

# The Interpretations of Social Innovation and the Helix Models through a System of University Relations

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## Abstract

According to the triple helix model, the dynamic of the innovation system development of a region or sector is determined by the closeness and intensity of state - company - university collaborations. The fourth spiral assumes the importance of the civil society. The appearance and acceptance of the third and fourth spiral model means the birth of the concept of social innovation and the beginning of its research. The fifth helix, that is the ecological approach, strengthens further the possibility of the interpretation of social innovation as the knowledge-based development, the social, political and civil dimensions can be expanded by the issue of sustainability. In 2015 a research was carried out focusing on the tender and corporate relationships of a major university. It was intended to determine these relationships on the basis of social innovation capabilities and the areas of the helix-s theory were also sought in these interactions. In conclusion, the universities are not only determinative in case of the triple helix model, but they also have an outstanding role in the development of social innovation.

**Keywords:** Helix models, innovation, social innovation, university relations

**JEL classification:** O3, O35

## Introduction

The University of Pannonia (is a prestigious academic institution in Hungary) was based on an excellent chemical specialist university which had real connections to the industry's big players and it gave sector research and knowledge to its market and social partners. This past still has its positive impact on the university relations. However, the growth of the university also brought the appearance of new disciplines with, so IT, the environmental industry and the engineering have been included among the focus areas. For the understanding of the role of a university as a knowledge centre it is necessary to assess the research competencies and relations of the institute as well as the selected strategic directions in the field of cooperation and the preparation for their implementation. To do this, we considered it necessary to examine innovation cooperation they entered in the last three and a half years (From January 2012 to June 2015) (173 contracts). We had special attention on the competitive tenders that are new and very important complements of the traditional partnerships. Following the analysis, we interviewed those actors (leaders of 10 different university organizations) who are very active in corporate social innovations and relationships within the university. Based on the results of these

studies we have formulated the presence and role of economic and social innovations in the life of the institution and its environment.

## Theoretical background

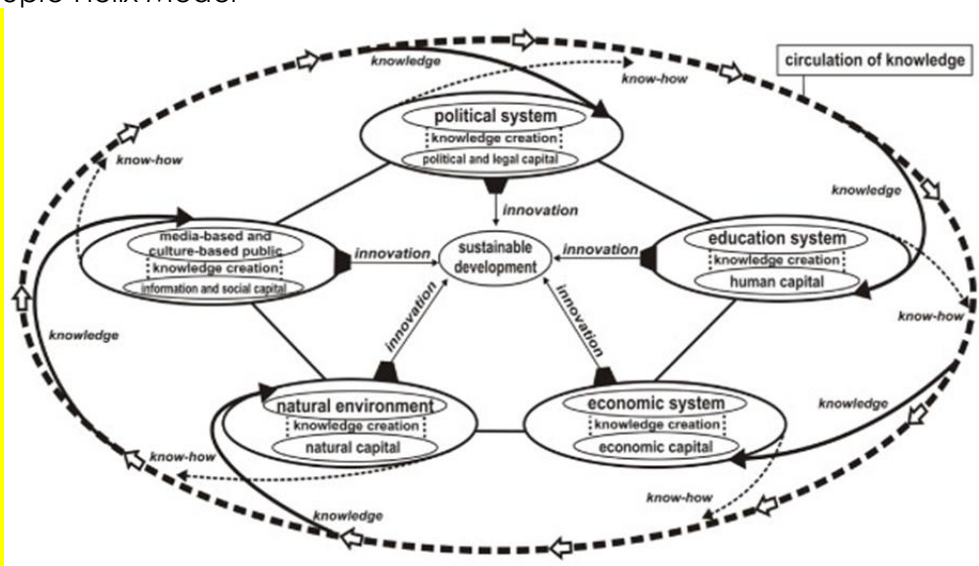
Joseph A. Schumpeter (1883-1950), the Austrian-born American Nobel laureate economist, introduced the concept of innovation in terms of economics in 1939, he provided the earliest interpretation presented in his *Theory of Economic Development* published in 1911. He believed that any form of doing things in another way belongs to the concept of innovation and assigned its gist among the new combination of production factors. After recalling all major definitions related to innovation (Lundvall, 1995, p. 8; EC, 1995; Lengyel and Rechnitzer, 2004, p. 250; Kotler, 2004, p. 381), the authors believe that the most complete definition is linked to the name of Schumpeter. When the authors meet enterprises at events organised by Chambers, or other institutions, the related lectures are based on the basis of Schumpeter's thoughts, that is, accepting novelties and the understanding of the ability to do things in another way as major characteristics of a company leader with regard to survival and development today. The term innovation has become ever more widespread in disciplines other than economics, thus it has been used in changes in medical, educational and political institutions. Scientific clarification of the various definitions and aspects has become necessary and the OECD proved to be patronising the problem.

*"Innovation is the introduction of new or largely improved products (goods or services), new marketing methods, or new organisational-structural models into business practice, workplace organisations, or external relations"* (Oslo Manual, 2005, p. 30). Originally all knowledge is local, as knowledge is defined geographically and historically, meaning that it comes into existence according to given criteria at a given time. The local character is also revealed in the fact that the nature of existing knowledge is influenced by the circumstances of its existence. The link between knowledge and regional development is created by application of the knowledge, the innovation. The knowledge potential of a region is made up of the knowledge of regional enterprises and other organisations, as well as its human and social capital (Smahó, 2008, p. 58).

The innovation activities of the organizations can greatly be helped by maintaining a loose-closer relationship with a variety of research, higher education and academic institutions. The government and the local governments have also increasing role in facilitating such cooperation. According to the so-called triple helix model of Etzkowitz and Leydesdorff (2000), the intensity of the cooperation of these three types of institutions (state, enterprise and university) defines the development of the dynamics of the innovation system in a region, or branch. The interdependencies in this model can rather be compared to blood running through veins. There were attempts to further expand and develop the helix model. The existence of a fourth helix was introduced by Etzkowitz and Zhou (2006). Suggestions were made in relation to this notion, e.g. labour, risk capital, informal sector and civil society. By further considering the triple helix model, Carayannis and Campbell (2012) created the quadruple helix model, where the unification of a media- and culture-based community space with civil society appears as the fourth helix. Thus it becomes obvious that members of the society and communities are related to corporate, technical, service and scientific areas. Consequently, the public can also be correlated with universities, industries and governments. This was also a key notion when compiling the second group of questions.

Further consideration of the quadruple helix provided the birth of the fifth helix (quintuple helix – Chart 1) (Carayannis et al., 2012). From this moment onwards the literature differentiates between the society and economic environment: the ecological aspect suggesting the unified approach with regard to the natural environment, social environment and economic development in a way that innovation must be used to achieve sustainable social and economic change.

Figure 1  
A Quintuple Helix Model



Source: Carayannis et al. (2012)

In summary of the helix-related literature, the authors believe that universities, as the engines of society-based development, are in the centre of the triple helix innovation model, the fourth helix assumes the importance of society. The authors believe that the appearance and scientific acceptance of the third and fourth models has led to the birth of the term innovation and research concerning it. The fifth helix, the economic aspect, further strengthens the interpretation possibilities of social innovation (this is not yet a genuinely accepted point of view) as the dimensions of knowledge-based development; social, political and civil; are made more complete by adding the question of sustainability. One more remark has to be made in accordance with the helix models, these are modes of interpretation, which means that they can be regionally applied everywhere and the research can either have a branch-related or geographical approach. Social innovation does not yet have a genuinely accepted definition because of its novelty (Benedek et al., 2015). Related papers emphasise finding new or new-like solutions partly to social problems and needs, and partly to the development of social and community relations. The research conducted by Benedek et al. (2015) shows that the major differences between social and economic innovation can be found in the objectives and capital demand of innovation. The authors accept this notion and complement it by saying that enterprises are key elements in this field and have a striking role in creating traditional (economic, technical, and scientific) innovation. Their performance, however, is identified without considering the following factors (human resources, money and R&D development) but by the key factors of social innovation and related areas (civil society and local community).

## Methodology and results

We had the hypothesis before the general analysis that the research development co-operations of the five-faculty university had moved away from the traditional relationships in the chemical industry and it would be possible to observe the new scientific areas, too. We also thought that the elements of the helix can be observed in the relationships, therefore the civil and social needs also appear in the contracts, and sustainability is becoming dominant in different innovation studies.

Table 1

Types of R & D & I Contracts Concluded by the Universities

<b>Types of contracts</b>	<i>Number of contracts (piece)</i>	<i>Ratio of the number of contracts (%)</i>	<i>Amounts EUR</i>	<i>Ratio of the contracts sum (%)</i>
<b>Environmental Protection, environmental industry</b>	27	16%	382.512	14%
<b>Engineering, mechanical engineering</b>	9	5%	162.293	6%
<b>IT</b>	18	10%	612.100	22%
<b>Agriculture</b>	78	45%	246.533	9%
<b>Chemical industry</b>	40	23%	1348.187	48%
<b>Other (results of social relations)</b>	1	1%	33.386	1%
<b>Total</b>	173	100%	2784.961	100%

Source: based on own research

The data partially confirmed the first hypothesis, since there is cooperation with IT, engineering and agricultural enterprises in terms of number of pieces, however, by far the largest number of service users are those major organizations from the past the university had earlier relationship with. The environmental industry contracts are also important, these are partly the products of the chemical past, but there are also sustainability related research studies that can be interpreted as a kind of scientific results of the fifth helix. The classic civil or government needs did not appear in the direct form (with one exception) by independent contracts but we found examples of this as well in the concluded cooperation. The agreements are made for a 5.5-month period on average. There were a smaller number of contracts over a yearly period but the co-operations resulting in revenues typically meant some months. Longer researches/works are typical in big-scale tenders.

It can be established from the database that as far as geographical location is concerned, the university carried out the majority of the contracts with firms in Budapest, the capital of Hungary, while the rest was completed with companies operating in Transdanubian settlements. Regarding the geographical location of the University of Pannonia this result is not surprising. Moreover, it is almost a platitude that numerous companies located in the country deals with the innovation contracts at their centre in Budapest. The tenders focused on competitiveness (a total of 3 pieces out of the 173 contracts that were concluded) showed a very interesting one-sided nature. The University was able to win that kind of big-scale tenders only on the field

of informatics. This is a positive process because by this the building and strengthening of the new areas is verified and it is possible to detect the commitment of the university management in this success. The tenders focused on competitiveness were significantly different from the traditional R&D cooperation as they can be characterized by much bigger research tasks and amounts of money assigned to them, the investor is the Hungarian state, the leaders of the consortium are world-class large enterprises and the duration of the tenders is usually 3-4 years. In the case of a traditional R&D the university fulfills an order coming from the market while in the case of a tender focused on competitiveness all the beneficiaries realize their 'own' R&D tasks during the course of the project. The relationships pertaining to competitiveness are built during long years and the partners have to know each other well while the normal R&D can even be a one-time/unique order, too.

The following useful and far-reaching answers were given to the interview questions regarding the exploration of the traditional contracts:

The colleagues gave typically two sorts of answers to the question of 'How are the corporate relationships established?' and 'What is the way of building a relationship?'

- The corporate co-operations are primarily established through personal relationships (by activating the graduated students, ex-colleagues from the university employed at firms as well as the relationship networks of the engineers and professors at the university). Trust, professional quality and authenticity as well as the reference created on the basis of the successfully implemented and closed projects' results are important.
- We put a lot of efforts into expanding research development by visiting and getting to know the firms of the region: who has what motivations and in which projects they are interested in.

The process of communication is successful if the organizations speak to each other about the advantages of the co-operation with the University, for example at professional conferences or during university workshops. We make and constantly upgrade a list about the corporate co-operations in progress and trace the advancements. The connection with a university is important for the organizations because they look for knowledge and capacity as well as experts with the involvement of whom they can expand their knowledge or realize developmental tasks for which their financial resources are not enough. The relationships are really advantageous for the University as the industrial research comes before the academic one so through R&D cooperation it is possible to change the teaching-learning material in a forward-looking way, according to the demands of the industry.

In the case of corporate requirements the clear, explicit and project-based operation, the legal environment exempt from unnecessary administration and bureaucracy, recording the business interest systems and co-operational forms and the continuous communication are extremely important. The name of the University or even a professor used to be a satisfactory condition for the partner. But nowadays more and more requirements have to be met. The participants expect a working team to solve the emerging issues.

They gave the following answer to the question of 'How typical are the local, regional co-operations?': regarding the fact that only a few capital-intensive enterprises and NGOs can be found in the area – around Veszprém - related to our

research topic, the partners of national importance are rather determinative in our relationship network.

The answers to the questions of "How can these relationships be developed?" prescribe tasks for the university management:

- It has a determinative importance from the point of view of the relationships between companies, universities and NGOs if the universities organize the R&D projects inside or outside the university. So as to keep the relationships of the University inside the institution it is necessary to create an innovation system as well as structural operation and business co-operation culture (legal and financial work processes), which supports the inward direction.
- A university business model does not exist in which the certain persons (instructors, researchers, managers) and the partners also can find their interests but, in the meantime, the university interests are not impaired. Furthermore, the revenues of the university increase (these are the characteristics of a good business model).

## Conclusion

One of the most important areas of social innovation is knowledge creation that cannot be imagined without the institutions of tertiary education. In accordance with this, the University of Pannonia plays an outstandingly important role in this field in its surroundings and in the vicinity of the capital city, as it can be deduced from the results of the research. The research portfolio of the University is under transformation. In the case of the tenders focused on competitiveness the developments in informatics have appeared markedly. The fact that the informatics, the service and industrial sector determining the future is so determinative in itself has an effect on the social innovation gaining space as the ecological approach, the reconsideration of the interface is unimaginable without the IT sector. The university builds its direct partnership through its graduated students as well as its instructors and researchers. This trust relationship greatly contributes to the opportunity for the organizations and the University to find common interfaces in the other fields of the social innovation, for instance taking social responsibility, social sensitivity, civil relationships as well as the intellectual approach to sustainable development. It should be emphasized that the direct social and local NGOs have no significant presence on the customer side, the surveys and interviews have shown only the indirect contacts for the time being. The development of the university, the increasing number of employee and its scientific results influence the local and national strengthening of social innovation. Finally, building the innovational ecosystem stands out from the developments to be realized with the help of which the internal operational system of the university and its external relationships will become sensitive to innovation. This idea greatly supports the development of social innovation in the micro environment of the university.

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