



Article Higher Education Institutions as Partners in Growing Innovation of Local Economy

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Abstract: Higher education institutions (HEIs) are constantly evolving how they operate and their areas of academic interest. What remains unchanged is the fact that the raison d'être of a university is to fulfill the role of a citadel of knowledge to its environment. The aim of this paper is to show the relationship between HEIs and entities that have an impact on the growth of the local economy, in particular the possibilities of shaping local partnerships for innovation. The paper thus outlines the nature of individual sectors, the special role played by local governments, and the activities of universities related to innovation in the economy, based on the results of two collaborative studies co-sponsored by the Ministry of Science and Higher Education and teams of researchers at the WSB University in Dabrowa Górnicza. One of the projects was under the framework of the DIALOG program of 2019–2020 and the other used the framework of the Regional Excellence Initiative program of 2019–2022. The main part of this study was based on a survey of representatives of local governments; the survey was oriented towards identifying the opinions of local managers on the current and postulated roles of universities in the development of the local economy. The results presented in this study indicate, among other things, a significant differentiation of expectations concerning the cooperation of entities in the process of local development based on innovation and changes in the areas of this cooperation.

Keywords: higher education institutions; universities; local economy; innovation; technology; knowledge transfer; entities

1. Introduction

Contemporary local development processes are becoming increasingly complex, all while their course depends on the activity of numerous entities and a variety of relations and links between them. Cities are now competing against each other globally, and as such, they need to strengthen their competitiveness and attractiveness. They are conflated with the ability to compete, lead, and create extraordinary values for various stakeholders; these development processes need to be based on innovation. The intensity of the innovation processes can be illustrated by the quality of knowledge in the local system, the popularity of the ideas it gives rise to, and—as a result—the economic practices, illustrated by the rate of generating, adapting, and implementing new technological and organizational solutions. Weresa (2012) points out that the social entrepreneur Christopher Freeman defined the concept of National Information System as a network of public and private institutions whose activities and relationships foster the creation and dissemination of new technologies. This type of system is defined as a set of:

- entities participating in the creation of new knowledge and innovation, including enterprises, scientific and research organizations, and educational organizations;
- entities creating an environment for the development of science, technology, and entrepreneurship, e.g., units of central and local administration;
- mutual relations of these entities and institutions;
- knowledge resources in the economy.

At the level of local economies, innovation is based on the cooperation of numerous entities, which all have diverse potentials, competencies, and experiences, but also different goals and strategic operations; as a result, it becomes necessary to build, and constantly transform and strengthen relations and links between businesses, academia, education, and culture. Basing local and regional development processes on innovation development means that universities are expected to develop innovation as well as to support development processes (Göransson et al. 2009; Kauf and Stec 2017).

In innovation-driven local growth, creating a mechanism to ensure the diffusion of knowledge and innovative solutions across sectors becomes a key challenge (Rodrigues et al. 2020; Hadhoud and Salameh 2020). The public sector plays a particularly important role in this area as the entity that organizes, activates, educates, and promotes these efforts. In places where the network of relations between entities is growing increasingly dense, the spectrum of actors who can feed the new economy with their potentials and activities is also constantly expanding. The strength of intersectoral cooperation lies in the characteristics of individual sectors, their innovativeness, and—somewhat paradoxically—in the differences between them. The main sources for the development of intersectoral cooperation as informed by some studies (Gurbuz 2018; Reguia 2014) include:

- Companies seeking new ways to gain a competitive edge, in the context of limited impact of the traditional factors of competitive advantage (dynamics of changes and difficulties in building sustainable advantages, which maintain their uniqueness in the long term);
- Using innovation and creativity as the basic criteria for assessing product quality in many sectors;
- The growing interest of recipients in values going far beyond the simple use-value of a product, including values concerning corporate social responsibility, linking the value of the product with its social or ecological impact;
- Transferring business models between sectors and considering entrepreneurship as a testament to the professionalization of actors in academia and the civil sector.

Somewhat illogically with the processes of globalization, the local availability of knowledge and skills, and the transfer of technology and innovation to the wider society is becoming increasingly important. There is the belief that higher education institutions will increasingly contribute to the development of the knowledge society, many governments are implementing policies of reduced state control and greater autonomy for science. The purpose of this is primarily to expand the freedom to establish relationships between universities and their environment. As Szewior (2018) points out, besides traditional teaching, universities have started to see the need to invest in human capital and the local community and, looking for development opportunities, they focus on building local identity, solidarity, and creating local intellectual elites and networks.

Traditionally, universities are seen as the entities that play a decisive role in enhancing the value of human capital. At the level of the European Union, countries, regions, and cities, there is a lively discussion on how to better ensure that science can have an impact on the competitiveness of the economy and the development of modern society. The process of transforming universities so that they can face the challenges of the modern world continues. There is a search for models leading to the increased flexibility of universities, also in the context of phenomena that are characteristic of the second decade of the 21st century, such as migration processes, weakened trust in science, and very high dynamics of social and economic changes. Thus, universities are, or at least should be, a partner of various transformations and a driving force of strategic changes of cities, regions, and countries (Khalid et al. 2021; Volchik et al. 2018).

Knowledge, innovative processes, and technologies, as well as the culture of entrepreneurship, are just some of the values that are introduced to the business environment by academia; however, HEIs are just one of the players participating in the process of building the innovation ecosystem.

The multiplicity of entities generating knowledge and entities introducing knowledge into social and economic reality point to managerial challenges related to this process. Knowledge management requires the recognition of the changing conditions of local and regional development, as well as the identification of interactions taking place between development actors. Universities can play a central role in the local system of creating pathways for the co-creation and use of knowledge (X; Di Nauta et al. 2018). Building links with partners from different sectors is one of the most important dimensions of universities' missions. The potential of universities should be used to increase the quality of human capital, improve the quality of public services, strengthen the image of cities, regions, and countries, and supply the economy with new technological and organizational solutions (Stuss et al. 2019; Ejdys 2021). The image that emerges from this is that of a university as a center of excellence, ideas, and activities providing its environment with exceptional social and economic values (Adomavičiūtė 2018; Chaveesuk et al. 2019; Muangmee et al. 2021a). When emphasizing the importance of relationships in the process of local development coupled with innovation, the concept of helix should be cited, this includes relationships occurring in knowledge creation processes (Etzkowitz and Leydesdorff 1995; Kolehmainen et al. 2016; Leydesdorff 2012).

From the classic point of view, one could bring up the so-called triple helix model of cooperation, developed by Etzkowitz and Leydesdorff (1995) including three sectors: public sector/authorities, higher education institutions (universities, research, and science centers, supporting institutions), and business.

The triple helix concept is related to social and economic change, resulting from the shift from a political economy to a knowledge economy. In these circumstances, the key element of development is to operate in an innovative environment with university spinoffs, strategic alliances of companies operating in different areas at multiple technological levels, public laboratories, and academic research groups.

The triple helix model was later extended and became a quadruple helix model, which adds the media and civil society to the three existing actors. It was argued that the extension of the model was necessary to create a broader base for long-term innovative growth, due to the growing importance of media in the modern world and the cultural system shaping the behavior of local communities. Society plays an increasingly important role in the development of local knowledge capital and economic growth. This makes members of civil society a kind of co-producer of innovation and their role is as important as that of research institutions, government organizations, and private sector companies. The quadruple helix model highlights the involvement of the entire society in the innovation process within the new economic environment, which results in its links to the government, the private sector, and academia through networks, partnerships, and symbiotic relationships. The quadruple helix model was extended further by adding another element—the environment, highlighting its importance for production processes and knowledge-based innovation. The sustainability of the economy is a key aspect of this concept; however, it cannot be achieved without a socio-ecological transformation of society (Bojar and Machnik-Słomka 2014).

The helix model is constantly expanded by adding more and more elements detailing the description of the innovation ecosystem. In this context, it is worth recalling strong trends, which take into account the cultural sector in the context of innovation and creativity. This concerns creative circles, cultural institutions, artistic groups, cultural events, as well as art universities, which take part in economic growth by providing designs or creating advertising content (Wrana 2018). Chen and Ye (2019) believe that cooperation should be based on managing the relationship between HEIs and the private sector, taking into account contract management, consortia bringing together academia and industry, as well as knowledge and technology transfer.

Economic growth is a complex process involving numerous stakeholders. The competitiveness and sustainability of the local economy hinge upon a set of various types of factors, which can be referred to as external benefits. These are benefits that depend on the concentration of the same or similar types of activities in a given area, the general level of economic development, as well as the activities of local authorities. As such, they may be tangible or intangible and the economic entity receives them from its surroundings without a proportional compensation for the costs of their production, as such, the higher the level of external benefits, the greater the opportunities for local enterprises to specialize and grow more efficiently.

2. Theoretical Framework

Building links with partners from different sectors is one of the most important dimensions of universities' missions. The potential of universities should be used to increase the quality of human capital, improve the quality of public services, strengthen the image of cities, regions, and countries, and supply the economy with new technological and organizational solutions (Stuss et al. 2019; Ejdys 2021). The image that emerges from this is that of a university as a center of excellence, ideas, and activities providing its environment with exceptional social and economic values (Adomavičiūtė 2018; Chaveesuk et al. 2019; Muangmee et al. 2021b). When emphasizing the importance of relationships in the process of local development coupled with innovation, the concept of helix should be cited, this includes relationships occurring in knowledge creation processes (Etzkowitz and Leydesdorff 1995; Kolehmainen et al. 2016; Leydesdorff 2012).

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3. Local and Regional Networks for Innovation

Identifying the values and motivations driving the different actors is an essential step towards creating local and regional networks for innovation. It is worth noting that innovation potential exists not only in the largest metropolises. Lower ranked centers and entities associated with these metropolises can also create new technological or organizational solutions. Innovation is not only the highest technologies created in elite scientific and research centers; it is also simpler improvements implemented in industries with low or medium technological advancement. It is these companies that form the greater part of the economy, determine the labor market, and underpin local economies. Universities are faced with the challenge of combining the global development option arising from high scientific aspirations with the local/regional option related to the ability to cooperate with entities in their direct vicinity. Universities are not only established to set research trends, but also to identify and respond to the needs of the "ordinary" economy. This requires constant two-way dialogue and the development of communication channels that allow for useful collaborations (Grimaldi et al. 2020).

The knowledge potential generated by universities should be perceived in the context of influence on the realization of development strategies implemented by both the territorial authorities and the enterprises. The research level represented by universities and their willingness to cooperate with other entities is an important factor influencing the strategic choices of entrepreneurs and local authorities. The innovation strategies chosen by different local and regional actors are in large part based on the innovative input provided by universities. Therefore, it is worth considering the creation of more permanent structures of intersectoral cooperation in cities and regions (networks, clusters, consortia), within which strategies integrating entities from different sectors may be created. Such a direction of thinking is especially suggested in the context of transformations of industrial regions that require transforming the existing development processes and basing them on synergic linking of various local potentials (Gjelsvik 2018).

3.1. Determinants of Cooperation between Business and Academia

Local development is a process influenced by many different forces—both those inside the area and those in its closer or further vicinity. In the economic sense, it is a process that depends mainly on the competitiveness of enterprises and their ability to permanently respond to market challenges. Nowadays, the desired economic development is not measured only by economic indicators; it is a development that should be balanced and sustainable. Obtaining these features is possible, among other things, through cooperation between business and science. Universities are, to a large extent, responsible for providing the economy with knowledge, but also with values of a higher order, also through the involvement in the promotion of solutions ensuring rational management of resources and respect for local resources. Relationships between science and business require reconciling short- or medium-term market optics represented by enterprises (especially small and medium ones) with the long-term creation of sustainable development important for local governments, local communities, and science. The better developed local networks of intersectoral cooperation are and the more firmly businesses are embedded in these networks, the greater the chances for a high level of innovation and sustainability in the development of the local economy (Puangpronpitag 2019). Many obstacles stand in the way of developing effective and efficient cooperation between business and academia, and the main one lies in the differences between the cultures of these two groups, which makes communication and relationship building difficult.

Effective collaboration between universities and the private sector requires an understanding of why these entities should work together, and some of the key reasons for undertaking this cooperation according to Trzmielak et al. (2016) include:

- access to additional funding for research carried out within the research center;
- opportunity to check new solutions using real-life tests;
- testing theories transformed into practical solutions;
- guidance for new research areas;
- carrying out the main mission as defined by the Lisbon Declaration—knowledge transfer;
- access to knowledge on practical issues, enabling improving the educational offering;
- opportunities for students to take up internships or employment in problem-solving companies;
- opportunities to supplement theoretical knowledge with practical experience thanks to internships;
- stimulating and encouraging academic staff to meet the expectations of practitioners;
- generating additional financial profits from renting laboratory infrastructure.

They further add that the private sector chooses to partner with HEIs for the following reasons (Trzmielak et al. 2016):

- the possibility of solving technical problems faced by the company;
- developing new products, technologies, and processes;
- buying or licensing a patent, which can then be used as a foundation for later innovation;
- improving products;
- gaining access to research results that can be applicable in business;
- attracting talent from among the top students;
- gaining access to state-of-the-art laboratory infrastructure;
- forcing entrepreneurs to create absorption mechanisms. As beneficiaries of knowledge from research institutions, they will be forced to adapt the proposed solutions to solve the problems faced by the organization and the institution;
- verifying a business and technological idea by experts in a given field.

The above-mentioned motives, which explain the reasoning of cooperation, lead to working out common areas for developing relations between enterprises and HEIs. Several authors (Trzmielak et al. 2016; Nawaz et al. 2020; Hamilton and Mostert 2019) outlined them to include:

- licensing of research results, know-how, or patents;
- reducing cost of conducting research and development, accumulation of experience in this area;
- increasing the diversity of the proposed range;
- improving products;
- access to advanced knowledge;
- gaining access to new technological materials;
- finding and using talent;
- using the infrastructure of HEIs that is not available in the company.

The key trends spurring cooperation between the business sector and academia are the interlinked processes of globalization and internationalization, intensification of competition, as well as pressure for innovative solutions, which touch upon virtually all areas of the economy, the state, and society, including research and development activities. Modern technologies, ideas, or tools can be developed in any corner of the world, and scientific knowledge and technology becomes available in virtually any enterprise within days or weeks instead of months (Mikos). The following different cooperation strategies can be distinguished in the area of cooperation with centers carrying out R&D activities as mentioned in Belderbos et al. (2006). These include:

- Production strategy—encompasses the production of goods and services without any cooperation in terms of research and development in foreign countries—innovations that are likely to result from this process concern the organizational and marketing areas;
- Research and development contracts strategy—research and development of products and technologies taking advantage of lower research costs, taking into account human resources, media, as well as scientific and research infrastructure. Production on the local market is not considered; however, the emergence of innovation in terms of organization is possible. The cooperation between research institutions and companies depends on the project prepared by the parent company;
- Research and development contracts and production strategy—research and development of products and technologies taking advantage of lower research costs, taking into account human resources, media, as well as scientific and research infrastructure. The emergence of innovation in terms of organization and the possibility of implementation in production in the local market is envisaged;
- Production and R&D strategy—research institutions cooperate with enterprises in a country different than the one where the company's headquarters is located to produce goods;
- R&D integration strategy—involves deep and comprehensive integration of a global company and academic institutions in a market other than the one where the company's headquarters is located.

3.2. Universities as Entrepreneurial Entities

A significant line of research in recent years has been the recognition of the role of universities as "entrepreneurial entities" that transform academic knowledge and work towards the commercialization of research results in local economies. Technology transfer accelerates the creation of new ventures, which in turn stimulates regional employment growth. The depth of change is more dependent on the quality of the transferred technologies than on the quantity (Bong et al. 2021).

On the other hand, the opinion about the role of universities in local and regional development is not unquestionable. Some studies point to the stereotypical perception of universities as an economic driver and question their importance in this process (Bonander et al. 2016). To attain the highest level of cooperation between HEIs and global businesses, it is necessary for scientific and research centers to have access to advanced technological resources, adequate staff, as well as properly developed scientific and research infrastructure; however, it is also important to keep in mind the expectations of businesses, which require flexibility, preferably minimal red tape, decisiveness, and quick decision-making. Major companies, which operate all over the world, can enter into partnerships with any research and development center in any region of the world, which is why countries seek to attract global capital and start cooperation, as this naturally impacts their economic growth. Many factors influence the intensification of cooperation, making it possible to attract global companies even with less-than-stellar technological resources, for example by providing access to cheap labor or tax breaks to encourage investment. However, it is important that these factors compensate for the investment in research collaboration to foster growth and societal development.

It would now be difficult to question the importance of universities in supporting entrepreneurship and thus in influencing the welfare of society, the development of the labor market, and, in a broader perspective, the development of cities and regions. It is worth mentioning, however, that universities themselves are becoming centers of entrepreneurial development. One can observe a growing number of start-up and spin-off initiatives, particularly in new economic sectors, which are the result of the activity of both academic staff and students. Thus, universities are the nuclei of a new economy, radiating groundbreaking and commercialized ideas to their surroundings (Vekic et al. 2020). This research presents the current state of the relationship between HEIs and businesses and also outlines the importance of cooperation, showing the benefits accruable to all stakeholders. HEIs provide the innovation that businesses can leverage to improve society, create jobs, and simplify complex processes. The next section discusses the cooperation between HEIs managers and entrepreneurs in Poland.

3.3. Cooperation between Business and Academia in Poland

Studies have documented the complex relationship that has existed between academia and the business sector (Czerwińska-Lubszczyk et al. 2020; Miller et al. 2018; Wilson 2012). Notwithstanding the complexity of the relationship, academia has greatly influenced many of the successes recorded. This is evidenced by the top ranking of Poland among nations with the highest rate of university enrollment of its young population. As one of the signatories of the Bologna Declaration, Poland runs a system of higher education that basically mirrors those of other European countries' educational systems (Nurczyk 2018).

Over the years, Polish research centers have been characterized by a rather conservative structure, or at least that is how it is perceived by entrepreneurs (PERFECT 2021). This perception leads to disruptions in the process of mutual interactions between subsystems, negatively impacting the process of implementing ideas. Red tape and unnecessarily long communication channels are other obstacles that need to be overcome. One of the factors that is changing right now is the age structure, which in the past has been another obstacle due to the abundance of academic staff approaching retirement age, resulting in academic stagnation (Mikos 2012).

According to the findings of some DG Education and Culture reports on the cooperation between HEIs and public and private organizations in Europe (Davey 2015; Davey et al. 2013; Davey and Rossano 2015), there is a significant absence of commitment and cultural alignment to university–business cooperation in Poland. The poor balance of relationship observed between perceived barriers and drivers of university–business cooperation has made HEI managers in Poland and those in the academia appraise themselves and the environment in which they operate as one of the least suited for university–business cooperation. To negate this trend, a considerable paradigm shift is needed in Poland, and all stakeholders should be involved. The collaboration between the government and HEI managers needs to be strengthened and realigned with all stakeholders working together with a long-term commitment that creates suitable support strategies, approaches, and structures that can lead to the required cultural changes that enhance university–business cooperation.

4. Materials and Methods

In order to determine the role of the university in innovative local development, the WSB University in Dąbrowa Górnicza carried out a research project, part of which was a diagnosis of the issues of concern (PERFECT 2021). The study covered 66 local government units across Poland, using the computer assisted telephone interview (CATI) method between 5 January 2021 and 30 March 2021. Desired relationships between institutions and universities were analyzed. Innovation expectations towards HEIs were also described accordingly. The interview guide contained 20 close-ended questions that were adapted from prior studies (Davey 2015; Davey and Rossano 2015; Davey et al. 2013), and was validated by 5 experts in the field of HEIs relations studies. The theoretical framework underpinning the study was the framework proposed by Bonaccorsi and Piccaluga (1994), which is built around the motivations that foster university–industry relations. Other authors have also validated the framework (Feldman et al. 2002; Feller and Roessner 1995; Leydesdorff 2003; Senker et al. 1998).

The respondents in the survey included a president, a deputy president, a member of the management board, a city secretary, other managerial representatives of the office, and non-managerial employees. Items 5–12 of the interview guide were quantitative in nature; they were used to describe various aspects related to building relations between the university and the environment. In addition, the results of the study "Knowledge transfer from science to business" carried out by WSB University in the period 2019–2020 were used, including in-depth literature studies, quantitative research carried out using the CATI method (42 respondents), and 11 individual in-depth interviews. Respondents in the study were representatives of science, business, and intermediary entities purposively selected based on their job responsibilities. The purpose of the knowledge transfer study was to evaluate the processes applied by universities in transforming scientific findings into business ventures. The sections of the study used were those covering results from the interactions of university partners in the process of shaping the innovation of the local economy, and value exchange in the process of cooperation of HEIs with local economy actors.

5. Results

In order to shape partnership relations between academia and other local development actors, it may be worthwhile to start with a review of values, attitudes, and behaviors represented by potential partners of the universities involved in economic growth. The first parts of the results presented were a condensation of the WSB Academy project in 2019–2020. These entities are presented in Tables 1 and 2. The purpose is to summarize the findings in order to put the findings of this project into the context of cooperation between the academia and business sector.

S. No.	Interest Group	Group Representatives and Entities	Values and Behaviors	Possible Forms of Participation in Shaping Innovativeness of the Local Economy
1	Local Community	Multitude and diversity of groups, contextual transformation of the local community structure	 low sustainability of structures organizing the local community, rapid transformation of attitudes and values as a reaction to changes in the current situation changes in alliances, contextual formation of informal groups limited willingness to take part in strategic development planning processes, combined with willingness to review local policies ex post 	 electoral decisions (local government elections, referendums) supporting a specific political option and a vision of local development, including in the context of the importance of innovation participation in various forms of local policy consultation sharing creativity by submitting ideas, proposals, petitions supporting local development degree of openness to new residents and investors
2	Residents— various age groups with different innovation potential	People in pre-productive age	 high level of mobility, no permanent ties with the place of residence, high importance attributed to the possibility of pursuing professional careers and rapid economic advancement 	 educational choices and varied career models, including interest in starting their own businesses social activity, especially within the age group, openness to participation in projects with a high level of social and economic innovation

Table 1. University partners in the process of shaping the innovation of the local economy.

S. No.	Interest Group	Group Representatives and Entities	Values and Behaviors	Possible Forms of Participation in Shaping Innovativeness of the Local Economy	
		People in productive age	 building families and the increasing rule of ties with the place of residence ongoing sensitivity to economic development opportunities 	 continuous building of own professional qualifications workplace changes determined by possibilities of professional and economic development making decision to start their own business 	
		People in post-productive age	- low level of mobility and strong ties to the place of residence	 independent improvement of civilizational competencies enabling keeping up their participation in the progress of civilization. sharing experiences with younger generations 	
3	Residents— Groups with diverse innovation potential and cultural capital	The core of the creative class	 low level of acceptance of reality, seeking and creating new solutions that significantly change reality a tendency to be extravagant, to standout 	 creative activities in academia, culture, business creating new breakthrough ideas and solutions, changing the current state of the art in academia, culture, business constantly looking to connect with other creative people 	
		Creative professionals	 openness to new solutions real impact on instilling innovation in professional-led teams 	 creative use of R&D&I solutions in practice implementation of the rules of the learning organization in companies and institutions they manage 	
		Employees	 expectation of working conditions that ensure professional and economic advancement, as well as professional development 	 transferring innovation to the workplace level initiating micro-innovation at the operational level upscaling and improving competencies 	

S. No.	Interest Group	Group Representatives and Entities	Values and Behaviors	Possible Forms of Participation in Shaping Innovativeness of the Local Economy		
4	Local authorities	Local politicians and managers (Mayor, City Council, local government officials)	 basing action on a mandate stemming from the democratic process a high level of professionalism based on competencies and access to knowledge concerning a given territorial unit rational actions calculating resources and risks in the context of development plans 	 strategic local community leadership animating and formalizing creative and implementation processes for local development coordinating local development processes, including in the context of instilling innovation organizing local cooperation networks—information exchange, meetings, events, institutionalization financial engineering for the implementation of local innovation promoting innovation 		
5		Local companies	 relatively strong ties to the city market-oriented, thinking about the future customer and strengthening competitiveness, especially in the local market striving to stand out in the city and highlight their importance to the community 	 participating in the local policy-making process, formulating ideas, and submitting proposals participating in the process of strengthening the city's human capital participating in cooperation networks creating innovations that increase their competitiveness 		
	Business External investors, branches of companies from outside the city	External investors, branches of companies from outside the city	 high mobility searching for external benefits supporting the functioning and development of the company (infrastructure, services, facilities, partners) interest in the characteristics of the local market 	 implementation of business investments supporting the development of the city's human capital co-financing innovation building networks of cooperation 		
		Municipal utilities	- combining the market option (efficiency) with meeting the expectations of the city's stakeholders (effectiveness)	 organizing local cooperation networks—information exchange, meetings, events, institutionalization financial engineering for the implementation of local innovation promoting innovation participating in the local policy-making process, formulating ideas, and submitting proposals participating in the process of strengthening the city's human capital participating in cooperation networks creating innovations that increase their competitiveness supporting the development of the city's human capital co-financing innovation building networks of cooperation cooperation creating services and facilities that foster conditions for the operation of various entities within the city 		

Table 1. Cont.

S. No.	Interest Group	Group Representatives and Entities	Values and Behaviors	Possible Forms of Participation in Shaping Innovativeness of the Local Economy		
6	Civic sector	Local organizations Clubs, foundations, associations integrating and activating residents of the city, district, or individual housing estatesReligious organizationsLocal creative circles Amateur theaters, choirs, song, dance ensembles, and more	 based on a system of values specific to the local community interest in local problems critical approach to local politics progressive professionalization of the civic sector seeking support, new members 	 organizing social, charitable, cultural, sporting activities providing residents with civic education openness to social innovations and interest in undertaking projects changing the situation of the local community participating in the process of creation and implementation of the local development strategy (participation in meetings, submitting motions, petitions, co-organization of works) 		
		Trade unionsPolitical parties	- a close relationship with the values represented by interest groups	 offering feedback on developments in the city and business sectors taking part in creating the concept of strategic changes taking part in local elections 		
7	Local media	Local government media	 connection with local politics promoting successes and challenges 	 promoting directions of development and growth supporting pro-development attitudes of the residents educating local community a platform for consulting local policy 		
		- criticism of local p Community and private - representing local media communities - ambitions to creat	 criticism of local politics representing local communities ambitions to create opinions 	 promoting local leaders controlling those in power creating and driving social ideas 		
8	Institutions creating Local higher-level services, - achieving the insti institutions including education, specific mission culture, academia		- achieving the institution's specific mission	 providing the local community and the economy with competencies, creativity, and innovation 		
9	Administrative bodies, repre- sentations of supra-local authorities	Institutions of state and regional administration, judiciary, etc.	 interest in line with the competencies and political situation harmonization of development between the different levels of government maintaining subsidiarity 	 carrying out tasks in accordance with their competencies supporting innovation of supra-local impact presenting the views of supra-local authorities co-organizing and co-financing development 		

Table 1. Cont.

Source: own compilation based on the results of the research project "Knowledge Transfer from Science to Business". WSB Academy, 2019–2020.

In reality, every single one of these entities builds a network of cooperation and dependence around itself, while HEIs make for an extremely important link in chains of cooperation for innovation. These actors interact with each other in complex ways in the process of knowledge generation. The success of the collaboration depends on the partners' agreement to change the traditional roles assigned to each participant in the system. In addition to their tasks, these partners also play roles that are assigned to them by the other two sectors. For example, academic institutions can get involved in the development of specific industries by helping to create new companies that are set up as business incubators. They can also carry out some entrepreneurial activities, such as knowledge marketing and development (Czyżewska 2016; Muangmee et al. 2021b).

On the other hand, the authorities can take on the roles of entrepreneurs by supporting start-ups through funding programs and changes in existing laws. Companies in such a system also undertake activities normally reserved for universities by generating and disseminating knowledge, as well as training employees. The quality of the potential for collaboration depends on the relations and links between the three actors. Their absence inhibits effective knowledge dissemination.

Speaking about the complementarity of cooperating sectors, it may be worthwhile to outline their specific needs and innovation potentials, which form the foundations for cooperation and mutual interest of individual actors (Table 2).

Innovation expectations towards HEIs can be described as high, and the respondents appreciate the following roles of the HEIs:

- drawing inspiration from innovations that are disseminated by the university, such as new technologies;
- cooperation with universities as a partner in research and development projects;
- using the results of research conducted at universities;
- looking for new employees or volunteers at universities.

S. No.	Sector	Values Potentially Brought by the Sector to Cooperation for Innovation in the Local Economy	Expectations of the Sector Towards Cooperation for Innovation in the Local Economy
1	Academia	 technology and product solutions—support for production processes, increasing efficiency and productivity, reducing costs new products—from concept to implementation solutions managing business processes Shaping professional and civilizational competencies of the new generation of human capital 	 conditions for the implementation of the developed solutions, experimenting, developing experience-based education organizing funds to support scientific, research, educational activities
2	Business Sectors	 ability to discover opportunities, market niches, change the market equilibrium, and build a new equilibrium at a higher level ability to take well-calculated risks enhancing the practical competencies of human capital financial incentives stimulating R&D&I activities 	 useful solutions with real implementation possibilities increasing the effectiveness of operations with innovative solutions competencies and potentials conditioning the implementation of strategic change market for innovations, including the growing civilizational and technical competencies of the recipients

Table 2. Value exchange in the process of cooperation between HEIs and local economy actors.

S. No.	Sector	Values Potentially Brought by the Sector to Cooperation for Innovation in the Local Economy	Expectations of the Sector Towards Cooperation for Innovation in the Local Economy
3	Non- Government Sector	 awareness of the needs of various social groups, including niches with potential market value, as well as demand for market and social innovations promoting actors respecting the principles of corporate social responsibility, including those based on innovative technologies local heritage with market potential that can be used in various industries (for example tourism, catering, as well as other sectors)—innovation based on cultural assets building social capital, including the capital of trust—supporting stability of socio-economic growth and relations between workers and employers, building a foundation for undertaking innovative partnership projects integrating business environment in each area around values common for a given community or integration of entrepreneurs as a specific interest group 	 generating and implementing multifaceted social innovations striving for greater equity and eliminating social inequalities, including those concerning the labor market (for example by implementing organizational innovation) giving value to the civilizational and cultural heritage as a whole through its partial commercialization based on the principles of sustainable development intensifying revitalization processes carried out together with business, in particular social, economic, and spatial revitalization increasing the number of resources used to achieve social goals and to foster values important to the communities in the area
4	Government/ Local Government Sector	 factors of investment attractiveness created by the public sector—location, transport accessibility, skills, infrastructure, and more social services build the right conditions for the new economy workers demand for business offerings created by the government or local authorities—technologies and services for cities, regions, and the country creating demand for goods and services by local population 	 creating an attractive labor market for highly skilled residents providing residents with high-quality and highly accessible commercial services strengthening the image of the area as a place of success and economic growth respecting the principles of sustainable development, not generating conflicts with important functions and values important for the society multiplying the resources earmarked for the development of a given area—direct business investments, PPP projects, corporate social responsibility by financing
5	Cultural Sector	 product design and industrial design artistic value (artworks, literary works, event) as a product with market potential cultural values used in advertising, branding, and positioning of companies strengthening cultural capital leading to the development of skills of creative perception of reality community of values, codes, symbols characterizing the community in which the business operates, impact on shaping organizational culture and on the creation of more extensive relations values shaping the image of a place (genius loci), including image transfer to companies and products from a given area 	 promotion of artistic output by the business sector through commercialization (culture-based innovation) partial independence from funding sources and public sector decisions acquiring resources from the business sector to increase artistic freedom and improve the functioning of institutions and creative communities

Table 2. Cont.

S. No.	Sector	Values Potentially Brought by the Sector to Cooperation for Innovation in the Local Economy	Expectations of the Sector Towards Cooperation for Innovation in the Local Economy
6	Ecology Sector	 knowledge of the processes and relationships between economic growth and ecology underlying innovation in the 21st century new concepts of economic growth based on the principles of sustainable development—new technologies, products, industries built on the basis of ecological thought promoting environmentally responsible businesses, providing competitive advantage to such companies 	 improving the environmental situation, mitigating the impact of climate change an actual transformation of the economy towards the requirements of sustainable development providing customers with the opportunity to use goods and services whose production and use does not degrade the environment

Table 2. Cont.

Source: own compilation based on the results of the research project "Knowledge Transfer from Science to Business". WSB Academy, 2019–2020.

In general, there is an apparent expectation that the role of HEIs in the scope of the survey will increase. There was no indication that the participation of universities should be limited in any area. Table 3 presents the results of the preferred relationship model between institutions and HEIs according to the views of local government representatives. The core of the message is the desire for a stronger collaborative strategy to guide the cooperation.

Table 3. Desired relationships between institutions and HEIs according to representatives of local governments in the upcoming years.

	Total	Drawing Inspiration from Innovations That Are Disseminated by The University, Such as New Technologies	Cooperation with Universities as A Partner in Research and Development Projects	Taking Part in Advisory Bodies at Universities	Using the Results of Research Conducted at Universities	Looking for New Employees or Volunteers at Universities	Involvement in Charity Drives and Other CSR Activities Organized by Universities	Inviting the University as A Partner to Organized Events, Campaigns, etc.	Using the Expertise of Academic Staff	Participation in Meetings and Conferences Organized at Universities	Admitting Students for Internships and Placements	Conducting Joint Courses, Training Sessions, Educational Modules	Providing Feedback on Curricula
Definitely stronger (5)	8%	19%	19%	22%	13%	12%	12%	9%	7%	8%	7%	8%	9%
Rather stronger (4)	38%	57%	44%	33%	48%	47%	44%	43%	47%	38%	38%	29%	18%
The same as now (3)	50%	24%	37%	44%	39%	41%	41%	45%	47%	49%	50%	54%	73%
Rather weaker (2)	-	-	-	-	-	-	-	-	-	-	-	-	-
Definitely weaker (1)	-	-	-	-	-	-	-	-	-	-	-	-	-
I don't know, difficult to say	5%	-	-	-	-	-	3%	4%	-	6%	5%	8%	-
Stronger (4 + 5)	45%	76%	63%	56%	61%	59%	56%	51%	53%	45%	45%	38%	27%
Weaker (1 + 2)	-	-	-	-	-	-	-	-	-	-	-	-	-
Median range on a scale of (1–5)	3.56	3.95	3.81	3.78	3.74	3.71	3.7	3.62	3.6	3.56	3.55	3.5	3.36

Source: own study based on a report from a study carried out as part of the "PERFECT—Regional Excellence initiative at the WSB University" Project, 2021.

The activities of the university are perceived rather well, as any critical assessments were few and far in between. Tables 4 and 5 shows that universities have broad innovative functions concerning:

- human resources;
- research;
- role in local growth and development (social, environmental);
- generating and disseminating innovation.

Table 4. Local government representatives	' acceptance of statements about t	he activities of HEIs (Part 1).
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	Educates Highly Qualified Graduates	Uses Modern Technologies in Education and Learning	Is Involved in Environmental Protection Activities	Engages in Socially Useful Activities	Promotes Social Inclusion and Cohesion
I strongly agree (7)					
I strongly agree (7)	26%	21%	18%	17%	15%
I agree (6)	35%	36%	32%	41%	42%
I rather agree (5)	32%	30%	20%	30%	27%
I partly agree, partly disagree (4)	2%	6%	11%	5%	8%
I rather disagree (3)	2%				
I disagree (2)				2%	
I strongly disagree (1)					2%
I don't know, difficult to say	5%	6%	20%	6%	6%
I agree (5 + 6 + 7)	92%	88%	70%	88%	85%
I disagree (1 + 2 + 3)	2%			2%	2%
Average on a scale of (1–7)	5.86	5.77	5.72	5.69	5.63

Source: own study based on a report from a study carried out as part of the "PERFECT—Regional Excellence initiative at the WSB University" Project, 2021.

Table 5. Value exchange in the process of cooperation between HEIs and local economy actors.

	Disseminates Modern Technologies	Is Involved in the Digital Transformation of Society and Economy	Creates Innovative Solutions for Society and Economy	Has a Strong Impact on the Socio-Economic Development of its Surroundings
I strongly agree (7)	23%	8%	9%	14%
I strongly agree (7)	15%	26%	21%	26%
I agree (6)	45%	42%	41%	38%
I rather agree (5)	8%	8%	11%	14%
I partly agree, partly disagree (4)	-	2%	-	3%
I rather disagree (3)	-	2%	2%	5%
I disagree (2)	-	-	-	-
I strongly disagree (1)	9%	14%	17%	2%
I don't know, difficult to say	83%	76%	71%	77%
I agree (5 + 6 + 7)	-	3%	2%	8%
I disagree (1 + 2 + 3)	5.58	5.3	5.29	5.2
Average on a scale of (1–7)	23%	8%	9%	14%

Source: own study based on a report from a study carried out as part of the "PERFECT—Regional Excellence initiative at the WSB University" Project, 2021.

The overall assessment of the university's impact on socio-economic development was also high.

The study—both in its entirety, as well as the presented fragment—confirms that HEIs constitute an important part of the local and supra-local innovation ecosystem. They can be seen both as a partner in the network of relations, as well as actors that initiate new directions of development by providing specific implementation tools.

6. Conclusions

The study has been able to present and analyze interrelations in the university– business relations and how it impacts the society. A dynamic economy and constantly evolving competition force companies of all sizes to innovate. If they want to survive on the market, they need to focus on state-of-the art technological and organizational solutions, preferably those emerging at the intersection of business practice and academia. They also highlight the importance of technology initiatives, which are perceived differently by business and academia (Trzmielak 2015). For the private sector it is mainly about undertaking projects, which enable them to increase innovativeness and competitiveness of their operations based on the results of research and development works. The combination of technological resources and the potential of scientific and research centers allows companies to achieve high standards in research and development work. From the point of view of academia, this issue takes on a different shape, without private sector funding, HEIs are not able to carry out world-class research and compete with their counterparts in other countries. This is one of the central arguments on the need for a cordial relationship between the academia and business enterprises.

Globalization is thus one of the major drivers of collaboration between the academic sector and the private sector. One of the symptoms of the world shrinking down is the mobility of workers and students, which increases competition to attract top talent. Taking advantage of high-quality research enables companies to grow dynamically and to take advantage of new innovative solutions and technologies, while universities can provide their students with access to practical knowledge and the best employers. Every organization strives to properly shape its own image and positive reputation, which are conducive to their growth, and which should be fully coherent and consistent with the adopted strategy. The rapid increase in the amount of available information, combined with the pace of their transmission, highlights the need for two-way communication (Dacko-Pikiewicz 2019). The European Union has recognized this trend and decided that spurring technology transfer from public research centers to the industry will be one of its key priorities. The Lisbon Declaration of 2010 underlines that knowledge transfer is the main purpose of HEIs (European Commission/EACEA/Eurydice 2020). Thus, research is supposed to be used to spur innovation and productivity in Member States' economies, as well as to raise the level of research activities and their funding (OECD 2016). The private sector recognizes that research can be used to foster competitiveness, thus, they will be more willing to invest additional funds in this area. They can achieve this by providing researchers with more funding for research, which clearly results in a distinct symbiosis between these two areas. The other key aspect concerns the social dimension of the EU and academia—according to this principle, the outcomes achieved thanks to public funding should benefit society and be used to improve the quality of life for all.

According to the findings of the study, it is necessary to emphasize the diverse sets of values that are introduced by particular actors and the expectations of entities representing various sectors in terms of cooperation for the development of innovation in the local economy. The dynamics of changes in the modern economy and changes in the scope of functions and relations between the entities in the context of identified directions of expected cooperation between the university and other partners, including local authorities, indicate the need for intensive adaptation activities on the part of the university and continuous research on those needs and expectations.

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