# Design Option Paper

## Spin-off Growth

## Peer learning on technology transfer companies support

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ADRAL
Agência de Desenvolvimento Regional do Alentejo

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# 1. Introduction

The objective of the **SPIN-OFF GROWTH PROJECT** is to improve and enhance the innovation support actions, activities and services addressed to Universities and Research Centers (U&RC) Spin-off, by the different entities which aim is creation and support of innovative companies.

With more than 20 years of experience, all project partners have a considerable expertise and extensive knowledge in the field of entrepreneurship and business development and support. Due to their main activity, each member of the Consortium has different programs and expertise to provide support to small and medium-sized businesses (SMES). All the accumulated experience as well as the knowledge acquired through the years has been used to develop the project.

Each one of the organisations making up the consortium has focus on the common challenge of the design of innovation support for U&RC Spin-off. During 12 months, the partners have identified and shared best practices based on our experience in entrepreneurship and business development within the knowledge and technology transfer framework. Moreover, the consortium has detected improvement areas of each organization for better Spin-off support. This benchmarking action has established during the project an operational platform for sharing experience, mutual learning and collaboration in order to:

- Improve the actions of the institutions for a more effective promotion of U&RC entrepreneurship.
- Improve the capabilities of the support institutions with the aim increase the number of innovative SMEs arising from universities & Research Centers and increase their growth and development.
- Develop capacities for designing, implementing and evaluating a specific program that supports entrepreneurs for the creation of spin-off companies
- Provide appropriate tools for institutions for the strengthening and consolidation of U&RC companies for better transfer knowledge.

The methodology followed for the purpose of the project is the "Twinning Advanced", which combines elements of traditional peer reviews and twinning in small learning groups of interested agencies. Through the use of "Twinning +", the members of consortium support the transfer of good practices from one or more agencies to many others that desired to learn and implement the practices of more experienced agencies.

The result is documented in this Design Option Paper (DOP), which tries to identify and document implementation options, guidelines and implementation alternatives that we have experienced and would recommend to other innovation support service agencies. The DOP is a realistic roadmap for most appropriate and effective support in a more efficient manner to the University Spin-off companies.

The consortium expect that the lessons learnt for analysing good practices, can be used for others business supporters actors in order to foster technology transfer and commercialisation through improvement regional innovation ecosystem which increase spin-off companies.

# 2. Partners

The consortium is formed by three partners from Portugal, France and Spain. All project teams having outstanding and complementary expertise and skills in various fields relevant to the project tasks, entrepreneurship and business development

*Spin-off Growth partners during the meeting in Bordeaux*

## 2.1 Agência de Desenvolvimento Regional do Alentejo (ADRAL)

ADRAL is a regional structure established on 18th June of 1998 because of a wide partnership, composed by several entities, both public and private, with relevant experience in all sectors of economic, social, research and development activities, geographically spread and deeply acquainted of local and regional reality. Being a Joint Stock Company, the agency doesn´t foresee liquid profits to the shareholders, which means that the mission of the Organization corresponds in practice to those of non – profit bodies. One of the major tasks of ADRAL is the cooperation with all local agencies, promoting common initiatives and projects on behalf of companies and territory competitiveness.

While Regional Development Agency implemented in a space corresponding to 1/3 of the national territory and a set of stakeholders that includes all sectors of activity, ADRAL created over the years, strong ties with all interlocutors in the region.

The integration in the various working groups, Regional Council or advisory boards allow a current contact with the reality of the projects and developing ideas or study as well as anticipate guidelines that affirm the Alentejo region where worth investing and living.

The corporate sector has been a preferred target of his acting, or through national and international promotion initiatives, either through financial support, training and consulting services provided within the framework of several projects that have developed, or in attracting investment. The bet in supporting the creation of enterprises, encouraging entrepreneurship and innovation, is based on the certainty that these are factors to ensure the economic sustainability of the region.

ADRAL give support and coaching to entrepreneurs, support the creation and management of industrial parks, support the creation of business incubators and support directly thousands of SME in the last 18 years.

## 2.2 Chambre de Commerce et d'Industrie de Region Nouvelle-Aquitaine (CCI NA)

The Chamber of Commerce and Industry of Nouvelle-Aquitaine is a public organization with 1500 FTE acting for regional economic development. It animates a network of 14 local Chambers.

The CCI NA has a strong Innovation and Competitiveness Department in order to support SMEs in their innovation strategy.

The regional Innovation and Industrial Performance Department counts 8 employees working for SMEs on various topics:

- Innovation programme (Creativity and innovation management)
- Partnership and technology transfer through Enterprise Europe Network
- Additive Manufacturing & Factory of the Future

We created a specific programme in 2012 called "CCI Innovation". This programme is managed by the CCIR and implemented by our 14 local Chambers spread throughout the all territory (400 Innovation advisors).

The programme consists on a three steps process to support technologic and non-technologic Innovation :

1. Stimulate companies through events, info watch services, newsletters on European topics…

2. Detect SMEs with potential through an interview focused on Strategic Developments to guide the company to network resources and the services we develop such as access to financing, development of business plans, development of financial plans, creativity and innovation techniques to foster new ideas emergence etc.

3. Support SMEs to manage their innovation projects and realize specialized services.

The services are provided at individual level or collectively through regional programmes.

The Innovation and Industrial Performance Department is a member of the Enterprise Europe Network.

Searching for international partners in order to acquire and share new skills and technologies, opening to new markets are our core activities for that network.

We are also a founding member of the "Innovez en Aquitaine" network (Innovation Network in Aquitaine) gathering 200 innovation support organizations at regional level (clusters, R&D centres, technology platform, federations, designers, academics, institutional …).

## 2.3 Instituto Aragonés de Fomento (IAF)

The Instituto Aragonés de Fomento (IAF) is the development agency of the Government of Aragón (Spain) whose main objective consits on the promotion of the territorial development, the improvement of the competitiveness and the increase the economic productivity.

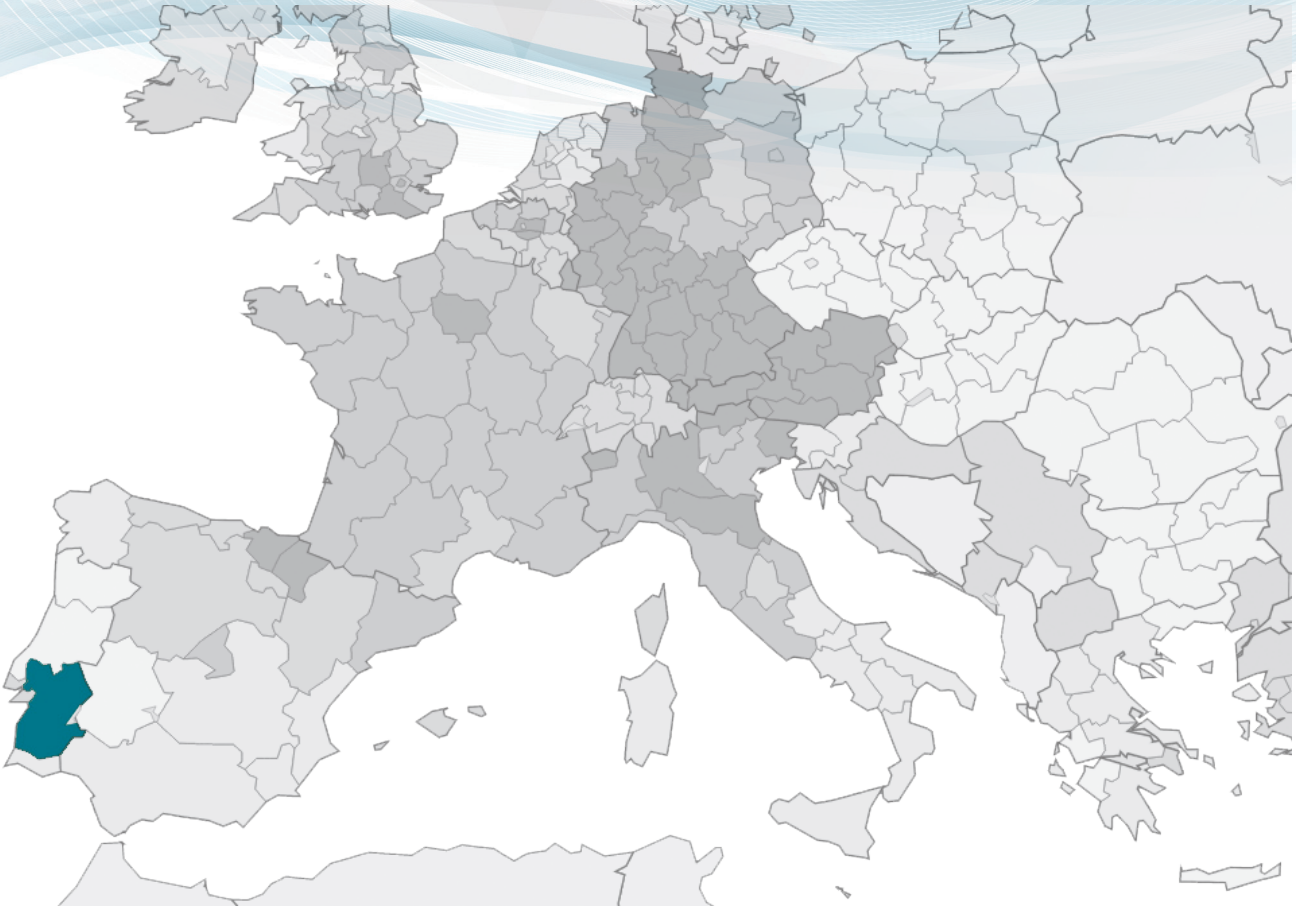
Among its core and daily activities, it can be highlighted:

Support to innovation and business competitiveness, through promotional activities like the Programme 'Aragón Empresa' (Aragón Business) which disseminates and boosts good business management practices to more than 2,000 Aragonese firms adhered to this support programme. This programme deals with training activities, consultancy, facilitation of business cooperation and clusters initiatives, recognition of business excellence, business discussion panels (EMPRESA; PILOT), and large business conferences.

Support to entrepreneurship through public initiatives like the programme "Emprender en Aragón" which provides comprehensive information and advice about formalities, legal forms and public aids for setting up a company, advising as well on the strategic aspects of the supported business initiative. Management of a virtual club of almost 4,000 entrepreneurs (www.emprender-en-aragon.es) with training and technical assistance to entrepreneurs.

Support to business RTD and innovation activities through steady assistance and finance of these type of activities in the framework of the technology parks promoted by the IAF (Walqa Technological Park and Technopark Motorland). Moreover the IAF provides infrastructure and financial support to the activities conducted by the European Business and Innovation Centre of Aragón (CEEI Aragón). IAF also cooperates and support innovation initiatives at national and European level through its participation in the Spanish (Foro ADR) and European (EURADA) associations of regional development agencies.

# 3. Territorial context



## 3.1 Alentejo

The Alentejo covers an area of 31,604 km2, the estimated population was of 724,391 inhabitants in 2015, representing 7% of the total, population density of 22.9 inhab/km2 (2015), being the national value of 112.1 inhab/km2. Administratively, the Alentejo is composed of 5 sub-regions (NUTS III): Alentejo Litoral, Alto Alentejo, Alentejo Central, Baixo Alentejo and the Lezíria do Tejo.

In the European context, the Alentejo Region presents a standard of living, measured by GDP per capita, considerably lower than the EU average. Environmental quality, above the national average and competitiveness and cohesion rates below the national value.

Privileged geostrategic positioning as Europe's Atlantic Port, with the potential for uses and activities of transport and logistics.

With 78,102 enterprises (INE, 2015) that correspond to 7% of the national total and employing 183,788 people, 5.3% of the national total, the corporate structure is characterized essentially by micro enterprises (97.2% of the total), 71.65% of individual companies, and just 28 big companies.

We can observe business dynamics in new productive sectors, with emphasis on the aeronautical industry and energy, the exploitation of water and existing solar resources in the territory. EFMA (Multi-purpose development of the Alqueva artificial lake) as catalyst for the modification of the regional model of agriculture and rural development process inductor sustained on multifunctionality of agricultural space. Tourism also increase in the last years (20%).

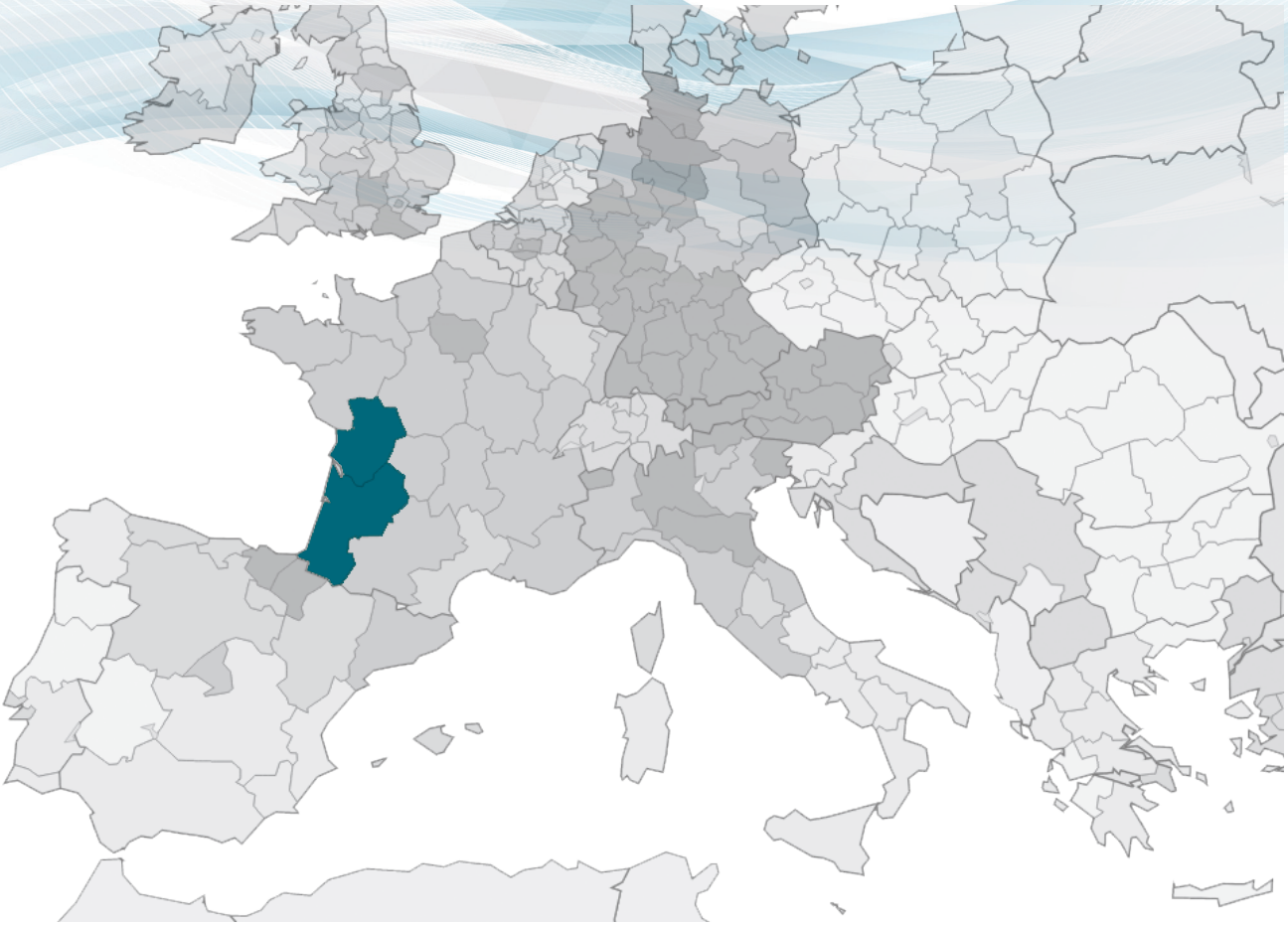
According to the Regional Innovation Scoreboard 2017, prepared by the European Commission, Alentejo is a Moderate Innovator, and the performance of innovation has been increasing. Between 2012 and 2014, 53.7% of companies were engaged in some type of innovation activities, 16.1% of enterprises were publicly-funded enterprises for innovation and 18.7% of enterprises were innovation-cooperating companies. The turnover resulting from the sale of new products from companies with product innovation activities between 2010 and 2012 was € 993 291, contributing 4.32% to Portuguese business turnover resulting from the sale of new products from companies with product innovation activities. In this region, there are 927 companies that are dedicated to the sectors of high and medium-high technology.

With regard to R & D expenditure, in 2014, this was done mostly in the area of Social and Human Sciences, by Higher Education. The state was the largest source of funding for R & D expenditure. Higher Education is the sector that contains a greater number of individuals dedicated to R & D.

With respect to entrepreneurship, 7.1% of the population aged 18-64 was involved in initiatives aimed at starting a business, ie the Entrepreneurial Activity Rate is 7.1%. This region presents more initiative by opportunity and fewer initiatives by necessity, which is an encouraging sign for innovation related growth enterprises of the future. When entrepreneurship is undertaken to realize a business opportunity, 76% of the entrepreneurs did it to increase the level of income.

Entrepreneurial activity continues to have a strongly gender character, i.e male. The average age of the entrepreneur is 41.4 years. The most enterprising age group is the one that includes the ages between 25 and 34 years. Most entrepreneurs have only secondary education and a low level of income (less than € 20,000).
The sector with the highest percentage of entrepreneurial activity is the consumer-oriented sector. The most impeding factor, but also what most favours entrepreneurship in the Alentejo are governmental policies.

There is a network of Technological based incubators in the region, coordinated by the PACT (Alentejo Park of Technology and Science) and connected with the University of Évora and the 2 Polytechnic Institutes (Beja and Portalegre) and Business Associations. There are different research and knowledge centers that can support the business entrepreneurship activities.



## 3.2 Nouvelle-Aquitaine

Aquitaine region has merged with 2 neighboring regions current 2016. In this new region, Aquitaine territory still represents more than 65% of economic weight.

The Nouvelle-Aquitaine region in figures:

- 3rd region in France as regards as its GDP of 158 billion €.
- 5th region about business creation although it's the 1st French region in terms of R&D effort
- 5000 researchers, distributed on about 200 public and private laboratories.
- 6 universities, 7 Engineering schools gathered all together in an association COMUE in which the CCI Nouvelle-Aquitaine is engaged.

Regarding innovative enterprises, the Nouvelle- Aquitaine Region has several networks and actors allowing the emergence, the support and the financing of spin-off. This regional framework contributes to the starting up of R&D-based businesses and to the deployment of them.

The regional authority, through financing those structures and their projects, estimates to contribute every year to the creation of more than 80 new innovative companies with R&D content.

The choice has been made in 2016 to impulse new political orientations and actions to support innovative start-up in their growth phase. This Road Map intends to set up an continuum environment supporting acceleration and fast growth.

Below a mapping of Stakeholders involved in innovative business creation, among them Spin-off, on Aquitaine territory only:

- 14 Technological platforms, Centers of technological development, Technology transfer.
- 13 Incubators, Science-Parks, Accelerators.
- 1 Regional R&D-I agency.

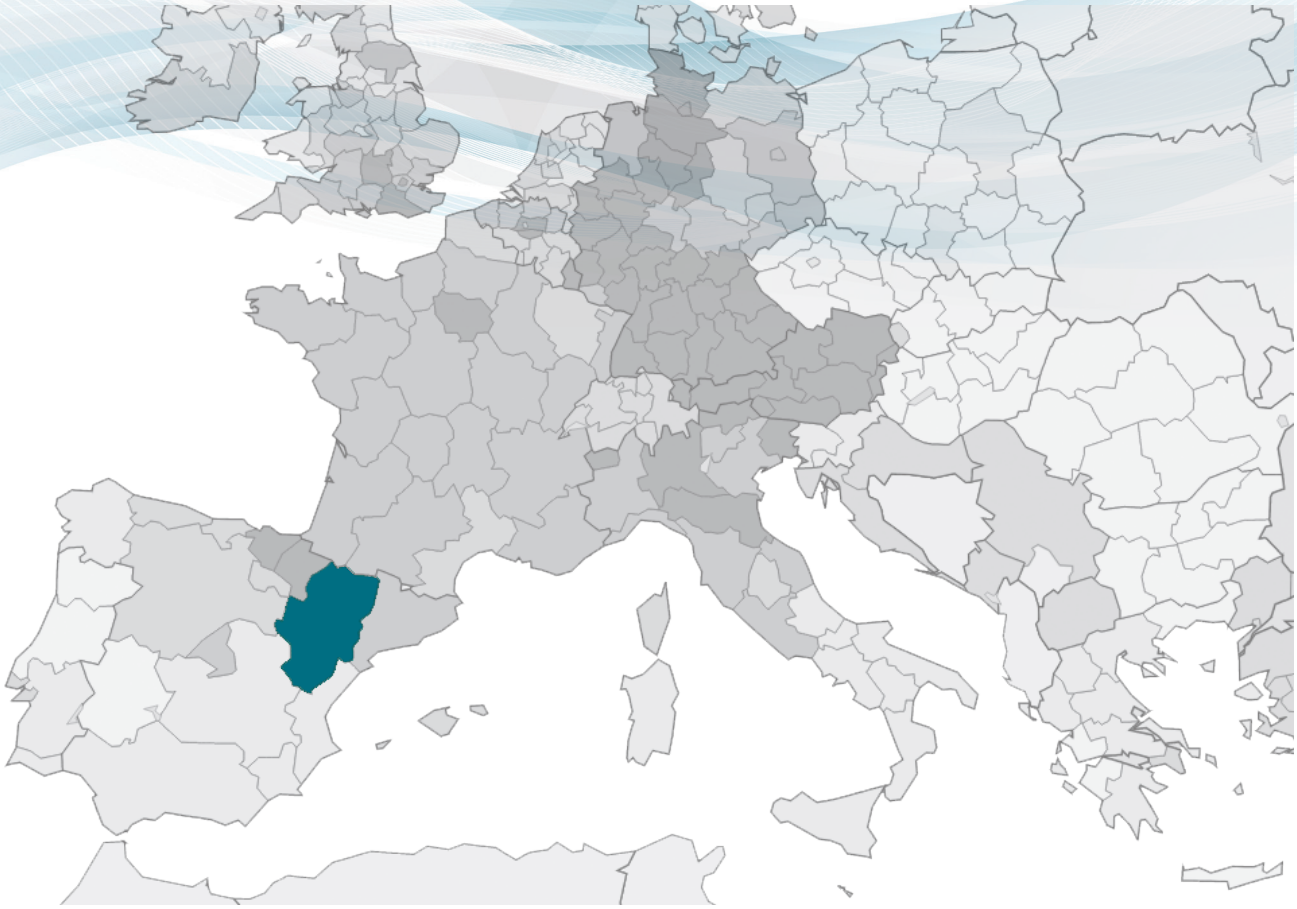
"Spin-off relative" activities are found in many of those stakeholders' descriptions with various commitment and more or less specific actions. Interviews were therefore piloted by the CCI Nouvelle-Aquitaine with 7 of them only, accordingly to their proven dedicated action towards Spin-off.

The **ADERA**, Association for the Development of the Education and Research of Aquitaine is a "bridge" between research centers and companies.

**Aquitaine Science Transfert** is a regional structure created by several public research institutions labelled at national level as a **SATT (Société d'Accélération du Transfert de Technologies)**.

**The Regional Incubator of Aquitaine (IRA)** has for missions to support spin-off, start-up based on R&D content, and the valorization of the technologies developed by universities and entrepreneurial sector of the region.

Were also interviewed the regional bpifrance (national public investment bank), the regional R&D-I agency, the association COMUE and a cluster.



## 3.3 Aragon

The Autonomous Region of Aragon is in the north-east of the Iberian Peninsula.

The Aragonese economy has five main features: it is small but prosperous, advanced, diverse, open and competitive, and dynamic. 59% of the Aragonese economy is based on the services sector. 20.9% is devoted to industry, 12.3% to construction, 4.3% to agriculture and 2.9% to energy.

Its main industrial products are metallurgy, transport, various areas of manufacturing, mechanics, paper, food, chemistry and rubber, and electronics and optics. The key parts of the services sector are business activities, followed by business and catering, public administration, health, transport and communications, education and finance.

The strategic sectors of Aragon's economy are the automobile industry, logistics and transport, renewable energies, corporate services, agroindustry and tourism.

Aragon has an important public-private structure on which the System of Science Technology and Innovation is based.

Aragon has a university population of 39,000 students distributed between two universities, University of Zaragoza and University San Jorge. Together with them, the region has three centers of Distance University (UNED).

In this context stands out the University of Zaragoza due both to their teaching activities and their research and development and technology transfer activity. The university has more than 200 research groups, and 10 research institutes.

The R&D&I system of Aragon is complemented by an extensive range of research institutes and centres relating to a range of subjects, such as water, logistics, nanoscience, food and agriculture, health and others. It should be noted Technological Institute of Aragon, Zaragoza Logistics Center, Research Centre for Energy Resources and Consumption, he Foundation for the Development of New Hydrogen Technologies in Aragón and Aitiip Technology Centre.

In addition, Aragon has a network of incubators (RED ARCE) with 24 centres, and 4 Technological Parks: Walqa, Technopark Motorland, Aula Dei, and Recycling Technology Park.

In the context of the spin-off companies, It should be noted the Program of the University of Zaragoza. More than 25 were created and supported in the last 10 years, and since 2 years ago, the university has its own Incubator.

Furthermore, others technological centres like Technological Institute of Aragon, Aitiip Technology Centre and Research Centre for Energy Resources and Consumption have developed some spin-off companies from their research projects.

# 4. Description of the spin-off situation

## 4.1 Background

The work done in U&RC could be marketable, and therefore it is common for independent spin-off companies to be founded in order to take advantage of these unique assets. The creation of spin-offs can be a significant mechanism to generate and sustain regional economic growth and competitiveness.

Spin-offs are a source of knowledge transfer, promote economic growth and local development. They are an important source of innovation, and allow to increase the technology transfer between the U&RC and its environment, especially the relationship with productive sector.

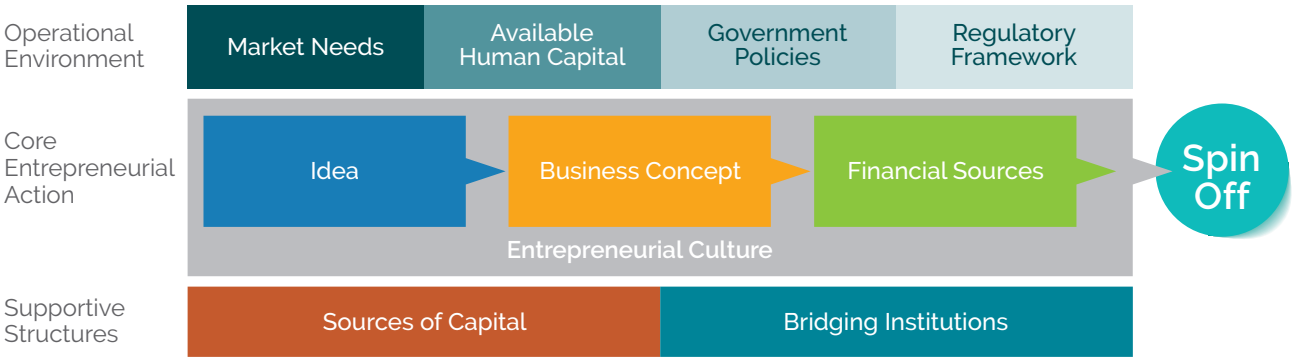
Spin-offs are essential for the regional economic and social development as they provide qualified jobs, and perform activities with high creation of added value. They constitute a key element to move toward a new productive model based on research and innovation.

Nevertheless, the commercialization of research, and spin-off creation in particular present significant barriers to bring successfully research developed in U&RC to the market:

- Low entrepreneurial spirit: Academic environment is guided by traditional academic values, vocation for science and teaching and economic disinterest.
- Lack of business management skills: Creating a firm requires different competencies compared to the traditional core academic missions of teaching and research.
- Difficult access to finance: The innovative character and lack of tangible assets to use as additional guarantee makes access to sources of finance difficult.

Universities and Research Centers (U&RC) Spin-off in the European Union are still a business community that has not been fully analysed. Their characteristics, their relative weight in the productive structure or their profile of sectoral specialization are poorly known, as well as the keys to success that ensure their survival in the first years of life, those of greater risk.

Several studies on companies created in the university environment determine that the most relevant and differential aspects for achieving high growth rates and their success are, on the one hand, education and training adapted to university entrepreneurs and, on the other hand access to financial resources that are generally needed to exploit the business opportunities detected. This last point has a direct impact on business development capacity.




In addition to the lack of management skills at the time of foundation, there are time and financial pressures, which prevent the entrepreneur from making a preparatory learning prior. In addition, in companies with several founders, another of the main management challenges is teamwork and the achievement of consensual agreements in decision-making.

The following SWOT analysis intends to present the current situation of the U&RC Spin-off for better knowledge of their business framework.

## 4.2 SWOT analysis

### 4.2.1 STRENGTHS

**High-capacity entrepreneurs:** The promoters of university SMEs have a high amount of technical skills and a high scientific-technological knowledge of the area to which they orient their activity.

**Innovation as the basis of the entrepreneurial project:** The mortality of university spin-offs or start-ups is lower than that of other companies in the production system, because of their important dedication to R & D & I activities, which allows to obtain technological results superior to the rest.

**Protection of inventions as a barrier to entry:** Most university companies protect their inventions from competition through patent generation, Know-How and trademark registration.

**Relationship and cooperation with socio-economic agents:** More than 40% of university SMEs have cooperation agreements to develop their business activity, constituting a factor of success for the entrepreneur, by sharing costs and risks.

### 4.2.2 WEAKNESSES

**Creation of companies focused on product and not on market:** Although the constant innovation of university spin-offs gives them differential value in the market, its promoters focus on the technical development of products and services, forgetting to provide a solution to a real market need.

**Lack of entrepreneurial skills of the university entrepreneur and low entrepreneurial culture of researchers and students:** The characteristics of the university entrepreneur take on greater relevance, since this is usually the origin of the technology exploited by the company. These entrepreneurs, although highly skilled in technical skills, do not have the necessary management skills.

**Projects that need long development periods before they go on the market:** By using disruptive technologies, spin-offs need more time to develop new products, limiting their product portfolio and slowing their growth in the short term. Only a small percentage become large companies operating in high technology sectors, while the rest remain without achieving significant growth rates, posing a risk to the viability of disruptive business projects.

**Need for financing for university SMEs:** The lack of tangible assets as an additional guarantee, and their high risk associated with the new technologies they develop, make it difficult for them to access financial resources.

### 4.2.3 OPPORTUNITIES

**Contribute to the change of productive model based on R&D&I and strengthen an innovation ecosystem:** The number of companies created in the university environment is still low. Fostering its creation, and strengthening the growth of existing ones, will strengthen and develop the European innovation ecosystem. University SMEs improve productivity and industrial competitiveness through high value-added activities and are an effective mechanism for knowledge transfer, consolidating disruptive technologies that transform traditional sectors. They also favour the creation of qualified jobs, retaining talent and intellectual capital, returning to the territory what has been invested in training and R&D&I.

**Intensify the actions in Europe under the Triple Helix Model, in synergy with the Regional RIS3:** The joint work of Public Administrations, SMEs and Universities will favour the growth and consolidation of innovative companies, increasing the University-productive sector interaction and knowledge transfer. The development of joint actions is an opportunity to achieve the objectives defined in the RIS3 of the European regions, increasing economic and social growth and development in this area.

### 4.2.4 THREATS

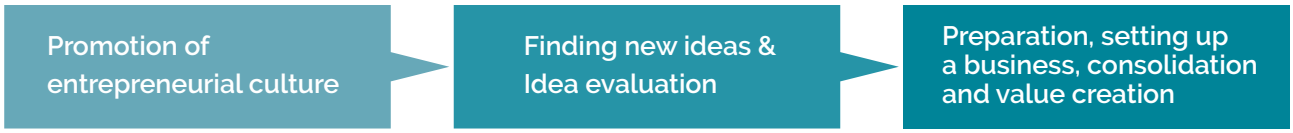
**Training not adapted to the figure of the university entrepreneur:** To the lack of training for business management, there is the difficulty of finding suitable training support for their technical profile with disruptive products. You cannot use traditional methodologies to develop your business.

**Poor lending by banks:** Despite the economic recovery, the difficulties of access to credit by SMEs, and especially of university ones, continue. Obtaining long-term resources is vital for them to have the time to develop novel and innovative products adapted to the needs of the market.

# 5. Best practices detected

## 5.1 Stage model of spin-off creation

In order to detect good practices in each of the territories, Pirnay's model of the linear spin-off creation process (2001) has been taken into account. However, for the development of the project the model was simplified to three single stages, "promotion of entrepreneurial culture", "finding new ideas & idea evaluation" and "preparation, setting up a business, consolidation and value creation".




For each of the stages, a list of actions were included to analyse possible activities that were being developed in each of the regions of the consortium. This model was used as checklist in the interviews the different stakeholders.

This scheme can serve as an example of the activities necessary for the development of a programme for creation, support and consolidation of Universities and Research Centers Spin-off.

The framework of activities where best practices can be identified was established as follow:

**1. Promotion of entrepreneurial culture:**
Actions developed to promote entrepreneurial culture within universities and technology centres.

- Programming of courses, seminars, and conferences
- Project or ideas competitions
- The promotion of experiences (spin-off created)
- Meetings with businessmen / students / investors / researchers
- Internal marketing activities: newsletters, social networks...
- Promotion to preparation of the business plan in end-of-studies projects

**2. Finding new ideas & Idea evaluation:**
Actions aimed at the search for and detection of ideas, as well as the specific methodology for their evaluation and valorisation.

- Monitoring of projects carried out by the research groups
- Monitoring of thesis and end-of-studies projects
- Monitoring of project or ideas competitions
- Monitoring of students of entrepreneurship courses
- Recruiting specialized staff in the detection of ideas
- Specific methods and techniques to idea evaluation and valorisation
- External support in the technology and market evaluation
- Policies and procedures for intellectual property protection
- Involvement of the university in the spin-off project (Provide spaces, infrastructure, research staff...)
- Transfer of technology through royalties

**3.Preparation, setting up a business, consolidation and value creation:**
Actions addressed at the creation, development and consolidation of business projects.

- Bridging institutions act as intermediaries between companies and the performers of research.
- Coaching, mentoring, and training activities.
- Sources of capital and funding (venture capital, business angels, seed capital, grants, public venture capital…) .
- The availability of incubation areas.
- The search for adequate funding (the start-up and consolidation phase) .
- Development of industrial prototype, concept tests and commercial prototypes.
- Aid promoters in finding commercial partners.
- Promotion of the spin-off created.
- Support for the internationalisation.
- Participation of the University in the corporate capital of spin-offs.
- Intervention of the University in the management of spin-offs.

A total of 14 good practices have been collected between the partners of the project, 4 in Nouvelle Aquitaine, and 5 in Alentejo and Aragon. However, the partners decided to select 3 for each of the regions, considering them the most relevant and interest for the project.

In order to describe good practices, a single format has been established as a “toolbox” organised on a crossed checklist.

## 5.2.1 BEST PRACTICES ALENTEJO

### 5.2.1.1 "MOOVE – Alentejo Incubators Network, Accelerating in Alentejo"

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**1. Promotion of entrepreneurial culture:**

Programming of courses, seminars, and conferences.
Project or ideas competitions.
The promotion of experiences (spin-off created).
Meetings with businessmen / students / investors / researchers.
Internal marketing activities: newsletters, social networks...

**2.Finding new ideas & Idea evaluation:**

Monitoring of project or ideas competitions.
Monitoring of students of entrepreneurship courses.
Recruiting specialized staff in the detection of ideas.

**3.Preparation, setting up a business, consolidation and value creation:**

Bridging institutions act as intermediaries between companies and the performers of research.
Coaching, mentoring, and training activities.
Promotion of the spin-off created.

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues.*

Six Alentejo entities that have incubators of technology-based companies are working in a network, in order to stimulate the creation of new businesses and the establishment of qualified employment in the region.

This project aims to provide the Alentejo with a set of integrated, organized and strategically defined initiatives that are embodied in its vision: "Affirmation of the Alentejo Region, at national and international level, as an Entrepreneurial, Differentiated and Innovative Territory, through the promotion of a Regional system of support to entrepreneurship and the realization of an integrated plan of action and in partnership, aiming the implementation of a set of measures by field of intervention in order to create an ecosystem favorable to the attraction/fixation of active population in the region and also the promotion of the regional business fabric based on the stimulation of qualified entrepreneurship.

The operation to be developed is constituted by five main components, however all of them are articulated among themselves, constituting themselves as interdependent. Although responsibilities are defined in the distribution of the activities to be developed, all beneficiaries will implement the project in a collaborative and sustained way in an open and networked work.

Thus we have the following components:

Coordination and Management of the Beneficiary Network;
Consolidation and Training of the Technology-Based Incubator Network of the SRTT of Alentejo (Thematic workshops, benchmarking visits and brainstorming meetings);

Actions to Encourage Qualified and Creative Entrepreneurship; (Idea contests with monetary prizes, reception of ideas and makers in this network of incubators and coaching/mentoring); Promotion, Communication and Marketing;

Demonstration and Dissemination of Results (Roadshow with the network offers and realization of an International meeting with young entrepreneurs from abroad).

**What is NEW ?**

Network between incubators and different institution. Sharing knowledge and Human Resources; Covering all the Alentejo Region;
Efficiency of the Regional Resources – less competition and more cooperation between institutions.
A common image of the Alentejo Region as a good place to start a business – easier to the entrepreneur.
Getting "size" to enter in some projects / Initiatives.

3. For each action/measure, what are the success factors and potential obstacles?
   *examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/Human resources:** The staff of each institution is very important – its openness to work in a network is fundamental.

The vison of the board managers of the different institution.

It´s very important to have good consultants and mentors.

**2/Few good projects:**

It´s difficult to have projects enough to make a good selection. We need projects coming from outside the region. Strong effort on attraction of entrepreneurs.

**3/Budget:**

The institutions involved are depending on E.U. funds and state funds. It´s a risk that the activity can slow down when the funds come to an end.

## 5.2.1.2 "Creation of First Doctoral School as an Organic Unit, and Start-uP PhD as a transversal entrepreneurship course for PhD Students"

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Clear impact of NUMBER of creation.

**1. Promotion of entrepreneurial culture:**

Programming of courses, seminars, and conferences.
Promotion to preparation of the business plan in end-of-studies projects.

**2.Finding new ideas & Idea evaluation:**

Specific methods and techniques to idea evaluation and valorisation.
Involvement of the university in the spin-off project (Provide spaces, infrastructure, research staff…)

**3.Preparation, setting up a business, consolidation and value creation:**

Coaching, mentoring, and training activities.

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues.*

The Institute for Advanced Studies and Research, the Doctoral School, is a recent organic unit created by the University of Évora that has as its mission to create and implement a coherent and integrated research activities, as well as the promotion of advanced studies. IIFA is a pioneer among Doctoral Schools in Portugal, with around than seven years of existence,

Like the Doctoral Schools that are emerging in many European Universities, the Doctoral School, IIFA, assumes the leadership of the scientific activity of the University of Évora, to develop synergies between the supply of the advanced studies (PhD Programs and International Doctoral Programs and Masters) and the scientific capacities installed in its R&D Units.

IIFA's priorities focus on the following: promoting the internationalization of the research teams; development of the scientific culture; guiding the processes of the accreditation of the courses; support of the centers in the international evaluation processes; supporting the Endowed Chairs and the Post-Doctoral programs; and in the integrated use of scientific infrastructures.

Currently, IIFA has 12 Research Units evaluated positively by FCT (the Portuguese Science Foundation), 34 PhD Programs, 5 ERASMUS-MUNDUS Courses, and 2 Endowed Chairs financed by the private sector.

For the Doctoral Programs it is important to note the following: since the constitution of IIFA, in the last three years there has been an exponential growth in the number of active students in the different doctoral programs currently existing at the University of Évora, with currently around 900 active Doctoral Students.

The "Erasmus Mundus" program is another important component functioning within the IIFA. There are currently five Erasmus Mundus courses. In future we intend to stimulate the organization of more doctoral and masters programs of this nature that would promote the internationalization of advanced training and integrated scientific research production in the UE-IIFA. Regarding the activity of research and development at the University of Évora is organized into Research and

Development Units accredited and funded by the Ministry of Education and Science. The 12 research centers cover all areas of science at work in the University of Évora - Arts, Social Sciences and Humanities, Science and Technology.

Associated with these R & D units are about 600 researchers and 200 PhD researcher students. Note too that these units of R & D are integrated doctoral researchers as well as researchers with post-doc at other institutions of renowned national / international. The overall objective is to enhance the dissemination and exchange of knowledge at international level by promoting the sharing of scientific and technology. The two endowed research Chairs under IIFA, are financed by private entities ("Rui Nabeiro" and "BES"), and cover two areas of research excellence at the University of Évora - Biodiversity and Renewable Energy. The Endowed Chairs actively participate in projects, with a very strong and world class research credentials and also enjoying strong external networks.

IIFA has embarked upon a number of quality control measures, such as streamlining doctoral programs, creation of transversal courses, reduction of number of PhD programs, emphasis on research quality of supervisors, defining research in each of the areas across the university, promoting cross-fertilization of knowledge exchange etc. Not all the measures have been popular, given that IIFA often had to break away from some rigid practices of the past.

Another pioneering "experiment" of IIFA has been the offering of three transversal courses in the academic year 2016-2017. Among them, Start-uP Entrepreneurship has caught the most attention. It is a short 10 hour (in class) course, based on the lean thinking model, whose clear objective is to help raise awareness among Doctoral students of the potential of transferring their research into viable business operations. A total of ten students from different areas of the university were accepted in the first year, ranging from arts to management to biology.

Key concepts of business models, lean design and structuring viable ideas were transmitted in the course. At the end of the course, three outside experts were brought in to serve as "shark-tanks" to critically evaluate the business ideas presented.

**What is NEW ?**

Involve different areas / courses in the Strat-up entrepreneurship course as a transversal course;
Promotion of the entrepreneurship skills among the students;
Promotion of the sharing of knowledge.

3. For each action/measure, what are the success factors and potential obstacles?
   *examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/Human resources:**

The team involved in the initiative. It´s necessary to go throw an conservative culture of the University.
The involvement of the external stakeholders.
It´s very important to have good consultants and mentors.

**2/Few good projects:**

It´s an effort to attract students and researchers that want to be entrepreneurs.

## 5.2.1.3 "Respond to two major lacks in the region. The first one is the lack of graduated young people and the second is the lack of dynamic of the region companies."

1. Which actions/measures have demonstrated clear impact on
   - … impact on ensuring spin-off survival? increasing number of spin-off creation?
   - … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
   - **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
   - Impact on:

**1. Promotion of entrepreneurial culture:**

Programming of courses, seminars, and conferences.
The promotion of experiences (spin-off created).
Meetings with businessmen / students / investors / researchers.
Promotion to preparation of the business plan in end-of-studies projects.

**2.Finding new ideas & Idea evaluation:**

Monitoring of students of entrepreneurship courses.
Recruiting specialized staff in the detection of ideas.

**3.Preparation, setting up a business, consolidation and value creation:**

Coaching, mentoring, and training activities.
The availability of incubation areas.
Promotion of the spin-off created.

2. What is it precisely? what is different? what is the difference compared to…?
   *avoiding general issues.*

This was an innovator project at the time that through entrepreneurship tried to respond to two major lacks in the region. The first one was and still is the lack of graduated young people and the second is the lack of dynamic of the region companies. To achieve this was planned a training course, to a group of young graduated people, with a theoretician and practical component and created entrepreneurship support offices to assist and support these project promoters. The outcome of this initiative was an investment project, in order to create their own job, and simultaneously, to develop the region.

The practice delivery to the beneficiaries was based in a training course where they get or reinforce some of the direct skills required and in supporting offices to help and assist the beneficiaries developing their own investment projects.

This project was built with innovation since the very beginning, but four main key innovative features can be pointed:

1. Having graduated young people working in the projects.
2. The training course was planned with alternative theoretician and practical classes.
3. The projects created were for self-employment and to develop the region at the same time.
4. Encourage and guide the investment, in order to promote the attractiveness and to get people staying in the region.

The beneficiaries' choice was made according with their graduation, skill areas and motivation. It was attributed a monetary compensation to the beneficiaries in order to face their food expenses.

This project was considered by EU a Good Practice and the main success factors of it were first of all the target group initiatives, their motivation and their belief in the project and themselves.

**What is NEW ?**

The partnership of the project was very important, because as much ADRAL as its partners have a deep knowledge of the region and the region's lacks.

The support offices where inside the university but with the involvement of different external stakeholders.
Only the diversity of the knowledge of the different partners was a very important fact, because it allows to coverage all areas of expertise required for the project.

The project characteristics were itself a very important factor, as the innovative character, the mix of theoretician and practical classes in the training course and the creation of the supporting offices.

3. For each action/measure, what are the success factors and potential obstacles?
   *examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/Human resources:**

The technical staff of the different stakeholders involved in the project.
The involvement of teachers and other staff of the university.

**2/Few good projects:**

It´s an effort to attract students and researchers that want to be entrepreneurs.
Promotion of the entrepreneurship among university students.

## 5.2.2 BEST PRACTICES NOUVELLE-AQUITAINE

### 5.2.2.1 "START-UP SCHOOL" @ SATT – AQUITAINE SCIENCE TRANFERT

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**1. Promotion of entrepreneurial culture:**

Programming of courses, seminars, and conferences
Promotion to preparation of the business plan in end-of-studies projects

**2.Finding new ideas & Idea evaluation:**

External support in the technology and market evaluation

**3.Preparation, setting up a business, consolidation and value creation:**

Coaching, mentoring, and training activities

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues*

A SATT activity is the valuation of the academic research and the improvement of the process of technology transfer towards companies. It covers the set of the stages of the technology transfer: the detection and the protection of the inventions, the management and the investment in the phases of maturation (technical, intellectual, legal, commercial property) and the valuation of the innovations through the negotiation of licenses or the preparation for the creation of innovative start-up.

When a market is identified with high value, the inventor is invited to create a business and he/she's sent to the regional incubator.

**Consequence n°1:**

In between the Lab and the Incubator there is a first "Death Valley".
Some researchers never do the first step to create a business and never go to the incubator.

**Consequence n°2:**

Some researchers accept to create a business and go to the incubator some of them might stay 5 years or more into the incubator without being successful in creating a real business, and too many of them give up.

LESS than 33% of researchers will become CEO

**What is NEW ?**

The SATT has decided not to send researchers to the incubator but to send business minded creator i.e with knowledge's on how to be an entrepreneur.

From the very beginning of the valuation of market potential, a coach in business creation, is acting among the others SATT staff members.

This program coaching is named START-UP SCHOOL and is made of a dense program lasting 6 months divided in 2 so called "BOOST" phases (of 12 weeks each).

The first phase BOOST 1 objective is the assimilation of the entrepreneurship attitude by the researcher. Based on serious games, tailor made situations, role playing… using unexpected materials like TV series, free applications etc..

The second phase BOOST 2 objective is the real start-up first activity phase with the continuous help of the coach and external competences, so called "business developer" especially requested to support the start-up on different aspects.

The "start-up school" is an experiment. It is not run in any other SATT in France even so, the SATT are 14 and covering all French territory.

3. For each action/measure, what are the success factors and potential obstacles?
   *examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/Human resources:**

The coach is very important – its vision determinant and its action consistent.
Its competences, skills, aptitudes, readiness… are the back bone of the program.
It might represent a weakness and a risk for the sustainability, or transferable character of the program.

**2/Internal resources:**

They are mandatory to recruit the coach and to give him means to act. This can represent an obstacle to deploy efficiently such a practice.

**3/Organisation:**

Internal and regional risk: 'change management" and "confusion" of actions with the incubator's role + risk of political problem with 2 organisations' competition (between the Incubator and the Transfer Organisation).

**4/Excellent cooperation stakeholders:**

It is necessary to have a very good network of "business developers" behind the "start-up school".

## 5.2.2.2 "PERTINENCE INVEST" @ ADERA.

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**3.Preparation, setting up a business, consolidation and value creation:**

- Sources of capital and funding (venture capital, business angels, seed capital, grants, public venture capital…) .
- The search for adequate funding (the start-up and consolidation phase).
- Development of industrial prototype, concept tests and commercial prototypes.

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues.*

Based on shortage of seed funds, Adera founded "Pertinence Invest" an investment company cofounded with 7 other structures of research valuation, located in France outboard the region, all members of the national C.U.R.I.E Network.

Those structures wished to create a long-lasting tool, capable of supporting spin-offs issued from technologies of the French public laboratories.

**What is NEW ?**

It is the first time in France that private research valuation structures backed by public Schools of Engineering and Universities are grouping together to create a financial tool. They wanted to create a tool, complementary to the various public devices existing, to establish a continuity in the support of their own researchers.

Indeed, those structures are mainly focused on supporting Collaborative Research Projects and Technological Transfer to industrial enterprises, often complex on the administrative, legal and financial plan.

Those missions and their means does not include investment for the development of technological spin-offs.

Compared with other private Investment Funds "Pertinence Invest" offers several strengths:

- A logic of trust and closeness: "Pertinence Invest" primarily supports the technologies developed in the schools / universities where shareholders belong and already well known by the valuation structures team. The fund is not oriented on one theme or sector.
- An accessible and reactive team: Upon receipt, projects are evaluated and presented, after selection, to the investment committee, which meets upon request.
- Early investment and amount flexible: Pertinence Invest invests from € 50 to € 200k, for the creation of the start-up (after incubation phase) or for the first fund-raising.
- Long lasting support: "Pertinence Invest" does not ask for a quick exit. The objective is to accompany the start-up until an industrial phase. The duration is longer in time and covering several steps of developments (prototypes, industrialisation, commercialisation) usually not covered by the same fund. It diminishes the risk of loss in between those steps.

All those characteristics are determinant in making the fund raising much easier and secured, giving more chances for the spin-offs to carry it out.

3. For each action/measure, what are the success factors and potential obstacles?
*examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/Imbalance** in the geographical distribution of the projects receiving funding might cause a **disagreement** in between the structures and inside the "Pertinence Invest" board. The risk is quite low as the number of laboratories is high and well distributed throughout all concerned regions.

The same imbalance could appear regarding the amount of investment spread in the spin-offs. However, this is very unlikely as the Decision Committee is only one instance for all projects evaluated.

**2/**The number of investment companies must be high enough to **pool together sufficient** and **funds** (scale changes advantage) also those companies cannot be too numerous to keep a cohesion in actions and decisions.

**3/**Another advantage of the grouping is the bigger offer of **potentially valuable technologies** for the "Pertinence Invest" shareholders compared to their primary regional territory.

## 5.2.2.3 BRINDGING IRA AND SATT to a new incubator backed up to industrial companies

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**1. Promotion of entrepreneurial culture:**

Actions developed to promote entrepreneurial culture within universities and technology centres. Meetings with businessmen / students / investors / researchers.

**2. Finding new ideas & Idea evaluation:**

Actions aimed at the search for and detection of ideas, as well as the specific methodology for their evaluation and valorisation.
External support in the technology and market evaluation.

**3. Preparation, setting up a business, consolidation and value creation:**

Actions addressed at the creation, development and consolidation of business projects.
Coaching, mentoring, and training activities.

2. What is it precisely? what is different? what is the difference compared to…? *avoiding general issues.*

The region is an important public funds provider and consequently represents a proactive action force. Regarding those 2 structures, an experiment is therefore about to be run based on a successful experience conducted with SMEs. This experience consists of allow voluntary experts given by large companies to boost small company's development for a 6 months minimum period: Pass'Skills.

Its objective is to coordinate needs in specific skills of growing companies and the human resources identified in large companies. It is requested the selected SMEs mobilize those skills for a project aiming at strengthening its competitiveness and conquering new markets. The expert cost is split between the large company, the SME and the Region authority.

**What is NEW ?**

This dispositive is adapted and completed for the specific needs of spin-offs.

- Adapted to the specific competences requested for a start-up: skills and availability criteria
- Completed with an industrial scale and a financing side: large companies might be interested in accelerating the market-entry of a technology interesting even strategic for them. Industrialist might integrate the spin-off governance early in the creation process. For that goal, business leaders form large companies will participate as from the project selection committee.

The objective is to be able to propose a complementary service of association of skills to broaden the entrepreneurial vision of the researchers.

The large companies make their managers available to the newly created spin-offs it leads to 2 positive consequence: 1/ mutual enrichment and 2/participation in the territorial economic development.

It offers several strengths:

- A logic of trust: the SATT and IRA usual teams are securing the industrial property aspects as they know already well the researchers followed by the valuation structures team.
- A reactive team: Upon receipt, projects are evaluated and presented to the large companies and the expert is mobilized with care, after several meetings. the SATT and IRA usual teams are acting as moderator and coach if necessary.
- Early investment: The large company support allows as strong asset for the first fund-raising and/or brings a first funding itself
- Fast growth: depending on the technology and its industrial function, the spin-off development can be seriously accelerated.

3. For each action/measure, what are the success factors and potential obstacles?
*examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/ Public funds support:**

The expert cost share is very important. If no public support is provided, this salary mobilization could not happen.

The same imbalance could appear regarding the amount of investment spread in the spin-offs. However, this is very unlikely as the Decision Committee is only one instance for all projects evaluated.

**2/Human resources problem:**

They might be a lack of availability among large companies employees/manager: No expertise at all or for not long time enough might occurs.

**3/Fear:**

The early intervention of a large company into a start-up technology based might create distrust and fear from the researchers. And might convince him not to take part to the program.

**4/Excellent cooperation in between the IRA, the SATT and the large company:**

It is necessary to have a very good understanding of all aspects of the start-up growth and to agree on them.

## 5.2.3 BEST PRACTICES ARAGON

### 5.2.3.1 "SpinUP Program" @ Universidad de Zaragoza

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**1. Promotion of entrepreneurial culture:**

Programming of courses, seminars, and conferences.
Project or ideas competitions.
Meetings with businessmen / students / investors / researchers.

**2.Finding new ideas & Idea evaluation:**

External support in the technology and market evaluation.

**3.Preparation, setting up a business, consolidation and value creation:**

Coaching, mentoring, and training activities.
Legal advice (founding process, capital increase, partnerships agreements, commercial agreements…).
Promotion of the spin-off created.

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues.*

The SPIN-UP program is an initiative of the University of Zaragoza, supported by the Government of Aragon, aimed at encouraging the creation of Spin-off and Start-up companies in The University of Zaragoza.

The University of Zaragoza offers university entrepreneurs and graduates the opportunity to participate in its SpinUP Accelerator Contest and integrate an Acceleration Program based on the Lean Start-up methodology to create companies with recurring, profitable business models and Scalable minimizing their probability of failure.

Every year, the University of Zaragoza launch call for proposals, one for each phase, with the objective of selecting the entrepreneurs who participated in the program. A maximum of eight innovative high-level business projects are selected for each phase.

**What is NEW ?**

The contest is aimed at the following profiles:

- Entrepreneurs with potential for innovation who are members of the University or graduates of the University of Zaragoza (teaching staff and / or researcher, administration and services staff, students and graduates of the UZ).
- Spin-off and Start-up companies of the University of Zaragoza, or companies linked to the UZ.

The program allows entrepreneurs to discover if their idea could be transformed into a company, realizing the Business Model that allows them to turn their project, research results or business idea into a business opportunity that can be profitable.

It also allows them to build the bases of their company or future company, validating the client and the business model, and acquiring all the tools to sell, ending with the creation of the company. All this with an advanced legal-financial service and administrative and accounting support, in addition to the ongoing support of trainers, experts and coaches.

3. For each action/measure, what are the success factors and potential obstacles?
   *examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/ Human resources:**

It is very important to involve good consultants, mentors and coach. The lack of good team of experts would prevent the development of spin-offs, affecting in particular the degree of survival of companies.

**2/ Selection process:**

Project evaluation criteria must be well defined to avoid business projects without potential. Both the project and the profile of the entrepreneurs must be taken into account to ensure the success of the program.

**3/Budget:**

Although different options for action can be established, the lack of budget may prevent the correct development of the programme. One solution would be to establish cooperation agreements with others stakeholders, especially with public business support organisations.

**4/ Promotion activities:**

It is important to develop activities to promote entrepreneurial culture within universities and technology centres to get promoters who participate in the program.

## 5.2.3.2 "PROACTIVE" @ INSTITUTO TECNOLÓGICO DE ARAGÓN

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?
- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**3. Finding new ideas & Idea evaluation:**

- Monitoring of projects carried out by the research groups.
- Monitoring of project or ideas competitions.
- Specific methods and techniques to idea evaluation and valorisation.

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues,*

The program seeks to put in value all the results of own and shared research and innovation of the organisation (ITAINNOVA). This program is created as a response to the interest of companies and administration to make the most of public resources invested in research and innovation projects. ITAINNOVA wants to achieve through this action a new model of income for the centre. In addition, ProActive Program would be a major boost for Economic development of the region.

**What is NEW ?**

Based on its results of research (internal or not), the ProActive Program aims to launch a set of internal projects to increase the maturity of the results from a TRL 4-6 to a level of a TRL 7-8 though call for proposals.
The procedure for the award of grants is carried out under competitive concurrence between the different proposals presented by the internal teams.

The objective is to generate new technological assets owned by ITAINNOVA (or shared with third parties), through the execution of own technological development projects, susceptible to be exploited in the market by a third party.

This can be done from the results of both, internal projects or competitive public funding that are at a maturity level equivalent to a TRL 4-6 and whose objective is to bring them to a level of maturity equivalent to a TRL 7 -8.

Research, development and innovation projects are considered susceptible for the call. These projects should be developed by a technical team belonging to one or more of the technological groups of the organisation. Eligible projects must prove to be viable from the point of view of technical, economic and market conditions. They shall be completed no later than one year.

The potential channels to generate new technological assets are:

- Competitive projects public funding.
- Projects from internal ideas.
- Internal technological training projects.
- Third-party technology assets.

within the program of idea evaluation and valorization, the organization could detect to exploit them as spin-off.

3. For each action/measure, what are the success factors and potential obstacles?
*examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/ Funds support:**

Recurrent funds are needed to enable the development of projects. This amount could be co-financed with ERDF.

**2/Organizational culture:**

The technological center must be committed to the valorisation of research results and motivate researchers through process of learning.

**3/ Third parties:**

A greater understanding and cooperation is necessary if there is a third party involved in the project.

**4/ Entrepreneurial profile:**

It is important to have an enterprising profile within the work team in order to increase the possibilities of exploiting the results through a spin-off company.

## 5.2.3.3 "CEMINEN" @ UNIVERSIDAD DE ZARAGOZA

1. Which actions/measures have demonstrated clear impact on
- … impact on ensuring spin-off survival? increasing number of spin-off creation?
- … impact on one or several points detailed in the Model Chart of the projects (3 single stages). Which ones?

- **Clear impact of NUMBER of creation and clear impact on spin-off SURVIVAL.**
- Impact on:

**3. Preparation, setting up a business, consolidation and value creation:**

Actions addressed at the Bridging institutions act as intermediaries between companies and the performers of research.

- Coaching, mentoring, and training activities.
- The availability of incubation areas.
- Promotion of the spin-off created.

2. What is it precisely? what is different? what is the difference compared to…?
*avoiding general issues.*

The University of Zaragoza has as established a business incubator (CEMINEM SPINUP Unizar) to support spin-off and star-ups created at the University.

The incubator, established in 2016, supports firms of any sector of activity with business models based on innovation in all phases of the development of the company: business idea, creation of the company and business consolidation and acceleration

**What is NEW ?**

The incubator is integrated with the Mixed Research Center where companies can develop a project in common with the university, such as a patent or a specific investigation.

The CEMINEN has been conceived so that the institutes and research groups of the University, spin-offs and companies have a common space for innovation and technological development through research projects. A formula that facilitates public-private partnership in knowledge and technology transfer for the development of innovative products and services.

The integration of incubator and research centre stimulates the growth of technology-based companies. The incubator also accelerates spin-off created through the University entrepreneurship programme.

The incubator services try to adapt to the peculiarities of spin-offs by offering:

- Training and consulting: Through the SpinUP Unizar program, CEMINEN gives entrepreneurs all the tools needed to develop the business successfully.
- Promotion of the projects in the media: The incubator disseminates the businesses located at CEMINEM, its products and services through the press, radio, television, social networks and the University Channel of communication.
- Participation in the activities of the incubator: technological breakfasts, workshops, co-working meetings, business experience meetings…
- Access to technological support: In order to solve the scientific-technological or business problems, the Incubator brings entrepreneur into contact with the appropriate researcher of the university.

3. For each action/measure, what are the success factors and potential obstacles?
*examples of obstacles: not Involving the relevant stakeholders, not having professional and experienced counsellor resources, not having enough budget or/and other means to hold the measures.*

**1/ Public funds support:**

The infrastructure has a high cost, especially if it integrates specialized laboratories. Adequate funding is required annually to maintain the service provided to spin-offs. In the case of lack of funds, establishing a local network of incubators can be an alternative to take into account.

**2/**The joint work between spin-off companies and researchers requires a **good understanding** to guarantee the success of the project. In addition, **the motivation** of the promoter team is essential for the rapid development of the business project in the time of incubation.

**3/Stakeholder involvement:**

Involve other agents such as other incubators, chambers of commerce, business associations and create a support network, allowed to establish joint services that improve the development of incubated companies.

**4/**Establish good **working atmosphere** and have a dynamic management allows to improve the development of incubation projects.

# 6. Spin-off Growth Model

## 6.1 Spin-off Growth Model Background

The main objective of the project is that the lessons learnt for analysing good practices, can be used for others business supporters actors. In this sense, the Design Option Paper should identify and document implementation options, guidelines and implementation alternatives that we have experienced and would recommend to other innovation support service agencies.

Based on the existing key aspects, the planning, development, implementation and validation of a specific Entrepreneurship and Business Acceleration Programme for university projects and companies will contribute to a better understanding of the characteristics of this type of SME and its promoters.

In this sense, the partners have developed a realistic roadmap for most appropriate and effective support in a more efficient manner to the Spin-off companies: Spin-off Growth Model

We have identified eight actions necessary for the development of a spin-off support program. These actions covers the linear model of spin-off creation process, and we think through its implementation and development, it is possible to foster technology transfer and commercialisation through improvement regional innovation ecosystem, which increase spin-off companies, its growth and survival.

## 6.2 Actions

### 6.2.1 Sources Promotion to preparation of the business model in end-of-studies projects

#### Name of action
Promotion to preparation of the business model in end-of-studies projects.

#### Situation within the spin-off process
[1] Promotion of entrepreneurial culture.

#### Beneficiaries of the action
Students (PhD Programs and International Doctoral Programs and Masters).

#### Objective
Raise awareness among doctoral and master students about the potential of transferring their research to viable business ideas. Provide them with the procedure and methodology to make this transfer viable.

#### Activities

Creation of a complementary transversal program with the core training (PhD Programs and International Doctoral Programs and Masters) in the field of entrepreneurship with two clear objectives:

- Raise awareness of that specialised or scientific theory behind the idea, of which the investigator is an expert, is not the same as the knowledge required to take an idea to the market, of which in majority of the cases, the investigator is a novice.
- Provide the assistants with tools and methodology so that, once they are aware, they can define and implement the necessary process to transform knowledge into an idea, and the idea into a sustainable economic, social and environmental business model.

- Adaptation of transversal training to the casuistic characteristic of technology transfer. Proposal for co-creation between the team responsible for the definition of entrepreneurial transversal training and the technology transfer office.
- Adaptation of a specific space in which to impart these sessions that will take the audience to a different environment that is inspiring and creative. The environment conditions the behavior and we are betting on the generation of a new behavior in front of knowledge.
- Integration of the Lean StartUp methodology within the transversal training since it allows the design and agile validation of the possible business idea. It also equips the student with a method of validating ideas that makes him autonomous when applying this method in the future to all the possible business ideas that arise.
- Define the work to be done by the students attending these transversal training. When dealing with immersion methods (learning by doing) students must be able to complete the course of presenting and defending their proposals for ideas as business models before a "committee of experts".
- Select the "committee of experts" to whom the business models will be presented in order to evaluate the adaptation of the idea to market parameters (validation with client) and the coherence of the model from a market point of view.
- Definition of the minimum tools necessary to communicate and work with the students adapted to the moment of the project they are in (initial phase of conceptualization and validation).
- Preparation of a "demo-day" where the students present their final ideas before the committee of experts. The aim is to empower the students since we are in the first phases of evangelization and this should be a reference to encourage the participation of other future students.
- Presentation by students of the design of their idea and the business model in the format that has been established in the course.

- Definition of continuity actions for those students / entrepreneurs who may be interested in continuing with the start-up. (This would probably be another action for the future since we would no longer be talking about promotion of the entrepreneurial culture, but we think it is critical to advance the need for a continuous process that accompanies the student in each phase of the project).
- Communicate the results of the program. Communication in networks, final video recording of the attendees and experts that reflect the evolution of the attendees of the program and integration in the digital media of the testimonies of the assistants...to consolidate the results to generate awareness raising and promotion. For these communication actions it is recommended to involve attendees both in testimony and in dissemination.

## Competencies

**Pre-requisites:** There is no prerequisite however it is always desirable that the students have initiative and ability to search for opportunities as well as capacity for commitment and learning, resilience and flexibility to search for alternatives to market response.

**Acquired after action:** Attendees will have acquired a basic method or process for designing a business model based on an idea as a starting point for market validation, that is, they will have the minimum resources necessary to understand that an idea needs to be implemented in a model and follow a process to determine if it is accepted by the market or not.

## Resources necessary

- Working time for the Co-creation of the program.
- Professionals with knowledge of entrepreneurial methodologies for the design of transversal programs together with professionals from the technology transfer office that can transfer the specific case of research and approach barriers to translation of the research to products or services.
- Resources to adapt the program's teaching space with creative and inspiring components (blackboards, canvases, informal class structure (cushions, rugs, colours, ...).
- Resources to organize and promote the demo day (internal communication within the university and affected institutions, resources for recreation (coffee, ping pong table,...), guerrilla marketing thought up by the students themselves...).

## Funds

- Financing for the definition and participation of specific programs. Not very capital intensive.
- Financing for the adaptation of the space. Not very capital intensive.
- Financing for the promotion and communication of the specific programs and results thereof. Not very capital intensive.
- Bootstrapping and guerrilla marketing.
- Financing for the organization of the "demo day" where the students present their projects before the experts. Not very capital intensive.

## Stakeholders

- University, PhD and Master areas.
- Office of Technology Transfer.
- R & D units belonging to institutions, organizations and companies.
- Doctoral Schools.
- Entrepreneurship professionals.
- Media.

## Regional level impact

High level of impact. The innovations in product, service or process come in many cases from scientific or technological developments and are what make a society evolve. For this advance to really take place, it is necessary to bring these innovations to society in the form of products or services. Therefore, raising awareness of those who have the ability to develop new knowledge of the need to reach the market and the importance of assessing direct utility for the market in the development of their research is critical.

## Expected results

- Open the mind of the researcher and Master / Doctorate student so that their research objectives are oriented towards the market (can this area of research / knowledge become a product or service, is there a market solution for some problem or need of a stakeholder? Am I really doing research or acquiring knowledge in an area of need for the market?).
- More scientific production oriented towards real solutions.
- Development of scientific culture with market orientation. Guerrilla thinking by the students themselves ...).

## 6.2.2 Programming of courses, seminars and conferences

### Name of action
Programming of courses, seminars and conferences

### Situation within the spin-off process
[1] Promotion of entrepreneurial culture

### Beneficiaries of the action
Potential entrepreneurs, university public and researcher in general.

### Objective
To evangelize on the possibility of undertaking sustainable projects as a real alternative to the application of the knowledge generated in the university and research environment.

### Activities

- Define an itinerary of evangelization / promotion of the entrepreneurial culture during a specific period (one semester for example) through courses, seminars and conferences. Content definition, for example (provocative contents are put in order to draw the attention of the target):

  - Do not study to work, study to create (introduction to entrepreneurship).
  - Do not study to work, study to create (introduction to entrepreneurship).
  - What no longer works, work for life vs. your ability to reinvent yourself (new realities of the labor market).
  - What companies seek, and they are not MBAs (new job skills that allow generating value).
  - Do you really want to be paid for what you do? Show that you generate value. (value proposal, what do you know how to do differently from the rest).
  - Do not believe what they tell you, learn it first-hand (market validation).
  - ... Other ...

- Generate a formal presentation (different formats ppt, video, web, app ...) that will be used to communicate the defined activities.
- Define the most appropriate communication channels to get the value proposal of the courses, seminars and conferences to the target audience.

  - Face-to-face: to reach agreements with the different universities, research centers, technological centers and organizations where research is carried out in order to make face-to-face presentations of the entrepreneurial itinerary in the classrooms and centers.
  - Channels: Social networks, partner websites (universities, research centers, technology centers, other organizations), internal communication media of the different centers, local and regional media ...

- Select and involve influencers, that is, entrepreneurs who have started the path of entrepreneurship to help communication and participation in the program.
- Select a pool of professionals and entrepreneurs with knowledge and experience to lead the sessions of the itinerary.
- Generate some type of sponsored challenge that encourages participation in the itinerary. The sponsor could be a local or regional company that supports the venture. For example, you could start with a "Short Hackathon of Ideas", you are invited to participate in a guided session to generate ideas by teams facing challenges launched by different sponsoring companies. If the first session of the itinerary manages to make an impact by making media noise and gathering a large number of participants, this is very powerful even if the funnel narrows.
- Select and involve companies and institutions that support entrepreneurship so that entrepreneurial activity is undertaken and receives social support.
- Generate an online channel where the recordings of all the actions taken are going up. Generate a #hastang for all linked events.

- Generate a contest for the potential participants to promote the activities of the itinerary.
- Include the gamification, the practical workshops, the use of the fablabs, the humor ... in all the itinerary although they have the form of course, seminar or conference.
- Generate a loyalty program rewarding the loyalty of potential entrepreneurs who complete the itinerary.
- Co-create with the potential entrepreneurs the contents of the itinerary. For example, create an online environment where you can always choose between 3 future initiatives and propose other actions.
- Establish visits to centers of entrepreneurship, incubation, acceleration, research, technology transfer offices, technology parks ... that help to know what it is to be an entrepreneur, researcher, intermediary agency ... and what challenges each of the parties faces.
- To make known the impact that the generation of new products and services has on the market in order to boost the economy and progress.
- Raise awareness of other realities of the labor market where people generate jobs and where they need to reinvent themselves periodically to continue contributing value and make society evolve (expose the decline of other past models such as lifetime employment).
- Rent of physical spaces activities are celebrated. It is recommended to reach agreements of partnership like bootstrapping with session of classrooms or spaces in exchange for appearing like partners of the itinerary.

## Competencies

**Pre-requisites:** There is no prerequisite however it is always desirable that attendees have initiative and ability to search for opportunities as well as capacity for commitment and learning, resilience and flexibility to search for alternatives to the market response.

**Acquired after action:** Understanding of the possibilities and support that entrepreneurship also has its advantages and disadvantages compared to other realities.

## Resources necessary

- Team of professionals to define the itinerary of the program.
- Basic office resources to create presentations and manage networks and media.
- Agreements with the media of the different entities that may have a target audience to communicate to proceed with the dissemination of the itinerary.
- Convene a team of influencers capable of pulling the entrepreneurial itinerary.
- Get involved with some companies sponsoring events and even get them to provide a minimum of prizes for the challenges that are thrown along the itinerary, both in communication and dissemination and in entrepreneurship challenges.
- Pool of professionals, businessmen and influencers.
- Spaces to celebrate the sessions of the itinerary.

## Funds

- All the actions described are not very capital intensive except the payment of the services of professionals who lead the sessions that has a low-medium intensity, all depending on the profile.

- For the rest of endowments it is recommended to reach agreements of sponsorship and sponsorship that support rental spaces, events, awards ...

## Stakeholders

- University students and researchers.
- Office of Technology Transfer.
- Technology parks.
- R & D units belonging to institutions, organizations and companies.
- Doctoral Schools.

- Entrepreneurship professionals.
- Media.
- Local and regional companies.
- Influencers.
- Fablabs.

## Regional level impact

Medium in the short, high in the long. It is necessary to first raise awareness so that then part of this population who are now aware initiate entrepreneurial activity. Therefore, the result may not be immediate but it is necessary to investment time and effort.

## Expected results

- Positioning of the entrepreneurial activity as an alternative to take into account in the future work.
- Democratization and normalization of entrepreneurship.
- Involvement of different agents of society to promote entrepreneurship.
- Fun and challenge around entrepreneurship.

## 6.2.3 Meetings with businessmen/investors/researchers

### Name of action
Meetings with businessmen/investors/researchers.

### Situation within the spin-off process
[1] Promotion of entrepreneurial culture.

### Beneficiaries of the action
Startups.
Academic research partners.
Industry partners.

### Objective
To introduce stakeholders to each other and open possibilities to potential synergies:

- To inspire students to take up entrepreneurship.
- To raise industry awareness of research and entrepreneurial capacity.
- To encourage collaboration between industry and academia.

### Activities

- Creation of a database of contacts and events where stakeholders can meet.
  - Contacts should include ones already established ("the usual suspects") but also desirable contacts from startups, SMEs and large industry.
  - Events should include industry conferences, exhibitions and trade fairs.
- "Lunch sessions" where.
  - Industry leaders present their thoughts on sectors and highlight gaps.
  - Entrepreneurs "in the making" present their ideas as a pitch .
  - Entrepreneurs "inspire" others by talking about real situations, sharing success and failures.
- Competitions and hackathons sponsored by industry where.
  - Demand side initiatives are presented.
  - Gaps in existing solutions are revealed.
  - Entrepreneurial teams are encouraged to come up with minimally viable products within a limited time period (eg. over a weekend).
- Project ideas proposed by industry and/or academic partners.
  - Projects close to demand pull and contrasted by the technology push from academic partners.
  - This can be developed during 'live' brainstorming sessions between partners or offline.
  - They need to be refined to fit the capacity available at the incubator, or placed on a "waiting list" until an owner is found.
- Assignment of an industry mentor for the entrepreneur.
  - It is important here to find the right chemistry between members, especially entrepreneur and industry mentor, which in itself is an indicator of potential success.
- Creation of entrepreneurial teams: business men, academic partners, entrepreneurs per project idea, theme/sector of interest or technology. If possible, these entrepreneurial teams should be quadruple-helix based: government, industry, academia and citizen.
- Official integration of projects within the spin-off process. This depends on whether there is actually an official process.

## Competencies

### Pre-requisites

- The entrepreneurs need to have enthusiasm and curiosity.
- The spin-off office needs to have a culture of entrepreneurship and industry. They need to be outward looking and they need to do this continually. The database of contacts and events needs to be "living and breathing" and this usually requires competencies associated with extroverts.
- Academics need to be aware of demand pull (as opposed to only technology push).

### Acquired after action

- Entrepreneurs will acquire confidence in speaking and communicating their ideas to industry leaders and businessmen.
- Entrepreneurs will identify the factors most important for industry such as customer demand, scalability and be able to contrast that with factors in research such as quality based on peer-review.

### Necessary resources

- Creation of a database should be done in an open transparent manner: a Google sheet is a good example where everyone has access to the contacts and can update when necessary. It should not be owned by any one person, rather by all stakeholders involved in the action.
- "Lunch sessions" need free lunch such as sandwiches and perhaps something more exotic for the lead presenter. If there's free food, students will attend and so will academics.
- Competitions and hackathons need auditorium space, computers, presentation equipment and access over the weekends.
- Project ideas proposed by industry and/or academic partners require rooms where ideas can be formulated if it is decided to create the project ideas together.
- Assignment of an industry mentor for the entrepreneur can probably be done offline.
- Creation of entrepreneurial teams may benefit from some collective brainstorming but could also be done offline.
- Official integration of projects within the spin-off process requires that some process is already in place.
- Inspirational (as opposed to plain and closed) room space to hold co-working meetings, lunch sessions, presentations.
- Electronic presentation materials, post-it notes, flip-charts.
- Industry leaders need to make time but this really depends on several factors:

  - Their need for collaboration: how can they be inspired to collaborate? Industry usually needs R&D and to continually innovate. They also look for inspiration in entrepreneurs and are looking for ways to bring that inspiration into their companies: can academia and potential entrepreneurs fulfil this need?
  - Their willingness to share information and be open, possibly working with competitors.

- Industry representatives from different competencies and backgrounds: it is important to remember that industry competencies vary and it is beneficial to have include members from a diverse background and diverse competencies. For example competencies between design thinking, product innovation, operations management and VP of sales vary but are all important for entrepreneurs to understand that running a company is never a "one person job".

### Funds and budget

- Creation of a database of contacts should not be too capital intensive.
- Invitations to industry fairs and conferences can be capital intensive so need to utilize university subsidy or networks within the Chancellor's office.

- "Lunch sessions" do not have to be capital intensive. Students should be allowed to bring their own lunches. Free lunch obviously encourages others to participate but sandwiches don't have to be expensive. If anything, the main presenter can be offered something a bit more "up-market".
- Competitions and hackathons need to be sponsored by industry and it should be "no-strings attached" funding. This means that there should not really be any conflicts of interests between the sponsor and future competition winners.
- Project ideas proposed by externals require time.

### Stakeholders

- Industry contacts.
- Business angels.
- Successful/unsuccessful entrepreneurs.
- Clusters/SME associations.
- R&D centres.
- International project offices.

### Regional impact

High.

- If done well, all activities, but in particular the lunch sessions, will increase awareness of existing competencies on both sides (academia and industry). This consequently will increase the potential synergies and projects between industry and academia.
- There is also the possibility of planting seeds for an open innovation culture between industry and academia. For this to flourish, it requires further investment in resources and follow up.

### Expected results

- Increase in project ideas between industry and academia, especially at an EU level.
- Increase in internships in industry. Note that this is a win at a regional level for employment but may be seen as a loss for academia and the spin-off process. However, it should also be noted that industry experience can lead to the creation of future entrepreneurs.
- Increase in entrepreneurs willing to nurture ideas and make a start on the entrepreneurial journey.

## 6.2.4 External support for technology and market evaluation

**Name of action**
External support for technology and market evaluation.

**Situation within the spin-off process**
[2] Finding new ideas & Idea evaluation.

**Beneficiaries of the action**
Startups.
Academic research partners.
Industry partners.

**Objective**
To establish a process that will evaluate the technology and market potential of ideas in the idea funnel.
[Note that this not external support contracted by external consultants but rather external support created by a program committee created from internal and external resources].

**Activities**

- Creation of an evaluation community that share general knowledge on
  - Technology evaluation.
  - Market evaluation.
  - Industry contacts.
- Creation of a specific panel per theme/group of ideas. This is an output of the evaluation community and is required in order to decide whether the project idea is worth pursuing and under what conditions. There is a need for a specific group per idea because general knowledge of the technology and sector may not be enough to take action regarding the potential of the idea or ideas within a specific theme.
- Development of evaluation criteria for project ideas.
  - This should include evaluation from the point of view of technology by academics or industry R&D departments and evaluation of market potential by industry contacts.
  - The evaluation should also consider other information gathered about the project team, their capacities and enthusiasm.
  - In effect, any evaluation should be conducted from a holistic point of view, the same way an investor would consider a potential investment: strength of the team, proprietary knowledge, demand, competition and potential return on investment.
- Dissemination of this criteria amongst students, future entrepreneurs and their teams.
- Creation of a workbook with step by step instructions on how to arrive at the information solicited above. The aim of this workbook is to provide entrepreneurs with the opportunity to work on this themselves and present a solid piece of work before the evaluation committee.
- Filtering of potential ideas (offline) by the evaluation committee using the criteria developed.
- Opportunity of peer-to-peer evaluation, so students learn how to critique other projects and compare it to their own.
- Final evaluation of the top-5 or 10 ideas during a live pitch session where students have 5-10 minutes to present their idea with all the key criteria. The students (per idea) will then have 5 minutes to answer any questions from an open audience.
- Follow-up of the evaluation: there has to be a clear distinction before and after the evaluation for the student/budding entrepreneur. This includes those who could not pass "go": they need to be given the opportunity to learn from their errors, improve their ideas and re-enter the funnel.
- If required, re-evaluation of criteria and funnel process.

## Competencies

### Pre-requisites

- The evaluation community members should have some knowledge technology and market evaluation: this includes technology readiness levels, technology roadmapping, customer segmentation, return on investment and gap analysis.
- It is vital that the entrepreneurs have already given some though to

  - A clear value proposition outlining exactly why their idea would add value.
  - A competitive analysis and distinction between their idea and what already exists based on their value proposition.

- Academic project leaders or mentors of the team need to take a step back and push for a market analysis first before delving into the science and technology details. Otherwise there may be a tendency to leave the market evaluation until too late, which is often the case.

### Acquired after action

- A "grilled" entrepreneur is more aware of what is required to pass the test of an investor. The same entrepreneur will also have a "feel" for what lies ahead.
- Academic members will be able to identify "star" potential (as per industry and investor requirements) quicker.

### Necessary resources

- In most cases, time is necessary to prepare the ideas to reach a level where they can be communicated to the outside world. It can be counter productive if reports with patchy information are sent to externals who offer their time in kind.

  - Industry leaders need to make time but this really depends on several factors:
  - Their need for collaboration: how can they be inspired to collaborate? Industry usually needs R&D and continually innovate. Can academia and spin-offs fulfil this need?.
  - Their willingness to share information and be open, possibly working with competitors.
  - The awareness and knowledge of academics in demand pull (as opposed to only technology push).

- Creation of an evaluation community requires the utilisation of existing contacts from Phase 1 (eg. Meeting Businessmen action).
- Creation of a specific panel per theme/group of ideas needs to be led by someone with some basic overview of technology and markets, and an eye for detail and the ability to associate that with competencies of members in the contact database. Basic communication skills in transmitting this idea and clearing doubts offline with the contact is important as well.
- Development of evaluation criteria for project ideas requires competencies in technology and market evaluation as detailed in the activities. In particular, this requires understanding of technology readiness levels, technology roadmapping, customer segmentation, return on investment and gap analysis. Some idea about what makes a good project from the point of view investment is also a strength. For example, knowledge on the importance of team capacity, proprietary knowledge, demand, competition and potential return on investment.
- Dissemination of this criteria and the workbook amongst students, future entrepreneurs and their teams requires presentation skills and the ability to create a document that is both visual and inspiring.
- The pitch sessions require marketing and communication with other pitch sessions or lunch sessions organised in the other phases of the spin-off process. This will also avoid duplication of efforts.
- Filtering of potential ideas (offline) by the evaluation committee using the criteria developed requires time especially from business representatives who often cannot find the time. Thus this may mean "learning" from them and transferring the skill onto students in the spin-off office.

- Peer-to-peer evaluation requires some transparent tool where students can see projects online and comment. This can be as simple as a google shared document.
- Live pitch sessions require rooms, presentation technology, flip-charts and lots of marketing in order to make it an event attended by the public. Presenting students need to feel completely out of their comfort zone.
- Follow-up of the evaluation requires someone with strong communication skills. Students who don't pass "go" the first time need to see the benefits in learning from "failure" and must see that this is only the beginning of the journey.
- The evaluation committee need to make space and time for re-evaluating their own evaluation criteria after the first rounds of ideas.

## Funds and budget

- This can be capital intensive if competencies and recommendations of resources are not followed. On the other hand, existing synergies with students in business school can be used. Existing synergies with R&D centres can also be beneficial.
- Creation of an evaluation community is not capital intensive and can be done using simple mailing lists and google docs. It can also be done off the back of existing project teams. It does, however, need an administrator to follow-up and chase down responses.
- Specific evaluation group is not capital intensive but does require time invested by each member.
- Development of evaluation criteria for project ideas requires no capital, only time.
- Formation of an evaluation committee as above.

## Stakeholders

- Business school MBAs or preferably (for very immature ideas) undergraduate business school students.
- R&D centres.
- Industry contacts.

## Regional impact

Low. The synergies created may have an impact but it is more likely that this impact comes from later phases of the spin off process when the idea and team are maturer. The synergy with business students within the same school where the idea originated may certainly have positive repercussions in team formation and thus the generation of new ideas.

## Expected results

Advancement down the "funnel of ideas".
Filtration of ideas that will actually have potential.
Re-alignment of research and technology ideas towards market demand.
Increase in collaborations with industry partners, business schools and business studies departments.

## 6.2.5 Coaching, mentoring and training activities

### Name of action
Coaching, mentoring and training activities

### Situation within the spin-off process
(3) Preparation, setting up a business, consolidation and value co-creation

### Beneficiaries of the action
Entrepreneurs with potential for innovation who are members of the university or graduates of the university (teaching staff and / or researcher, administration and services staff, students and graduates of the university). Spin-off and Start-up companies of the University.

### Objective
Guide them throughout the process of creating and consolidating their Spin-off. Train the entrepreneurial team to take business decisions.

### Activities

- Define a program of consulting and training services with the objectives of the same that will be implemented in coaching, mentoring and training activities and that help the creation and consolidation of the Spin-off. This program can include phases in which the skills to be communicated are distributed according to the phase of the project.

  - Phase 1: entrepreneurs will discover if their idea could be transformed into a company, realizing the business model that allows them to turn their project, research results or business idea into a business opportunity that can be profitable.
  - Phase 2: The entrepreneurs will build the bases of their company or future company, validating the client and the business model, and acquiring all the tools to sell, ending with the creation of the company. All this with an advanced legal-financial service and administrative and accounting support, in addition to the ongoing support of trainers, experts and coaches.
  - Phase 3: Creation of the demand. In this phase, more specific coaching services are offered.

    * Specialized training activities: Economic and financial training for entrepreneurs; How to prepare the business plan, procedures for the creation of companies, management methodologies; Sales roadmap: process, design of products and services; Strategy and positioning workshop; Metrics and Skills: leadership, teamwork, internal communication.
    * Administrative, accounting, legal and financial services: Creation of the company; Support in the elaboration of a financial plan, labor, fiscal, commercial and corporate training; Accounting, tax and labor maintenance with monthly reports and; Elaboration of a treasury budget and analysis of deviations.

- Define the participation criteria in the program of consulting and training services that will be implemented in coaching, mentoring and training activities. (This activity is totally complementary and can be integrated into the action defined as "The availability of incubation areas." In this case, the incubator itself has already defined the project selection criteria, which could be the same as these):

  - Characteristics of the Promoter Team.
  - Knowledge of the market.
  - Maturity of the business project.
  - Originality.
  - Innovative and differentiating character of the proposal.
  - Feasibility of the proposal.
  - Development Potential.
  - Use of technological and R & D results (registered patent, know-how ...).
  - Internationalization of the project.
  - Interdisciplinarity of the project.

- Social responsibility of the project.
- Business project interest for University.

- Define and transmit the differences of the objectives in each one of the described actions (coaching, mentoring, training) so that the entrepreneurs make a correct use of the services according to the needs and moments.
- Generate procedures to detect the needs of those incubated in the activities described. For this it will be necessary to have information about:

  - Phase of the project.
  - Market knowledge and validation process by the promoter team.
  - Technical knowledge of the entrepreneurial team.
  - Management and financial knowledge of the entrepreneurial team.
  - Channel access, barriers.
  - Knowledge of the value chain.
  - Knowledge in advertising and marketing.
  - Knowledge in negotiation.
  - Cohesion of the promoter team.
  - Decision-making process.
  - Scalability and growth.
  - Internationalization capacity.
  - ... Other ...

- Generate a pool of knowledge formed by professional mentors, coaches and trainers of activities capable of covering the detected needs of the teams and entrepreneurial projects.
- Generate a pool of knowledge formed by entrepreneurs who act as mentors, coaches and trainers of activities that convey to entrepreneurs the real experience in their area and specific situation.
- Generate a personalized calendar of coach, mentoring, trainers for each entrepreneurial project where specific needs are met and this can be made compatible with common training detected that is required by more than one entrepreneurial team.
- Manage the agendas of the entrepreneurial teams and professionals and entrepreneurs so that "collective learning" meetings can take place.
- Provide a space to provide the services of the program.
- Scorecard to collect the evolution of projects with feedback from professionals and entrepreneurs.

## Competencies

**Pre-requisites:** Have an entrepreneurial promoter team with at least one business idea and with the motivation to continue advancing in it to transform it into a business model.

**Acquired after action:** Experimental training in the different business areas necessary to make business decisions based on the project phase.

### Resources necessary

Team of professionals that define the program of consulting and training services as well as the selection criteria.
Office tools to store evolution and feedback of projects.
Office tools to schedule.
Physical space to provide services (it does not have to be owned and can even be in the headquarters of professionals or entrepreneurs).
Base of contacts of professionals and entrepreneurs.

## Funds

Necessary for the maintenance of the management team that leads the program and for the payment of mentoring, coach and training services. From not much capital to medium capital intensity depending on the type and frequency of services.

Necessary for the provision of spaces. Not very capital intensive as it is recommended to use common or own spaces of those involved.

## Stakeholders

- Entrepreneurs with potential for innovation who are members of the U&RC or graduates of the University (teaching staff and / or researcher, administration and services staff, students and graduates of the university).
- Spin-off and Start-up companies of the U&RC.
- Coach, mentors and activities trainers.
- Experienced businessmen.

## Regional level impact

High. The professionalization of the management teams in different areas is what will allow transforming an idea into a business, enabling the people who are at the forefront to make the best decisions given the moment in which the company and the market are located.

## Expected results

- Training of entrepreneurs in validation and management.
- Professionalization of startup management.
- Greater survival of the SpinOff to have external support that helps them solve problems that would otherwise lead to the end of the project.

## 6.2.6 Bridging institutions act as intermediaries between companies and the performers of research

### Name of action
Bridging institutions act as intermediaries between companies and the performers of research (Note that this action is similar to the action External support in evaluation of ideas in Phase 2. Rather than duplicate the material here, additional information has been provided. Thus this action may be bolstered with information from Phase 2).

### Situation within the spin-off process
(3) Preparation, setting up a business, consolidation and value creation.

### Beneficiaries of the action
Startups.
Academic research partners.
Industry partners.

### Objective
To create associations of skills between entrepreneurs and researchers and integrate industry leaders in the governance of spin-offs.

### Activities

- A gap analysis by the owners of the ideas and also a counter analysis by the program committee (or evaluation panel created in phase 2) of current situation of the idea and future ambition:

  - What are key enablers and barriers to entering the market?
  - What resources (in terms of competencies) are required to take the idea to fruition?
  - What technology advancements?

- Based on the gap analysis:

  - How can industry provide opportunities to access enablers and removing barriers?
  - Who from industry can help the entrepreneurial team strengthen their capacity and competencies.
  - What supply-chain components can industry offer?

- Project ideas evaluated by evaluation panel or program committee from a market point of view (with the assumption that it has already undergone sufficient technological and scientific evaluation). It is recommended here that market evaluation is more than just desktop research.
- It is very beneficial for entrepreneurs to "get out of the building" and meet their customers, if this has not already been done in phase 2. If industry partners can inspire and accompany them on the first journey, this would be a bonus.
- Technology and product roadmapping by the evaluation community (the larger group of individuals – see "external support" in phase 2) for laying groundwork for future projects and sustainable capacity building.

### Competencies

#### Pre-requisites
Entrepreneurs entering this phase should have already done a preliminary evaluation once based on pull and push criteria.
Academics and industry should already have some experience evaluating projects from a technology and market point of view.

## Acquired after action

Students should essentially be ready to present their idea "to anyone" and expect to answer any questions regarding the project.

## Necessary resources
(similar to phase 2)

- Time is necessary to do a gap analysis and it needs to be based on some kind of criteria that was previously established and has already been tested in a few rounds of filtering projects through the funnel of ideas.
- For industry leaders to react on the gap analysis, they need to make time but this really depends on several factors (in addition to how involved they have been at an earlier stage of the project):

  - Their need for collaboration: how can they be inspired to collaborate? Industry usually needs R&D and continually innovate. Can academia and spin-offs fulfil this need?.
  - Their willingness to share information and be open, possibly working with competitors.
  - The awareness and knowledge of academics in demand pull (as opposed to only technology push).

- Getting out of the building is probably the most time intensive and sensitive part of the project. Students need to be given time off to do this and in many cases, research students need to be inspired to do it. If industry can share experiences and inspiration via their sales department this will be very beneficial.
- Technology and product roadmapping requires time but mainly from academics and research staff.

The big win here is for academia and if done collaboratively (to some extent depending on the time and enthusiasm of industry) it could lead to a win for industry.

## Funds and budget

The actions here are not very capital intensive. Mostly they require plenty of time. Time "off" for students is also a requirement.

## Stakeholders

- Industry contacts.
- Business angels.
- Successful/unsuccessful entrepreneurs.
- Clusters/SME associations.
- R&D centres.
- International project offices.

## Regional impact
High.

As this is the final phase, this action can have a big impact on the future entrepreneurs and their collaboration with industry. This in-turn could mean a more sustainable relationship between academia and industry. Consequently, this will result sin more projects and are better focused on the market and more research that is more focused on creating new markets and innovative products.

## Expected results

- Increase in project ideas between industry and academia, especially at an EU level.
- Increase in internships in industry.
- Increase in entrepreneurship numbers.
- Increase in more "winning" projects.

## 6.2.7 Sources of capital and funding

### Name of action
Sources of capital and funding.

### Situation within the spin-off process
[3] Preparation, setting up a business, consolidation and value creation.

### Beneficiaries of the action
Entrepreneurs and if done well, investors looking for talent.

### Objective
To identify sources of capital and funding for startups and prepare of startup to become "seed investment ready".

### Activities
Learn

**Methods:** teach via lecture, or "lunch" sessions provided by mentors/investors, or provide reading material.

- The difference and relative advantages between equity, debt and grant funding.
- The kinds of private investors: venture capitalists (VCs), corporate venture capitalists (cVCs), business angels, debt investors (usually social).
- Good practice and bad practice examples, preferably from investors themselves.
- Advantages and dangers of crowdfunding.
- How to rely on "bootstrap" for as long as possible before looking for selling equity for capital..
- What (each type of) investor looks for: early traction/ validation, proven track record, early revenues or contracts, early investment, team.
- How to do revenue extrapolation, break down costs and clearly identify what amount of funding you need and what it will be used for
- Contents of a slide deck for a 3 minute or 20 minute pitch.
- The order to communicate about the startup: problem, solution, team etc.
- Storytelling and building trust with audience.
- Setting up a crowdfunding promo.

Do

**Methods:** practice in groups with other startups/entrepreneurs, with mentors, or those with some investment knowledge.

- Development of a criteria for investment readiness (one that is flexible depending on the investor's criteria).
- Evaluation of projects by an evaluation committee. This should include whether or not the project is ready for investment, in the first place.
- Set up practice pitch sessions for startups with questions and answers. Startups need to be grilled well in advance of meeting investors.
- Provide opportunities for entrepreneurs to go to conferences (outside their comfort area) and competitions where the they need to promote, present and communicate.
- Get entrepreneurs to network and build their contacts outside of academic circles.
- Create a pitching session where some investors and "gurus" of industry are invited to see 5 pitches of 3 minutes each, and then grill the presenters.

### Competencies

**Pre-requisites:** by phase 3, they should already know how to communicate their idea to a non-academic audience.

**Acquired after action:** confidence to approach investors, the capability to express and present to communicate the value of their product/idea in 3 minutes or less.

## Resources necessary

Knowledge about investment and investors: how they invest, how much, why etc.
Access to investor circles and industry-led conferences.
Access to people with knowledge of capital investment.
For the pitches: food, coffee and connections to industry and VCs.

## Funds

EU support actions?.
Seed capital: from seed investors, government always have some form of thematic investment program (eg renewables, health).
Series A: venture capitalists.
Series B: and above: VCs, Corporate Venture Capitalists.

## Stakeholders

- Above all: non-academic.
- Venture capitalists but especially ones who specifically invest in themes.
- Government startup funding programs.

## Regional level impact

Exposure to local entrepreneurs: most VCs, funds work at a national level so any bridge built between entrepreneurs and VCs will bring some exposure to work going at a regional level.

## Expected results

- Seed investment (best case scenario).
- Confidence in presenting an idea to a stranger (at the very least).
- Exposure of regional talent to a national level.

## 6.2.8 The availability of incubation areas

### Name of action
The availability of incubation areas.

### Situation within the spin-off process
(3) Preparation, setting up a business, consolidation and value creation.

### Beneficiaries of the action
Entrepreneurs of different profiles, both by level of studies, research and by area of entrepreneurship (activity sector).

### Objective
Accompany entrepreneurs in the early stages of their business development and optimise the use of their resources.

### Activities

- When an institution / organization proposes to promote an incubation area, it has two alternatives in terms of allocation of spaces:

  - Enable and design their own or rented space for the generation of the incubation community. Offices, co-working spaces and common areas.
  - Reach agreements with the promoters of other incubation space that have common objectives, are aligned in similar values and can be complementary.

- Define the services of the incubation area. The services can be varied:

  - General services:
    - Necessary infrastructures.
    - Use of common areas.
    - Cleaning and maintenance.

  - Other services that provide entrepreneurial teams, based on an appropriate assessment, training and consultancy to support their journey.
  - Press promotion services to communicate the value proposal of the project to the appropriate target public.
  - Different common activities of community generation and internal and external networking relationships:

    - Technology breakfasts.
    - Workshops.
    - Co-working meetings.
    - Business experience meetings.
    - Other.

  - Specific technical support (linked to specific companies with which support agreements have been reached in certain technical areas or to research centers, organizations, universities ...)

- Signing of agreements with partners that provide value for the incubated companies (for example providing internet access to startups).
- Definition of the specific incubation program: activities and resources to be developed in each of the phases identified for startups in the early phases. The classification of phases can be varied, for example, idea phase, company creation phase and consolidation phase. Another classification could be customer discovery phase, customer validation phase and demand creation phase. Identify the main milestones that occur in each of these phases and guide startups in the actions and resources they will need most in each phase.

- Generate a call for projects to be integrated into the incubator. Define the selection criteria, such as:

  - Characteristics of the Promoter Team.
  - Knowledge of the market.
  - Maturity of the business project.
  - Originality.
  - Innovative and differentiating character of the proposal.
  - Feasibility of the proposal.
  - Development Potential.
  - Use of technological and R & D results (registered patent, know-how ...).
  - Internationalization of the project.
  - Inter-disciplinary aspect of the project.
  - Social responsibility of the project.
  - Business project of interest for the University or Research Center.

- Appoint a committee for the evaluation of multidisciplinary projects (both in the area of knowledge and in representative institutions of the community) that, depending on what has been defined in the regulatory bases, proceed with the selection of the projects to be integrated within the area of incubation. Record minutes of said procedure.
- Develop high visibility, communicate the value of the incubation stage, teach entrepreneurs how to position themselves in the mind of their client / target user.
- Appoint a management team of the incubator that captures the demands of the incubators and that acts as a connector between the companies housed in the incubation area and the reality of the foreign market. The startups look for opportunities to validate their value proposition and the weakness of their brand and they need connectors that break down the barriers of ignorance and distrust.
- Possibility of generating shared challenges among all those belonging to the incubator with the aim of generating community and motivating progress.
- Establish agreements with the technology transfer offices so that they communicate the value developed within the incubator to the companies in case the proposed value generated may be of interest to them.

## Competencies

**Pre-requisites:** Entrepreneur's awareness of the opportunity that implies belonging to an ecosystem generated around the incubation of projects in the initial phase. For this it will be critical that entrepreneurs have been able to benefit from the framework of activities promoting business culture.

**Acquired after action:** Ability to identify at what stage the startup is and what actions and resources are needed in that phase and therefore focus efforts on carrying out the actions and obtaining the adequate resources for the phase in which they are and moving towards.

## Resources necessary

- Working time for the creation of the incubation program, the regulatory bases, and the definition of the services.
- Contracting legal advice.
- Network of professionals, coaches, mentors and trainers that provide services to the incubators.
- Network of contacts in the business, organizational and entrepreneurial consolidated field that provides the real market experience and offers real help and opportunities to those incubated.
- Partner agreements to offer value to the lodgers (technology, access to internet, communication and marketing ...) and with the technology transfer offices.
- Physical space, resources and infrastructures to adapt the space to an incubation area with creative and inspiring components (blackboards, canvases, structure of offices and collaborative work spaces, open and inspiring meeting rooms ... cushions, rugs ... colours...).

- If you do not use your own physical space, it will be necessary to sign agreements with other incubation spaces to define the conditions of the space and shared programs, as well as the allocation of financial resources that cover part of the costs of the incubator (according to agreement) or the exchange of services.
- Resources destined to the periodic activities of networking and other activities: selection of speakers, catering, displacements ...
- Resources for the maintenance of general services

## Funds

- Intensive capital if generating the incubation area in its own space with the corresponding infrastructure endowment.
- Probably much less intensive in capital if it does not require own incubation area but rather a partnership agreement with an existing one (it will depend on the agreement but it should be a low-cost model).
- Expenditure for the promotion and communication of the call for projects of the incubator. Not very capital intensive.
- Expenditure for the positioning, promotion and communication of the value proposition of the incubator. Not very capital intensive.
- Expenditure for general services coverage including management team maintenance. Average capital intensity.
- Expense for coverage of training and consulting services such as incubator services to the lodgers. Not very capital intensive.
- Certain partnership agreements that support market entry could have some type of direct cost or exchange of services. Not very capital intensive.

## Stakeholders

- Entrepreneurs and researchers.
- Institutions, University, Companies, Research Centers.
- Office of Technology Transfer.
- Entrepreneurship professionals.
- Media.
- Companies.

## Regional level impact

High. The incubation areas are a key element of an innovation ecosystem that guides and accompanies the product / service validation by the market, which increases the optimization of both financial and personal resources of the entrepreneur, shortens the time to market and professionalizes the management of startups.

## Expected results

- Optimization of resources invested by the entrepreneur (time, economy and personal resources).
- Professionalization of startup management.
- Consciousness on the part of the entrepreneur of the phases of development of a startup and the different needs linked to each one of those phases.
- High synergies between the entrepreneurial projects themselves and the entrepreneurial projects with the market.
- Relieve the "loneliness of the entrepreneur".

# 7. Conclusion and lessons learned

The development of a programme for the promotion and development of spin-off companies is complex, because of Universities and Research Centers Spin-off are a type of companies with very particular characteristics, not fully comparable to other star-ups.

Furthermore, the results are not measurable in the short term, and consequently it is necessary to determine certain milestones to prevent deviations in the program development. In this regard, before developing a support programme, it is important to consider the factors influencing the performance of a spin-off (Bigliardi, Galati and Verbano, 2013):

- **Research Center´s characteristics:** formal contacts between center and spin-off, the financial involvement of the center, competent staff in technology transfer offices, access to qualified entrepreneurial skills, professional training and education, relationships established with capital companies, and the intellectual property policy.
- **Promoter's profile:** founder's need for autonomy, founder's risk-taking responsibility, founder's career orientation and founder's motivation.
- **Environment:** the industry characteristics, the regional infrastructure, seed and venture capital availability, and the spin-off's location.
- **Technological issues:** the degree of innovativeness, the stage of development of the technology, and the ability to patent and protect the technology.

Once the factors have been analyses, establish a common strategy with all stakeholders it is essential to ensure the program's success (universities, research centers, incubators, development agencies and Chambers of Commerce, technological parks, public & private funding agencies agents…). The spin-off transfer system will be more successful insofar as there are intermediation structures and support instruments that regulate and facilitate reciprocal relations between organizations at different levels of capitalization of knowledge. In this sense, the triple helix model is the most appropriate to boost the spin-off companies.