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# Innovative and creative entrepreneurship support services at universities

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**Abstract** In the context of entrepreneurial universities, new stakeholders and new roles for old ones have emerged. Accordingly, university entrepreneurship support services have to behave in a creative and innovative manner to actively support business creation at universities. This means that a common framework is necessary that includes the different stakeholders and goals, which gives a clear picture of the process of entrepreneurship encouragement and business development support (EE&BDS). We present a model for knowledge transfer and company growth within the context of entrepreneurial universities. This alternative integrative approach of the different stakeholders, actors, activities, tools, goals, and needs helps us to arrange and manage them in a better way. Our analysis allows us to show the role and relationships among the different university stakeholders and how this integrative approach contributes to the enhancement of the EE&BDS process for this institution.

**Keywords** Innovative services · Entrepreneurial university · Entrepreneurship education · Business development support

## 1 Introduction

In present-day society, the role of universities is not just restricted to teaching and research activities (Etzkowitz 1998). It demands a major involvement of universities

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in the economic and social development process. This has resulted in the rise of a new type of university: the entrepreneurial university, which combines and integrates the traditional activities of teaching and research with contributions to economic and social development (Etzkowitz 1998; Goddard 1998). Therefore, an entrepreneurial university, to attend successfully to society's demands (and be recognized as such), must behave according to this new role. In this context, one of the aims of entrepreneurial universities is entrepreneurship encouragement and the business development support (EE&BDS) process. Entrepreneurship Support Services (ESS), are those units responsible for the promotion of this process at universities. These services must practise what they preach by becoming innovative and creative themselves to be able to actually support the promotion of innovative businesses. However, this attitude needs the involvement of new stakeholders and the consideration of new roles for the old ones. This entails, on the one hand, the need to connect and combine their specific objectives and on the other, to relate them to the whole university goal within an entrepreneurial context. In order to make this possible, it is necessary to develop a systemic framework (Clark 1996; Etzkowitz 2003) that incorporates the different stakeholders and their goals, to have a clear picture of the EE&BDS process at universities. It must be borne in mind that, as a public service, there is a large number of stakeholders involved. It is especially difficult to detect the needs, objectives, and performance of these agents (Armistead and Pettigrew 2008).

In this article, we present the model for the EE&BDS process in entrepreneurial universities (Arroyo-Vázquez and Van der Sijde 2008), as a new tool for the promotion of innovative ESS. This model shows arrangements of stakeholders and actors in such a way that allows the optimization of the EE&BDS process (e.g., Van der Sijde et al. 2002). The proposed model focuses on four key areas that these services will need to foster in order to support the creation of innovative business: (1) entrepreneurship culture, (2) entrepreneurship support, (3) new business launch support, and (4) business growth support. The model helps us to clearly identify a mechanism and the optimal timing to satisfy the needs of entrepreneurs and businesses thanks to the promotion of innovative and creative ESS.

This article shows how to implement a theoretical model within an innovative ESS based on both the experiences of the Polytechnic University of Valencia's IDEAS Institute and the case of the University of Twente (Van der Sijde and Van Alsté 1998), among other successful examples. The interaction of the EE&BDS model with successful experiences and cooperation formulae among different agents will provide us with the foundations to build an innovative ESS. Finally, outcomes and conclusions are drawn from the research.

## 2 The framework and context

The contribution of university to society is an old issue that is currently once again receiving attention from researchers and policymakers. The idea of an entrepreneurial university (first identified by Davies 1987) is recognized as a powerful concept to frame this contribution in clear opposition to the classical university

concept and social contribution. According to the new role assigned to them, we find a common and widely accepted belief: the higher the amount of spin-off companies a university is able to create, the “more entrepreneurial” this university will be considered. In this respect, we agree with Clark (2004) when he asserts that “entrepreneurialism in universities should not be seen as synonymous with commercialization”. Additionally, the study of the most successful entrepreneurial universities in the world has resulted in a good deal of literature related to their characteristics, as well as the way they can successfully turn into one of them: although most are based on  $n = 1$  analyses. We find several studies dealing with these issues such as O’Shea et al. (2007), Clark (1998, 2004), and Etzkowitz (1983, 2004) among others. According to these authors, the entrepreneurial university can be understood as a flexible organization that interacts with its social and economic environment adapting itself to the changes and looks for additional sources of funds for research, teaching, technology transfer, and commercialization, etc. Entrepreneurial universities have a strengthened steering core in common, an expanded developmental periphery, a stimulated academic heartland, a diversified funding base and an integrated entrepreneurial culture as Clark (1998) describes, but without formulating the dependency between these five characteristics.

The entrepreneurial university, as defined above, must attend to a wide number of activities related to its three basic roles as stated in the university third mission literature (Molas-Gallart et al. 2002): teaching, research, and socio-economic development contribution (“outreach”), and at the same time, they have to be managed jointly. All these activities as well as their respective management must be carried out in an entrepreneurial way. This, in the end, means that a large variety of stakeholders are involved.

Entrepreneurial culture is defined by Gibb (1999) as the “sets of values, beliefs and attitudes commonly shared in a society which underpin the notion of an entrepreneurial ‘way of life’ as being desirable and in turn support the pursuit of ‘effective’ entrepreneurial behavior by individuals or groups”. In accordance with this conception, we recognize two critical tasks related to entrepreneurial culture closely linked to those carried out at innovative ESS. The first is *Entrepreneurship Encouragement*, defined as “dynamisation” (Castro et al. 2001) (and an entrepreneurial culture building process) among the stakeholders involved (always including entrepreneurs), as well as the promotion of research and teaching activities in entrepreneurship and related fields. In this definition, we want to point out that “dynamisation” is understood as the induced behavioral change that “moves someone to do something” (Castro et al. 2001). According to these authors, two activities must be promoted in the “dynamisation” process: awareness and motivation activities on the one hand and the provision of facilities on the other. The second critical task is *Business Development Support*, we define it as the process that encompasses the search for and recognition of opportunity, opportunity development, business start-up and business development, and growth. We argue that these two tasks must be developed jointly, within an integrative framework since many stakeholders are involved in both and the different activities of each task can benefit from a synergic stream among them improving, therefore, the whole EE&BDS process. Hence, the systemic consideration of the EE&BDS process

reinforces all its elements and provides the optimal framework to obtain optimal outcomes through the building of stakeholder networks.

A sizeable amount of literature has been produced on EE&BDS at universities, but most of it tackles the issue separately, not as a whole process or in its wide sense. For instance, entrepreneurship encouragement is usually considered just as the promotion of knowledge transfer from universities through the creation of spin-off companies. On the other hand, the Business Development Support process at universities is only considered when it is related to the spin-off companies in which universities have Intellectual Property Rights (IPR) or shares on the spin-off. Some authors consider this process to start with IP protection and ending in IP valorization through shareholder agreements with the spin-off (e.g., Cuyvers and Zimmermann 2002). However, and in opposition to these views, Dalmau et al. (2003) consider the EE&BDS process at universities as a whole in which several activities must be developed in relation to each other to promote new business from students, graduates, and university staff. This model is built around five phases: awareness, “Opportunity Cell building”, pre-incubation, incubation, and exploitation. It takes into account not only opportunity recognition, opportunity development, and opportunity exploitation, but also the process of awareness previous to the identification of opportunity. However, this model does not consider the EE&BDS process in a way where external and internal university stakeholders are involved and work using networks to develop it. Additionally, the building process of entrepreneurial culture is simply referred to as entrepreneurial awareness activities, but does not involve other stakeholders or activities. An alternative view that we must take into account is Nikos’ *Entrepreneurship in Network* model (Nikos 2004) which considers the development of its activities in the entrepreneurship domain in four main activities: research, teaching, business development support and training, and consultancy. We believe that this model offers a broader view since it takes into account additional activities to that of spin-off creation and also several stakeholders and networks for their development. A different approach is offered by Rasmussen and Borch (2006) through the development of dynamic capabilities within the university: new paths; the past, present, and future balance; the reconfiguration and integration of resources and the creation of new knowledge resources. Once again attention is placed on the creation of research-based spin-off ventures, but these authors consider that stakeholders from within and outside the university are involved in the spin-off creation process who have partly conflicting objectives. We also need to consider that the ESS approach differs from other university services; so here the Universities have to face the challenge of how to coordinate each other in order to avoid predictable tensions (Rasmussen and Borch 2006).

### 3 Toward an innovative ESS

#### 3.1 The model

The starting point, as we have already mentioned, is the EE&BDS model at entrepreneurial universities to build an innovative and creative ESS. We have to

take into account that services at entrepreneurial universities must evolve to adapt themselves to changes and user needs, even more so if the user is an entrepreneur and the service is aimed at the promotion of entrepreneurial culture supporting innovative business.

The next figure depicts the EE&BDS process. We use this scheme to show the key point for the implementation of an innovative and creative ESS at universities. First, we analyze the whole model paying particular attention to the implications of a holistic consideration. Afterwards, we will show how to implement all the needed services in each section to be innovative and creative.

### 3.2 Creativity and innovation to manage an integrating model

As we mentioned before, the ESS is the university unit in charge of the EE&BDS process implementation. In many cases, the tasks that we have described with this model are carried out by many different services depending on different university structures even those that are external to the university. If we add to this picture opposing interests often exhibited by the personnel involved at those services then, the right management of this model toward a common end is difficult to imagine. Hence, it seems to be necessary a tool to ease the strategic design of the collaboration among the different agents and personnel involved in such a way that we are able to reach the objectives both at an individual and collective level. According to Kirwan et al. (1996) the entrepreneurial process takes place in social systems, where four mechanisms (Groen 2005) are embedded, related to the specific capital needed. This capital (see Table 1) is defined as *strategic capital*, *economic capital*, *cultural capital*, and *social network capital*. We argue that entrepreneurs and business needs along the EE&BDS process can be grouped into these four types of capital, but we also need to add an additional category: *hosting and facilities*, since we consider that incubation and other facilities are crucial for the process to be successful. The satisfaction of these needs will ease the business development and growth in the earlier years. However, it is not essential to consider this new category in the first stage of the model, *Entrepreneurship Culture*, since the activities here carried out are not related to hosting.

**Table 1** Capital, scope, and resources

Capital needed	Scope	Resource
Strategic capital (SC)	Definition and attainment of strategic goals	Power, authority, influence, strategic intent
Economic capital (EC)	Economic optimization	Money and funds
Cultural capital (CC)	Pattern maintenance and institutionalization of shared symbols	Values, organization, knowledge, skills, experience, technology
Social network capital (NC)	Interactions between actors	Contacts (multiplex, filling structural holes, cohesive, and equivalent)
Host and facilities (HF)	Location and physical identity	Place and facilities

Source: adapted from Groen (2005)

In addition, we must consider the stakeholders taking part in each stage of this process. Table 2 shows a list of stakeholders that may take part at any stage in the process. We do not make any distinction among them regarding their membership to the university or out of the university. According to each specific case, these stakeholders will belong to the university or to external organizations. We want to stress the need to consider all of them in the process.

In order to analyze what the stakeholder's contribution should be, we take into account the previous groups of topics (Table 1) in each stage of our EE&BDS process. Therefore, we have to analyze the contribution of each stakeholder in each capital at each stage. Note that all the capital requirements are covered *only* if the contributions of *all* the stakeholders (both external and internal) are taken into account. We can represent those contributions by means of the following table (Table 3), where we can identify who (stakeholder) participates in what (model stage) and how (what capital provides).

This table is a new helpful tool for service design, as well as for the design of a collaboration strategy among the involved agents.

So far many different formulae have been used to manage ESS (independent foundations with or without university shareholding, external managers, and university service, etc). However, we maintain that organizational structure is not as important as the way the service is managed. An integrated model requires not only an integrative management but also (and more importantly) a long term macro-perspective that considers all those daily activities. Only an entrepreneurial university, as Clark (2004) defines it, will be able to implement the ESS with the capacity to yield optimal results and will benefit in the end to the territory in the form of economic and social development. This means that the university must promote an entrepreneurial culture from a broad point of view, making it a milestone for all services. Therefore, support to an innovating business idea will become a habit and will reinforce the links between the university and those entrepreneurs that at any point in time have looked to support from a university ESS. This behavior reinforces the social consideration of the university and its active role within the territory.

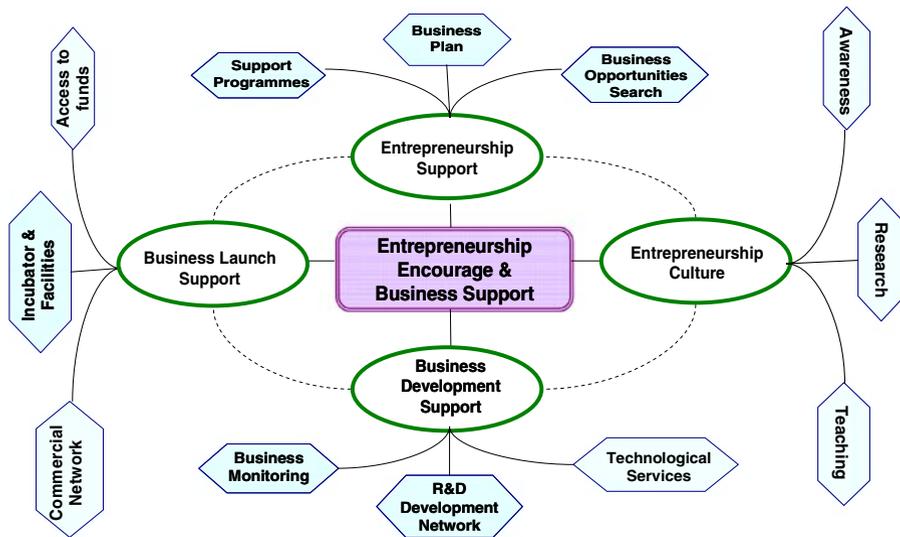
This long term approach works under a service management logic reflected in the following figure (Figs. 1, 2)

**Table 2** Possible stakeholders considered in the EE&BDS process

Stakeholders to be considered	
→University managers	→Consultancies (both external and internal to the University)
→Business creation support service	
→Technology transfer office	→Business & associations
→Incubator center and facilities	→Technology institutes
→Research institutes and centers	→Seed capital networks
→Departments	→Financial entities
→Faculties	→Government (European, National, Regional, Local levels)
→University employment service	

**Table 3** Stakeholders' contribution in the EE&BDS process

STAKEHOLDERS	Entrepreneurship Culture				Entrepreneurship Support					Business Launch Support					Business Develop Support				
	SC	EC	CC	NC	SC	EC	CC	NC	HF	SC	EC	CC	NC	HF	SC	EC	CC	NC	HF
University Managers																			
Business Creation Support																			
Technology Transfer Office																			
Incubator Center																			
Research Institutes																			
Departments																			
Faculties																			
Employment Services																			
External Consultancy																			
Business & Association																			
Technology Institutes																			
Venture Capital																			
Financial Entities																			
Government																			



**Fig. 1** Illustration of the EE&BDS model. *Source:* Arroyo-Vázquez and Van der Sijde (2008)

As we can see, each activity is linked to the whole process. Therefore, they will offer and receive feedback from the rest of the stages and activities, which in the end means that the optimal model's logic rests on an accurate *Entrepreneurship*

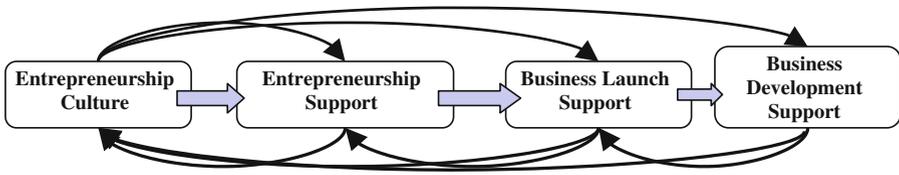


Fig. 2 Logic of the EE&BDS model

*Culture* encouragement. This stage’s success is a necessary but not sufficient condition for the whole model’s success. In this figure, we illustrate how this stage influences and is influenced by the rest of the model’s elements. We must take this into account if we want to design and offer ideal services.

As magic formulae do not exist in the management of these types of services, some key considerations have to be taken into account if we want to succeed. They will be presented and described as long as we deal with each stage of the model. However, we have to keep in mind that university characteristics, timing and environment are key factors for obtaining ideal results.

### 3.3 Entrepreneurship culture

We consider that entrepreneurial behavior among stakeholders and entrepreneurs must be encouraged to achieve optimal results of the ESS. Many times entrepreneurship encouragement is understood as a marketing activity to attract entrepreneurs to create new businesses. However, this behavior does not yield optimal results. We claim that *Entrepreneurship Culture* defined as the creation of a culture around entrepreneurship is not just limited to the “entrepreneurial culture” (Gibb 1999). It also integrates research and teaching activities related to entrepreneurship and connected issues. In Fig. 3, we show the key activities that we consider necessary to create an *Entrepreneurship Culture* climate as well as the objectives that must be taken into account in each one.

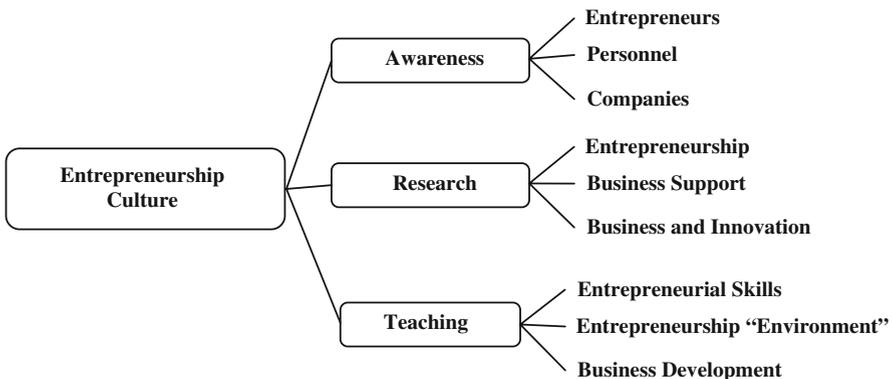


Fig. 3 Activities and objectives to build the Entrepreneurship Culture

The construction of this area rests on the promotion of awareness, research, and teaching activities. With respect to awareness, the target groups are entrepreneurs, academic, and professional personnel at universities and companies. Regarding entrepreneurs, the goal is to inform them about the process and its possibilities, as well as to show them new business creation as a self-employment possibility. Personnel attitude and creativity are key for these sorts of activities. An innovating ESS is continuously considering new forms of proactive awareness in terms of entrepreneurship. On the other hand, an ESS also needs to be proactive with both the university management staff and regional and/or local governments. It is also the mission of an ESS to make policy makers aware of the need to foster an entrepreneurial culture.

The second target group, personnel, might include staff, researchers, lecturers, and any other person or institution involved as stakeholders in the process. The goal of the awareness activities addressed to this group is the creation and promotion of proactive behavior toward entrepreneurship support. For instance, researchers should be proactive and help entrepreneurs to understand technological issues or advise them about the R&D implementation in the future for the firm. Companies are also a target group for awareness activities. In this case, the goal is to promote the implementation of an entrepreneurial culture in companies as well as the creation of a proactive attitude toward cooperation in entrepreneurship support. According to Grant et al. (1996), we have to make the companies aware of the activities of universities and, therefore, of the possibility of collaborating with universities and what they can expect from such collaboration.

With regard to research activities, they will be developed with regard to entrepreneurship in a broad sense, which allows us to have a wider knowledge of skills, entrepreneur behavior, and the reasons why they decide to create a new business, among others. Another research field that we consider relevant to this area is business support structures. The goal of this sort of research is to find new mechanisms, activities, and tools, etc., to support entrepreneurship and business development. Finally, we also propose research on business and innovation.

Teaching activities must be carried out both at undergraduate and post-graduate levels. The goal of this activity is not just to train entrepreneurs in business creation (entrepreneurial skills teaching), but also to train people that may support and advise entrepreneurs (entrepreneurship environment teaching) and enterprises (business development teaching) within the EE&BDS process and its services.

### 3.4 Entrepreneurship support

This area integrates the activities that must be carried out to offer support to entrepreneurs through the process of business plan development, when the entrepreneur has not created the new business yet. We consider that this stage must contemplate the search for business opportunity, since it is necessary, on the one hand, to know about the different sector trends to offer better advice to entrepreneurs and, on the other, to build a research results “observatory” to detect in time those results that are capable of future commercialization and analyze whether a new spin-off will be the optimal mechanism to use.

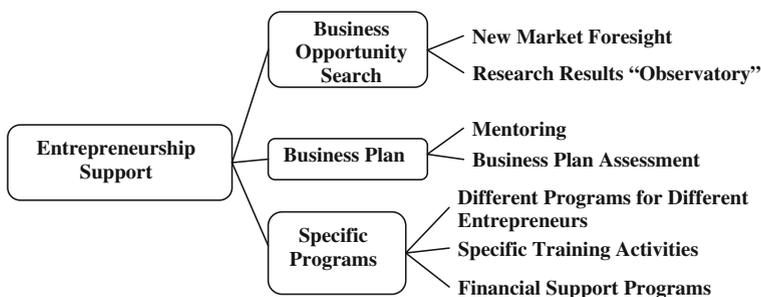
Business plan development is a very difficult and time consuming activity that entrepreneurs must carry out by themselves as a training activity to prepare their future business, among other reasons. This activity involves a lot of issues concerning the new business: strategy, management, accounting, fiscal liabilities, and marketing, among others. Many of them are often completely new for entrepreneurs. Therefore, mentoring is crucial at this stage to guide them along this path. Once the business plan is completed, an assessment is required to determine whether it is viable to create the new business. In many cases, the answer to this question appears during the business development process and it is the entrepreneurs who realize themselves whether the business will or will not be feasible and viable.

We consider that different support programs must be offered to attend to different types of entrepreneur and business idea (self-employment, high-tech business, and to exploit research results, etc.), since different needs have to be covered in each case. Specific training activities (different and with other goals to the teaching activities) aimed at entrepreneurs and businessmen, are necessary to complement this training period. Finally, we have to take into account that entrepreneurs have to access financial resources during this stage. Seed capital, banks, etc., do not usually provide financial support during the business plan development. Therefore, if we want to encourage new business creation, some financial support must be offered. All the activities and objectives to be covered during this stage are depicted in Fig. 4.

Once again the key point is how to offer the services instead of how many are offered and the amount of information. These services must be adapted to the needs of entrepreneurs. This means service flexibility in many aspects (time schedule, resources, creativity to solve entrepreneurs' problems, and capacity to offer networking). This means that these services must be offered by personnel with entrepreneurial characteristics to really help other entrepreneurs.

### 3.5 Business launch support

This stage embraces the support activities to the new businesses during the start-up process. ESS of many universities consider that its tasks end after the business is



**Fig. 4** Activities and objectives to support entrepreneurship

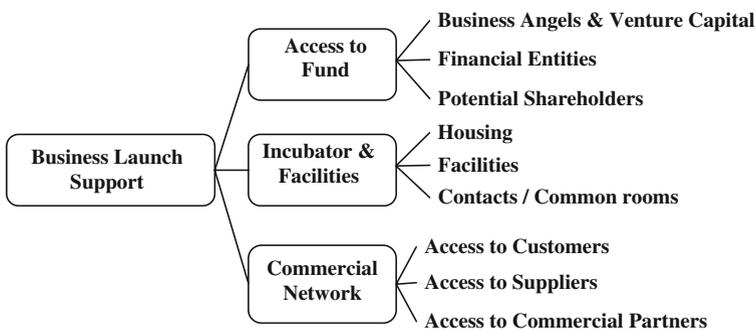
created. However, all this effort is in many cases useless if there is not a monitoring process during the first business steps. An entrepreneurial university must get involved along the whole process including these first steps in the real business world.

It departs from the legal arrangements and search of funds for the set up of new businesses to their introduction in the market and initial commercialization process. We also want to consider within this stage the hosting and search of relationships with partners, customers, and suppliers. We consider that this stage usually lasts no less than 1 year but no more than three. Figure 5 illustrates these activities.

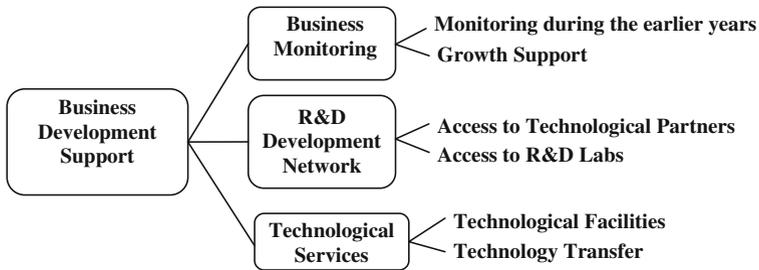
### 3.6 Business development support

We consider that entrepreneurial universities must support not only new business creation and start-up processes, but they should also maintain and feed a fluent relationship with these new firms offering them further support and services during the development and growth stage of firms. Therefore, we propose the businesses be monitored during the early years, as well as receiving further support to ease growth when required.

During this stage, the company has to come into contact with several partners to develop R&D activities. The building process of this sort of networks is not an easy task and the company will need support from the university and other stakeholders. Furthermore, during this stage, the company needs technological and advanced services support to grow and develop R&D activities. According to our proposed model, the activities carried out during this stage help both the company and the university to establish strong ties. Figure 6 depicts the activities carried out during this final stage. The model’s optimal operation foresees the participation of entrepreneurs and stakeholders in each stage helping and contributing to the company’s growth. This, in the end results in strong ties among firms and the university and related stakeholders that help close the cycle and create a climate of cooperation, thereby enhancing the social contribution of the entrepreneurial university.



**Fig. 5** Activities and support to the Business Launch



**Fig. 6** Activities for Business Development Support

We have illustrated in this section the different activities and goals to implement an innovating ESS. However, we need to take into account that the specific tools in each activity must be developed according to the characteristics of each university. Therefore, some activities and/or goals can be changed or re-oriented. However, we think that the four main areas (Entrepreneurship Culture, Entrepreneurship Support, Business Launch Support, and Business Development Support) must be contemplated in an ESS to keep the systemic and integrative approach contributing, therefore, to produce and receive the optimal synergic outcomes from the model. However, in the short run, we can obtain some outcomes (even good ones) if we just carry out some of the four main activities proposed in our EE&BDS model. Nevertheless, we argue that it is necessary to develop the four areas, attending to the general goals described in each one to obtain optimal outcomes in the long run.

#### 4 Outcomes and conclusions

To be an innovating ESS means much more than supporting new business creation. Encouragement of an entrepreneurial culture and the consequent behavior among their stakeholders and actors is the driving force behind this service role. In this context, the EE&BDS process is crucial to implement innovating ESS at universities, and has to involve the different stakeholders, actors, activities, and tools, by getting them together within a common framework. Therefore, an integrative, systemic approach to this process is necessary which takes all these elements into account.

We have showed the need for a type of management that considers and integrating mode of our model and takes into account both long term and day by day management. Furthermore, we stress the need for management to adapt to the needs of entrepreneurs using creativity and innovation as key elements for success.

We have presented an ESS based on the EE&BDS model that contemplates a wide entrepreneurial process that integrates entrepreneurship culture, entrepreneurship support, new business launch support, and business growth support. We have emphasized *Entrepreneurship Culture* as a crucial stage to the logic of an optimal model.

The achievement of the optimal outcomes from the model is directly linked to its integrating and systematic consideration: only the actual involvement of all the stakeholders and the creation of networks among them to carry out the activities that will satisfy the needs of entrepreneurs and businesses accurately. Therefore, the consideration of an integrated and systemic approach to the model is a helpful tool to enhance ESS at universities.

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