



## **Business Administration and Business Economics**

### **Development of a Management Strategy for Forming an Innovation Ecosystem of the University**

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**Abstract:** At present, universities are experiencing a significant shift in their strategic focus, acknowledging the imperative to adapt and utilize knowledge more effectively in the realm of innovation for both the market and society. Entrepreneurial universities are strategically positioned as generators and disseminators of new knowledge, orchestrators of interdisciplinary initiatives, and catalysts in forging connections between academia and industries. They formulate a strategy for creating and nurturing an ecosystem tailored to their chosen scenario, whether the university acts as the instigator of an innovation ecosystem (IE) or as a participant in an existing one. The objective is to streamline the dissemination, application, and utilization of knowledge and technologies. In this context, the authors propose a systematic approach for all stakeholders in the innovation ecosystem domain. This involves progressing through successive stages, including conducting theoretical and practical research, devising a strategy formation algorithm, and outlining the content of strategic scenarios. The suggested algorithm holds a pivotal role in shaping a university's innovation ecosystem and comprises specific elements such as identifying and analyzing constraining research factors, establishing strategic goals, generating and deliberating on strategic scenarios for the formation and development of the Innovation Ecosystem at the University (IEU), and evaluating effects with subsequent strategy adjustments. The examination of scenarios is contextualized within the framework of goals, objectives, and strategic activities.

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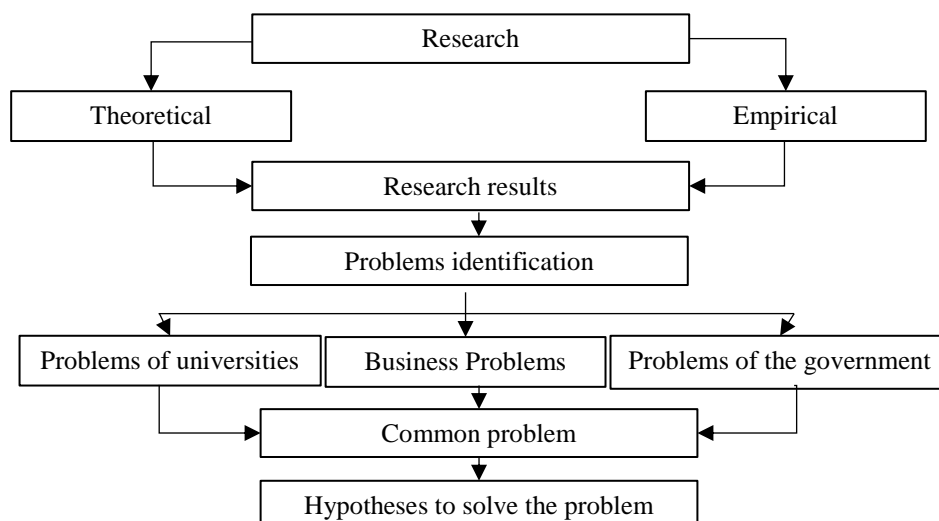
## 1. Introduction

In the ever-evolving landscape of higher education, the establishment and nurturing of an Innovation Ecosystem at the University (IEU) stand as pivotal endeavors. This article delves into the intricate process of developing a strategy for the formation and growth of a university's innovation ecosystem. As the global academic and economic landscapes undergo transformative shifts, universities are increasingly recognized as not only hubs of knowledge but also catalysts for innovation and economic development. This exploration encompasses the methodical progression through successive stages, encompassing theoretical and practical research, the formulation of an algorithm for strategy creation, and the articulation of the content within strategic scenarios.

Creating a management system for the innovation ecosystem by merely replicating infrastructure facilities and institutions in a short period is unfeasible. Purposeful management of the formation and evolution of innovation ecosystems is both justified and imperative. This objective calls for a strategic approach, specifically the formulation of a strategy directed towards the development of the innovation ecosystem itself. In the article, the authors delve into an algorithm designed for creating a strategy for the establishment and growth of a university's innovation ecosystem, hereafter referred to as "the strategy".

Adopting a strategic approach to formulate the strategy is advisable through a sequence of three successive stages: conducting theoretical and practical research, creating an algorithm for strategy formation, and developing the substantive elements of the strategic scenarios discussed subsequently.

Stage 1. Theoretical and practical research. Traditionally, the initiation of strategy development involves an examination of the present circumstances and the influencing factors in higher education. The formulation of this author's strategy hinges on conducting both theoretical and empirical investigations into the global and national higher education systems. The study focuses on the global higher education system, the specific context of Israel, and the integration process of universities' innovation ecosystems within this framework. The structural scheme of the study is presented in Figure 1.



**Figure 1. Research Basis for the Formation of a Strategy for the Formation and Development of the University's Innovation Ecosystem**

Identifying issues among key participants (university, business, state) is crucial for determining the potential avenues for innovation ecosystem development. This process should be systematic and accompanied by a search for the most optimal solutions to alter the current situation and address the identified problems. Various conceptual approaches define innovative potential in three dimensions: as a resource (comprising diverse potentials), as a process of innovation creation, and as the ultimate outcome of this process. Within the university framework, an effectively organized innovation process (involving opportunity research, idea generation, idea promotion, and commercialization), enhanced collaboration between university scientists, business representatives, and authorities, a culture of entrepreneurship, and a well-developed research and venture infrastructure all contribute to the advancement of the university's innovation ecosystem. Within this ecosystem, universities play a crucial role in creating and facilitating various value propositions through the transfer of knowledge and technology (Khayatan, Mousavi, & Hosseini, 2023).

Enhancing the university's innovative potential faces significant challenges that cannot be effectively addressed without strategic interventions within the university and the broader higher education system. In this context, three groups of barriers emerge at the levels of universities, business, and the state. Within universities, the authors identifies issues such as inadequate emphasis on the vision, mission, and values of the innovation ecosystem in strategic plans, a lack of coherence in collaborative efforts with all Innovation Ecosystem at University participants. A decline in the human capital of Israeli universities marked by a decrease in the

proportion of young faculty and scientists and a decline in their entrepreneurial activity, and an insufficient establishment of research databases, Israeli (Israeli & Blagorazumnaya, 2020). On the business front, challenges include a shortage of skilled personnel in high-tech fields among university graduates and weak industry competition stemming from the disparity between the tech sector and the broader economy. At the state level, addressing issues requires tackling the attraction of talented young scientists through migration policies, implementing more innovative assistance programs to enhance research collaboration between manufacturing companies and academic institutions, and fostering a stronger motivational policy for entrepreneurial ventures. This involves the orchestration of different ecosystems such as the technology transfer ecosystem, the innovation ecosystem and the entrepreneurial ecosystem to facilitate the exploitation of knowledge, the exploration of new techniques and support the processes of startup creation (Angrisani, Cannavacciuolo & Rippa, 2023, pp. 109-131).

Stage 2. Formulation of an Algorithm for Crafting an IE Formation and Development Strategy. The second phase in strategy development involves the creation of an algorithm, as illustrated schematically in Figure 2.

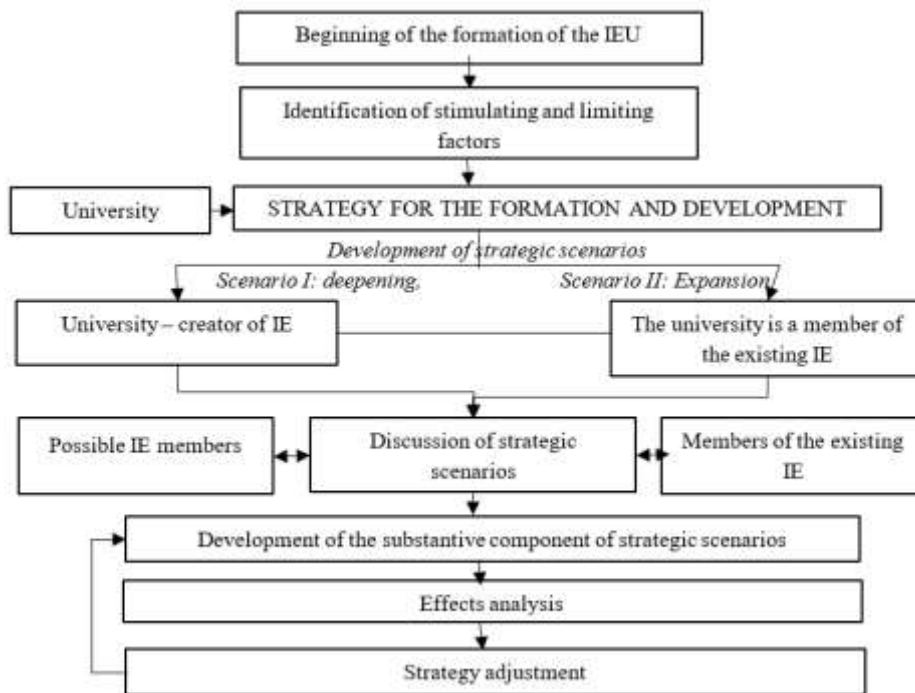


Figure 2. Algorithm for Developing a Strategy for the Formation and Development of the University's Innovation Ecosystem

In the provided algorithm, the strategy formation commences with an analysis of influencing factors, alongside the identification of constraining elements that set the boundaries for research Adner (Adner, 2006, pp. 98-107). Employing strategic analysis methods such as Porter's model of competitive forces, PEST-analysis, SWOT-analysis, as well as survey techniques and expert assessments, the author pinpoints limiting factors impeding the development of the university's innovation ecosystems. These factors encompass an inadequate alignment of stakeholders with the innovative requirements of the university and the region/country. This indicates a lack of a unified concept for the development of the Innovation Ecosystem at the University (IEU), a deficient common understanding among ecosystem participants regarding opportunities and challenges for fostering ecosystem growth, limited organizational flexibility in the collaborative efforts of IEU participants, and insufficient establishment of research databases, as reflected in the analysis of the IEU's functioning process. Additionally, territorial, temporal, and resource aspects are identified as limiting factors. The university innovation ecosystem comprises various interconnected elements such as academic, industrial, institutional and governmental organizations with the aim of promoting entrepreneurial activities and technological advances (Goncharenko & Krakhmalova, 2023, pp. 36-46).

The strategy for establishing and advancing the innovation ecosystem should be intricately linked to the university's primary objective and crafted concurrently with the overall development strategy of the institution Bercovitz (Bercovitz & Feldman, 2007, pp. 930– 948). The university's development strategy, focusing on the advancement of research activities as the cornerstone for personnel training, plays a pivotal role. It not only shapes but also guides the strategy for overseeing innovative endeavors, establishing the fundamental principles and essence of its formation. Conversely, the innovation strategy, in a dynamic interplay, delves into, refines, and actively contributes to reinforcing the university's overarching strategy. Together, they form a cohesive and integrated entity.

The evolution of the ecosystem approach in shaping a strategy for the establishment and growth of the university's innovation ecosystem encompasses several key elements:

- Establishing an innovative and adaptive management structure that not only oversees scientific and innovative activities but also encompasses the entire university Dreier (Dreier & Israeli, 2022, pp. 309-318).
- Organizing subsystems for research, development, and marketing management, along with formulating the strategy, functions, and principles for managing the university's innovation activities.
- Crafting a motivation system and engaging relevant scientific and educational organizations and enterprises through the creation of effective interactions within innovative alliances and consortia.

- Fostering a conducive environment for information and knowledge exchange among innovation ecosystem participants, including the development of specialized platforms and the establishment of platforms for strategic cooperation.
- Developing and stabilizing interactions between current and potential participants in the innovation ecosystem.
- Formulating mechanisms to expand the financing of innovative collaborations.
- Creating conditions for the generation of viable outcomes from intellectual endeavors and their subsequent implementation.

There are two conceivable scenarios for the establishment and advancement of the Innovation Ecosystem at the University (IEU):

1. Universities actively take on the role of architects for ecosystems, uniting individuals with relevant technical expertise from various industries and fields, both physically and virtually. The evolution of the innovation ecosystem is a intricate and multi-phased process, necessitating meticulous attention to every facet of the ecosystem.
2. The university becomes a participant in one or more existing IEs (region, country, industry, etc.). The involvement of universities in the ecosystem varies and is geared towards expediting innovation and technology transfer. This involves conducting fundamental research to catalyze long-term innovation, supporting employees, students, and graduates in developing and testing new ideas by providing technical resources, entrepreneurship programs, establishing accelerators, and even venture funds. In essence, the university must align with the needs and capacities of the innovation ecosystem to which it belongs.

In line with the aforementioned scenarios, the university's strategy can take two forms: a strategy for establishing and growing an Innovation Ecosystem (IE) based on the university, and a strategy for integrating the university into an existing IE. Each of these strategies comes with its distinct goals, objectives, and principles for formation and development. The intricacy of crafting these strategies stems from the need to not only define the overarching direction for the ecosystem's development but also to ensure the coordination of actions and a balance of values and interests among its participants. Additionally, the strategy should facilitate the effective dynamics of universities' innovative activities and contribute to the replication of qualitative characteristics at regional enterprises, encompassing foresight of changes in the innovation domain and the development of solutions for sustainable growth.

In formulating a strategy for establishing and advancing the Innovation Ecosystem at the University (IEU) under both scenarios, it is imperative to adhere to the following guiding principles of its development:

- The strategy should align with, rather than contradict, the overarching strategy of the university, the regional development strategy, and the strategies of enterprises within the IE.
- The development of the strategy should consider the leadership dynamics and interests of all participants involved in innovation, fostering harmonious relationships among them Iansiti (Iansiti & Levien, 2004, pp. 68–78).
- The strategy should be in line with the resource and potential capabilities of the university and other participants in the ecosystem.
- The foundation of the strategy should rest upon research potential, information security, consulting, and expertise.

In the process of crafting a strategy, university management may be presented with various alternatives rooted in typical strategies and their numerous adaptations. The strategy should be grounded in specific factors and objectives that the university establishes to attain a credible advantage over competitors, while considering tangible opportunities and infrastructure. Simultaneously, it must account for the nuances involved in overseeing strategic, i.e., extensive and long-term, changes within the university, organizations, and the business ecosystem that constitute integral parts of the innovation ecosystem. In addition, universities act as regional and global intermediaries, connecting various actors within the entrepreneurial financial ecosystem to promote innovation and commercialization of research projects (Njolstad, 2023). In general, universities in the innovation ecosystem serve as key entities that drive economic development, technological innovations, and entrepreneurial culture within society (Luoju & Kauppinen).

Engaging in discussions about strategic scenarios should involve prospective participants of the Innovation Ecosystem at the University (IEU): representatives from the region or the innovation ecosystem into which the university is integrating. In the first scenario, the establishment of an innovation ecosystem is poised to elevate the relationship between the university and the regions to a qualitatively different level. Regional authorities, driven by the imperative of ensuring economic growth, recognize that knowledge transformed into innovations is the most competitive resource today. The university is envisioned to evolve into an institutional environment fostering innovative ideas and cultivating a novel type of collaboration with government and business. In the second scenario, existing participants in the innovation ecosystem anticipate fresh ideas, developments, startups, and innovative activities from universities. The success of the formulated IEU strategy and the efficacy of planned initiatives should be evaluated based on the extent to which higher education institutions' endeavors align with the expectations and needs of society and individual stakeholders. Therefore, the strategy should comprehensively consider various success factors, recognizing that its creation is a complex, multi-stage, and iterative process.

## **2. Stage 3: Development of the Substantive Component of Strategic Scenarios**

In both scenarios for establishing and advancing the Innovation Ecosystem at the University (IEU), the author outlines the following criteria for assessing the university's role in the innovation ecosystem: the socio-economic context, in which the strategy is implemented, incentives for university transformation, the central organization within the ecosystem, and the roles of key participants in the ecosystem.

Through an examination of the university's strategic behaviors in both scenarios (where the university acts as the instigator of the Innovation Ecosystem and as a participant in an existing one), the author posits that the strategy of the university's innovation ecosystem delineates the primary directions for its development to attain its objectives. The key strategic vectors for advancing the university's innovation ecosystem encompass active innovative endeavors within the university and at the regional/national level, creating conducive conditions for idea developers in their scientific pursuits, involving representatives from the business environment in the educational and research processes, and implementing a novel system of practices and internships for students in collaborating companies. Addressing these challenges necessitates substantial transformations within the university itself, spanning aspects such as product development, resource management, and organizational structure. The formation of the strategy should be based on the formation of a goal-setting system and growth points (strategic projects), the definition of challenges and mechanisms for implementing the innovation strategy of both the university and the region. This will allow you to introduce innovations in real time, taking into account any specifics of the university and the territory on which it is located.

Regardless of the chosen scenario for the formation and development of IEU, the university is turning into an active participant in the economic development of the territory, a center of attraction for talents and an expert platform for the business community of the region. At the same time, he acquires additional opportunities for his own development. Different performers can take part in the development of the strategy.

## **3. Conclusion**

Based on the conducted research, the following conclusions can be drawn. The proposed approach to developing a strategy for the formation and development of an innovation ecosystem is carried out within three successive stages: conducting theoretical and practical research; creation of an algorithm for strategy formation; development of the content of strategic scenarios. When developing the strategy, two scenarios for the formation and development of the university's innovation ecosystem were considered. When developing the content component of the second



strategic scenario, the authors identifies four strategies for the university's behavior as a participant in the existing innovation ecosystem (the strategy of a coordinated approach, the strategy of cooperation, the strategy of creating a platform, the strategy of creating an innovation center). These strategies characterize the sequence of manifestation of the university's activity as a member of the ecosystem (ascending from the conditionally passive role of the university to the active one).

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