

UNIVERSITY AND INSERTION ENVIRONMENT - PROGRESSES IN THE KNOWLEDGE OF RELATIONSHIP BETWEEN THE TWO ENTITIES-

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Abstract: In the context of knowledge-based information society, universities are increasingly recognized as having a key role to play in the regional development process (Charles, 2006, p. 117, citing on Goddard et al., 1994; Keane & Allison, 1999; Chatterton & Goddard, 2000), have being considered active participants in building of regional competitive advantage (Chatterton & Goddard, 2000, p. 479). Although the most authors recognize that the primary mission of universities remains the teaching and the research, in recent years the emphasis is on adapting these two roles to particular needs of regions. It is bring up increasingly the subject of the „*third role*” of universities, through which higher education institutions contribute to development of human capital, to the regional innovation, put their imprint on the local community and participate in regional leadership, contributing to development insertion environment.

Key words: university, insertion environment, knowledge society, regional leadership

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INTRODUCTION

Higher education institutions have always contributed to the social and cultural insertion environment in which they operate, being at the same time (as well as being) influenced by local conditions in which they are located. In this respect, Russo et al., (2007), argue that between universities - as institutions that generate knowledge - and their insertion environment there is a bidirectional relationship: „*The elicitation and production of knowledge is an inherently local process, feeding on territorial idiosyncrasies (Castells 1996) such as the following: local culture and creativity, social structures and political conditions, economic development trajectories, technology access regimes, physical versus virtual accessibility, and the quality and style of education*” (Russo et al., 2007, p.199).

But, in the last 25 years (Uyarra, 2010, p.1227), with the advent and development of the knowledge society, where knowledge is a product, universities undergo profound changes, in that it is considered critical that information-intensive sectors and knowledge-based economic systems develop a solid and strategic relationship with the higher education sector (Russo et al., 2007, p. 2007). As shown Shiri Breznitz and Feldman, 2010, during all this time, universities have played a central role in contributing to regional and national

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economies, by focusing on outcomes of academic research (Breznitz & Feldman, 2010, p.140-141, citing on Etzkowitz & Leydesdorff 1997; Goddard & Chatterton, 1999).

However, in the context of changing generated by the shift in orientation of regional strategies, in regional institutional capacity and in endogenous development since the 1980s, regions are re-examining the role of universities as players in processes of endogenous or locally based development strategies, and in some cases in the promotion of investment from outside also, on the assumption that universities may provide a number of inputs to the development process, whether it be scarce resources of skilled labour, technology, or management development. In parallel, shifts in the form of governance of the development interests of regions are resulting in opportunities for universities to become involved in the planning and governance of their regions in ways that have never previously been so transparent (Charles, 2003, p.7-8).

This article proposes a review of aspects of the relationship between the university and its insertion environment in terms of „transformations” that are generated directly in the urban landscape, as well as those generated at the regional level by the spillovers effects, as it appears in the literature presented. The emphasis is on new approach of the role of the university in terms of the „third function”, caused by the emergence of university information society, where higher education institutions are one of the main „engine” of innovation being considered in this context elements that can make the difference between progress, and hence regional success, and stagnation.

THE ROLE OF UNIVERSITIES IN DEVELOPING INSERTION ENVIRONMENT THE EVOLUTION OF THE RELATIONSHIP BETWEEN UNIVERSITIES AND THEIR INSERTION ENVIRONMENT

Traditionally, universities have fulfilled for a long time two main functions, namely teaching and research. As shown Paul Chatterton and John Goddard (2000, p. 484), a core function of higher education institutions has been to educate through the dissemination of its knowledge base. While this teaching function was initially based on the instruction given to a national elite politicians, industrialists, clergy and civil servants, in the 20th century the access has been continuously expanded to much larger groups. Despite this expansion of access, development of teaching positions in higher education institutions has not been influenced by regional needs, given the fact that most universities still provides graduates recruited from / to national and international markets. The first academic revolution, taking off in the late 19th century, made research a university function in addition to the traditional task of teaching (Etzkowitz, 2003. p.110 citing on Storr, 1952; Metzger, 1955; Veysey, 1965; Jencks & Reisman, 1968). However, initial Research within higher education institutions, especially the university sector, has traditionally emphasised the production of „basic” knowledge for the (inter)national academic community and neglected the application of established knowledge for the local/regional community regionale (Chatterton & Goddard, 2000, p. 488).

In the late 1980s and early 1990s, the development of knowledge economy, that knowledge is a product, has led to growing support of the contribution of universities to economic and social development by focusing on academic research outcomes (Breznitz et al., 2010, p.142, citing on the Etzkowitz & Leydesdorff, 1997; Goddard & Chatterton, 1999). This is the moment where the second academic revolution, about who Henry Etzkowitz speaks in 2003, transformed the university into a teaching, research and economic development enterprise. In this new context has been developed concepts as „third task”, „third mission”, „third leg” or „third stream activities”, which revolve around their interplay with regional industry and society (Arbo & Benneworth, 2007, p.27, citing on Brulin, 1998). Trying to capture the complexity of relationships between the three entities mentioned above, that this new role are required, scientists have turned to metaphors suggestive in this regard. A summary of these „expressions”, which analyses the relationship between higher education and regional development is conducted by Peter Arbo and Paul Benneworth in 2007. To begin with we have machine metaphors: Higher education acts as an „engine”, „powerhouse”, „driver”, „dynamo”, „booster”, „accelerator” or „lever” for regional

growth and prosperity. The other type of metaphor is the biological: Higher education represents a „hothouse”, „seedbed”, „breeding ground”, „spawning place”, „catalyst” or „fermenter” for regional development. This is the place for innovation and reinvigoration. In this respect, Henry Etzkowitz defined in 2008 as University „a natural incubator; providing a support structure for teachers and students to initiate new ventures: intellectual, commercial and conjoint. The university is also a potential seedbed for new interdisciplinary scientific fields and new industrial sectors, each cross-fertilizing the other” (Etzkowitz, 2003, p.112). The third set of metaphors centre on networks: Higher education constitutes a „node”, „hub”, „bridgehead”, „mediator”, „coupling unit”, „transfer point”, „transmission centre” etc. Here, access to and dissemination of information and knowledge are emphasised. The final type is the time metaphor, which suggests that the institutions of higher education take the lead in a transformation process. Terms like „spearhead”, „vanguard”, „lighthouse” and „signpost” are used (Arbo & Benneworth, 2007, p.9).

A number of authors (Keane & Allison, 1999; Chatterton & Goddard, 2000; Gunasekara, 2005; Arbo & Benneworth in 2007; Uyarra, 2010; Trippel, 2012) and reports (OECD, 1997, 2007, 2011) have analyzed from different perspectives the relationship that is established between the University and its insertion environment (city / region), how these two components influence each other, as well as the impact that a university can have on a given territory. Synthetizing these points of view, we can observe a change in the relationship between the two entities (University - insertion environment). Initially, the third function of universities have a predominant economic connotation, these institutions aiming to capitalize the research outcomes by commercialization. In this context, it appeared and developed the concept of „entrepreneurial university” (Etzkowitz, 1983; Clark, 1998; Etzkowitz et al., 2000), that as shown Trippel et al., 2012, it is probably the most prominent account of the changing roles and functions of higher education institutions (Trippel et al., 2012, p.4, citing on Etzkowitz 1983; Clark, 1998; Etzkowitz et al., 2000). Clark (2001), p.13, shows that in this new role universities are considered to be facing a change that can be harnessed by economic autonomy and by transfer of knowledge in the industry. In Entrepreneurial University, activities are expressed in the commercial exploitation of university knowledge in a variety of forms such as spin-offs, patents, and licensing (Trippel et al., 2012, p. 4, citing on Grimaldi et al., 2011). Based on principles of Entrepreneurial University, Etzkowitz and Leydesdorff developed in 1995 a model whom subsequently improved (in the years 1997 and 2000). The triple helix model. In this model, the authors focused on the role of universities in regional economies, pointing to government relationships that involved the multiplication of resources and capital formation projects, such as real estate development in science parks and firm formation in incubator facilities (Gunasekara, 2006, p.102-103, citing Etzkowitz, 2002, p. 14).

A new stage of development of relation between the university and its insertion environment is the development of approach this relationship from the perspective of Regional Innovation Systems. This approach, although it has to the fore the economic dimension of territorial development too, in contrast to the entrepreneurial university model not only focus on commercialization activities, but takes into account a much wider set of knowledge transfer mechanisms. These include contract research, consulting and formal R & D co-operations as well as forms of knowledge transmission that do not involve financial compensations for universities. The regional innovation systems (RIS) approach conceptualizes universities as having a fundamental role in interactive learning processes, and as important actors in regional systemic interdependencies leading to innovation (Trippel et al., 2012, p. 5-6, citing on Cooke et al., 2004; Asheim & Gertler, 2005).

The latest concept that explores the relationship established between the university and its insertion environment is „the engaged university”. This is a concept introduced for understanding adaptation university functions to the regional needs (OECD, 1997, 2007, 2011; Keane & Allison, 1999; Chatterton & Goddard, 2000; Gunasekara, 2006; Uyarra, 2010). Uyarra, 2010, p. 1238, defines this category of universities as being enablers or „animateurs” of regional development, embedding a stronger regional focus in their missions within broad-based coalitions of state and

non-state actors. Rather than considering knowledge transfer processes and strategies to valorize existing university research for regional growth, the focus is on „*regional needs*” and adaptive responses by universities. This includes the contribution of higher education to social, cultural and environmental development, by means of formal and informal participation and external representation as an institutional actor in regional networks of learning, innovation and governance (Boucher et al., 2003, p. 889).

In the new perspective, higher education is now expected to take the lead and to rearrange the structures so that entrepreneurship, technology interchanges and interactive learning can be facilitated and involve the core of their functions (Arbo & Benneworth, 2007, p.27). In the emerging knowledge society, universities are no longer simply responsible for the generation and conservation of basic science and scholarship; they are also engaged in translation, transmission and application of new knowledge. The Bucharest Declaration concerning ethical values and principles for higher education in Europe Region, 2004, p.1).

THE INFLUENCE OF UNIVERSITY ROLES ON THE INSERTION ENVIRONMENT

In the context of the new role, universities are seen as actors inside of a regional innovation system that contributes to the generation of knowledge and to the strengthening of regional interactions. There are expected that these institutions fulfil their traditional missions (teaching and research) and in addition undertake a third function or mission that reflects multiple contributions (economic, social and cultural ones) to society (Trippel et al., 2012, p.3). Aiming to highlight the complexity of this new role, renowned authors in the literature specialitate (Boucher et al., 2003; Uyarra, 2010; Breznitz & Feldman, 2010; Chatterton & Goddard, 2000; Tripplet et al., 2012; Fernández-Esquinas & Pinto, 2011; Drucker & Goldstein, 2007; Arbo & Benneworth, 2008; Russo et al., 2007; Etzkowitz, 2003; Chatterton & Goddard, 2000; Allison & Eversole, 2008; Gunasekara, 2005; etc and reports (OECD, 2007, 2011) have synthesized in various forms.

Although the most authors recognize that the primary mission of universities remains the teaching and the research, in recent years the emphasis is on adapting these two roles to particular needs of regions; to that effect, it is aiming to adapt teaching for training qualified human resources for the region and for the commercial exploitation of university research outcomes. An increasing importance is also given to the role of universities in the development of local communities, highlighting the fact that territorial commitment of universities is beneficial for higher education institutions as well as for the community.

At the same time, it would seem that regional development and promotion organizations understood that universities are the most dynamic and efficient territorial actors, able to turn losers into winners (Ianoș, 2010, p. 16). From this reason these organisations are increasingly looking towards higher education institutions to provide leadership, analysis, resources and credibility. In this sense, higher education institutions contribute to the less tangible aspects of the development process by building social networks that link key actors in the local community and feed intelligence into these networks (Chatterton & Goddard, 2000, p. 490).

The main direction to which the most of these new attributes of universities converge is their role as „*economic entity*” (Boucher et al., 2003), because as OECD (2011) point out, universities can be anchor institutions in local economies as major employers across a wide range of occupations, purchasers of local goods and services, and contributors to cultural life and the built environment of towns and cities (OECD, 2011, p. 1).

The figure nr. 1 points the main functions through which universities fulfill their new roles and put their mark on the development of insertion environment, as well as appearing in the literature.

HUMAN CAPITAL FORMATION

Human capital formation represents, as shown Breznitz and Feldman (2010), the primary mission of universities. Being located at the head of an „*education supply chain*” that produces educated people for the region, higher education institutions can localise the learning process by

drawing upon the specific characteristics of a region to aid learning and teaching. The creation of specialist, locally-oriented courses that draw upon the characteristics of the region can give higher education institutions a competitive advantage in national and international student recruitment pools (Chatterton & Goddard, and the skills and talents of their students. Such teaching often draws upon representatives from local industry to add practical experience to the teaching process. Moreover, project and course work, particularly at the post-graduate level can be undertaken collaboratively with regional partners and can be focused upon regional issues (Chatterton & Goddard, 2000, p.484-486).

Universities can act also as a powerful magnet for attracting talented students and staff into the region from other parts of the country and even further afield, shaping them into knowledge based graduates for firms in the region (Boucher et al., 2003, p.889). In addition to, through their teaching at undergraduate and postgraduate level, universities have the potential to add to the stock of human capital by means of graduate recruitment into regional businesses, possibly following work placements as part of the student's degree. More particularly, graduates can provide the gateway or connectivity through which knowledge exchange between researchers and businesses takes place (OECD, 2011, p.2).

By raising the average level of human capital locally, the university increases productivity of all labour in the metropolitan area. This is because the skill composition of the labour force will affect the technology used, there by indirectly up-grading all labour (Bluestone, 1993). In addition, the human capital effect can also have an effect on business location decisions. The existence of a university-generated, skilled-labour pool can attract existing firms from other places and can also lead to an increase in local new firm formation rates (Felsenstein, 1996, p.1568).

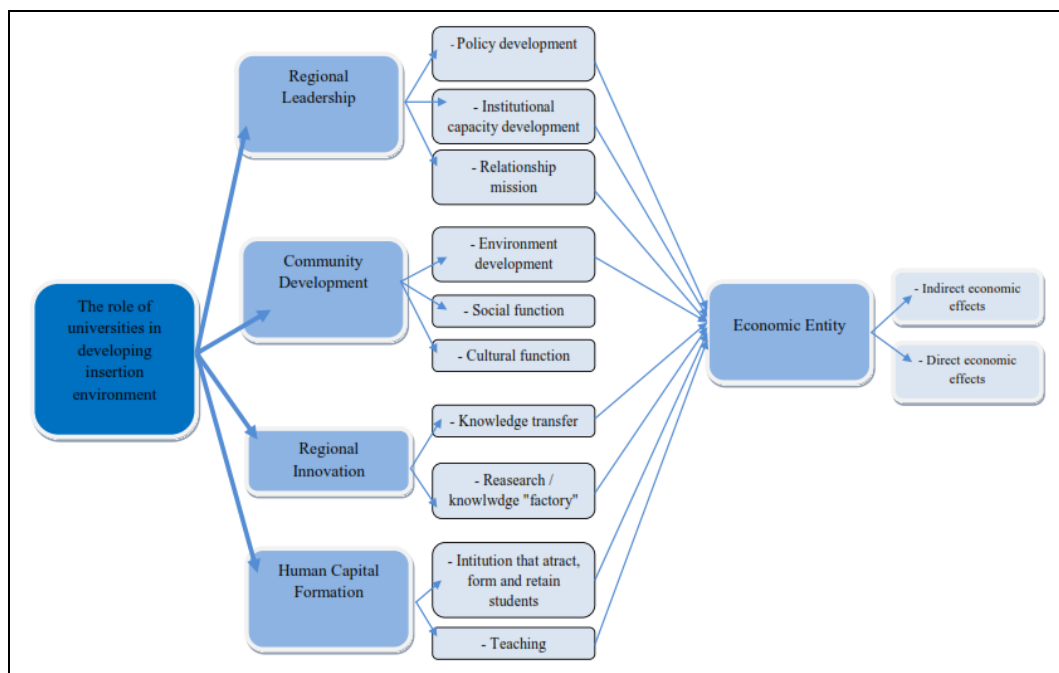


Figure 1. The role of universities in developing insertion environment

Universities can also be major players in human resources policy planning when they channel students and professionals into economic sectors that need to raise their competitiveness, or towards new companies with the potential to replace old productive sectors or create new business nuclei (Fernández-Esquinas & Pinto, 2011, p.7). However, the negative side of this

process is that this total effect will only be felt if some of the students attracted to the university stay on in the area after their studies. If the university functions as a „*stepping-stone*” or „*entrepot*” with (local and nonlocal) students owing in and out of the area, then an opportunity cost occurs which is equal to the income foregone over the period in which local students were studying (Felsenstein, 1996, p.1570, citing on Beck et al., 1995).

The presence of a university often has an impact on the population dynamics of the city in which it is located, especially in the case of medium-size cities. The demographic composition of a large university includes a disproportionate number of younger people with a relatively high level of educational attainment. The university population also tends to be diverse in its cultural and geographic origins. Additionally, this population is characterised by having a greater propensity for both spatial mobility and social mobility between classes. It is generally considered that the benefits of education and social mobility are important in so far as higher education helps enable higher rates of entrepreneurship and to create higher value added jobs with better working conditions, which in turn can provide a stronger tax base for the local coffers (Fernández-Esquinas & Pinto, 2011, p. 7).

COMMUNITY DEVELOPMENT

The contribution that higher education institutions make to civil society through the extra-mural activities of individual staff (e.g. in the media, politics, the arts, advising government bodies, socio-economic, and technological analyses), through providing liberal adult education, evening classes, access to facilities such as libraries, theatres, and museums, and through public lectures is being bundled together and recognised as a 'third role' alongside teaching and research. Perhaps more than the other roles, it is this third role of community service which embeds higher education institutions in the region and emphasizes the social, cultural, or development environment role of universities (Chatterton & Goddard, 2000, p.489-490).

From a higher education institutions perspective, regional engagement is an outward and visible sign of the third task or public service role of higher education, through which the institution can demonstrate its contribution to civil society. Through such endeavours higher education institutions are able to provide concrete evidence of the value that higher education and research add to public investment in it. From a city and regional perspective, higher education institutions, particularly in highly centralised states, can be key local agencies able to bring together within the territory different national interests in science and technology, industrial performance, education and skills, health, social inclusion and culture. Higher education institutions (HEIs) are increasingly engaged with the cities and regions in which they are located. At the same time, these communities are seeking to mobilise higher education to support their economic, social and cultural development. The emerging partnerships arise from a growing appreciation of shared interests (OECD, 2007, p. 29).

Universities are also important regional actors simply for their volume of investment in physical capital: constructing and maintaining buildings, laboratories, research parks, and additional types of facilities along with associated transportation and other infrastructure (Drucker & Goldstein, 2006, p. 23). Manuel Fernández-Esquinas and Hugo Pinto evidence in 2011, that Universities have traditionally been considered a social amenity and attraction for population because they encompass a type of infrastructure that is often unique and difficult to obtain from other organisations. In this type can be included the following aspect:

- gentrification of areas in decline by organizing and improving the urban areas where campuses are located, for example such as: The gardens, roads and access ways, adequate energy supplies, togetherwith the communications technologies, the construction of new buildings and accesses, or the conversion and reuse of old buildings (such as industrial buildings or military barracks) into university infrastructures;

- providing cultural and sporting facilities: the infrastructure designed for students and researchers can provide a service to communities, especially hospitals, sports facilities, libraries and telecommunications, which are particularly difficult to build and maintain when they are

intended for use by small neighbourhoods; when some cities achieve high levels of social and economic development, these cultural and sporting facilities can serve as factors attracting new groups of people to move into the area;

- provision of infrastructure and 'knowledge spaces' such as services for science and technology parks, knowledge infrastructure access;

- the universities take in their hand the role of agents of urban planning, contributing to development of urban facilities, especially when the infrastructure is located in critical locations that help change the social and demographic dynamics of declining areas (Fernández-Esquinas & Pinto, 2011, p.5-6).

REGIONAL INNOVATION

Universities, through research function, are a fundamental source of knowledge, but also a source of relevant technology for industry in modern economy knowledge based, accomplishing in this regard the role of „*knowledge factory*” (Youtie & Shapir, 2008; Uyarra, 2010). In rudimentary terms, such „*knowledge factory*” developed inputs (e.g. students and research funding) into outputs (prospective employees and research papers) in batches, with a set methods, raising comparisons with assembly-line production (Youtie & Shapir, 2008, p.1189). In recognition of this fact, governments throughout the industrialized world have launched numerous initiatives since the 1970s to link universities to industrial innovation more closely. Many of these initiatives seek to spur local economic development based on university research, e.g., by creating „*science parks*” located nearby research university campuses, support for „*business incubators*” and public „*seed capital*” funds, and the organization of other forms of „*bridging institutions*” that are believed to link universities to industrial innovation (David et al., 2005, p.1). In this way, universities become even deeply embedded in innovation systems, seeking to actively foster interaction and spillovers to link research with application and commercialization, and taking on roles of catalyzing and animating economic and social development (Youtie & Shapir, 2008, p.1189).

Based on these considerations, in the literature has been developed the concept of regional innovation system (RIS) that conceptualizes universities as having a fundamental role in interactive learning processes, and as important actors in regional systemic interdependencies leading to innovation (Tripl et al., 2012, p.5, citing on Cooke et al., 2004; Asheim & Gertler, 2005). The RIS concept views innovation as a collective regional learning process emerging from interactions between two regional subsystems of knowledge generation and exploitation. Universities are part of the system of knowledge generation, whose relationships with the region are systemic and manifold, relying on a set of mechanisms that include, for example, interactions with firms and other local institutions achieved through contract research, consulting, consulting, formal R & D co-operations, as well as forms of knowledge transmission that do not involve financial compensations for universities; these institutions are also part of the regional institutional context characterized by culture, norms, trust and established patterns of interaction (Tripl et al., 2012, p.5-6, citing on Cooke, 1998).

A key concept of regional innovation system is the „*knowledge transfer*”, which can be equated with probably the most prominent account of the changing roles and functions of higher education institutions: entrepreneurial university (Etzkowitz, 1983; Clark, 1998; Etzkowitz et al., 2000). In this view, universities are considered as experiencing a shift towards economic autonomy and knowledge transfer to industry which can be capitalised upon (Clark, 2001), this role being taken up as an important reflection of academic capabilities in response to changing market demands. Activities are expressed in the commercial exploitation of university knowledge in a variety of forms such as spin-offs, patents, and licensing (Grimaldi et al., 2011). These are often related with the creation of new incentives and rewards for technology transfer for university staff, and increased industrial funding (Tripl, 2012, p.4, citing on Geuna & Muscio, 2009; Perkman et al., 2011). Recipients of technology-transfer activities tend to be businesses, civic or nonprofit organizations, government agencies, or individual citizens rather than university students

or employees (Drucker & Goldstein, 2006, p.23). Knowledge transfer may be direct through licensing or may be less direct through partnerships with local companies, through consulting or simply as a result of conversations (Breznitz & Feldman, 2010, p.140-141).

Association of University Technology Managers show in 2005, the importance of technology transfer: Academic technology transfer - the licensing of innovations by universities, teaching hospitals, research institutes and patent management firms - adds billions of dollars to the U.S. economy and supports hundreds of thousands of jobs. It contributes to the spawning of new businesses, creating new industries and opening new markets. Most important, technology transfer from universities to the commercial sector has led to new products and services that improve our quality of life.

REGIONAL LEADERSHIP

Regional leadership signifies the capacity of a university and its employees to serve the region through direct participation on local committees and boards, the provision of technical resources and support, and the exercise of moral authority, and in some cases, political clout to help establish consensus and resolve conflicts (Drucker & Goldstein, 2006, p.23). Policy development is also one of the most common roles for universities, that they are an active part of regional leadership, with regard to promoting economic development due to their multifarious nature and the range of experts who work in these various specialized fields. Many academics are individually involved in policy research and development. Therefore, it is not surprising that some universities choose to form taskforces that improve the local economies by means of policy-decisions. Moreover, many universities now find themselves as a major employer in their respective regions, which means that they have an interest in being involved in the development of local and national policy, both through participation in policy research and public policy recommendations (Breznitz & Feldman, 2010, p.149)

J. Allison and R. Eversole posit the idea that universities have enormous potential to take a leading role in regional development processes. Despite tensions and issues to be resolved, universities possess a range of institutional features and characteristics that position them well to act as regional development catalysts through their formal and informal participation as institutional actors, together with other regional actors in networks of learning, innovation and governance (Goddard et al., 1994; Keane & Allison, 1999):

- universities have established infrastructure, institutional frameworks, and organizational systems already in place, so there is no need to create a new organization;
- universities are specialized in learning, knowledge creation, and knowledge management, seen as central to development processes; their core elements (academic enterprise, courses etc.) can drive a range of initiatives;
- given their knowledge-transfer and diffusion role, universities are ideally suited to building capabilities in a region;
- they are already recognized as playing a key role in regional innovation systems;
- their various discipline areas, when taken together, form a broad knowledge base that crosses the boundaries of narrow sectoral interests, with the potential to play important integrative and facilitating roles (Allison & Eversole, 2008, p.103-104).

Studies of economically successful regions suggest that success partly depends on „*institutional thickness*” (Amin and Thrift, 1994) where institutions engage in the sharing of knowledge and expertise to promote cooperative activity. Based on these considerations, Boucher et al., argue that it makes sense that universities should be identified as significant institutional „*players*” in knowledge-based regional development (Boucher et al., 2003, p.888).

In support of this idea and underlining the importance of developing an „*proactive*” relationship between actors involved in regional development, Arbo and Benneworth show (2007), citing on Beaverstock et al., 2003, that effective cooperation between universities and other stakeholders involved in local government contributing to lever advantage into the

competitiveness of their locations. The authors mentioned above show that this is increasingly dependent on the possession of higher-order urban functions generated which are knowledge intensive (Arbo & Bennetworth, 2007, p. 49).

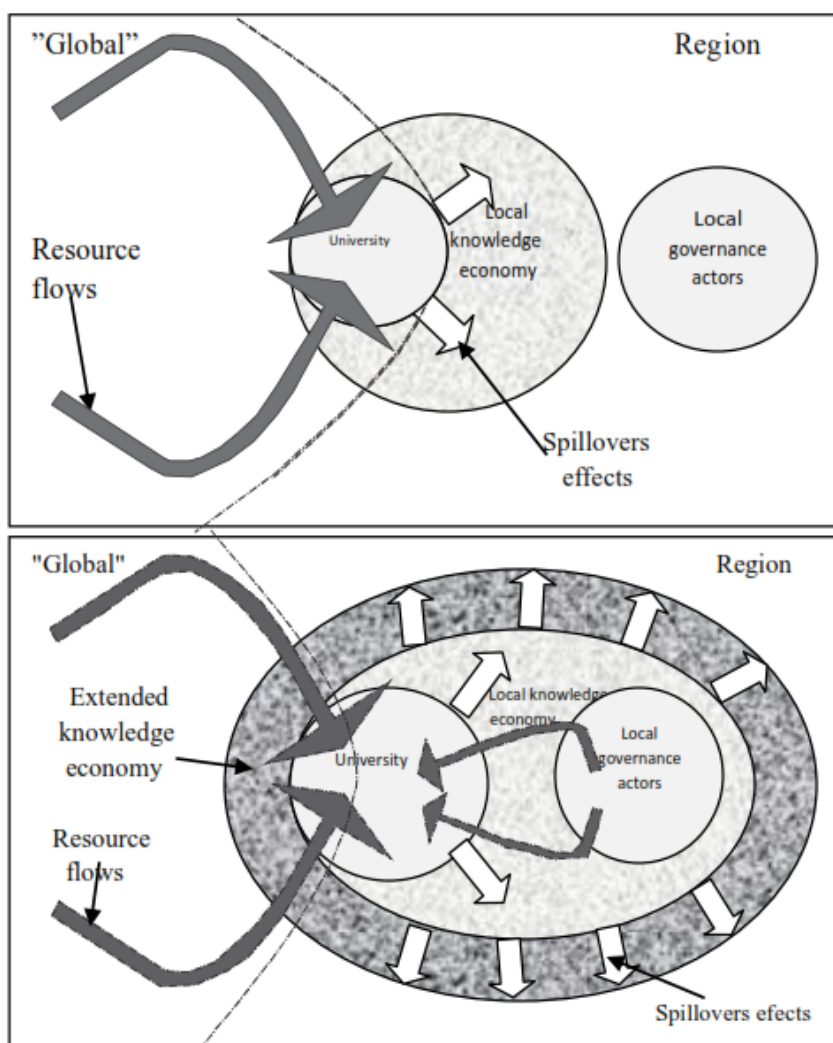


Figura nr. 2 - The role of the university and local governance actors in building an extended competitive regional innovation system in a less succesful region (Source: Arbo & Bennetworth, 2007, „*Understanding the Regional Contribution of Higher Education Institutions: A Literature Review*”, OECD Education Working Papers, Nr. 9, OECD Publishing, p. 49-50)

This situation is shown in figure 2; if universities and local / regional authorities can find a way to work together complementarily to regional leadership , then they can produce a global / local knowledge economy which represents an improvement in the economic situation of the wider territory (Arbo & Bennetworth, 2007, p. 49).

Through participating in regional leadership, universities performe, as Guanasekara shows in 2006, p.103, the role of economic and social „*development*” of insertion environment that centre on the intersection of learning economies and the regionalisation of production and regulation. Universities through resource base of people, skills and knowledge, increasingly play a significant

role in regional networking and institutional capacity building. Staff, either in formal or informal capacities, can act as regional animators through representation on outside bodies ranging from school governing boards and local authorities to local cultural organisations and development agencies (Gunasekara, 2006, p.102-103).

UNIVERSITY AS „*ECONOMIC ENTITY*”

The „*economic entity*” role of university is one of the most important, because it can say that is a synthesis of the other four roles: the formation of human capital, regional innovation, community development or regional leadership. Manuel Fernández-Esquinas and Hugo Pinto, show in 2011, that the economic role played by universities can also be subdivided by considering the indirect effects separately from those arising as a result of a planned strategy. As these authors above mentioned, it is evident that universities may bring considerable human and financial resources to cities, along with other providers of public goods such as hospitals and state school networks. Such organisations are often the largest employers in medium-sized cities whose productive structure is mainly made up of small and medium-sized enterprises, which is important for local economic dynamics on various levels. For example, universities create a substrate of middle-class consumers, consisting of both their employees and students, who may play a role in revitalising the local economy. Higher education institutions can also be used as a stimulus for local businesses when they draw upon them as providers of the goods and services teaching establishments require, sometimes bringing small businesses onto the campus. Moreover, examples exist showing how the indirect employment stimulated by the activity of large universities can have an effect on the dynamics of regional development (Saxenian, 1996).

The economic impact of innovation is possibly the single most recognised aspect in the specialized literature and in public practice when it comes to the role of universities as active agents in development policies. Universities may be considered drivers of innovation through various channels and by a variety of mechanisms. First of all, when researchers and research facilities are accessible to local businesses, they can be used as providers of knowledge-intensive services. Although the emphasis of most studies of innovation has been on the role of patents and codified knowledge, is widely recognised that informal channels of knowledge transfer offer a wide variety of possibilities ranging from consultancy and applied projects, to the use of scientific instrumentation, and the provision of testing and laboratory services (Ramos-Vielba & Fernández-Esquinas, 2009). Second, the specialised training for enterprises and the internships they provide undergraduates and doctoral students are also effective mechanisms through which to increase staff recruitment and, potentially, firms’ absorptive capacity (Fernández-Esquinas et al., 2010). Third, the university can act as an agent for the promotion of entrepreneurial activities, or as an entrepreneurial body itself. The main channels in this regard are entrepreneurial education, guidance of students on business creation, and the setting up of incubators to help establish new high-tech firms. Fourth, another common channel relates to „*clustering*” effects. Although this can sometimes be considered an indirect effect, special importance is often given to the location of universities and industrial areas in science policy decisions. The location of a high capability scientific centre, especially in the case of large scientific infrastructure, can have significant impacts on the surrounding area due to the spill-overs between technology research and business innovation and the capacity to attract companies in knowledge-intensive sectors.

Universities have also specialised infrastructure and human resources that are difficult to provide by other means with the resources that local authorities often have at their disposal. For this reason, these organisations can be considered to be important assets in urban development strategies. The mobilisation of their facilities, researchers and graduates can become an asset in the transformation of urban environments (Fernández-Esquinas and Pinto, 2011, p.9-10).

Boucher et al., synthesize in 2003 the economic role of universities, citing on Florax and Folmer, 1989; Bleaney et al., 1992; Armstrong et al., 1997, highlight that their role as economic contributors includes combining measures of the university as an employer, payer of wages and salaries, buyer of products and services from local firms, and attractor of students who spend money in the regional economy (Boucher et al., 2003, p.889).

CONCLUSIONS

University, as a complex entity that establishes a multitude of relationship with its insertion environment, has the capacity to contribute significantly to his social, cultural and economic transformation. In this respect, two aspects should be considered: adapting the roles of higher education institutions to „*regional needs*” and identifying the most effective means of communication and networking of universities with territorial actors (government, industry / business etc.) who have the ability to optimal harness the outputs which are generated by higher education institutions. In this way, it may be exploited the potential of universities to become one of the key elements that contributes to regional development and it represents also regional differentiating factor between success and failure.

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Submitted:
May 29, 2013

Revised:
July 21, 2013

Accepted and published online
August 10, 2013