesis of this research is that there is a common emerging model for this PECT (sub-regional RIS3 plans) designed by their local governments in conversation with social researchers in a bottom-up approach, as there has

[3] http://www.gobex.es/filescms/ddgg006/uploaded_files/DDGG_POLITICA/Actualidad_Economica/PDF_Presentacion_politica_cohesion.pdf
[4] http://catalunya2020.gencat.cat/ca/estrategies/ris3cat/
[5] http://municat.gencat.cat/upload/normativa/ordre_gah_95_2016.pdf

been no clear model established from the Catalan government in a top-down basis. Though the model has been developed in a participatory aim, inspired by action research methodology, the hypothesis will be analyzed and answered through case study.

As collateral result of this research work, there are some expected points:

- The critical involvement of cities and other local territories in the core group of actors of the RIS in Europe, at least in Catalonia. Innovation actions run in concrete urban sites (Cohen, B., 2016), and the responsible and closer administration for the creation and promotion of these creative and hybrid sites is the city council. This would be certainly a liberation process where local governments will improve their capacity and influence in the decision making of their issues.

- The indispensable step forward in the construction of the European Union, due to the common RIS3 strategy for the same UE funds. The final goal of this european research and innovation strategy is the strengthening of its economic zone. And, therefore, the EU will become a more complex and deep network of specialized regions and cities, ones complementary with the others and more prepared to compete with the other global zones.

- The need for a new RIS3 policy model for the subregional level, inexistent nowadays, in order to accelerate the transformation that is explained in the research. Perhaps the well-known “living lab” concept would be a key instrument to understand the practical consequences of launching a RIS3 strategy in a concrete county, city and street. Also the learning region and the smart city concepts, broadly studied in the recent years, would be expected travel partners of this proposed research line.

In the latter doctoral thesis, the author has the intention to use action research methodology to study the development of these projects (PECT). To prepare this approach, it will be needed to take seminars and review the adequate literature about its techniques and scientific requisites. The object of study could be extended to other regions of the European Union, in order to help determining the next regional innovation policies at local level.

4. State of the art of the selected thesis issue and related to the improvement proposal

Research and Innovation Strategies RIS, RIS3 and particularly its application in Catalunya, RIS3CAT and PECT come to develop a growing regional model where the local level of government (municipalities, counties and provinces) is a key driver for successful and robust innovation strategies, both private and public. Urban innovation ecosystems appear as the new place to be for companies and other diverse innovation actors. Subregional or local governments are pointed to be new actors in the new version of RIS in Europe.

Local Economic Development (LED) is in a conceptual restructuring moment in Catalonia, after 30 years of local development policies based on facilitate and foster the local labour market and after some years of frustrating function of containing the unemployment queues, the local policy makers are conscious of the need to adapt to the new times in a more global and accelerated world, definitely not more local and not more stable. Local government reaction is turning to brand new policies based on innovation and specialization.

Which is the reason? It is natural decision, caused by the economic and social conjuncture or by the “push” programs determined by Europe 2020 and RIS3CAT strategies.

Are RIS3 and LED two conceptual frameworks that get closer? Is this phenomenon real and relevant for the future of policies in Catalonia and Europe?

If it is so, is this change creating a new emerging and common model for fostering local & regional growth?

This thesis try to show that Catalonia, as a first European pilot region to analyse, is living a real and relevant change in these two areas and that a new common emerging model of local development policy based on innovation and specialization is being designed in its cities, counties and provinces.

5. Theoretical foundation

The research line proposed in this document appears as a very practical need of its author. After some years of consulting projects oriented to develop the European Union recently launched RIS3 (Research and Innovation Strategy for Smart Specialization), the author believe that a general description of the learning process of sub-regional governments in Catalonia, in their way to apply it, is needed to facilitate the decision of keep investing in these new kind of policies in the local scale by the public administration with competences on innovation policies (the region of Catalonia in this case). In future research works, the object of study could be extended to the other regions of the European Union, in order to help determining the next regional innovation policies applied by the local governments.

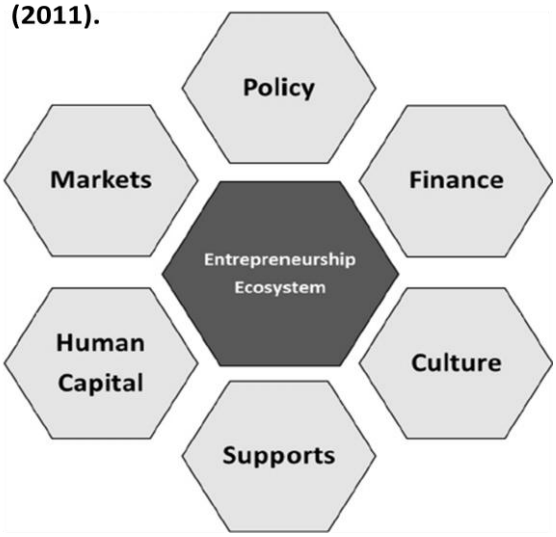
The theoretical framework of this research is based on the hybridisation of 3 main topics coming from the research fields of innovation, economic specialization and regional & urban strategies.

1. RESEARCH & INNOVATION STRATEGIES (RIS)
2. SPECIALIZATION STRATEGY (S3)
3. LOCAL ECONOMIC DEVELOPMENT (DEL in Spanish/catalan)

RESEARCH & INNOVATION STRATEGIES (RIS): this is a broad research line, prior to the specialization strategy concept, which comes from a more engineering discipline. In one hand, authors as Cooke, P. and Lundwall, B-A. defend the need of having an innovation system and strategy in the national o

regional level, due to market failure. In the other hand, the school that studies how the high-tech sectors innovate in their processes, business models and relations with their environment is clearly a positive inside for this research framework. Chesbrough, R., with the open innovation and open services platforms theories and Etzkowitz, H., with the triple helix idea, and Carayannis, E.G. & Campbel, D.H., with the quadruple helix one, are key examples of the value given from this knowledge strand. Finally, very much in line with the present research, Isenberg D., Edquist, C. and Ferràs, X. have released some researches about the innovation ecosystems, their structure and the impact in the territories.

Isenberg's six domains of an entrepreneurship ecosystem. Isenberg (2011).



SPECIALIZATION STRATEGY (S3): this is an economic research line that has grown considerably from year 2006 in Europe, as the European Commission determined the regional innovation strategy for the period 2014-2020 to be based on smart specialization. In the research will be taken into account the European, Spanish and Catalan framework of RIS3 (RIS3 Guide, RIS3CAT document, FEDER Operational Program in Catalonia, etc.) and the guides and published articles and news related to the regional implementation in Catalonia. Special attention will be given to the information and documents in the

European S3Platform (available: http://s3platform.jrc.ec.europa.eu/home). At scientific level, the basic research studies com from Foray, D. and Ortega-Argilés, R., who justify why the specialization process in an economy like the European Union could be the best way to improve competitiveness and sustainable growth. Later, authors like Healey, A. and Esparza, R. have developed some aspects of this emerging global initiative.

A relevant aspect of this European strategy is its formal methodology of collaboration and participation of agents in the innovation ecosystem, called Entrepreneurial discovery Process (EDP) and defined as

> "*an inclusive and interactive bottom-up process in which participants from different environments (policy, business, academia, etc) are discovering and producing information about potential new activities, identifying potential opportunities that emerge through this interaction, while policymakers assess outcomes and ways to facilitate the realisation of this potential. The EDP pursues the integration of entrepreneurial knowledge fragmented and distributed over many sites and organisations, companies, universities, clients and users, specialised suppliers (some of these entities being located outside of the region) through the building of connections and partnerships. The EDP consists of the exploration and opening up of a new domain of opportunities (technological and market), potentially rich in numerous innovations that emerge as feasible and attractive*"[6].

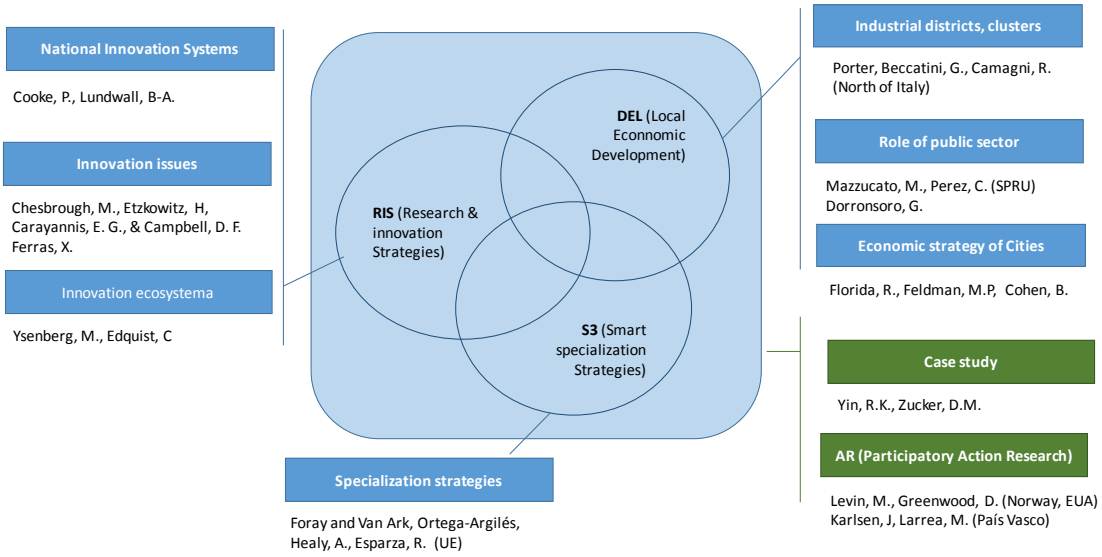
LOCAL ECONOMIC DEVELOPMENT (LED; DEL in Spanish/catalan): this is a more classic research line, from the public economy discipline, that theorizes about the role of local governments on boosting their local economy and, especially, to overcome their problem of unemployment. This line basically tells that public sector needs to be a key proactive agent, due to the market failures of the innovation business system (Mazzucatto, M. and Dorronsoro, G.), despite they refer specially in the national and regional level. Moreover, the urban growing leadership in the key issues of social and economic nature is a relevant

[6] http://s3platform.jrc.ec.europa.eu/entrepreneurial-discovery-edp

knowledge line represented by Cohen, B. Feldman, M.P and Florida R. It also inspires the idea of the industrial districts and clusters. Porter, R., Beccatini, G. and Camagni, R. Clarify how the competitive strengths work in each business and how companies and technological related institutions organize themselves to grow in the base of their collaboration in a concrete territory.

All three main topics are shown in the next theoretical framework map. The blue bubbles represent the knowledge topics and the green one, the methodological perspective. This fourth aspect, as mentioned later, is a key aspect of this work because the research process is expected to generate a direct impact in real-life actions where it is done.

Theoretical framework map



6. Research methodology

Preliminary steps

From 2013, some sub-regional governments in Catalonia have started their approach to RIS3, encouraged by the ERDF founds announced by the regional government of Catalonia. It would be, for the 2014-2020 period, a special program to boost innovation ecosystems leaded by cities, counties and provinces.

During these 3 years, the author and his team in the consulting firm PRYSMA, Calidad y Medio Ambiente, S.A., have assisted to 8 of these sub-regional Catalan governments in the proposal definition of their Territorial specialization and competitiveness project (PECT, in catalan). The author has been an external observer of no less than 50 meetings / conversations maintained by the participants of these ecosystems. The author thinks that RIS3 and its entrepreneurial discovery process have generated a new common emerging model that represents the solution that the territories find to deal with this new conjuncture and role. Each territory has drawn its own applied model, but it seems that all of them have a common general framework, that acts as the starting point of this work.

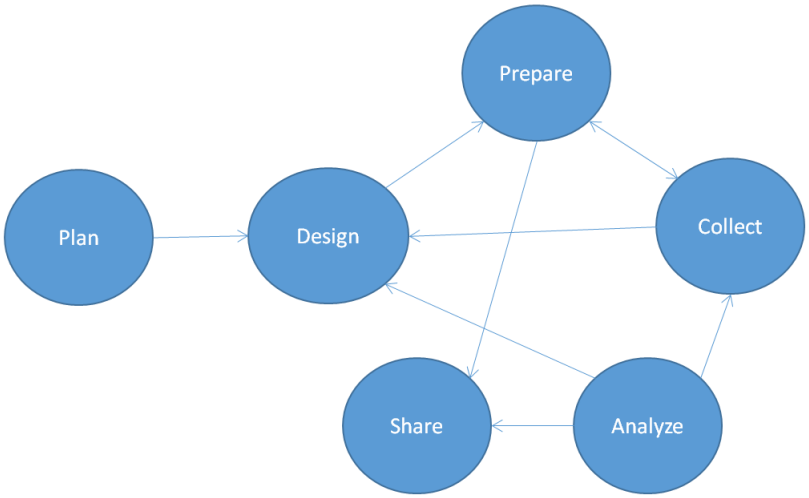
Methodologies chosen

Two main research methodologies are taken into account in this project. The first, the Case study methodology, is the one used in this work, as is explained below. The second, action research, is the methodology that the author is planning to use in his future doctoral work. Some training and mentoring will be needed to apply correctly the techniques.

Case studies

The methodology used in this research is based in the exploratory case studies (Yin, 2013) where contrast and evolution of hypothesis are the key iterative process.

Doing Case Study Research: a linear but iterative process (Yin 2013)



Source: Yin, 2013

In this methodology is important to design a preliminary theoretical framework to contrast. In this research a hypothesis model is exposed.

Once determined the object of analysis, three techniques are utilized:

- Observation of the process and social reality
- Analysis of relevant related documents
- Interviews to get data directly related to the questions and hypothesis

Finally, there have to be some learning from the process, which can turn to new cases to study or new hypothesis and questions. It is, as said, an iterative model.

Moreover, this methodology fits in this research because its start point is the experience of the author as observer of several cases of studied phenomenon. “Case study method can be a creative alternative to traditional approaches to description (quantitative descriptive and descriptive correlational descriptive

designs) emphasizing the participant's perspective as central to the process" (Zucker, 2009).

Following the conceptual structure of case studies explained before, this research project using case study methodology will follow the next phases:

I. Definition of objectives of research
II. Construction of hypothesis and sub-hypothesis as a model inspired from:
    a. the observation and experience of the author
    b. The theoretical framework exposed before
III. Design of the questionnaire to be contrasted
IV. Selection of cases
V. Analysis of documents
VI. Interviews with the sub-regional governments
VII. Analysis of interviews
VIII. Issuing of conclusions and learnings

Action Research

This work takes the Participatory Action Research (AR) methodology as a key inspiration for the research initiative, beyond this master final work. As the main references of this school oriented to the development of territories, Larrea, M. & Karlsen, J. (2015) and Greenwood, D. J. & Levin, M. (2007) explain, researchers and action participants jointly co-generate new knowledge based on the discovering of new workable solutions to their context and collective situations. The final desired result is more control of their situation as a group.

This methodological decision takes as a consequence a double aim work, each one feeding the other.

One of them is in the theoretical area and is the generation of expected new meanings and models of subregional growth as a result of the hybridisation of

local economic development and the research and innovation strategies fields of knowledge, not done very widely until this date. The object of this research is to have in Catalonia a common brand new model to develop the territories from a competitive economy point of view.

The other is in real-life and is the discovering of new workable solutions by and for the local subregional government policy makers in their objective of developing more competitive economies in their cities and urban areas. Their success in designing and launching their RIS3 strategy is also the most important goal in this research.

These two dependent aims might be possible thanks to the European Union new smart specialization strategy and the ERDF funds associated. In the other hand, they only could work together thanks to the Participatory Action-Research (AR) methodology.

7. Objectives and hypothesis definition

OBJECTIVE: To study how the sub-regional governments are reacting to and participating in RIS3 in Catalonia.

SPECIFIC OBJECTIVES:

- To describe, as a new model, the new RIS3 based policies designed by sub-regional governments in Catalonia. In concrete, to analyze the effect of RIS3 on:
    - the sub-regional government relations with the regional innovation system agents
    - the self-consciousness of their new role within the regional innovation system
    - the nature of the new policies needed
- To contrast with agents the real and relevant approximation between regional innovation strategies and the local development strategies.

HYPOTHESIS DEFINITION:

In the following pages are described the key elements of sub-regional RIS3 projects design to contrast trough the case studies. Enough results to build the common emerging model are expected, in order to achieve the first specific objective.

The sub-hypothesis exposed try to explain how a local government define and develop an open specialized innovation ecosystem, based on RIS3.

They have been classified into three steps to do it:

A) The entrepreneurial discovery process used to specialize the territory
B) The challenge of launching RIS3 at local level: the focus on innovation
C) The operations plan design: the ecosystem design and the definition of public policies (PECT operations)

A) The entrepreneurial discovery process used to specialize the territory

The determination of the sub-regional specialization is a neither easy nor simple process. RIS3 purposes to use what UE calls entrepreneurial discovery process (EDP).

A.1) The inputs for determine the specialization areas

Sub-hypothesis A1.1: this collaborative and conversational process has more robust outputs if the following are the two main inputs taken into account:

I. State of the art – relevant data and previous information and plans. The absolute and relative weight (GDP, patents, employees, export revenue, etc.) of each sector and subsector is the main data series.
II. Political or institutional explicit willingness to engage the project and to bet for concrete specialization areas.

Sub-hypothesis A1.2: the process is more robust if the two inputs have equivalent relevance for the final specialization decision.

A.2) Agents involved in the entrepreneurial discovery process

Sub-hypothesis A2.1: the presence of relevant agents of the quadruple helix contributes to the emergence of more transformative projects (quadruple helix: private sector, public sector, academia and civil society).

Sub-hypothesis A2.2: the leadership/role of local government contributes to the emergence of more transformative projects.

A.3) The EDP methodology

Sub-hypothesis A3.1: the more open, trustful and systematic are the conversations, the more is the transformation potential of EDP.

Sub-hypothesis A3.2: the development of EDP results on more robust common specialization vision.

The process ends up with solid vision, the different specialization areas of activity & Knowledge and a first idea of the lead actor, the core partnership and the territorial scope of the strategy.

A) RIS3 at local level - The focus on innovation

Once the sub-regional government has determined its specialization, it is time to understand the new focus of the local economic development policy and plan the transformation towards a new conceptual framework based on innovation holistic policies. In concrete, 2 issues shall be confronted:

- The role of sub-regional governments in the framework of regional research and innovation system and strategy.

- The nature of this new public policy framework.

B.1) The role of local governments in RIS3 (Nests and eggs)

Sub-hypothesis B1.1: the transformative potential of the process is positively related to the commitment of the territories in the development of innovation ecosystems environments.

B.2) Key functions of local economic development

Classical economic development must necessarily evolve towards a new and more effective model. Four are the vectors of change:

Sub-hypothesis B2.1: the results are positively influenced by the preponderance of innovation in the vision of the project.

The principal aim of the policy should be promoting innovation, because only systematic innovation allows a sustainable competitive strategy based on business differentiation. For the actual business, it is not enough to manage cost and efficiency, global marketing, internationalization, financial management and quality systems. The dynamism of the environment forces to focus on new disruptive products and services generation. So, for example, it is not enough to just support the creation and acceleration of companies but rather to support innovation processes in companies and clusters, being them new or established organizations.

Sub-hypothesis B2.2: the more collaboration attitude exists in the process, the more developed is the potential and sustainability of the policy.

The local economic development policy cannot be no more designed purely in a public or in a consultancy office. There are no receipts or one-man strategies. It is totally necessary to open the doors to private sector, academic institutions and civil society representatives. Only then the opportunities between them will arise and all the members of the ecosystem will get what they want in a synergic manner. All are connected in the same local area. They can look to the world and to the future together, being more competitive if they collaborate.

Sub-hypothesis B2.3: the more market oriented is the objective, more transformative are the outputs of the process.

When it comes to a complex environment like a city, a county or a province economy, it is a common risk to decide in a base of what the politics think that the companies will need, without asking directly to them. The private sector is busy with their projects and often the easier way to decide on the public policies is doing so without counting on them. In the new trend of innovation policies, a mechanism to assure the participation of companies during all the process is needed.

B) Operation Plan Design - The ecosystem design and the definition of public policies (operations).

C.1) Principal operations of local RIS3 plan (PECT)

Sub-hypothesis C1.1: the local RIS3 plans which include operations linked to all four kinds of capital have more transformation potential.

C.2) Methodology used for designing the operations

Finally, the model tries to understand and describe the complex process of designing, determining and negotiating the final operation plan and budget. It is relevant who decide so and how is done, if there is political pressing, if the final operations are consistent with the spirit of the strategy and adapted to the needs of the concrete territory.

Sub-hypothesis C2.1: the project has more transforming potential if operations design is collaborative and evolutes from the initial individual ideas of the partners.

The PECT should not be an addition of individual and disconnected operations. To achieve an integrated policy, multiplying the synergies between the operations and partners, it has to exist an evolution process, again collaborative

and creative. Moreover, apart from collaboration, the evolution has to be consistent with the other new factors of this brand new kind of policies (specialization, innovation as the central purpose and market orientation).

To contrast with agents the real and relevant approximation between regional innovation strategies and the local development strategies (that was the second specific objective), they are described some more sub-hypothesis to be validated with the case studies

Evolution of local economic development policies

D.1) New kind of local policies based on RIS3 and differences from classic strategies and plans of local economic development.

The hypothesis is that local RIS3 projects (PECT) are a brand new kind of policies, with relevant changes from what has been done until today.

Sub-hypothesis D1.1: the PECT design causes consciousness of relevant change of nature in the local economic development policies.

D.2) Learning process experienced by local governments. Contribution of external specialized teams.

In coherence with the last point, big changes need change management and deep learning process. The design of these projects is especially intensive in new concepts and frameworks.

Sub-hypothesis D2.1: the local RIS3 projects need a learning process to have the expected transformation potential.

The different parts have to learn how to communicate their needs and ideas, in a more mature model of relation. Their conversation in a trust basis will take them to a productive common new kind of strategies and action plans.

Sub-hypothesis D2.2: The contribution of external experts is positively related to the quality of the local RIS3 projects design.

In this way, the role of external experts, especially social researchers, is a key factor for a quicker and deeper learning and connected with other territories.

8. Practical applicability and/or empirical contribution

KEY FACTORS OF CASE ANALYSIS

In order to contrast the hypothesis through the 3 cases used in this research project, it is exposed below a list of key factors. Parts A, B and C are based on the characteristics of the model exposed before; Part D corresponds to the questions related to the second specific objective; Part E refers to factors that could be relevant in the developing phase of these projects PECT.

Part A. The entrepreneurial discovery process used to specialize the territory
• The key inputs and their relevance for the final specialization decision • The key partners and their role in the specialization process • The methodology used and its effectiveness
Part B. RIS3 at local level
• The role of local government policies in the framework of RIS3 regional general strategy • Key RIS3 functions of local governments and their principal beneficiaries
Part C. Operation Plan Design
• Principal operations determined in the local RIS3 Projects (PECT) • Methodology used to design the operations
Part D. Evolution of local economic development policies
• New kind of local policies based on RIS3 and differences from classic strategies and plans of local economic development. • Learning process experienced by local governments. Contribution of external specialized teams.
Part E. Expectations on the development of local RIS3 projects (next

steps)
• Difficulties or barriers expected in the launching process • Key elements for the success in the implementation of the local RIS3 plan

These factors are transformed into questions to contrast each one of the elements of the hypothesis model described previously. For that reason, the questions used during the interviews with the responsible of each one of the study cases, follow the same structure.

The questionnaire is shown in the following table (in catalan):

Bloc A. La descoberta emprenedora
PA1. Enumera les qüestions (els inputs) que s'han tingut en compte per a decidir l'especialització? Com han afectat finalment al projecte, cadascuna?
PA2. Enumera tipus d'agents que han intervingut en la descoberta emprenedora? Quin rol i actitud ha tingut cadascú?
PA3. Com s'ha realitzat el procés de descoberta emprenedora (metodologia)? Quines conseqüències ha tingut?
Bloc B. La RIS3 a nivell local
PB1. Quin paper específic creieu que juguen els PECT en el marc de la política de recerca i innovació catalana (RIS3CAT)?
PB2. Quines 3 funcions creus que ha de realitzar el vostre PECT? Quin és el principal beneficiari de cadascuna d'elles?
Bloc C. Disseny d'operacions
PC1. Enumera les operacions determinades en el vostre PECT. Quines 3 són les principals en la vostra opinió?
PC2. Com ha estat el disseny de les operacions? Qui ha intervingut?
Bloc D. L'evolució de les polítiques de Desenvolupament Econòmic Local
PD1. Quines són les novetats en clau de política pública local que aporten els PECT i la RIS3 respecte les estratègies i els programes clàssics de DEL?
PD2. En quin grau s'ha generat un procés d'aprenentatge en el govern local?

En quin grau i de quina manera hi ha contribuït l'assistència d'un equip extern especialitzat?

Bloc E. Mirant al futur?

PE1. Quines 2 dificultats principals creus que tindrà la implementació del PECT?

PE2. Quins 2 elements seran clau per a l'èxit en el desenvolupament del PECT?

Bloc F. Model

PF1. És útil el concepte de nius i ous per a explicar l'entorn d'innovació que vol ser el PECT? (de 0 a 10) Per què?

PF2. És útil el mapa de boles d'especialització per a guiar el procés de descoberta emprenedora del PECT? (de 0 a 10) Per què?

PF3. És útil el concepte de territori embut per a explicar el gir cap a a la innovació que demana la RIS3 a nivell local? (de 0 a 10) Per què?

PF4. És útil el concepte del 4 capital per a dissenyar les operacions del PECT? (de 0 a 10) Per què?

THE STUDY CASES

The cases were chosen following to requirements:

- All must be local governments with the willingness to prepare a local RIS3 project (PECT) to be presented to the call open until September of 2016. The three chosen cases are effectively presenting their proposal.
- They must be quite different in scope. It is for this that was chosen a municipality, a province and a county.

Conform to these requirements, 3 study cases were chosen, leaving open the possibility to choose other cases after analysing these initial ones.

	Case	Territorial level
1	City of Lleida	Municipality
2	Province of Tarragona	Province
3	County of Baix Llobregat	County

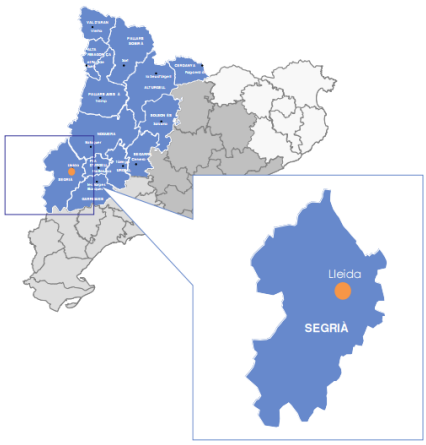
Territorial context introduction of the three cases:

1) City of Lleida

Lleida is the capital city of Segrià county and of Lleida province. It belongs to the functional area of Lleida, according to the general territorial Plan of Catalonia (formed by the counties of Segrià, Segarra, Noguera, Garrigues, Pla d'Urgell and Urgell). It is located around a hill located on the right side of the Segre river, which forms a key part of their identity and development, the Hill of the Cathedral, which houses the Old Cathedral of Lleida.

It is the seventh municipality in number of inhabitants of Catalonia and has a metropolitan area of 200,000 inhabitants. It has an area of 211.7 km² and a density of 640,2 inhabitants / Km. Lleida is well connected with its surroundings by highways, railcars (A-2), highway (AP-2) and the line of AVE Madrid-Barcelona, and has an airport (Alguaire), although it currently operates partially, is an active in the region.

Location of Lleida



Lleida is the most important demographic and economic centre of the Inside Catalonia and, for a long time, is closely related to a core communications networks that converge with the rest of Spain and France. Lleida is also the centre of an important agricultural and livestock region, which centralizes the distribution of its products to the industrial nodes of Catalonia, Spain and Europe.

In the following table, some major magnitudes of Lleida are shown:

Economic and social context	Lleida	Catalunya	% CAT	Índex CAT=100
Population (2016)	138.542	7.508.106	1,85%	
GDP 2012 (Million €)	3.850	206.920	1,86%	
GDP / inhabitant	27.789	27.600		100,69%
Employment in high technologic sectors (2015)	4,00%	8,00%		50,00%
Unemployment tax (2016)	15,70%	17,40%		90,23%
Population 16 years and over with high education (2011)	21,30%	20,30%		104,93%

Source: Idescat

Finally, de SWOT analysis made for this project:

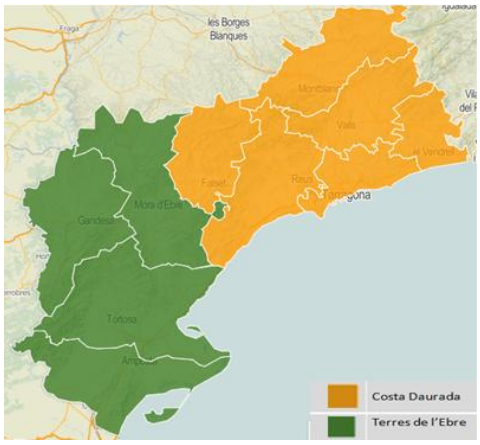
Weaknesses and threats	Strengths and opportunities
Agr**o**business	
- Its low technological level and the predominance of first processors. - Low innovative capacity of most companies. - A sector based on small businesses that find it difficult to compete with large retailers, creating asymmetrical relationships in the value chain. - Lack of staff and workers trained to respond to demands for skilled jobs. - The lack of a visible mark of quality or lack of innovation in food production to respond to new demands such as those relating to the consumption of local products.	- In Lleida province the activity of food industries represent up to 30% of GDP and 65% of exports. - Lleida concentrates 80% of fruit production in Catalonia and 53% of the production of pork. - There are some leading high technological companies in the sector that could tractor the transformation of the agro-food sector.
The innovation environment in the specialization area	
- Low ability to attract and retain talent, both	- The presence of the University of Lleida

students and professionals linked to technology and knowledge-intensive sectors (still very low in the overall employment), which are key for the development of an innovative ecosystem. - Lack of a global strategy to become the capital of innovation in the food sector and attract more visitors to the region. - It has natural and cultural values around the territory that are not capitalized sufficiently as complementary assets to food production.	(UDL), the core of higher education in Catalonia in the fields of Food Science. - The proximity to Aragon, which gives market advantages caused by critical mass of workers and companies. - The presence of the AVE train that connects with Madrid and Barcelona, Alguaire airport and good road connection. - To become a multiservice centre that support smart specialization based agribusiness.

2) Province of Tarragona

The territory consists of the ten southern counties of Catalonia and it is defined by the presence of both some significant planes such as the Delta de l'Ebre and Camp de Tarragona and the coastal system. In the river valleys structure clearly highlights the Ebre River, which forms a strong differentiation between planes and mountains. This physical reality tends to consolidate a territorial duality between the coast and the inland, manifested in demographic characteristics and localization and dynamics of its economy.

Location of Tarragona province



Source: Prysma, S.A.

In administrative terms, the Tarragona and Terres de l'Ebre counties constitute the province of the same name, having thus Dipta as its provincial government. This territory, in line with the geographic division, is divided in two main areas that define spatial planning and the different demographic and socioeconomic structure. On the one hand, **Camp de Tarragona**, which includes the counties of Alt Camp, Baix Camp, Baix Penedès, Conca de Barbera, Priorat and Tarragonès and, on the other, **Terres de l'Ebre**, with Baix Ebre, Montsià, Ribera d'Ebre and Terra Alta.

It is a territory with a strategic location, central node of the Mediterranean corridor and the Ebre corridor between Barcelona and Zaragoza, and important infrastructure such as the Port of Tarragona, the railway station at the Camp de Tarragona and the Reus airport. It has an important natural heritage (Ebre Delta, Prades and Beceite mountains, the beaches of Costa Daurada) and cultural (Poblet, Montblanc, the Roman city of Tarragona ...) and entertainment facilities as Port Aventura, which makes Tarragona a national and international tourist destination. In terms of tourism management, the territory is divided into two distinct areas, the Costa Daurada and Terres de l'Ebre, which coincide with the boundaries of the regional areas described above. These are also two of the nine tourism regions of Catalonia, recognized as such by the Catalan Tourist Board.

In the following table, some major magnitudes of Tarragona province are shown:

Economic and social context	Tarragona province	Catalunya	% CAT	Índex CAT=100
Population (2016)	791.638	7.508.106	10,54%	
GDP 2012 (Million €)	20.647	206.920	9,98%	
GDP / inhabitant	26.082	27.600		94,50%
Employment in high technologic sectors (2015)	6,20%	8,00%		77,50%
Unemployment tax (2016)	21,30%	17,40%		122,41%
Population 16 years and over with high education (2011)	17,00%	20,30%		83,74%

Source: Idescat

Finally, de SWOT analysis made for this project:

Weaknesses and threats	Strengths and opportunities
Tourism	
• There are some things that are not so competitive in the region, as for example the partial deployment of tourism in the inland regions, which need further modernization of their services and products they offer. • The need for further reduction of the seasonality of tourism and for opening it to new users is another challenge for the region, as well as the promotion of sustainability in this sector, also in terms of mobility. • There also work in Tarragona to become a talent magnet for tourism.	• The province is a diverse and dynamic region economically. The second economy of Catalonia, in terms of population, GDP and employed. It is also one of the touristic principal destinations of the region, with a large range of cultural and natural landscape offer. • In terms of economic infrastructure and innovation, Tarragona has elements that make it highly competitive, such as the University Rovira i Virgili, research centres and technology parks that are references in its scope and, in the case of tourism, the Tourism and Leisure Scientific and

• It should be generally treated the unequal geographical and social distribution between coastal, more populated and economically active and, inland towns (or those who were dependent on construction activity), which must find ways to activate economic growth. In this regard, the Dipta plays a clear role to enable and encourage the development of these areas in the region.	Technological Park of Catalonia (CAT PCT) and the Technological Centre of Nutrition and health sector, linked to the health sector. • The university also has a key role as "Think-tank" on economic development issues of the territory. Within the field of business and linked to the sector of tourism, there highlights the Restaurants, Hotels and Tourism Business Federation of the Province of Tarragona (FEHT), which also participates in the tourism innovation ecosystem of the region. • The region, through Dipta, the Tourism agency and the various local authorities and other organizations, have made a firm commitment and bet on tourism family orientation, considering it a strategic sector that highlights the cultural heritage and natural territory in its various configurations. To develop the potential of this sector and become the engine of economic growth and is increasingly competitive, are needed strategies that also relate to innovation and technology.

3) County of Baix Llobregat

The county of Baix Llobregat is located in the central part of the Barcelona Metropolitan Region: ranging from the lower valley of the Llobregat River to its end. It borders with Barcelona and the counties of Vallès Occidental, Garraf, Alt Penedès, Bages and Anoia. It has an area of 486 km2, which represents 6.3% of the area of the province of Barcelona. 20% of the county surface (10.352 ha) are areas with special natural value included in the Plan for Areas of Natural

Interest in Catalonia. In addition, approximately 3.400 ha form the Baix Llobregat Agricultural Park.

Baix Llobregat includes 30 municipalities, with capital in Sant Feliu de Llobregat. There are four zones: Delta, Central, Lower Valley and Northern.

Location of Baix Llobregat

Source: Google Maps

Concerning demographics, Baix Llobregat has a population of 806,651 inhabitants, according to 2015 data, a 14.59% of the total population of the province of Barcelona and 10.7% of Catalonia, with a population density of 1.660 inhabitants / km2. Its location is strategic due to the presence of the airport and some port terminals in the region and the excellent network of road and rail infrastructure that cross it. The latter, it allows for quick communication with Europe and the rest of Spain.

In the following table, some major magnitudes of Baix Llobregat are shown:

Economic and social context	Baix Llobregat county	Catalunya	% CAT	Índex CAT=100
Population (2016)	806.651	7.508.106	10,74%	
GDP 2012 (Million €)	22.093	206.920	10,68%	
GDP / inhabitant	27.389	27.600		99,23%
Employment in high technologic sectors (2015)	15,00%	8,00%		187,50%
Unemployment tax (2016)	14,66%	17,40%		84,25%
Population 16 years and over with high education (2011)	16,99%	20,30%		83,69%

Source: Idescat

Finally, de SWOT analysis made for this project:

THREATS (external)

• Weakness of international markets and demand
• Crisis in some sectors at UE
• Relocation of companies
• Growing competitiveness in emerging economies
• Decision making centralized in the headquarters (out of the county)

OPPORTUNITIES (external)

• Strategic agreement for the competitiveness of Catalan companies
• Diversification, new markets
• Internationalization of Catalan companies
• Outsourcing management by manufacturers

WEAKNESSES (internal)

• Dependence on some traditional industries
• Poor internal communication
• Need to improve and finish key infrastructures
• Inadequate education level
• Insufficient level of R & D
• Scarce and expensive industrial land
• Problems in energy supply

STRENGTHS (internal)

• Location of important large companies in site
• Well located and connected county
• Important business hub in Barcelona metropolitan area.
• Industrial tradition
• Human capital available

The interviews were made during the month of May of 2016. They last for an hour approximately and were recorded with the consent of the interviewed, that was asked to be technical managers working for the local government in the preparation of the local RIS3 Project (PECT). It is shown below the persons interviewed and the date and place where they were celebrated.

	Case	Interviewed persons	Day and place
1	City of Lleida (LLEIDA)	Marisa Benítez,	30/05/2016, Lleida
2	Province of Tarragona (DIPTA)	Mercè Smith and Elisenda Villalta	18/05/2016, Tarragona
3	County of Baix Llobregat (CCBLL)	Andrés Andrés	31/05/2016, Viladecans

Before exposing the results of these interviews, there are described the specialization and competitiveness projects of each one of them, to better contextualize those results.

Description of local RIS3 projects (PECT):

1) City of Lleida

ABSTRACT

The PECT project "INNO4AGRO: An innovative smart ecosystem for the food industry" wants to become the unifying project of transforming the food industry of Lleida towards a competitive and innovative model. Lleida concentrates many of the economic infrastructure and knowledge of this important sector in Catalonia, as well as a critical mass of talent and companies that connect with the rest of the territory and make it a key to the development of an innovation ecosystem around the opportunity for this sector, to advance own smart specialization strategy RIS3CAT.

Lleida City Council has assumed the leadership of this change, along with key partners from the world of research, innovation and enterprise around agro-business. The PECT project main objective is to create conditions for the development of innovation in the food sector, working with both strictly related technology to the relationship, talent and dynamism agents to generate a process of transformation the region's economy that create jobs and economic growth.

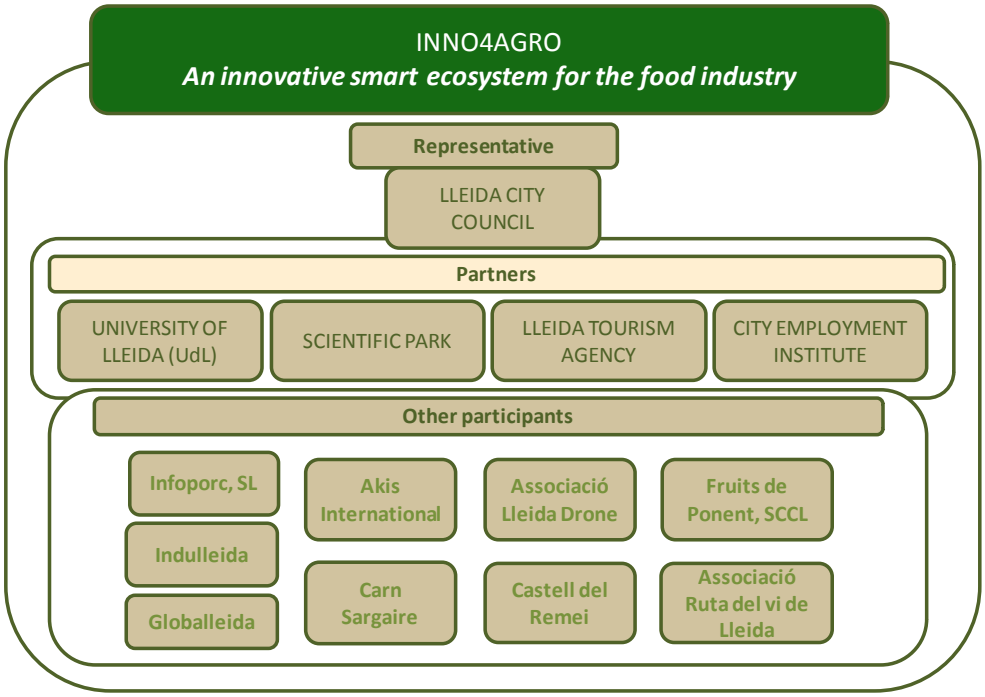
This goal is articulated in two major subprojects, each with a series of operations. The first subproject "Technology and talent agroinnovative" aimed at the promotion of technology and talent to develop an intelligent food industry, with three operations related to 1) the promotion of strategic R & D projects as levers to generate innovations in the area, 2) technological surveillance and transfer of technology to companies and 3) training and attracting talent and skilled workers in the food industry and its technological innovation.

The second subproject "Promotion of territory" proposes mechanisms for the revitalization of the various actors of the territory around the innovative ecosystem to ensure that expertise around the food industry serves to highlight the region strength and have a positive impact for the agents and people operating and living there. It raises three operations, focused on: 1) the adjustment and revitalization of a space laboratory of innovation and participation, 2) the relation of food industry and tourism assets and cultural heritage of the territory and 3) the internationalization and promotion of food industry of Lleida.

PARTNERSHIP

The project has a solid partnership structure featuring the key actors of the territory around the food industry and innovation. The composition of it is thought to cover all perspectives in the field of specialization, so that the set of operations could achieve the objective of more innovative and competitive agro-food sector, which is the engine for the economic recovery of the territory.

The figure below shows the structure of the partnership.



Lleida City Council is leading this project and therefore has been appointed to be the representative of it. Being representative of the province, the territorial capital and the largest town of the same, its leadership ensures that the project will get the positive expected impact. Lleida City Council collaborates with other regional agents working to promote economic development, research and innovation and strategic growth of the city and the region in general, and in the food industry in particular. This collaboration is also reflected in the project of specialization, involving partner organizations such as the University of Lleida (UdL), Food Science and Technology Park of Lleida (Scientific Park), Lleida Tourism Agency (TurismeLleida) and the Municipal Institute for Employment (IMO). It also has the participation of other partners as non-beneficiary. They are a series of other organizations representing the economic and social industry of the territory, like Globalleida, the economic promotion agency of Lleida. On the other hand, there are involved a number of companies in the food industry throughout the territory of Lleida, an aspect that adds real strength and ability to impact the project.

ENTREPRENEURIAL DISCOVERY PROCESS

This PECT is the result of a long entrepreneurial discovery process that local stakeholders start in 2014. When they knew of the research and innovation strategy for smart specialization of Catalonia (RIS3CAT), Lleida began to think and dialogue on what should be their contribution, as an opportunity for transformation and economic revitalization.

Thus, soon it created a core governance of actors, among which was the City Council, the Science Park and the University of Lleida, who made a first approach to what could be the expertise that Lleida had to work. Gradually went limiting the current partnership once was outlined in detail the area of specialization in which they wanted to work.

Meeting key entrepreneurial discovery process

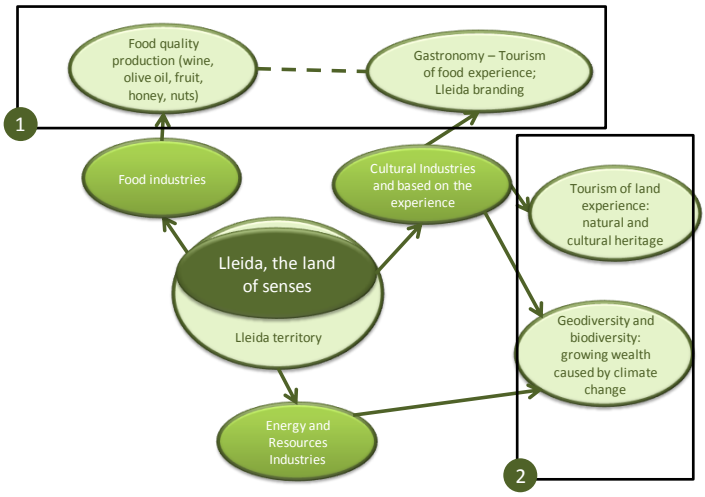
Meetings held	When
Initial planning meetings with the project core team	September to June 2014
General meeting project start - Dinner with the mayor (40 representatives of the quadruple helix)	September, 2014
Meeting with agrobusiness companies	November, 2014
Meeting of incorporation of Scientific Park in the project	February, 2015
Project development meetings with Lleida, Science Park, UdL, Globalleida	March, 2015 – May, 2016
Meeting with a key group of food companies	June, 2016

In the initial approach, the team proposed a vision based on the territory and all its assets, from which they identified several specific areas outlined in Lleida and their correspondence with some of the sectors of RIS3CAT: food, energy and resources, industries based in the sustainable mobility and cultural industries and based on the experience; but leaving open other possibilities that could be proposed during the process. From this first vision, a first map delineating a specialization resulted in a proposal in 2015, emphasized on two main areas: one linked to food production and food experience related tourism and other about tourism experience based on the landscape and biodiversity.

From this first map, it was evident that food and agricultural production were central aspects of the specialization of Lleida. The conversations with the actors also put on the table a group of challenges at both sector and territory which were addressed to consolidate Lleida as the centre of food in Catalonia, ensuring that it was adapted to the technological changes and to the innovations the market demands. They also noted that this sector was the most likely to be a tool to transform the territory and generate employment and global visibility.

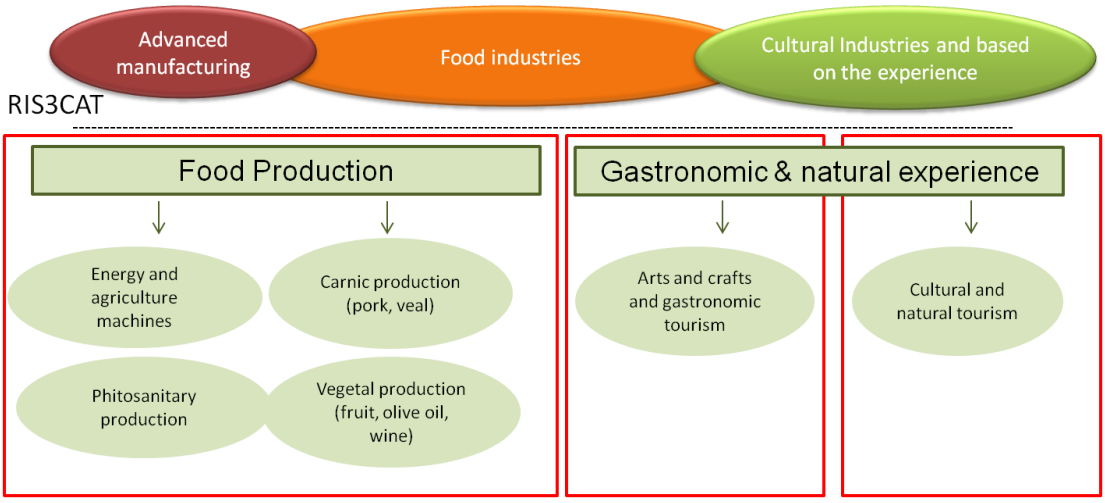
They got then the final map of specialization, where fell down the field focused on geodiversity and biodiversity. The chosen specialization was the food industry and its intelligent transformation into a specialized sector; so, they called *Agrosmart.*

First specialization map of Lleida. March 2015



The final selection of the area of specialization of Lleida appeared after several conversations with people in the territory and a change of mandate in the city council. There was a new clear tendency to focus more on technological innovation applied to food production, without neglecting the opportunity for tourism experience.

Final specialization map of Lleida



STRATEGY AND OBJECTIVES

Lleida is aligned with the strategy of development of Catalan food sector, which is considered one of the areas of expertise of RIS3CAT and a tractor sector of the industrial strategy of Catalonia. This strategy is clearly defined in two strategic documents: firstly the *Industrial Sector Policy Plan 2014-2020*[7], and on the other the *Strategic Plan for Research, Innovation and Transfer of Agricultural Catalonia 2013-2020*[8]. Both documents make a diagnosis and drafting proposals that fit with what arises in this project. Thus, the first strategic plan mentions that the development of the sector will be through the promotion of several changes: the establishment of more direct links with the final consumer; the improvement of operational efficiency and cost optimization (backward integrating production and improving production efficiency and logistics); and the product differentiation and expansion in international markets. Meanwhile the Strategic Plan for Research, Innovation and Transfer Food aims to promote the culture of innovation in this sector, improve collaboration among actors in the system of food R & D and knowledge transfer increase investment in R & D companies and increase the international importance of innovation in Catalonia is made in this sector.

With regard to industries based on experience, RIS3CAT exposes that the field of food creates economic opportunities and employment in a variety of sectors, among which tourism. In addition to structural changes in the business, smart specialization show that the boundaries between sectors are becoming more widespread.

These strategic objectives match with the different proposals carried out by Lleida in recent years by the agrobusiness sector.

[7] http://accio.gencat.cat/cat/binaris/Politica_industrial_sectorial_2014-2020_tcm176-196597.pdf
[8] http://www.ruralcat.net/web/guest/pritac/pla

Vision of "INNO4AGRO":

This project is therefore a strategic initiative to responds to the need of creating an innovation ecosystem in Lleida, specialized in food intelligent production, participating in a collaborative manner the different agents related, to allow the city to become a key factor of transformation and internationalization of its economy and of the identity of the territory, attracting talent, investment and visitors and generating employment and sustainable growth of the economy of the territory.

With this in mind, the strategic and operational objectives of this project unambiguously contribute to the Catalan strategy, around agrofood sector:

Strategic and operational objectives of "INNO4AGRO"

Strategic objectives	Operational objectives
Improve the productive capacity and the competitiveness of SMEs of the agro-food sector to be generators of employment and wealth in Lleida;	Promote the use of ICT in companies as a tool for innovation and improvement of competitiveness in the food sector
	Promote the use of new technologies in companies in the sector, according to their technologic level.
Promote Lleida as a centre of innovation, knowledge and research in the food sector, nationally and internationally	Promote the creation of meeting spaces and dinamization of the innovation ecosystem around the food sector, to facilitate the generation of synergies between the agents, which will translate into new and better products and services.
	Lleida to become an international benchmark in R & D related to the food sector, with the ability to attract talent.

Transform the economy of Lleida through the specialization in the smart food industry, producing multiplier effects on other sectors of activity.	Promote new employment opportunities and the mobilization of entrepreneurs and innovators around the smart food industry.
	Develop links between resources of agriculture and tourism, as drivers of a destination that generates new employment and productive activity.

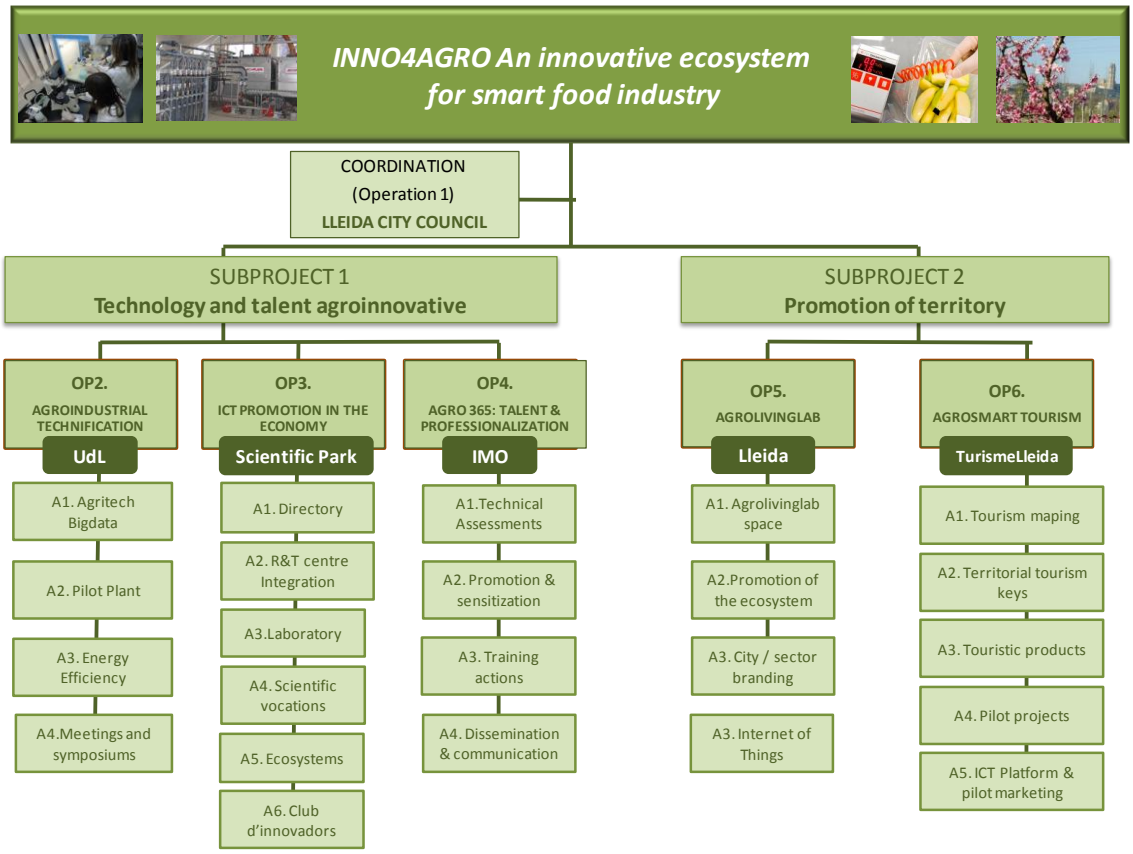
PROJECTS, OPERATIONS AND ACTIVITIES

The project INNO4AGRO has been organized with a hierarchical structure at three levels: subprojects, operations and activities, which will take place between 2017 and 2020. The projects reflect the need to organize operations geographically into two groups:

- Those relating to the development of technology and talent in the food sector, and therefore covering needs addressed to the specialization of the sector, which have been grouped into TECHNOLOGY AND TALENT AGROINNOVATIVES.
- Those operations aimed to improve the environment for innovation and specialization, which also serve to boost the ecosystem to enhance it through its complementarities with the tourism sector, which have been grouped into PROMOTION OF THE TERRITORY.

All operations will be executed by a single beneficiary partner, although they will include collaboration with other agents in the region, as advisers, direct beneficiaries of the activities are carried out, or other.

The figure below shows a summary of the organization of this project.



2) Province of Tarragona

ABSTRACT

The specialization project "TurísTIC en família" has the objective to generate competitiveness, innovation, growth and new jobs directly and indirectly transforming the province of Tarragona into an innovative family tourism global reference. More than half of the tourists visiting Tarragona's destinations do so accompanied by a couple or family, which makes this segment of tourism demand as the target which Tarragona wants to become a destination landmark for, offering competitive and attractive products and services and incrementing the value of its natural and cultural assets in a sustainable and innovative way.

With this in mind, the objectives of the PECT are:

- **To improve the branding process to strengthen the counties of Tarragona and Terres de l'Ebre as global family tourism destinations**
- **To promote an innovative ecosystem specialized in the family touristic sector**

To achieve these goals series of operations have been designed, grouped into four subprojects, bringing together actions of a similar thematic content. The first subproject "Promoting Technology" includes operations that enhance the technological development that could be applied to the tourism industry, from the perspective of research and its application in products and services that respond to the challenges of both supply and demand of tourism, such as mobility, processing of data for decision making and the development of ICT platforms for destinations. The second subproject, called "Heritage", focuses on tourist valorisation of the cultural and historical heritage of this region, with operations that promote innovative management services related to heritage tourism, which promotes family tourism in the prehistoric heritage and creates a reference tourism linked to family heritage. The third subproject, called "Spaces", concentrates in operations that drive competitive and innovative improvements around the family tourists needs, in two typical tourist areas with diversification or expansion potential: the beach and the vineyard. Finally the fourth subproject, called "Innovation", has three operations very focused on the promotion and development of innovative ideas and business, by creating a space for boosting of the ecosystem around the innovative family tourism, generating innovations in housing for tourism and working to create a new vision of healthy food linked to tourism. They are in total eleven operations (plus a coordination one) that will undoubtedly generate environment and market conditions that foster innovation in the tourism sector and the consolidation of the Tarragona province as family tourism destination.

The various operations cover the entire width territory of the province of Tarragona, in order to rebalance the territory.

PARTNERSHIP

The partnership of the PECT in the province of Tarragona brings together a range of stakeholders representing tourism and social and economic system of the territory, which in recent years have regularly collaborated, establishing a relationship of mutual trust and shared alignment with strategic objectives, while maintaining each own nature. Beyond the concrete partnership, this project has the support of a series of other economic and social agents. Together with the PECT members, they have been developing a strong strategy to generate innovative mechanisms that have involved the realization of joint projects.

Each member provides its skills and experience, ensuring together the consistency of the project and their ability to reach the entire region and its economic and social system. The partnership includes agents of the quadruple helix, being represented the public administration, the research and innovation system, the private sector and civil society.

The partnership consists of the following members:

- Representative organization: Diputació de Tarragona (Dipta)

- Other partner organizations:
    - Tourism Agency for the Costa Daurada and Terres de l'Ebre
    - Rovira and Virgili University
    - Tourism and Leisure Scientific and technological Park
    - City council of Montblanc
    - Tarragona Mediterranean Smart City Foundation
    - Catalan Institute of Human Paleo-Ecology and Social evolution (IPHES)
    - Wood and Furniture Technological Dissemination Centre of Catalonia (CENFIM)

Tarragona Province has taken the lead of this project from the beginning, thus being stated as the representative and coordinator of it. This institution is the public administration of the Tarragona province, covering a territory of 10 counties, divided into two geographical areas: Camp de Tarragona and Terres de l'Ebre. Their activities and services reach 181 municipalities and a global population of 791,638 people (2106 data). It is organized in departments and units such as: Municipal support service, Assistance to citizens, Human resources and Active policies for employment. It also has two autonomous bodies, the Tourism agency and the Revenue management agency.

The functions of coordination and supervision of the PECT of Tarragona will be in charge of the *European Projects and Knowledge Region Unit.* This unit was created in 2015, directly under the President's Cabinet to act on identifying projects and opportunities from European programs and calls on the promotion of the province, in relation to the Catalan research and innovation strategy for smart specialization (RIS3CAT) and the Europe 2020 Strategy; in generating actions of cooperation between local governments and those with socio-economic actors of the territory and in general in the implementation of economic development projects.

It has, therefore, the sufficient technical capability and means to develop the coordination operation.

The Tourism agency of Costa Daurada and Terres de l'Ebre is an autonomous body of Dipta, with its own legal identity. It has responsibilities in the promotion and marketing of tourism, picking up new areas of activity indirectly demanded by public and private stakeholders in the tourism sector in the province. It also carries out activities related to training, new technologies, information, technical assistance, etc. Its activity is divided into two destinations: Costa Daurada and Terres de l'Ebre, which represent the interests and demands of the different towns of this territory.

The Tourism agency regularly collaborates with the municipalities and their areas of economic promotion, but is also a recognized partner for companies in

the tourism sector of the region, both in the restaurants, hotels and entertainment, retailers or suppliers services.

Rovira i Virgili University (**URV)** created in 1991, was born with the aim of putting knowledge at the service of society to contribute to social and economic development of their environment. It has more than 15,000 students in over 40 degrees, 50 masters (much interuniversity) and a large doctoral program. It is a leader in training and research in various fields of knowledge and research, strategically grouped under the umbrella Campus of Excellence Southern Catalonia. This is a result of the strategic aggregation of institutions and structures of teaching, research and knowledge transfer and the productive sector of southern Catalonia with the aim of becoming an international leader in the fields of: tourism, wine, nutrition and health, heritage and culture, and chemistry and energy. The aim of the Campus of Excellence is to promote URV in each field of specialization but also globally as a key part of a knowledge region, Tarragona, whether regarding training and research of the highest quality and where businesses can create links, be more competitive and settle in an environment specializing in five areas of reference.

This project involved more directly the Research Group for Food, Nutrition, Growth and Mental Health In Heritage and culture will work the Faculty of Arts, which collaborates with the Catalan Institute of Human Paleo-Ecology and Social Evolution, a partner of this PECT. The URV also participates in close collaboration with the Province of Tarragona, in the *Tarragona Knowledge Region office,* helping companies to get closer to the field of research and innovation.

Tourism and Leisure Scientific and Technological Park is located in the Vila-Seca campus of the URV and was promoted in 2006 by the URV, the City of Vila-Seca and the Business Federation of Hotel and Tourism Province of Tarragona (FEHT). It is specialized in information systems, intelligence, technology and product development. One of its main activities is the development of innovation to improve the competitiveness of the tourism sector,

with initiatives integrating new tourism products and the implementation of technological applications.

Moreover, its observatory implements information systems that generate knowledge about tourism and useful information for the management of companies and administrations (bid gata).

The other partners involved in the project benefit from specific sectors that will look for its alignment with the chosen specialization around research and innovation in family tourism. Are briefly described below:

Wood and Furniture Technology Dissemination Centre of Catalonia (CENFIM): It is a private non-profit organization that aims to encourage the competitiveness of companies in the sector of wood and furniture, working in research, development and innovation where business associations of the sector, the public administration and the URV are participating. It is located in La Sénia (Montsià), a town with a high concentration of companies manufacturing and distribution of furniture. The furniture sector and, by extension, the territory that depended on it, were badly hit by the economic crisis, which has made it necessary to find new avenues for recovery. CEMFI is developing a new line of furniture around the tourism sector.

The Catalan Institute of Human Paleo-Ecology and Social Evolution (IPHES) was created in December 2004 as a nonprofit foundation through an initiative of the Catalan Government, URV and the City Council of Tarragona. It is an institution that promotes interdisciplinary advanced research, education and knowledge transfer and engagement with social science where the main objective is to promote the knowledge of both the past and ancient human species of humans today. They also offer high quality educational programs in scientific fields.

Collaboration with other international institutions, universities and research centres and belongs to the Catalan Network of Research Centres (CERCA). For example, collaborates with the City of Canonja, which houses the

archaeological site “Barranc de la Boella” , where is carried out research related to the paleoecology, leaded by IPHES.

Tarragona Mediterranean Smart City Foundation is a foundation formed by the City council of Tarragona, Repsol, URV and Sorea. Its mission is to bring together and develop initiatives linked to the concept of smart city, to improve the quality of life, sustainability and service management. It has five areas of action, all of them closely linked to the strategic management of the city: water, mobility, energy and environment, health and tourism.

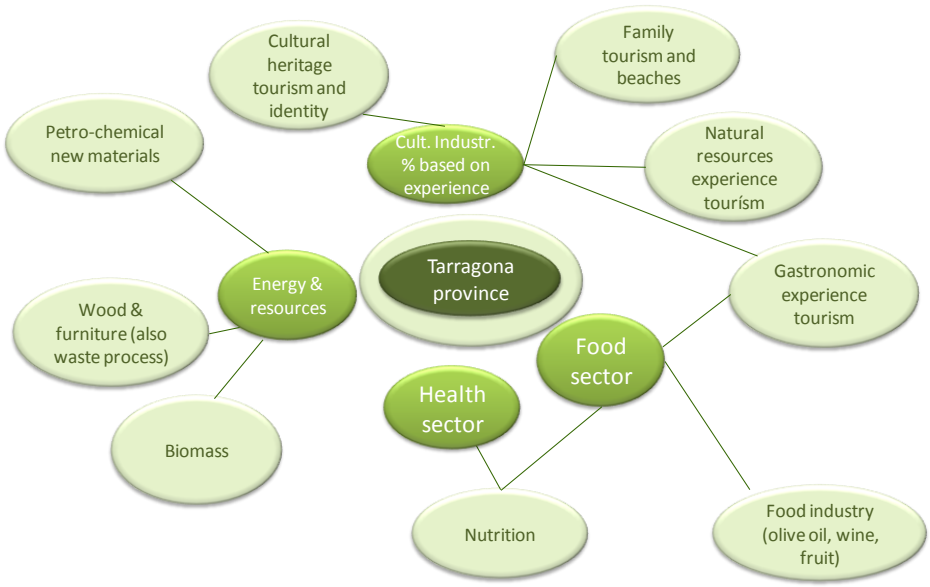
City of Montblanc joins the project as an active participant for the promotion of heritage, thus following the strategy of promotion of historical, cultural and gastronomic town, which has been developing in recent years. If something has to be highlighted of the town of Montblanc is its foundation and historical evolution over the centuries, precisely because of this its operation will be focus on the historical and cultural field.

ENTREPRENEURIAL DISCOVERY PROCESS

The process of entrepreneurial discovery that led to choose tourism as a key activity of specialization for the province of Tarragona started in late 2014. Then, Tarragona Diputació (Dipta) made a call to all economic and knowledge, as well as local authorities, to discuss the regional specialization of the region called CATSUS. In this first stage, the intention was to present a first draft of the specialization map, which includes key territory activities, from the chemical to nutrition, tourism and winemaking.

The first map of opportunity affronted this complexity in a single project, trying to involve multiple stakeholders with different needs. At the same time, it became clear that Dipta should establish connections with other administrations in the territory who were interested in carrying out other projects for themselves. Moreover, the analysis of the conditions and operations that could be financed with the PECT call required enough critical mass to access to co-financing.

Final specialization map. September 2015



Thus, the initial idea was modified with the willingness of limiting the specialization areas. The field chosen was the tourism sector. This activity was considered sufficiently rooted in the territory and transverse (and plenty of previous collaboration with important agents) to be the object of a single and consistent project coordinated by Dipta.

Once determined the specialization, from September 2015 until June 2016, there has been carried out a series of meetings organized by Dipta (through the European Projects Unit) with the presence of agents of the territory, which have helped to select the concrete field of specialization that could work in tourism. This process culminated on June 9 with a plenary working session where to contrast specialization and a first version of the operations plan of the PECT. There came near 100 regional agents, from city councils and county councils to businesses and various sector associations and institutions.

The reasons to choice family tourism as the object of this project were:

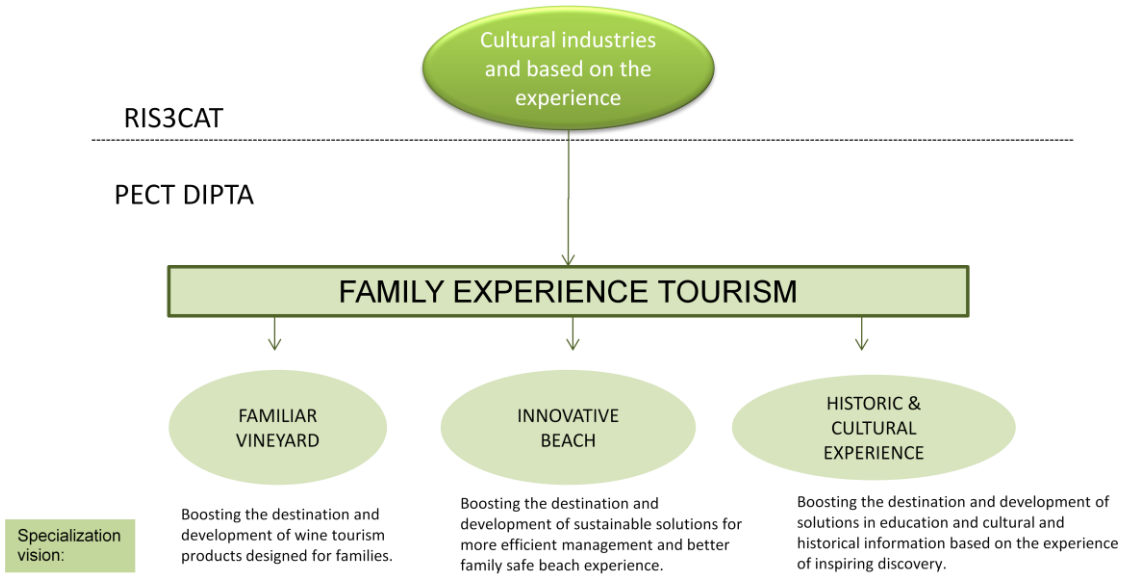
1. It has the clear institutional support, since the presidency of Dipta considered that this sector would give the opportunity for growth and

specialize globally, even taking into account the differences in type and maturity stage of the sector.

2. It has a history of previous collaboration between important stakeholders in the tourism triple helix which forms a cluster of powerful and innovative tourism initiatives already functioning, which also facilitates the identification of new needs of the sector and the territory..
3. The presence of the Tourism agency assures that the project will both beneficiate local players (counties, municipalities, businesses) and access to the Catalan RIS3 Community for Tourism, which adds value to the project and gives greater opportunities to generate economic impact and connections with the world of research and knowledge.

The map resulting from these discussions was the following:

Final specialization map. February 2016



STRATEGY AND OBJECTIVES

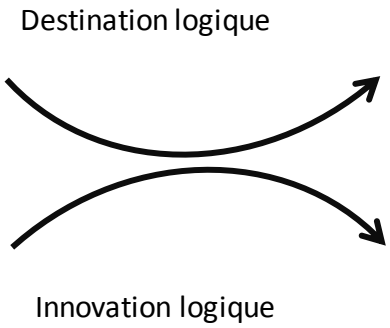
The PECT "TurísTIC en família" is the realization of territorial and sector strategies that as Dipta, Tourism agency and URV have been developing around tourism and the promotion of the territory in recent years. The PECT also contributes and is aligned with the overall strategy of tourism in Catalonia

and responds to challenges in the sector at international level, pointing to the need to promote innovation and networks and institutional collaboration as a way to increase productivity and strengthen tourism destination. In addition, since the members are partners and participants of other strategic initiatives carried out in the province, the project will also have a positive impact on the achievement of their goals.

Vision of "TuríTIC en família"

The specialization project "TurísTIC en família" is willing to generate competitiveness, innovation, growth and new jobs directly and indirectly, transforming the province of Tarragona into an innovative family tourism global reference.

Two logical conceptual frameworks define the two sub-objectives:

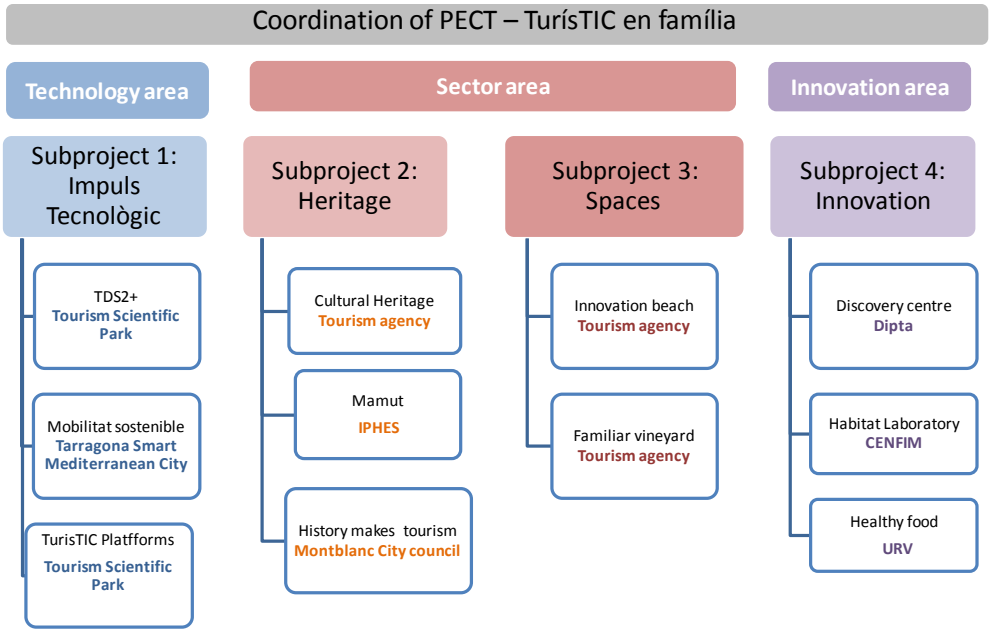


- **To improve the branding process to strengthen the counties of Tarragona and Terres de l'Ebre as global family tourism destinations,** developing specializations based on family experience, generating employment and economic activity across the country, respecting the uniqueness of each destination and highlighting the different existing assets.
- **To promote an innovative ecosystem specialized** i**n the family touristic sector** in the counties of Tarragona and Terres de l'Ebre, which

contributes to strengthen an integrated and collaborative innovation platform that becomes a useful element for the economic system and has, as a consequence, the creation of new products or services and solutions that, once proved in these destinations, could be scalable, transferable and exportable to other similar global destinations. All of this has to promote, also, the attraction of talent and investment in the field of specialized family tourism.

PROJECTS, OPERATIONS AND ACTIVITIES

The figure below shows a summary of the organization of this project.



3) County of Baix Llobregat

ABSTRACT

The smart specialization strategy defined by the Government of Catalonia (RIS3CAT) PECT as the framework for the development of articulated initiatives promoted in the local level. They contribute, in this case from the county of Baix Llobregat, to achieve the UE 2020 objectives in Catalonia.

In this regard, the region of Baix Llobregat, under the leadership of their towns and county council, which assumes the functions of coordination and representation, has agreed to design a PECT that defines the strategy of specialization territory to achieve the goal of increasing economic activity in the region and creating new jobs, incorporating innovative elements as a strategy for public action.

Baix Llobregat have concentrated, for the project, a set of actors that will play a prime role in local economic development of the region:

- 30 municipalities and the county council,
- a set of non-profit organizations,
- a leading international university campus (PMT Castelldefels) where they are located:
    - UPC (Universitat Politècnica de Catalunya)
    - ICFO, as various research institutions
    - incubator ESA (ESA BIC Barcelona)
- several business associations,
- a delegation from the Chamber of Commerce,
- infrastructure and appropriate resources and first class services to provide basic and advanced business support,
- a network of public services to support entrepreneurship,

- and business network of more than 24.000 companies, SMEs and large companies, representing 11% of the Catalan GDP.

Therefore, it is a territory with assets and a sufficiently important potential as to develop a PECT in order to articulate a good system of relations and connections between these different actors. The goal is to align, coordinate, share and collaborate in projects that allow this potential to exponentially impact on its economy.

Thus, the **five subprojects** included in the PECT are:

- **Automotive**
- **Mental health**
- **Agroambiental,**
- **Entrepreneurship**
- **Talent**

It aggregates operations and actions that aim to add these collaborations between various actors in order to establish collaborative networks and collaborative actions among join efforts to achieve the main objectives of the PECT, such as improving competitiveness region and increasing economic activity and job creation.

PARTNERSHIP

The PECT of Baix Llobregat is led by the County Council of Baix Llobregat, which acts as a representative body. The project is set with 18 partner organizations (beneficiaries of UE funds) and 19 not beneficiary participating entities. From the point of view of their nature, they represent the members of the quadruple helix in the chosen specialized areas of the territory and are grouped as follows:

Local administration:

- **Partner organizations:** the Regional Council of Baix Llobregat (CCBLL) Automotive Training Consortium of Catalonia (CFPAC), City councils of Sant Joan Despí (ASJD), Sant Feliu de Llobregat (ASFLl), Sant Vicenç dels Horts (ASVH), Sant Boi de Llobregat (ASB), El Prat de Llobregat (APLL), Viladecans (AV) and Molins de Rei (AMR) and the Agricultural Park Consortium of Baix Llobregat (CPA)
- **Participating organizations (do not benefit of UE funds):** the City councils of Abrera, Begues, Castelldefels, Castellví de Rosanes, Cervelló, Collbató, Esplugues de Llobregat, Gavà, Martorell, Olesa de Montserrat, Pallejà, el Papiol, Sant Andreu de la Barca, Sant Climent de Llobregat, Sant Esteve Sesrovires, Sant Just Desvern, Torrelles de Llobregat, Vallirana and Procornellà (depending of City council of Cornellà de Llobregat).

Innovation ecosystem:

- **Partner organizations:** Innobaix, International Centre for Numerical Methods in Engineering (CIMNE) Institute of Photonic Sciences (ICFO) Institute for Artificial Intelligence (III-A) of the CSIC and the Foundation for the Promotion of the Knowledge Society (Citilab).

Private sector:

- **Partner organizations:** Mental Health Cluster (CSM), Orienta Foundation (FO) and Calidoscoop, SCCP

The PECT is divided into **five major subprojects.** For each of them it counts on the participation of major public and private non-profit organization in the region. They are key contribution for achieving an innovative transformation county.

ENTREPRENEURIAL DISCOVERY PROCESS

The first phase of the process that was followed was an initial diagnosis with lots of statistics to know which the sector specialization of the county was. It was especially taken into account the aggregate number of companies. From there the team identify the fields or activities that had a higher weight in Baix Llobregat than in the Catalan economy. And from here and to respond to RIS3 criteria, they were identified three or four key players in each field, which were mainly tractor companies that could lead each of them. To choose these companies, the driver was the level of turnover and the export turnover. Also they value if they were present in the county. In total, 50 companies were identified.

The second phase was to see which sectors would be both specialities of the county and at the same time had tractor companies in site. Finally, they look for centres of knowledge and research in the county which could to bring applicable knowledge to these sectors.

STRATEGY AND OBJECTIVES

The main objectives of Baix Llobregat's PECT is to generate sustainable economic activity and new jobs, through joint operations and actions grouped into **five major subprojects** which include a strong component of innovation and seek to promote economic and social transformation of the territory.

The following strategic objectives are determined:

Subproject 1. Automotive Project

- To decrease unemployment rate of the territory through:
    - The generation of a mechanism of interaction between supply and demand in the field of training in the automotive sector.

    - The creation of a specialized training in the field of mobility to facilitate an increase in the competitiveness of companies.
- To reduce private vehicle mobility and improve mobility of Baix Llobregat

Subproject 2. Mental Health Project.

- To improve the day to day health of patients with mental disorders and their families.
- To specialize Baix Llobregat in technology development linked to improved care of patients with mental disorders.
- To create new jobs in Baix Llobregat in the field of software development and computer applications and in the field of artificial intelligence.

Subproject 3. Agroambiental Project

- To improve the management and protection of natural areas across Baix Llobregat county.
- To improve mosquitoes pest control in the territory and, in particular, to get better information as well as better processing and dissemination.
- To implement a control system of the water quality of the natural areas of the Delta del Llobregat, by installing sensors in each body of water.
- To improve the management of drainage and irrigation in the Agricultural Park.

Subproject 4. Entrepreneurship Project

- To highlight all actors engaged in activities in the area of entrepreneurship and innovation in the region of Baix Llobregat.
- To promote awareness and to enable connectivity between these agents to respond to wider entrepreneurial projects in the county, developing joint initiatives, sharing best practices.
- To give visibility to all actions carried out in the county related to entrepreneurship, so that entrepreneurs have clear and comprehensive

information on what project is offering to develop successful entrepreneurs.

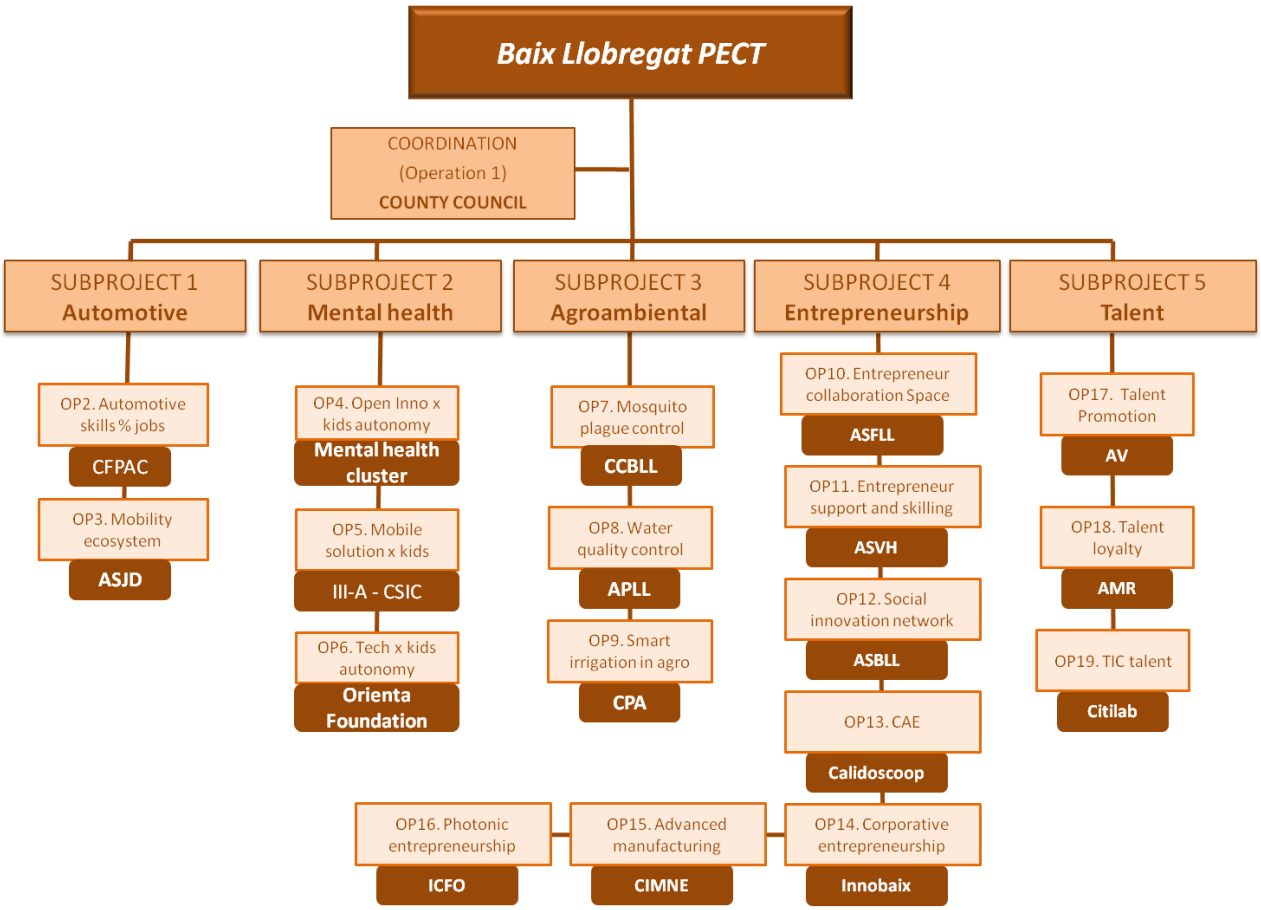
- To work in favour of entrepreneurship in the region, enhancing the knowledge that accompany the various stages: start, growth and consolidation of companies.
- To encourage innovation by companies such growth and the economy in the territory.
- To Strength partnerships between the R & D system and the production network.
- To accelerate innovative potential projects with high return in the county, and particularly in the areas of specialization of Baix Llobregat such as automotive, health and food and agriculture, among others.

Subproject 5. Talent Project

- To detect and promote talent among students of the county, as a key factor of economic and social development.
- To maximize the talent of students to address future business skills needs.
- To improve the employability of high school students and secondary school in the region of Baix Llobregat.
- To respond to the socio-economic needs of the territory
- To position Baix Llobregat as the leader in digital training area for all schools in Catalonia.

PROJECTS, OPERATIONS AND ACTIVITIES

The figure below shows a summary of the organization of this project.



9. Obtained results

Following they are presented the results of the analysis and contrast of the model in each one of the three cases. The input has been the answers of the interviews made during the month of May of 2016 with technical managers of the local governments determined as cases in this research:.

CASE 1 – CITY OF LLEIDA – Interview in Lleida the 30/5/16 with Marisa Benítez, technical manager for RIS3 in Lleida City Council (Globalleida).

Part A. The entrepreneurial discovery process used to specialize the territory

- **The key inputs and their relevance for the final specialization decision**

In Lleida the state of the art has been the unique input “It has been a technical decision. The political recommendations ran in other directions. So, they have not been relevant inputs”. To decide the specialization area, the first condition was it had to be a territorial strength. The area also had to have relation with the challenges and identity of the city and with the subjects which the city research centres of the city were studying. GDP and occupation data were the main objective inputs to decide, though a cluster study and other previous documents also stress on that direction.

- **The key partners and their role in the specialization process**

There have been participating the City council, the University, the Scientific and technological Park and different innovative companies of the territory.

The leadership is clearly taken by the City council. They think they “have to do it”. Its role is to connect and energize the ecosystem agents, to “make the ebullition process”. This is its strength.

The surprising actor has been the university. It has been the principal actor in relation to the content of the project. As the specialization project is based on research and technology transfer, the university moves more comfortable in it. “The City council leads the initiative, but doesn’t know how to draw the way to reach the objective. It is not used to that kind of intervention areas”. It is especially true in the “observatory” and “laboratory” issues. On the other part, the municipality is more used to the “market” issues, oriented to business and citizens. This is its natural habitat.

The companies participated lively in the meetings. Usually they are open for this kind of projects, but at the same time they don’t want to be disturbed. They have participated previously in other projects which didn’t materialize.

- **The methodology used and its effectiveness**

The entrepreneurial discovery process was more neutral and effective in the first phase, where the university led the initiative and it opened the call to everybody. Latter, since the process is coordinated by the city council, in its own project, and the provincial government, in another one, there is the perception that the initiative has lost participation. The university was a neutral agent who attracts all the system components in a unique strategy.

“Working with so many people is enriching but difficult to manage”. It is thought in Lleida that more people in the process mean more ideas and different points of view. The key challenge is, therefore, to maintain the implication. Everybody give ideas but afterwards these have to be materialized. If not, the process should be reduced to the most nuclear interested group.

Part B. RIS3 at local level

- **The role of local government policies in the framework of RIS3 regional general strategy**

The PECT move the focus to the local public administrations, in the sense that perhaps what it was done from the regional level, now it will be done by the closest level to citizenship and companies. On the other hand, the PECT can be understood as a step to action. The message is to stop doing more and more strategic plans and let’s do concrete actions, and do them to have real results in 2, 3 or 4 years.

- **Key RIS3 functions of local governments and their principal beneficiaries**

The perception of Lleida City Council is that its functions in the innovation ecosystem are:

A) Dynamization of its economy, in order to increase its competitiveness of its companies.

B) Creation of new jobs, employees or in their own account (entrepreneurship).
C) Generation of a pride territory. They say “Sometimes, we are shameful about this sector. If our reality is this, we are this and we are proud of it”.

The key beneficiaries are companies, citizens and the territory in general. They are important in this precise order and every one as a consequence of the previous beneficiary.

Part C. Operation Plan Design

- **Principal operations determined in the local RIS3 Plan**

Two of their “operations” (programs) of its PECT are the more prioritized by Lleida:

a) The one boosting the pride within the territory, linking it to the agro-alimentary sector and its value chain. It is the best way to have repercussions in the citizenship quality of live, the sustainability of the retail sector in the city, etc.
b) The one boosting the innovation spirit to the local business world. If the whole city and their organizations believe in innovation and entrepreneurship, it can be a sustainable transformation project. If not, the spirit will last until the project ends.

- **Methodology used to design the operations**

When remembering the way how the operations have been designed, they say that the external experts help has been very important. The city council has a clear view of what it wants to become as a consequence of the project, but it doesn’t know how we should do it and how to structure the project. The experts have assisted in this designing process, especially in the concretion and landing of the strategy in terms of programs and actions. This is what they think it is the harder part of the PECT design.

- **New kind of local policies based on RIS3 and differences from classic strategies and plans of local economic development.**

What has surprised more deeply is the focus on R+D and innovation. “We were used to talk more about other kind of innovation, less technologic and more social”. They think they are good news to have the technologic innovation as the main engine for promoting competitiveness. They find a new kind of local policies the “observatory” and “laboratory” functions, understood as the parts of the funnel - territory of the author’s model. The third part, the “market” is where they feel more comfortable. The consequence of this change in the nature of these policies is that they are not under the control of the city council. It depends more of other agents and their interests.

It is also a new methodology is to work with the quadruple helix. They feel also positive with this change. “We are used to do it ourselves, and it works. Now we have to count on more people. Not only companies, but also other public administrations”. They say it will be how the duplications in economic development actions will be reduced. They believe in a common effort to organize ourselves all together and try to collaborate, expecting better results than doing it separately. There is a lot of work to do. In the professional level, they have it clear, but at the political level, there are many particular interests. The consequence of not working together is that the citizens will not understand it. They want to see all the administrations and institutions working in a collaboration basis.

They also state that the role of companies should be more important. It is important, following this idea, to have a business representation in the governance of the PECT. “If not, at the end, it is always the same: we decide and work with the same ones”.

They thing there is not a significant change in the territorial scope.

A different opinion appears when it refers to the economic specialization in the strategy of Lleida. Specialize its economy make the local policy more intensive in the chosen sector. Now the local economic policies will be thought to be more specific for the strategic sector.

- **Learning process experienced by local governments. Contribution made by external specialized teams.**

Lleida has learned to connect with the economic sector agents and to establish systemic communication channels with them. With this process, they underline that these channels must be maintained open beyond the concrete project (PECT). It is also important, and not easy, the relation with other public administrations, in their case with the provincial and the regional government.

Once said this, Lleida explain that “one has to travel with the people in line with your strategy and values; one doesn’t need to stress the situation”. The territory has the experience of not having the capability to overcome the conflict of interests within the different institutional powers. They only have succeeded when there appears an external condition.

The experience of an external specialized team is fundamental because it shares the way other territories are talking to solve similar challenges. Moreover, it helps to organize the project, especially in the conceptual aspects and the design of the operations.

“You are in the core of the project team. We can meet 50 of us. Some say one thing, others say another. But, as it is an unknown subject for us, we don’t have the criteria to say yes or not. We don’t have internally the person having this knowledge and capacity. If we celebrate a meeting without you, there is no clear output”.

Part E. Expectations on the development of local RIS3 projects (next steps)

- **Difficulties or barriers expected in the launching process**

a) If the objective is having the quadruple helix in site, Lleida has good representation of public administration and university. The project lacks of private sector and civil society. The difficulty is, though, to involve these agents in the project. And it has to be done soon, because later in its development is more complicated. Later they will find an initiated project, which they have not lived.
b) The other fear is to be not realistic with the objectives and programs. Lleida wants to be ambitious but doing things that can be done in practice. The challenge is boosting reasonable innovation.

- **Key elements for the success in the implementation of the local RIS3 plan**

a) Again, designing the action plan to be acceptable.
b) And to select an adequate profile to manage the PECT in order to promote and boost the innovation ecosystem. The project will succeed only having in the team a proactive person that guarantee the real execution with the original spirit of the action plan. "We need the pot boiling all the time. We cannot leave it cool and later return to work. The daily work makes the institutions focus on their own tasks and actions, so we need someone to keep us work together, connected among us".

CASE 2 - DIPTA – Interview in Tarragona the **18/5/16** with Mercè Smith and Elisenda Villalta[9], technical managers for RIS3 in Diputació de Tarragona

Part A. The entrepreneurial discovery process used to specialize the territory

- **The key inputs and their relevance for the final specialization decision**

They understood that the analysis had to receive information from two different sources: internal / institutional and external / territorial. To do that, the first step was to create a core team with the people expert in these subjects and in the challenges of the entrepreneurial discovery process.

The external analysis has been like a radiography of the territory of the project, the province of Tarragona, scanning its strengths, its economic background and the possibilities of each one of the potential specializations. In this analysis, the previous studies and publications made by the universities was an important input.

The internal analysis is based in "what the own people eyes say", the opinions of the different multidisciplinary teams of the provincial government. These are professionals that know the territory, because they live in it and work with it and their challenges. Sometimes these visions are forgotten.

In this case, the most relevant input has been the existence, previous to the project, of a strategic work area, which the politicians wanted to support, the tourism sector. Moreover, it is a subject clearly dominated by the institution, a sector with a high contribution to the provincial GDP, an activity in which the territory feels good. In the last years it has been better and the institution wants to bet on it. "The political decision and the empirical evidence are two crossing lines".

[9] https://www.linkedin.com/in/elisenda-villalta-fort%C3%ADn-636b3048?authType=NAME_SEARCH&authToken=wwhO&locale=en_US&trk=tyah&trkInfo=clickedVertical%3Amynetwork%2CclickedEntityId%3A170015370%2CauthType%3ANAME_SEARCH%2Cidx%3A1-2-2%2CtarId%3A1471884271134%2Ctas%3Aelisenda%20

- **The key partners and their role in the specialization process**

The key partners have been the public provincial administration (Diputació de Tarragona). Later, when the institution decided to bet on tourism, the Patronat de Turisme (specialized body of the same institution) and the Scientific Parc, depending on the university of Tarragona (Universitat Rovira i Virgili), were included in the process. Until this moment, the university had only participated sharing its diagnostic of the economic foresight of Tarragona.

All three institutions have had a proactive role, understanding the PECT as a good opportunity for them. Moreover, DIPTA has had a clear vision: it has to be the leader of it. The Patronat, although has been a key agent in designing the strategy, has respected the leadership of DIPTA, knowing that they are definitely the same institution.

The university has been less participative, except trough the Scientific Park. It has not been invited to the main part of the meetings. This is because they had a different opinion of which had to be the specialization of Tarragona (they were thinking of a pack of projects) and also because the knowledge of the tourism field came already from the Patronat. Nevertheless, it is a fact that the university rector has a fluid communication with the DIPTA president. So it is clear that in a political level, the university has been present in the process. “We would prefer more implication from the university. But each institution and its people have their own interests and these sometimes make impossible to work together in finding the common goal”.

- **The methodology used and its effectiveness**

They have used the specialization balls map. From conversation to conversation, the potential specializations areas evolve until the final specialization vision appears.

There has been a concrete person, the contact with the political team, in charge of deciding this evolution. The technical core team has worked in the different

versions, talked to other areas and external agents, but that person was who finally confirm or not the map, the partners, etc.

On the other hand, they assume the need for an external expert who provides the concepts, the method and the european strategy criteria.

Part B. RIS3 at local level

- **The role of local government policies in the framework of RIS3 regional general strategy**

The principal role is to act as a lever to innovate. The PECT project is a useful instrument to boost innovation and knowledge in a concrete sector and territory.

In the regional framework, a territory (city, county or province) can highlight its strength in a concrete economic activity and can be extrapolated to other parts of the region. Each PECT will generate improvements and new knowledge to internationalize.

Its mission is to become a reference territory in the area of innovative familiar tourism. “If it works, in some years, it would be a natural decision for families and entrepreneurs to come to Tarragona to try new tourism products and services”

- **Key RIS3 functions of local governments and their principal beneficiaries**

There are 3 key RIS3 function, in opinion of the interviewed persons of DIPTA:

- Boosting innovation in the private sector and society. The objective is to raise challenges and needs of familiar tourism and to look for new solutions and products to cover them.
- Innovate in a more visible process. Perhaps there are innovations already but people don’t know.

- Revive the provincial and regional economy and, as a consequence, to encourage the society in the near future times.

Public administration may be also a beneficiary, changing to new ways to do its traditional functions.

An important beneficiary of the PECT is the university, becoming a transformation agent in economic and social areas. They are already trying to work together the research and the innovation teams. The PECT and the RIS3 european strategy could help to accelerate this change. The university has been a very much closed institution (only academic) and, however, it should be also the open laboratory where new ideas transform into new products. They have inadequate incentives (publications, articles, papers) but the change depends on the people behind the charges. “If they think it will work, it will work. Now it is a good moment to help them and launch this kind of projects”

Part C. Operation Plan Design

- **Principal operations determined in the local RIS3 Plan**

  - The big data platform: the operation will develop a public and open data platform of the destinations, to improve the private offer and the related public policies. “It is fundamental. If you know what is happening and you quantify it, you could better decide and act”.
  - The discovering and test centre: before launching a new product or service, this operation gives the entrepreneurs the opportunity to try them in a specialized space with organized client samples and potential partners.
  - The specialization network of the destination: this operation will have the objective of better identify and communicate the destinations “Costa Daurada” and “Terres de l’Ebre”. It has also the objective to involve the agents of the ecosystem in innovative practices and in the specialization process of the territory.

- **Methodology used to design the operations**

Some of the operations are inspired by previous ideas and projects, which would not be possible and put into a holistic project without the PECT opportunity. Other ones are new ideas that have been appearing during the conversations in the process of design.

The key idea of innovation that defines the PECT makes it easy to talk and determine bolder strategies and action plans. The conceptual framework and spirit of RIS3 helps to propose different approaches. It would be impossible in a traditional kind of project, without a European conditioning directive.

Part D. Evolution of local economic development policies

- **New kind of local policies based on RIS3 and differences from classic strategies and plans of local economic development.**

  - New and more divers agents involved in a more participative process.
  - Change of mentality about Europe and its value for the territory.
  - More effectiveness in the plans. “Europe will not pay everything” and Spain will receive less money. This is clearly a new challenge in the public policies and the way they are designed.

The institution does not open easily to changes. There is fear to end up with its customs. “Public administration is a XIX century invention, a superlative machine with the idea that it makes the things as it believes they have to be done. The internal perception is sometime that nobody has to tell us how to develop our functions. It is a quite common feeling in the organization, and we don’t involve the rest in our public decisions, loosing perhaps the opportunity to do the things better”.

It is also a question of maintenance of power in the province. Politicians sometimes don’t do anything for a change because they could lose a power

position o decision capacity. They don't believe that working together with others (public, private, university and society) all could win.

- **Learning process experienced by local governments. Contribution made by external specialized teams.**

It has been a learning process but to lesser extent than expected. The technical core team had wanted to have a better reaction from the political one. They think that talking about innovation makes compulsory to innovate in the tools used. It is for that reason that they expect a long transformation process to manage.

"The provincial governments have money and a lot of autonomy in practice. So, the collaboration with others is not so necessary, it is voluntary". They compare themselves with cities and counties governments, who have real economic problems and they need to work with others, adapt to other's points of view and interests. And this need forces to innovate and improve continuously. "If there is no need to change, why change?".

The contribution made by an external specialized team has been very important. The PECT introduces new concepts and strategies. So, it is needed someone who translate what the institution discover as an opportunity in clear concepts and images. The external team has helped in the learning process but also in the awareness function in the different levels of the institution. They also value the function of benchmarking made by the experts.

It is important for the interviewed to note that it has been a common learning process. The methodology and the new knowledge have been outputs from de conversation between the practitioners and the experts, readjusting and changing the model as a consequence of each step done. "If concepts don't communicate o apply clearly to the needs, the experts changed them as to be better understood and adapted." The experts work was based on the idea that they know where to go, but that adaptation and understading were necessary to find the best solution to this PECT. It has been a very open, natural and easy process, where all together have learned a new kind of public policy.

Part E. Expectations on the development of local RIS3 projects (next steps)

- **Difficulties or barriers expected in the launching process**

The public administration cultural barriers are the principal difficulties described in this case. They mean both the administrative problems and the political problems. They are, moreover, very related: the administrative barriers need the action of politicians and the political barriers need administrative rules to promote the change.

These difficulties could cause delay in the development of the project, and the consequent deception and impact of it.

They think that the prevention of this risk is not in hands of the technical team. It has not enough influence on the quite hierarchical and vertical kind of organization like is DIPTA. This nature, moreover, makes sometimes its professionals less participative and collaborative.

- **Key elements for the success in the implementation of the local RIS3 plan**

What would be a key factor for the success is the conviction of goodness of the project and the attraction capacity that it can generate. If people believe in the project and the new methodology, all could be easier to develop.

Equally important is the content and the form. The events format is a key factor to achieve the results. Innovation concepts are better communicated with innovative events.

CASE 3 - CCBLL – Interview in Viladecans the 31/5/16 with Andrés Andrés[10], technical manager for RIS3 in Consell Comarcal del Baix Llobregat.

Part A. The entrepreneurial discovery process used to specialize the territory

- **The key inputs and their relevance for the final specialization decision**

The first phase of the process was to collect a lot of statistics in order to know what could be the sector specialization of the county (aggregate number of companies, for example). From there it was seen some specialization areas that had a higher weight than the catalan economy. And from here and to respond to what is said in RIS3 strategy, they were identifies three or four key players in each field, which were mainly key 50 companies present in the territory that could lead each of the sector specializations. It was also identifies a center of knowledge and research in the county (Universitat Politècnica de Catalunya) to bring applicable knowledge in these sectors. To be consistent with the RIS3 requirements of look for endogenous resources and demonstrated evidence, some of the fields were eliminated.

Apart from the cities governments that already were included, they look for other actors from the civil society who could join the partnership. This was a great challenge for the county. It is common to invite trade unions and employers associations, but CCBLL wanted to go further.

Finally the map was contrasted with the municipalities, analyzing if there was any opportunity forgotten. They contribute with ideas and 4 of them were definitely validated.

So, the decision was taken with empirical data and contrast with municipalities.

[10] https://www.linkedin.com/in/andr%C3%A9s-andr%C3%A9s-14147418?authType=NAME_SEARCH&authToken=P0R8&locale=en_US&srchid=1115078614718841137768&srchindex=1&srchtotal=375634&trk=vsrp_people_res_name&trkInfo=VSRPsearchId%3A1115078614718841137768%2CVSRPtargetId%3A60867265%2CVSRPcmpt%3Aprimary%2CVSRPnm%3Atrue%2CauthType%3ANAME_SEARCH

The contrast with companies was made afterwards. It was organized a first meeting with the identify companies in each of these sectors chosen. There they were introduced to RIS3, the PECT projects and were asked to launch ideas or projects they had in mind.

There was a work to balance the needs and bets of the different municipalities of the county. “But we told them that it was a matter of competitiveness. There was no sense in betting for an area of specialization in which there were other territories in a better position”. So, definitely, there has weighed more the evidence that politics. The only chosen area that does not meet the technical criteria is “mental health”. The territory is a reference in knowledge but not in business. In this case, it has been a political decision. The “food industry” is also an existing commitment with the Agricultural Park.

- **The key partners and their role in the specialization process**

The key partners have been the Consell comarcal (county government) and the municipalities’ governments. Trade unions and employers associations were also in the discussion. All together in the framework of the “Consell Econòmic i Social del Baix Llobregat” contrasted the final document before approval. The university (UPC) entered later.

Trade unions and employers associations have not in agenda the generation of innovation ecosystems. “Perhaps it was our problem, not to know how to explain the vision and the project, but they didn’t react proactively. They don’t know what role to play in this new scenario. They are still in the old politics. They agree with the specialization but their approach is the negotiation of labour conditions. And this project is not based on this discussion”.

The attitude and participation of town councils has been very positive, at list in the first phase of definition and determination of specialization areas. Later, they have participated in the transversal operations, not in the sector ones. These last operations were worked, however, with the key partners of each field and companies. The local governments are critic with this decision of not being invited in the discussion about these sector operations.

- **The methodology used and its effectiveness**

The used methodology was group sessions. “With some big city council they made a particular session but 99% worked with group sessions”. A council of mayors where organized to validate the specialization vision. Nobody said anything, all seemed well. Only one defended a new sector and was not approved. The final proposal, therefore, was made by the manager of the county council and the external expert commissioned.

Once specific areas of expertise were chosen, they organize the meetings with companies. UPC and other centres of knowledge and institutions also assist to the two sessions that were celebrated per field. It was difficult for the companies to launch challenges and proposals to be analyzed by the knowledge centres in order to provide innovative solutions. Companies cannot or didn’t want to share their challenges and projects. They, though, change of strategy: the knowledge centres expose their innovative solutions in order to inspire the companies. There was a third meeting with this idea. There were many ideas from research projects that could have an interest in the business, but few companies came and saw the application. “To assure their presence, some "homework" was put to each city council, asking them to bring the 3-5 key companies of their municipality. It cost a lot, maybe it was not understood what RIS3 was”.

The communication policy also failed. “A company that doesn’t know exactly what is the object of the meeting; you quickly explain what the project is about, without using their language; we quickly discard them, we say: "the industry does not want anything". This is one of the criticisms that it is made to the methodology used. The industry perhaps does want or need something, but maybe it needs some maturation process if someone wants the company to tell what it needs. With a plenary session it will not say anything; there is no guarantee of confidentiality. “There came 100 companies but all the specialization areas fell down”. Any company had interest in the project. Aside changed the expected characteristics of the PECT call for funds, doing unviable for companies to participate.

“We have learned the challenge to reach companies via maturity in our communication with them, generating confidence. We must show that local administration is a facilitator that connects needs and solutions. When you talk with them on the 3rd or 4th time you get the first outputs”.

Part B. RIS3 at local level

- **The role of local government policies in the framework of RIS3 regional general strategy**

The principal role of the local government is to fix the research and innovation function in the territory. It has to be the tool to facilitate a laboratory where to prove new solutions and technologies that, later, could be transferred to the global sector. The government of the territory has to become a facilitator of the meeting between business and knowledge.

- **Key RIS3 functions of local governments and their principal beneficiaries**

Three functions were determined by the interviewed:

I. To achieve a unique system for the entire county, convincing everybody (especially city councils) that this administrative scale is better than the city when refers to competitiveness and innovation ecosystems.
II. To connect business with university. To get to know each other as a necessary complementary partners for their effective activities and global competitiveness.
III. To determine a common strategy for the county, to avoid superficial decisions in betting for sectors or projects without a previous consensus. “We have wanted to be everything in the past. Now we have it clearer”

Part C. Operation Plan Design

- **Principal operations determined in the local RIS3 Plan**

The principal operations, in their opinion, are the ones that have followed the RIS3 methodology, the ones that contain challenges and their solutions and with a clear specialization spirit. They will represent best practices in the future ecosystem. The other operations, called transversal, are more traditional. We made them already without RIS3.

- **Methodology used to design the operations**

It works through double objective meetings per sectors: companies launched challenges and university, new knowledge and technologies. 6 or 7 sessions for each field were celebrated. They were descriptive, where each one explained what was doing. “When we saw there were not appearing many connexions and there was a real risk to have an inconsistent PECT, we invent a new kind of operations, the transversal operations, leaded by local administration and also by social sector institutions.

There is an evolution in each operation that each partner proposed. “RIS3 is not a fund that pays your project as you initially propose, but you need to open your vision and look for others that can be also beneficiaries and with which other project you can establish synergies”.

The transversal operations were pretty decided by the core team of the project, before each city council take its leadership.

Part D. Evolution of local economic development policies

- **New kind of local policies based on RIS3 and differences from classic strategies and plans of local economic development.**

What is new is the focus in specialized sectors. The classic policies are more generic. RIS3 forces the territory to bet for a few sectors and technologies. It also introduces a systemic vision of the sectors.

On the other hand, it makes compatible the legitimate local interests with the need to coordinate polices at county level, through a collaborative, transparent and trust new framework. RIS3 is the opportunity to change the model. “Everybody uses already the collaborative argument, but it must be taken into practice with generosity. The 10 big cities of this county should support and recognize local strengths and bets from the county level, without distrust. RIS3 is the opportunity”.

Finally, it places the business vision in front of the unemployed vision. The say: “doing the way opposite has been often a failure policy”. RIS3 put the companies’ needs in the centre and focus the development policies to competitiveness and innovation. This focus, moreover, has to impact, at the end, in the unemployed needs.

These changes are causing that local economic promotion policies are being split in 2 areas: one more assisting focused on the unemployed and other more promoter of business competitiveness.

- **Learning process experienced by local governments. Contribution made by external specialized teams.**

They have learned to work with companies developing trust with them, trough a facilitator role and a maturation process. The same occurs with the municipal governments: to involve them in the initiative, they have to be in the process, to receive feedback and to generate trust between them and with the county council.

Another thing is the role of the external expert team. It is a complicated relation. It facilitates the work, but sometimes its methodology conditions the process. It has its own interests and points of view. They have a clearer vision of RIS3 criteria and models but there has been some criticism around the grade of adaptation to the county reality. The role of consulting firms or social researchers is, though, a key challenge for the future implementation of the PECT.

Finally, they are learning how to communicate with a shared county strategy, defeating political reluctances. “We want local protagonists but with a county strategy. RIS3 and PECT could be the instrument to develop this idea”.

Part E. Expectations on the development of local RIS3 projects (next steps)

- **Difficulties or barriers expected in the launching process**

IV. The risk is to think that PECT is one project more. This project has to generate a new way to work in the county, beyond the concrete project.

V. The other risk is not to have a holistic project, becoming the project an addition of individual actions. Every partner has to lead its operation, but from the conscience of being part of a big common collaborative county project.

- **Key elements for the success in the implementation of the local RIS3 plan**

VI. The honesty spirit between the agents of the ecosystem. “We must articulate a collaborative system that complement between programs and services, to multiply their impact.”

VII. The political arguments are also important. The local vision has to incorporate the county perspective.

10. Conclusions

A contrast of each one of the Sub-hypothesis s determined in the section of objectives and research hypothesis is made below.

A) The entrepreneurial discovery process used to specialize the territory

A.1) The inputs for determine the specialization areas

Sub-hypothesis A1.1: this collaborative and conversational process has more robust outputs if the following are the two main inputs taken into account: State of the art and political or institutional explicit willingness.

Two of the cases (DIPTA and CCBLL) have the two inputs in site. In the case of Lleida, the unique input has been the state of art, the objective evidences of strength in this territory. In Tarragona, the political and institutional willingness to bet for a concrete specialization area have been really differentiated: the first has been a top down flow; the second, bottom-up. In the case of CCBLL, the identification of potential areas of knowledge and activity have been quite more mathematic, in comparison with the others, were the identification has been also intuitive and creative.

It seems, though, than the analysis of documents and objective data is a common input to identify and decide specialization areas. The technical and political influence in this process is not so clear.

Sub-hypothesis A1.2: the process is robust if the two inputs have equivalent relevance for the final specialization decision.

In two cases (Lleida and CCBLL) the inputs have not the same relevance for the final decision on specialization. The evidence (state of art) is clearly the principal input, although there is, in the second case, an exception in one of the fields chosen. In the case of DIPTA, the 2 inputs have coincided and had as a result a solid decision.

It can be said that, at list in this sample, the state of art plays an important role in the specialization decision, more than any other input.

A.2) Agents involved in the entrepreneurial discovery process

Sub-hypothesis A2.1: the presence of relevant agents of the quadruple helix contributes to the emergence of more transformative projects.

The three cases show different agents mix in the participation phase of EDP. In the case of Lleida, public sector and university have been the key agents, who have punctually contact with private sector to contrast and involve it in the project. In the case of DIPTA, public sector has been quite the unique agent (having different internal areas involved in the conversation), although the Scientific Park, depending on the university, also participate in the second part of the process. In the case of CCBLL, complete representatives of the quadruple helix have been invited to participate in the process, including civil society. However, there have criticized the fact that they have not meet together (in concrete, municipalities with companies have not coincided in the meetings).

It seems that there is not a common mix of agents in the local RIS3 plans. The hypothesis is that each municipality, county and province has its own history, power equilibrium and needs, which generate different organizations. On the other hand, that, especially in the local levels, the concrete persons who are leaders of each organization are so relevant as the organization itself.

Sub-hypothesis A2.2: the leadership/role of local government contributes to the emergence of more transformative projects.

In the three cases, the local government assumes the leadership of the initiative, assisted by an external expert team. In the case of Lleida, sharing the decisions with the university; in the case of DIPTA, alone and leaded by the

political team; in the case of CCBLL, alone and leaded by the management team.

The local governments assume the leadership of these new policies, with a different level of shared decision process with external agents and with different equilibrium situations between technical and political teams.

A.3) The EDP methodology

Sub-hypothesis A3.1: the more open, trustful and systematic are the conversations, the more is the transformation potential of EDP.

In the three cases, the EDP is limited to a few agents and persons, although opens to other in a punctual basis, in order to contrast o ask for challenges and ideas. In Lleida, the university provides neutrality to the conversation; in DIPTA, the conversation is controlled by the political team; in CCBLL, they learned that conversation with companies and research groups needs more time, a systematic relation and generation of trust.

All believe in the goodness and give value to EDP, but there is not a solid culture of open, trustful and systematic conversation with the agents of the innovation ecosystem. A learning process and brave governments are needed to explore the best techniques to achieve this new culture.

Sub-hypothesis A3.2: the development of EDP results on more robust common specialization vision.

The three cases ended this phase with a formal and public final map of specialization areas. Lleida has changed a little the focus during the long time of preparation, because of different bets in different political teams and cycles. DIPTA has had difficulties to maintain the vision when it has been released to the multiple potential partners of this large territory. CCBLL has had neither big problems in the approval of the vision nor much discussion with the

municipalities. In this last case, the areas are equivalent at sectors (food sector, car sector, etc.). However, in the two others, the specialization areas are more concrete ("familiar tourism", "intelligent agroindustry").

It seems that is not difficult for the local governments to share and approve their specialization areas. However, there is different interpretation about the meaning of "specialization area" and the real discussion comes later in the negotiation of operations and budgets.

B) RIS3 at local level - The focus on innovation

B.1) The role of local governments in RIS3 (Nests and eggs)

Sub-hypothesis B1.1: the transformative potential of the process is positively related to the commitment of the territories in the development of innovation ecosystems environments.

Each of the cases explains the role of local government in different words and with different accents. Lleida describe the local scale as the best to put into practice the regional strategies; DIPTA define the local government as a lever to innovate in all senses, also in public policies, to become a specialized reference in the regional and global markets. CCBLL understand its role as the one that fix the research and innovation activity in the territory, becoming the laboratory and the facilitator of innovation.

Local governments are constructing their new role in the regional innovation systems, defining themselves as operational instruments, levers and facilitators to innovate, open laboratories and brand developers

B.2) Key functions of local economic development

Sub-hypothesis B2.1: the results are positively influenced by the preponderance of innovation in the vision of the project.

The three of them put innovation in the central place of their project. However, in detail, there are some differences: Lleida understand innovation as an instrument to achieve competitiveness, employment and a proud territory; DIPTA understand innovation as a holistic culture to boost in all agents and aspects of the economy and the society. CCBLL understand innovation as the collaboration between research groups and companies.

PECT is putting innovation in the centre of the local economic development strategies. The concept innovation, however, has different meanings for different persons, organizations and territories, from technologic transfer to holistic innovation policies.

Sub-hypothesis B2.2: the more collaboration attitude exists in the process.

In different grades, all cases make explicit their need to share the policy with others. In Lleida business growth has to generate employment and employment has to generate wealth and proud and global reference. In DIPTA, they are willing to share the initiative with the university, as each agent is good at different needs of the policy. In CCBLL, they want more shared strategy and action among the municipalities, with the companies and with research groups and civil society.

There is a general feeling of need to collaborate in the design and development of local RIS3 projects, both between different areas of the organization and between different agents of the quadruple helix.

Sub-hypothesis B2.3: the more market oriented is the objective, more transformative are the outputs of the process.

All cases have the business organizations as the principal beneficiaries of the new policy, what is a relevant change from the previous strategies, more oriented to the needs of unemployed.

There is a true change in local economic development policies towards the needs and interests of the companies, key actors of growth in territories.

C) Operation Plan Design - The ecosystem design and the definition of public policies (operations).

C.1) Principal operations of local RIS3 plan (PECT)

Sub-hypothesis C1.1: the local RIS3 plans which include operations linked to all four kinds of capital have more transformation potential.

In the case of DIPTA, the three prioritized operations (Big data platform, Test centre and Network of destination) include elements of the 4 capitals. In the case of Lleida, the operations expressed as principal (Pride and innovation culture) are both related to symbolic capital. In the case of CCBLL, they highlight the innovation and technologic transfer operations, which include especially social and physical capitals.

It seems that each PECT focus on different capitals, perhaps because of the professional background of the interviewed persons or because of the specific needs of each territory and innovation ecosystem. However, it shows two conceptual frameworks: one that understand innovation only as the transfer of knowledge into business and another that do it as a cultural bet for society in general.

C.2) Methodology used for designing the operations

Sub-hypothesis C2.1: the project has more transforming potential if operations design is collaborative and evolutes from the initial individual ideas of the partners.

The three cases explain that the initial ideas proposed have had an evolution during the designing process. All have had intense creative work, guided by external experts, and had as a goal to make a big unique project and not a addition of unconnected operations.

RIS3 has caused a different way to design the policies, transforming the individual ideas and projects into parts of shared, integrated and more focused and ambitious strategic projects for the territory. This needs more time, open and creative attitudes.

D) Evolution of local economic development policies

D.1) New kind of local policies based on RIS3 and differences from classic strategies and plans of local economic development.

Sub-hypothesis D1.1: the PECT design causes consciousness of relevant change of nature in the local economic development policies.

All cases share the feeling that it has been a relevant change in the relation with external agents. The local governments need them to complement (for example, with research and innovation actions, which local public administration doesn't dominate) and to look for win-win situations. It is also, for DIPTA, a change in the perception of the value of european values (more regional integration, more effectiveness of funds) and the need to leave the pure own policies (provincial governments historically haven't needed to look for partners and to confront ideas with others, because they are well financed). CCBLL is the only one that stresses the idea of specialization as a relevant change of PECT. The cause could be that the other 2 had a very clear specialization area before the program arrived. Apart from that idea, there is consciousness of

opportunity to begin to work seriously as a county and to relate with economic sectors from a systemic vision.

The most relevant change caused by RIS3, shared by the 3 local governments, is the need to collaborate in a win-win basis with other agents of the ecosystem, because the object of the policy is no more purely public, it is also about research and innovation. The specialization is not a new strategy for some of the territories.

D.2) Learning process experienced by local governments. Contribution of external specialized teams.

Sub-hypothesis D2.1: the local RIS3 projects need a learning process to have the expected transformation potential.

In the cases of Lleida and CCBLL, they have start learning the way to collaborate with companies, universities and other public administrations. They feel the necessity of organize and maintain systemic and reliable channels and connexions with them, something they were not used to. In the case of DIPTA, it has been an internal learning process, especially for the technical core team. The political team need more time to adopt the changes learned. It will take longer.

There is a clear learning process linked to RIS3 new kind of policies at local level. Especially around the systemic relations the local governments need to have with the rest of the research and innovation ecosystem and, in some cases, the betting for a concrete area of specialization.

Sub-hypothesis D2.2: The contribution of external experts is positively related to the quality of the local RIS3 projects design.

In general the contribution of external expert teams is fundamental for a successful designing process, both for strategy and operational plan. It helps in

the organization of the designing activities, in the conceptual framework, in the awareness actions at different levels and in the benchmarking with other territories. In the case of CCBLL, they point up that it can determine the strategy beyond the real needs of the territory. DIPTA explain that it is important that the learning process occurs in both senses (from the practitioner to the researcher and the other way around).

The adaptable and not dogmatic participation of external experts in the local RIS3 projects is a fundamental need and a challenge for both parts of the relation. Methodology, conceptual framework, awareness raising and benchmarking are the most valued functions of these external teams.

Part E. Expectations on the development of local RIS3 projects (next steps)

- **Difficulties or barriers expected in the launching process**

- To involve companies and civil society
- To be realistic and ambitious at the same time
- Administrative and political barriers (lack of participation and transparency)
- To maintain the holistic spirit that make consistent the whole project

- **Key elements for the success in the implementation of the local RIS3 plan**

- To plan reasonable action plans
- To select an adequate manager profile
- General conviction of goodness and expectation of impacts
- Format of activities, communications and events
- Honesty and collaborative spirit
- Political arguments

Final conclusion:

From the analysis of the cases, both the case itself and the interviews, 8 general learning points have been set:

- **The decision of specialization is quite objective.**

The analysis of previous documents and objective data is the most common and relevant input to identify and decide specialization areas in a sub-regional territory. The technical and political influence, at list in the first specialization phase, is not so clear to be a relevant input. The real discussion seems to come later, during the negotiation of concrete operations, liabilities and budgets.

- **There is not a common structure of triple or quadruple helix.**

The mix of agents in the local RIS3 projects design does not follow any common structure. The hypothesis of the author, to be contrasted in other research, is that each municipality, county and province has its own history, power equilibrium and needs, which generate different kind and influence of organizations. Another cause could be that, especially in the local levels, the concrete persons who are leaders of each organization are as relevant as the organization itself.

- **The local governments, assisted by an external expert team, are assuming the leadership of these new policies.**

With a different level of shared decisions with external agents and with different equilibrium situations between technical and political teams, the local governments are leading the process, organizing its activities, following up the timings and costs.

- **There is a general feeling of need to collaborate in the local RIS3 projects, both between different areas of the organization and between different agents of the quadruple helix.**

RIS3 has caused a different way to design the policies, transforming the individual ideas and projects into parts of shared, integrated and more focused and ambitious strategic projects for the territory. Collaboration is believed fundamental and it can be seen in true and committed entrepreneurial discovery process (EDP), which finds barriers caused by the inexistence of solid cultures of open, trustful and systematic conversation with the agents of the innovation ecosystem. A learning process, more time and open, creative and brave government teams are needed to explore the best techniques to achieve this new culture.

- **The specialization concept, although with some confusion, has been well received and applied by the local governments.**

It seems that is not difficult for the local governments to share and approve their specialization areas. There are, however, different interpretations about the meaning of “specialization area”, which is sometimes confused with the entire sector. On the other hand, the specialization process is not a new strategy for some of the territories.

- **Innovation, with several meanings, is assumed to be central in the new local economic development policies, which transform the role of governments and orient it towards the market needs.**

Local governments are constructing their new role in the regional innovation systems, defining themselves as operational instruments, levers and facilitators to innovate, open laboratories and brand developers. So, innovation is now in the centre of the local economic development strategies. The concept innovation, however, has different meanings for different persons, organizations and territories, from technologic transfer to holistic innovation policies. There is also a true change in local economic development policies towards the needs and interests of the companies, key actors of growth in territories.

- **Two confronted models appear in the development of local RIS3 projects: the lineal "knowledge to business" and the holistic "innovation as a culture".**

Integrate different kinds of policies are put in site to develop the innovation ecosystems leaded by territories. However, the cases study shows two confronted conceptual frameworks: one that understand innovation only as the transfer of knowledge and technology into business (as it is believed by the authors of national and regional innovation systems theories, like Cooke and Lundwall) and another that undersand it as a cultural bet for urban society in general (as it is believed by the authors of creative, entrepreneur and innovative cities theories, like Florida and Cohen).

Nevertheless, these two conceptual frameworks coexist pretty well in reality. The persons and organizations involved are usually defenders of one of the conceptual frameworks but they don't oppose the other. The challenge is to integrate the two frameworks, in opinion of the author. Regarding to the focus of the project on the different capitals, there is not a common result in the different cases. The author thinks it is because of professional different background of the interviewed persons or the specific needs of each territory and innovation ecosystem.

In both models, there is a need to collaborate in a win-win basis with other agents of the ecosystem, because the object of the policy is no more purely public, it is also about research and innovation.

- **The clear need for learning in the RIS3 development in the local level requires the adaptable and not dogmatic participation of external experts.**

Some learning curve is needed in RIS3 development in territories, especially around the systemic relations the local governments need to have with the rest of the research and innovation ecosystem and, in some cases, the betting for a concrete area of specialization. The participation of external expert teams in the local RIS3 projects is, though, a fundamental need and a

challenge for both parts of the relation. Methodology, conceptual framework, awareness raising and benchmarking are the most valued functions of these external teams. Also it is valued when they have a learning attitude and don't try to apply a closed and dogmatic receipt to an specific territory.

This result confirms the hypothesis and research results obtained by the authors of action-research methodologies (Larrea & Karslen and Greenwood and Levin). This will be a clear topic of the future research of the author.

Looking back to the objective of the research, "*To study how the sub-regional governments are reacting to and participating in RIS3 in Catalonia*", it is clear that it is being a brand new kind of public policies, "not just one more" as the interviewed person of CCBLL said.

Four big issues appear as conclusions of the research. They are called to be the starting point of the future doctorate research of the author. They are all related to the need of better understanding and putting into practice the meaning or meanings of:

SPECIALIZATION: although the local governments bet for specialization and use objective data to do it, there is some confusion about the adequate size of its chosen areas.

TERRITORIALIZATION: the local governments, assisted by an external expert team, are leading and learning how to develop these new policies and the new role that these give to them.

COLLABORATION: There is a general feeling of need to collaborate in the local RIS3 projects, both between different areas of the organization and between different agents of its particular helix.

INNOVATION: together with the orientation to the market and society needs, innovation it is central in the new local economic development policies, assumed under two confronted models: the lineal "knowledge to business" and the holistic "innovation as a culture".

Regarding the specific objectives:

- *SUB-OBJECTIVE 1: To describe, as a new model, the new RIS3 based policies designed by sub-regional governments in Catalonia. In concrete, to analyze the effect of RIS3 on:*
    - *the sub-regional government relations with the regional innovation system agents*
    - *the self-consciousness of their new role within the regional innovation system*
    - *the nature of the new policies needed*

The key elements (sub-hyphotesis) introduced in this research, prior to the realization of the case study, has been contrasted. The major part of them is recognized as true in the general analysis. So, it is possible and desirable to build a general model to be useful for the local European governments in their challenge of implementing RIS3 and boosting their economies.

As a learning output of this research, an integrate model is exposed below. It constructed from 4 different learning challenges with their different visual and conceptual paradigms. The author considers that the conceptual model is best explained through two correspondent images or comparative visual concepts.

RIS3 developing model for local governments

INNOVATION The funnel-territory	**TERRITORIALIZATION** Nests and eggs
COLLABORATION Innovation ecosystems components and relations	**SPECIALIZATION** The specialization balls map

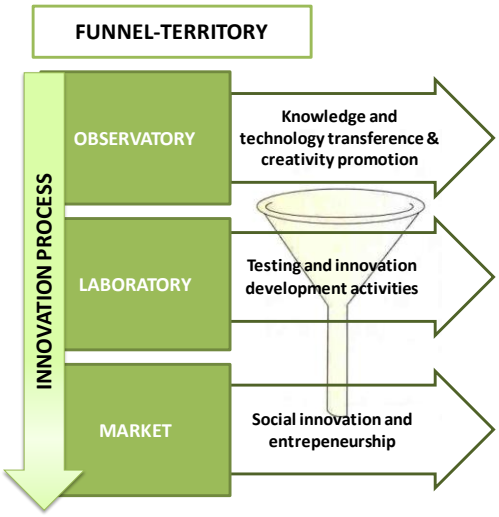
Innovation challenge

Funnel-territory:

The nature of this new public policy is best explained by the visual concept of territory as a funnel. It helps to understand that boosting innovation is the central purpose of the economic development strategy of the territory.

That is why the author says that territories must be understood as collaborative large funnels for the innovation agents within the chosen field of specialization, through entrepreneurial discovery processes with its relevant stakeholders (companies, universities, technology centres and citizenship). They all participate in this public collective funnel. The funnel, this classic image of business innovation tool, is ideal to visually explain the next functions:

- providing and sharing ideas, thus being an OBSERVATORY
- testing them, thus being a LABORATORY
- and generating new solutions, thus being a MARKET.



The more intense and rich, the more attractive and competitive becomes the territory. The funnel-territory concept is very valuable to express the idea of innovative ecosystem to which the model refers.

Territorialisation challenge

Nests and eggs:

The image of nests and eggs helps to understand that territories are called to be enabling environments for the private innovations.

This is their real function (nests), while and companies and R & D agents (laying birds) are the ones promoting business innovations (eggs).

Territories cannot lay eggs, but they need them to give meaning to their nests. In fact, one of the new UE ex-ante conditions to fund “nests” (through ERDF) is having committed “eggs”; not as before, when plenty of still empty nests were constructed. And companies and R & D agents cannot make nests but they need them for hatching their eggs under the right conditions. Definitely, they need each other, territories and innovative actors, nests and eggs.

However, territories look for the best eggs and nests look for the best companies and R+D agents, for their respective purposes. There is competition. And here is where smart specialization appears, who act as a natural selection facilitator. Everyone, territories and sectors, must make the best of it, separating the wheat from the chaff and differentiate themselves from their competitors, concentrating its offer in those few elements and actives in which they feel unique and valuable.

Collaboration challenge

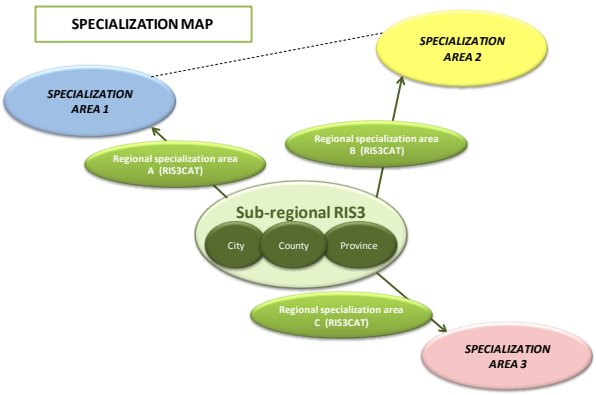
Innovation ecosystems components and relations:

Theory of innovation ecosystems based on components - organizations and institutions- (Edquist & Johnson, 1997) and the relations between them (relations between organizations and institutions, between organizations and between institutions).

Specialization challenge

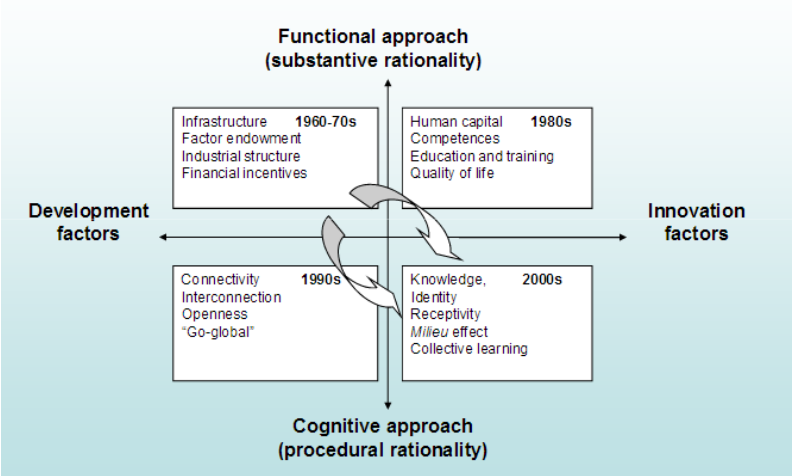
Specialization balls map:

The common visualization tool to work the different steps of discussion to specialize, where different balls express their weight and interrelations through their size, font of text, distance to the centre and to other balls.



On the other hand, to well organize the public activities included in a local RIS3 project to promote these kind of innovation ecosystems, the author adopts the territorial capital theory (Camagni, 2013), which explain the nature of this capital for the development of regions and cities.

The territorial capitals

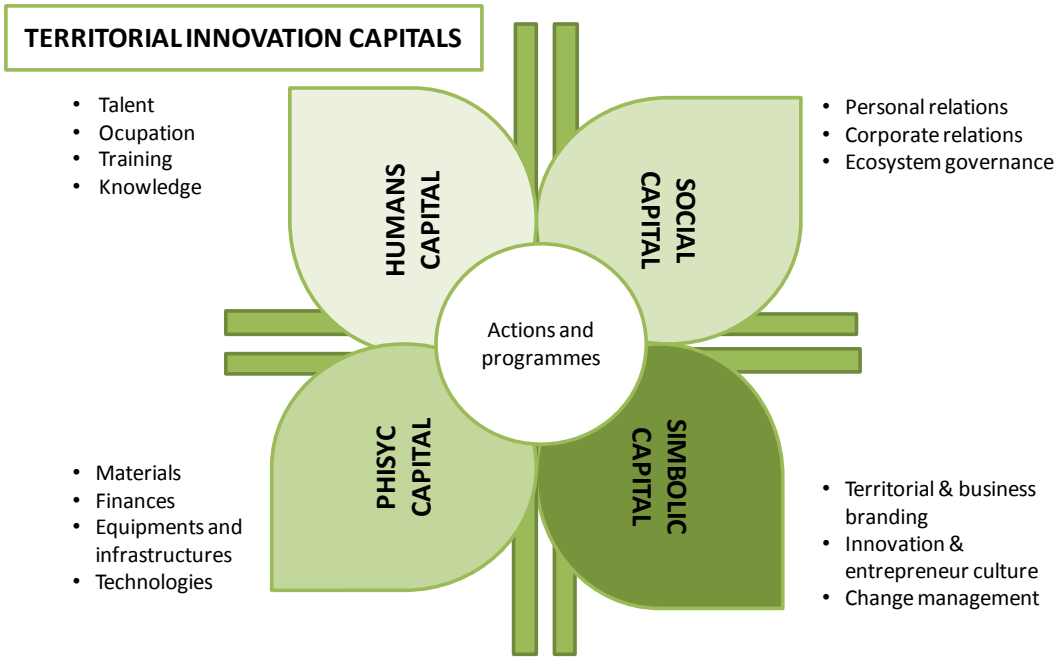


Source: Camagni, 2013

This research puts into practice the territorial capitals theory, classifying the different operations of the local RIS3 project into the following names:

- Physical capital
- Human capital
- Social capital
- Symbolic capital

In the graphic below, some concrete issues observed in the cases studies are already classified to show how a project of this nature can be ordered in a holistic model.



All that brand new transformative models sounds really good in Catalonia in this moment, especially after all these years of economic crisis. But back to the beginning, this transformation requires courageous leadership in the local governments to learn the lessons that offers RIS3 and changing ways of doing, their policies, their professional profiles and their relationships with other agents of the innovation ecosystem. The Catalan participation of ERDF, through the

new instruments called PECT[11] and RIS3CAT Communities[12] are obvious opportunities to do so.

And the same can be said for all cities, counties and provinces in the UE.

Regarding the second sub-objective:

> *SUB-OBJECTIVE 2: To contrast with agents the real and relevant approximation between regional innovation strategies and the local development strategies*.

The local governments are totally conscious and willing to affront the challenge of transforming their policies having specialization, innovation, collaboration and territorialisation as drivers. They also know that a learning process is fundamental to have clear these 4 concepts and how are to be implemented.

RECOMMENDATIONS

- To analyse more deeply this new kind of policies, contrasting and leveraging the model beyond Catalunya and Spain. This analysis would have a good start point in the learned issues in Catalonia through its PECT program.
- To write and communicate a final version of the model among the most innovative cities, counties and provinces in Europe, ideally through conferences, articles or symposiums.
- To involve a sub-regional territories European network (like Eurocities, Eurotowns, ERRIN or the Committe of the Regions) in this dialogue, in order to generate the awareness in a more global European level.

[11] http://municat.gencat.cat/upload/normativa/ordre_gah_95_2016.pdf

[12] http://accio.gencat.cat/cat/innovacio-tecnologica/ajuts-i-financament/comunitats-ris3cat/index.jsp

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