UNIVERSITIES AND THEIR CONTRIBUTION TO REGIONAL DEVELOPMENT

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Abstract

As institutes of tertiary education, universities are primarily (further) education facilities and research institutes. They are intended to impart knowledge and competencies, not only in the field of further education but also with respect to social development. Whilst universities used to be geared, first and foremost, to the international and national stage, these days the regional anchoring of universities is increasingly gaining in significance. Universities are expected to commit to their region and contribute to regional development. Universities can accomplish the difficult balancing act of satisfying their mission and legitimation if they can succeed in combining the "university system" with the "regional system". Doing so implies that both the universities and regional stakeholders accept new requirements. Should a partnership emerge between the university and the region, this would mark a significant step on the way to achieving a learning region and a knowledge-based society.

Keywords: Universities, regional development, learning region,

JEL classification: I23, R 11, R58

Introduction

Universities are public institutions that need to perform a number of different tasks: as an education institution, their mission is to educate and impart expertise. At the same time, they are research institutes seeking to secure a top-ranking place in the face of national and international competition. They are further education institutions and expected to contribute to the development of society and also to provide innovative solutions to current problems. For a long time, universities focused their attention on gearing to and establishing themselves on the national and international stage. Increasingly, however, demands are being placed on universities not only from national, but also from regional players. As public spending on education increases, so, too, is the expectation of a return on investment, i.e. universities are expected to offer solutions to social and economic problems.

This is also especially true of the regional level since universities are increasing in significance here especially: they are becoming location factors that influence the image and location quality of regions. Universities are increasingly being expected to contribute to the economic development of the region they are located in. This gain in significance for universities, including for regional development, is materialising, on the one hand, from a shift in the theoretical view of what constitutes the success factors for locations and regions today. On the other hand, (government-sponsored) regional policy is increasingly focusing on the areas of innovation and knowledge. This is especially true of the European Union's regional structural policy where fostering knowledge and innovation is perceived as the key prerequisite for economic growth, including at regional level (cf. European Commission 2006). These days, universities are often called upon to perform a balancing act: On the one hand, they must fulfil their (international and national) mission, while, on the other hand, also having to validate their actions at regional level and to contribute to (regional) economic development there. A university can successfully accomplish this balancing act if synergies emerge between the "university system" and the "regional system", in other words if a mutual relationship exists between these two systems from which both sides can reap benefits.

The paper that follows will seek to illustrate through examples of models how an ideal systemic relationship can be established between a university and the region. In this connection, the paper has been written on the assumption of regional economic requirements and, on the other hand, of the fundamental functions and tasks of a university.

1 New paradigm in regional development theory

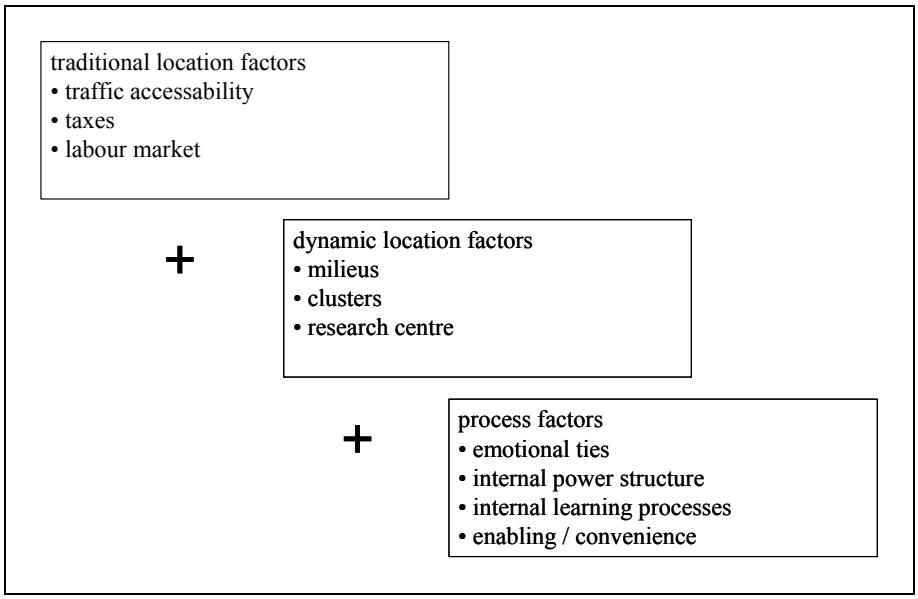
Regional science has long since addressed the issue of how locations and/or regions develop and what factors – with the help of empirical data - might account for the success of a region. These days, an increasing number of factors are coming to the fore which actually explain the ability for enterprises to develop and have been translated into spatial development. Competition between enterprises is characterised by technology and rivalry, know-how and the development and dissemination of competencies. Regional scientists have adapted this microeconomic perspective and availed of it for the subject of their research work. Several years ago, Thierstein, Walser (2000) had already recognised a threefold paradigm change in regional science:

- The theoretical perspective is shifting from an exogenous to an endogenous view.
- Theories are changing their orientation and moving away from production factors in the narrow sense of the term towards orientation towards interactive connections between institutions and/or stakeholders.

- The main focus of the theories is shifting from a static view of location factors to development processes.

The last-mentioned point also holds true when the key regional economic theories are observed in terms of their historical development are examined. As the following figure shows, the traditional location theories, which have primarily referred to the so-called 'hard' location factors, need to be supplemented by dynamic and process-orientated location theories. At the same time, however, it should be mentioned that these 'new' approaches to location theory do not replace but complement the 'traditional' approaches.

Figure 1 Change in location theories



Source: Scherer 2006

Given this new theoretical perspective, the 'success' of a region or a location is assessed on the basis of its ability to learn and, above all, its competencies. The ability to learn refers to the fact that locations must be capable of adapting on an ongoing basis to changes in regional and global framework conditions by constantly reconfiguring their economic structure in order to preserve their ability to compete (cf. Florida 1995). This is also where the theoretical model of the cluster concept as developed by Porter (1990) applies according to which the success of a location emerges from a regional concentration of suppliers, buyers, competitors, workforce as well as education institutions and research institutes. These regional networks lead to an exchange of knowledge in the region; they contribute to building competencies among regional enterprises and therefore to strengthening the region's competitiveness. As a consequence, creating knowledge and exchanging this knowledge become central factors for the success of a location.

Current studies show that a region's ability to learn and adapt is influenced to a significant degree by the networks and institutional conditions in place in the region. Grabher (1993) and Roesch (2000) point out that the regions avail of a life cycle as it were, and that the networks within a region can be responsible for regions becoming 'sclerotic' and no longer being able to develop in a positive sense. Theories referring to the innovative ability of regions or organisational units are therefore also of significance.

The above-mentioned comments on the current discussion surrounding regional science show that not just a central, comprehensive regional theory exists in the present day. Instead, a series of different theoretical approaches must be drawn upon in order to explain the success of regions and locations and from which concrete demands for action can be derived for regional promotion. International discussions focus primarily on five theoretical concepts which are of particular relevance in connection with the importance of universities for regional development:

- The "growth pole" concepts are derived from the original polarisation theory approaches of Perroux (1950), Myrdal (1957) and Hirschmann (1958). They assume that growth poles are areas where a development dynamic is initiated through a variety of interdependences and that these can result in (economic) growth (e.g. Lasuén 1973, Schätzl 1998, Sternberg 2001). A corresponding concentration of regional promotion on such areas would then result in perceptible impulses for economic development.
- The concept of the "learning region" (e.g. Butzin 2000; Florida 1995; Stahl 1994, Thierstein, Schedler, Bieger 2000) stresses the importance of knowledge, qualification and the acquisition of competence as a basis for a region's economic development. In the case of the "learning region" concept, differentiations can be made between (a) approaches geared to human resources, whereby both the development of the regional knowledge base and the coordination of regional further education programmes are at the forefront, (b) innovation-orientated approaches, whereby focus is placed on learning by interacting as well as exchanging information and diffusing innovation, along with (c) a policy network approach addressing a new planning culture and new cooperation processes through networks in the region (cf. Schläger-Zirlik 2003:25ff).
- The "social capital approach" (e.g. Putnam 1993) stresses the relationships between humans as a resource for the economic development of a region or a community. It focuses attention on the individual contact networks within a region and illustrates how solidarity for and commitment towards public tasks (can) result.
- Endogenous regional development concepts (e.g. Hahne 1985) include a return to regional resources and abilities and indicate the need for these to be used in order to generate development impulses and ideas. In the process, maintaining the region's identity takes on a particularly important role. In contrast to earlier endogenous regional development approaches, such as those discussed in the 1980s, today, the need to achieve export revenue by utilising endogenous potential is perceived to be a vital prerequisite for economic growth.
- The "capacity building" concept assumes that social change is a complex process, whereby people and organisations in different roles attempt to structure their working and living conditions efficiently and effectively (cf. UNDP 2000). Through "capacity building", they develop the ability ("capacity") to attain their own goals. Specific measures, among them the set-up of corresponding institutions, seek to specifically use both the organisational and individual knowledge in existence in a region for the purposes of (economic) development.

In all of these theoretical concepts, which can be used to derive concrete requirements to develop locations successfully, knowledge is of particular significance. Above all, universities play a central role here as "sources of knowledge": They generate new knowledge, make existing knowledge available and actively pass on this knowledge through their educational

function. From a regional science perspective, whether and how a university can be integrated into a regional knowledge system is of core significance (cf. Schnell/Scherer/Held 2005).

2 How universities overcome the balancing act between their mission and legitimation

Universities are not only further education institutes imparting knowledge and competencies but also have a social task to play and are a regional stakeholder at their respective location. Universities are increasingly expected to cease operating only on the international and national stage and to contribute to the (regional) economic development of the region they are located in. For this reason, universities often have to accomplish a balancing act of legitimising themselves in terms of their mission and in the face of political and public pressure.

A university's tasks are usually anchored by virtue of laws. The statutes of the University of St. Gallen, for example, state that it is not only an academic teaching and research but is also obliged to provide services as part of its academic strategies. Unlike many other universities, the legally established range of activities to be performed by the University of St. Gallen therefore extends beyond the "traditional" field of tasks. Moreover, the self-conception and direction of a university is also reflected in its mission statement and vision. The University of St. Gallen, for example, has developed a Vision 2010 and a mission statement that is intended to outline the normative framework of the university as it moves into the future (University of St. Gallen 2007). Here, the University of St. Gallen perceives itself as one of the leading schools of economics in Europe that is renowned for its teaching at all levels of lifelong learning and for its research work in select fields of social relevance. The following guiding principles have been formulated:

1. **Acquisition - Education - Loyalty**: We want to acquire students who wish to make use of their talents and capacities to benefit social responsibility and not only for personal success. We offer internationally recognized degree programs and post-graduate courses for life-long learning. In this manner, we also encourage long-lasting relations between the students and the University.
2. **People - Research - University Added Value**: We seek to provide academics with good conditions for innovative and creative research. In so doing, we satisfy both the demands made by science and the realities of working life. We strive for a leading international position in selected fields of research that are of high social relevance and strategic significance for the University. We encourage a division of work as well as cooperative ventures that enable researchers to exploit their varying skills and strengths to the full.
3. **World - University - Region**: We aim to develop the internationalization of the University systematically and continuously. By offering an international education, we want to attract students, academics, practitioners and professionals from the region as well as from all over the world. In this way, we can make the benefits of internationalization available to the region.
4. **Entrepreneurship - Performance - Financial Strength**: We cultivate individual entrepreneurship in the interest of the University as a whole. In this way, we secure and expand our academic freedom and our University's financial autonomy. We are conscious of the special responsibility that is associated with utilizing this freedom.

Looking at the aforementioned guiding principles, whilst the international reputation, applied research and the promotion of entrepreneurship are to the fore, it is also necessary for

the region to benefit from what the university offers. The University of St. Gallen now faces the challenge of embodying this mission statement and the above-mentioned guiding principles and of putting them into practice.

Regardless of how a university mission might be defined individually, representatives from politics and society are formulating demands on universities. On the one hand, public funding for education institutions has risen in recent years due to the increased number of students. On the other hand, public authorities expect a greater return on investment precisely because education spending has increased (Thierstein, Wilhelm 2000). From this, it can be deduced that – more than ever – universities are called upon to help resolve social and economic problems. Universities also have a significant role to play in the regional economy: they are key location and economic factors as well as signature institutions that can influence the location quality of a region. As a result, universities also have a legitimation function from a social, political and economic perspective.

Fundamentally, it can be assumed that universities have an impact on the regional economy and can contribute to regional development. The most important effects that universities have can be roughly divided into two categories (cf. Strauf, Scherer 2007):

- The *financial* impact of universities for the region is one of the quantitative effects: Universities cause goods and money to flow between the public authorities, enterprises and (semi-)public institutions. In doing so, they create an economic factor for a region. At the same time, however, they not only precipitate costs but also generate significant benefit.
- The non-quantitative or *qualitative* effects of universities occur in the economic, ecological, political and socio-cultural surroundings of the institutions. These effects represent an external benefit that can often only be recorded with significant effort. Spin-offs are one form of external benefit, in other words enterprises founded by graduates and employees of universities and technical colleges that locate in the direct vicinity or further catchment area of universities.

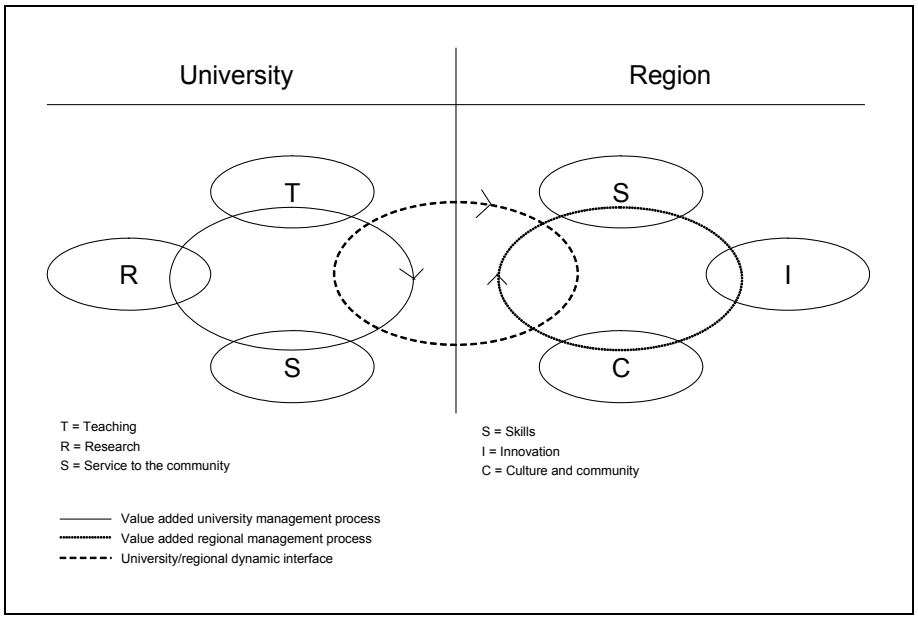
In order to fulfil their mission and be anchored at regional level at the same time, universities often have to overcome a balancing act.

3 Cause-effect relationships between universities and regions

The existence of a university can have differing effects on its location region. Added value for both the universities and the location regions can be created if synergies emerge between the "university system" and the "regional system".

Connections and overlaps may occur between the university system and the regional system. If the needs of the region can be accommodated in the programmes and services offered by universities, this can result in a dynamic process and an exchange of competencies which raises the innovative ability and ability to learn of both the universities and the region while also leading to an added value for both sides (cf. Figure 2). "The successful university will be a learning organisation in which the whole more than the sum of its parts and the successful region will have similar dynamics in which the university is a key player." (Goddard 2000: 7)

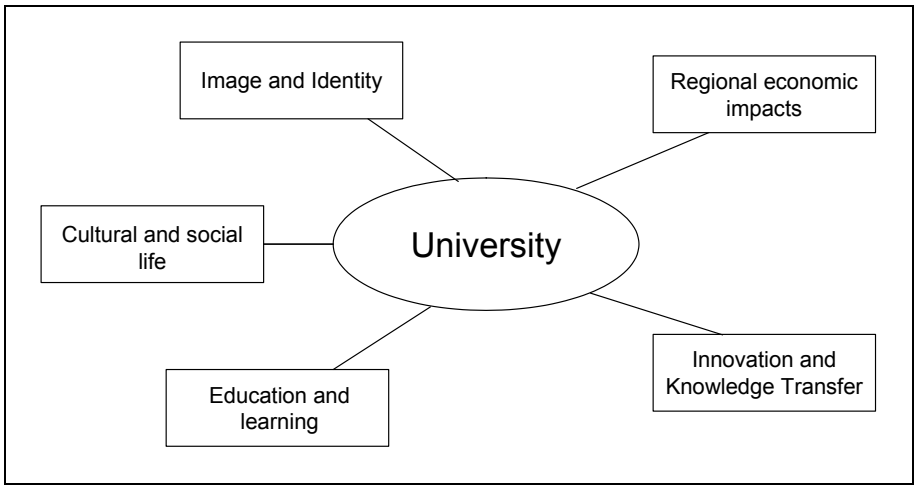
Figure 2 The University/Region value-added management process



Source: Goddard 2000

The intersection between the university system and the regional system can relate to a variety of areas where cause-effect relationships can be identified between universities and their location regions (cf. Figure 3).

Figure 3 Spheres of influence for a university



The effects that universities have on their location region can be of a direct and indirect nature. These can be quantified in part, and only measured in qualitative terms in part. Specifically, differentiations can be made between the following spheres of influence:

Regional economic effects

The regional economic effects of universities on their location regions occur, on the one hand, as a result of the economic activities of the universities themselves and, on the other hand, as a result of money spent by employees, students and those attending further education events, conferences, etc. Moreover, universities have an effect on the regional labour market

and tourism. Universities create direct jobs in the region as they themselves are employers, and indirectly through the awarding of contracts to regional enterprises. Tourism can be affected through additional overnight stays being booked by those attending congresses, conferences, trade fairs, etc. Specifically, the effects that universities have on the economic development of the region can be identified for the following areas:

- Regional purchasing power
- Regional value added
- Consumer spending through employees, students, participants
- Investments in the region
- Regional labour market (direct and indirect labour market effects)
- Tourism (number of overnight stays, guest spending, etc.)

Innovation and knowledge transfer

Cooperation with regional enterprises, institutions and facilities can take place at a number of different levels. Contact to regional stakeholders can emerge through lecturers or students. Depending on the needs of the regional stakeholders, the range of programmes and services offered by universities can be adapted. In the process, the aim of cooperation is always to achieve a transfer of innovation and knowledge that is of significance to both the regional enterprises and the universities. The regional transfer of innovation and knowledge can occur through the following channels:

- Knowledge and innovation transfer through cooperation, projects, services
- Company-specific further education
- Contact between enterprises and students (e.g. through Bachelor's and Master's theses and dissertations)
- Use of lecturers from the regional economy
- Promotion of spin-offs and business start-ups
- Mentoring programmes

Education and learning

The existence of a university as a further education institution also has consequences for the region as an education location. The presence of a university can impact both the selection of a course of education and a place of education. In terms of the profession chosen and the location of the workplace, a university can also help to keep a highly qualified workforce in the region and not to migrate. The impact of a university on how the region functions as an education location can be seen in the following areas:

- Number of students from the region
- Graduates remain in the region
- The brain gain is fostered and the brain drain prevented
- The population's propensity to learn and its level of education is raised

Cultural and social life

Universities can also make a contribution to the social and cultural development of a region. The range of programmes and services offered by universities is not only geared to the students and regional enterprises but also, in part, to the public. Furthermore, those associated with the university also take part in the cultural and social life of the region. Outsiders using the university's infrastructure can, in terms of its structural effect, have a positive impact on regional development. Specifically, universities can affect regional development by virtue of the following range of programmes and services:

- Range of public events
- Public further education programmes
- Provision of infrastructure for outsiders
- Commitment of those associated with the university in regional associations, clubs and bodies

Image and identity

The existence of a university also always has an effect on how a location is perceived. Universities affect the impression of a region as an image of the university and the region is conveyed not only through the programmes and services offered by the university itself but also through press reports in the supra-regional, national and international media. With the help of the university, the region has an opportunity to build an image of being an open, innovative and modern location. Universities do not only convey an image of the region to outsiders, however, but also have an impact on the region's self-image and identity inwardly. The self-confidence of the population can be enhanced through a university; students can enrich life in the region; and the university can serve as a point of identification.

The intensity of the relationship between a university and its location region can vary distinctly, as can the extent of the individual effects outlined above. Just how close the relationship becomes between a university and its location region and whether added value can be generated for both sides both depends on a variety of factors.

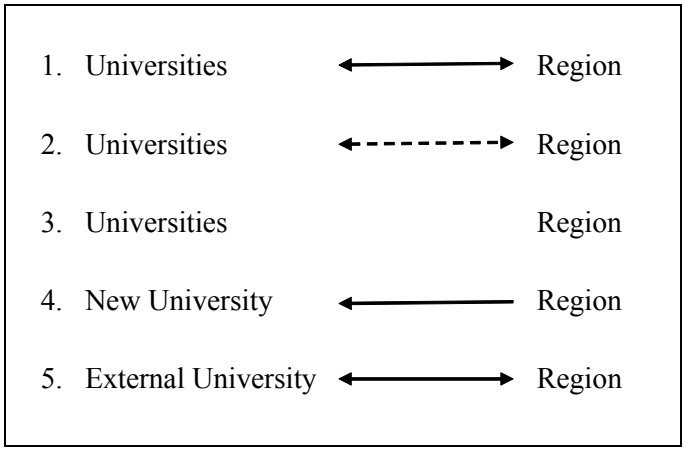
4 Five potential relationships between universities and their location regions

Universities can have a positive impact on regional development by virtue of the aforementioned spheres of influence. In order to describe the relationship between a university and its location region and to measure the intensity of their relationship, it is necessary to apply indicators. The type of cooperation that ensues between a university and the regional economy can be viewed as an important indicator that provides information on the transfer of innovation and knowledge within a region. Furthermore, both statements as to the type of regional further education needs involved and in terms of the image of a region can be derived from the intensity of the cooperation that arises between a university and the economy. In the section that follows, the indicator "cooperation with the regional economy" will be taken to illustrate the nature of the relationship between the university and its location region as well as to highlight the means available of raising the level of contribution made by the university to regional development.

Overall, cooperation between a university and the regional economy can be divided into five potential relationships (cf. Figure 4). The first three relationships illustrate the differing

intensities of cooperation that exist between universities and the region: In the first instance, the level of cooperation is already very tight; in the second instance, it is minimal, while, in the third instance, there is no connection at all between the university and the regional economy. Cases 4 and 5 relate to situations where no university has been established (to date) in the region and where there is either an opportunity for a university to be set up in the region itself or to work together with an external university.

Figure 4 Relationships between universities and their location region



Depending on the type of relationship, a variety of measures can be taken to improve or initiate cooperation between the university and the regional economy. This presupposes that both the university and the regional enterprises are interested in some form of cooperation and are looking to contribute to regional development.

Below is a brief description of the features of the relationship highlighted in Figure 4 as well as measures for intensifying the level of cooperation:

1. Universities ⟷ Region

In Relationship 1, the university and the regional economy are already working very closely together. The economy is heavily geared to innovation and knowledge. Numerous connections exist between the lecturers and students and the enterprises. Business start-ups are fostered and the transfer of knowledge on issues such as cooperation, projects and services is guaranteed. Even if the ideal prerequisites are already in place and cooperation between the university and the regional economy is very pronounced, the aim is for the university (to continue) to be used as a growth pole for the entire economic development of the region. By way of strengthening the level of cooperation and further optimising the effects, the following measures can be taken:

- Targeted – even structural – expansion of universities and their surroundings to form "knowledge parks"
- Raise the level of attractiveness for enterprises with an affinity for technology and knowledge
- Promote spin-offs from the universities
- Promote the transfer of innovation and knowledge as an indirect service

A frequent example of how the above-mentioned measures are implemented can be found in the establishment of technology centres.

2. Universities ←- - - - - - - → Region

In this relationship, the level of cooperation in existence between the university and the region is very limited. Although the university and the regional economy have numerous points of contact in terms of content, these are not used to a sufficient degree. This relationship might well arise, for example, when a university has recently been founded and has yet to establish itself or when no links have been established to the regional economy. By way of intensifying the level of cooperation between the university and the regional economy, the region could, for its part, take a pro-active role and integrate the university more strongly into the region as a source of impulse to strengthen the transfer of knowledge between the university and the region. The measures that could be taken could involve:

- setting up a knowledge and transfer centre and/or
- building a regional knowledge management system.

As the nodal point for knowledge and innovation, the university could consequently bring benefits to the regional economy.

3. Universities Region

In the case of the possibility concerning Relationship 3, whilst a university might exist in the region, the respective profiles of the university and the region have little in common. No form of cooperation exists between the university and the region as neither side perceives a need for such cooperation. This may well be the case, for example, when the programmes and services offered by the university are highly specialised and the region does not have enterprises operating in this branch. Nevertheless, measures can be taken to generate added value for both the university and the region. These can materialise by:

- integrating the universities into the regional economy more strongly, and/or
- extending the region's branch portfolio into an academic profile.

In order to integrate the universities more strongly into the regional economy, the university could create a series of further education programmes that is more stringently geared to the needs of regional enterprises. Furthermore, establishing competency and technology centres as well as incubators for promoting spin-offs from the universities can generate synergies for the regional enterprises and the universities alike.

4. New University ←——— Region

Whilst, in the first three examples mentioned above, a university was in place in the region and the level of cooperation was different in each case, the two possibilities found in cases 4 and 5 refer to regions with (as yet) no university. In Relationship 4, the regional economy is already strongly geared towards knowledge and innovation, even though the region does not yet have its own university. Whilst the regional enterprises see the need to participate in the transfer of innovation and knowledge, this has so far had to occur by their reverting to supra-regional institutions. For the region to become involved in the transfer of knowledge and innovation and to be able to avail of the benefits that geographical proximity provides, it is necessary to establish a needs-orientated knowledge node in the region. To do this, there is the possibility of:

- founding a new university to close this gap, or

- initiating a regional research and competency centre to be jointly sponsored by businesses and a (an external) university.

Whether a new university can be founded does not depend solely on the needs of the regional economy but also on a series of other factors. As an initial step, establishing a research and competency centre in cooperation with an external university could certainly prove to be a promising move.

5. External University ⟷ Region

Much like the situation described in Relationship 4, no university has been established in the region to date in this scenario. Since the region has a very rural character and a low location density, there is insufficient need for a new university to be founded. This applies to mountainous regions, for example, or, to some extent, to areas with heavy tourism. By way of nevertheless providing the region with a means of utilising the range of programmes and services offered by a university, links can be established to external universities. In doing so, a needs-orientated linking of the region to supra-regional knowledge nodes of significance should occur. To achieve this, the following measures could be taken:

- physical lining to external universities through corresponding ICT programmes (e.g. e-learning)
- networking the region and the range of supra-regional services through corresponding local further education programmes.

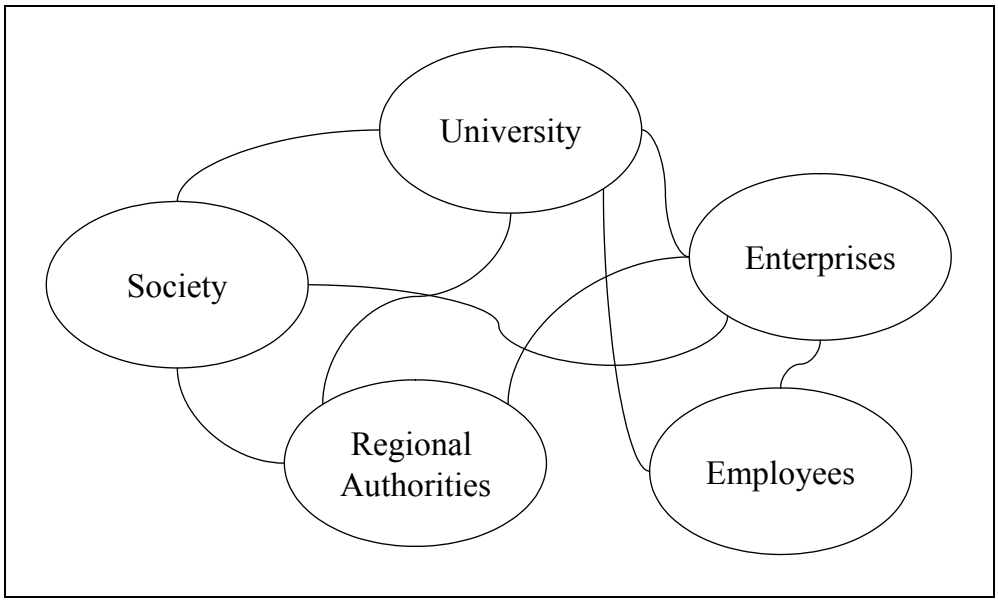
Whatever the case may be, it is vital that the transfer of knowledge from a university to the region is guaranteed.

Whether universities can make a positive contribution to the development of their location regions not only depends on the university itself in the aforementioned cases, but also on a variety of regional factors. The geographical proximity of the universities to regional institutions and enterprises as well as the degree of exchange they engage in are always decisive criteria, however. This having been said, universities do not bear sole responsibility: the regional enterprises, their employees as well as society and regional stakeholders from the fields of politics and administration must also play their part.

5 Conclusions

Universities can only contribute to regional development if they take an active role in the regional development process along with the relevant regional stakeholders. Apart from the universities, the following stakeholders are of significance at regional level (cf. Figure 5):

Figure 5 Relevant stakeholders



For cooperation between the university and the region to generate added value for both sides and for the universities to be integrated into the development processes, the above-mentioned stakeholders must assume an active role. This places special emphasis on the individual stakeholders, most notably the universities themselves, but also the regional authorities. According to Goddard (2000) and Reichert (2006), this involves universities:

- not only focusing on global competitiveness, but also on the needs and requirements of their location regions;
- establishing a connection between regional requirements and their range of teaching, research and services;
- entering into dialogue with regional stakeholders;
- transferring research findings to the regional development process.
- Universities have more to offer than education and research:
  - Updating skills of employees
  - Identifying and solving social problems
  - University expertise is needed in an increasingly large range of professional and political fields
- working with regional stakeholders and enterprises to create framework conditions that attract creative and knowledge-based institutions and facilities;
- initiating a self-evaluation process through which they examine their own contribution to regional development.

Of decisive importance for the contribution that universities should make to regional development is the fact that they themselves feel responsible for developing their location region and switch from a passive to an active role.

In addition to the university, the regional authorities must, above all, exert influence on regional development and, for their part, place demands on the universities. To enable univer-

sities to play their role and contribute to regional development, the regional authorities – as outlined by Goddard (2000) among others – must:

- perceive universities as regional stakeholders and include them in their "mental map";
- use universities as a repository of knowledge;
    - help the region to understand itself;
    - provide a gateway to global information to meet the needs of different sectors of the regional economy;
- incorporate universities into regional action plans and programmes;
- secure financial aid for joint projects.

The mere presence of a university and the existence of a range of programmes is not sufficient in itself; the regional authorities – just like any other stakeholder - must also access this range of programmes and formulate its demands on the universities. Both sides must be aware of their responsibility towards regional development and take corresponding measures to create the prerequisites for a successful regional development process.

For a partnership between universities and their location regions to be established with lasting, enduring success, mechanisms and processes need to be set up that enable the resources of the universities to be put to optimum use and to flow into the regional development process. This presupposes that both the universities and the regional stakeholders avail of an ability to learn, that they evaluate themselves and their role on an ongoing basis, and that they adjust when and where necessary. The ability to learn and the ability to utilise existing competencies and knowledge to develop the region are decisive factors that will ensure the long-term success of a region. Universities can play an active role in this process and make a crucial contribution in this respect. "For universities, the learning region may be the best kept secret of the dying days of this century. In practical terms this implies blending and combining competition in the "new enterprise environment" with collaboration; fostering and supporting "boundary spanners" which can work across the borders of the university in effective dialogue with other organisations and their different cultures; fostering cultural change to enable universities to speak and work with partners from many traditions and persuasions as more learning organisations emerge and together enrich their various overlapping learning zones or regions." (Duke, 1998, p.5)

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