

MAPPING KEY COMPONENTS OF ENTREPRENEURIAL UNIVERSITY MODELS

Daniela Mihaela NEAMTU

"Stefan cel Mare" University of Suceava

13 Universităţii St., Suceava, RO

dana.neamtu@usm.ro

Ruxandra BEJINARU

"Stefan cel Mare" University of Suceava

13 Universităţii St., Suceava, RO

ruxandrab@usm.ro

Abstract

The evolution of the vision and interpretation of entrepreneurship has occurred in parallel with the entrepreneurial change in practical terms, i.e. regarding the process that defines the creation of a business. Thus, the need to constantly update studies, analyses, and strategies must be aware of those involved. The entrepreneurial models in the paper present various phases that are declined according to the theoretical and practical approaches, found especially in the literature. Throughout the sections of the paper, we argue that the models, components, or strategies of the entrepreneurial university are extremely dynamic, flexible, and adjustable to offer fair chances for any university framework to transform itself and adopt the entrepreneurial model. We are discussing with priority two entrepreneurial university models namely the European and the American. For the European model of the entrepreneurial university, we present the framework focused on the 7 key pillars and the European level strategies for increasing entrepreneurship in universities. Related to the American model we provide a couple of good practices and policies applied by renowned institutions. For comparative analysis, we present the case study of "Stefan cel Mare" University like an open entrepreneurial system. To frame the entrepreneurial approach of this university we examine a series of coordinates like research laboratories, business incubators and technology parks, partnerships, and consultancy with private companies, cooperation based on joint projects, participation in international research networks, and students' involvement in research.

Keywords

Entrepreneurship; entrepreneurial university; sustainable development; sustainability; partnerships; innovation; start-ups.

Introduction

During the last decade, the role of entrepreneurship as a factor of economic growth at the organizational and national level has received scientific and empirical assertion and thus has begun to arouse increasing interest, both academically and pragmatically. It has been widely acknowledged that economies world-wide cannot support their long-term economies without implementing pro-active strategies. To grow, consistently additional efforts are needed. Today, almost everything takes place under the emblem of sustainable development (or sustainability): society develops by applying sustainable principles, education must become sustainable; industry or agriculture develops sustainably; and thus research must support sustainability (Hapenciuc et al., 2018).

The strategy aimed at developing an entrepreneurial university starts with focusing on basic processes such as teaching, research, and entrepreneurial initiatives (Guerrero et al., 2016). Efforts in this direction begin with the search for a solid anchor such as an entrepreneurial university model appropriate to the requirements of the 21st century.

According to Etzkowitz (2004), universities have been assigned new missions that focus on social development and economic growth. Starting from this premise we can consider that universities are moving towards the necessary transformation to become entrepreneurial organizations and their employees - will become potential entrepreneurs. In this context, the role of the educational process becomes to develop students' personalities to manage complex issues and make the right decisions, to act responsibly, and maintain high ethical standards according to the requirements of the principles of sustainable development (Neamtu & Bejinaru, 2018).

There is obviously a need to adjust the rules of the game to ensure a better allocation of entrepreneurial resources to those activities that society needs to encourage to achieve a level of sustainable growth. Although all EU Member States have recognized the importance of implementing these instructions, approaches and results can vary greatly from one country to another (European Commission, 2017). Complying with the agenda of the European Policy, increasingly higher education institutions in Romania support entrepreneurship and innovation by introducing new educational activities for students and staff, special support services and programs for start-ups, and through dedicated partnerships with key development partners (European Commission, 2019; Neamtu et al., 2020).

The *"Entrepreneurship Action Plan 2020"* on relaunching entrepreneurship in Europe states that entrepreneurship is considered an essential vector of sustainable growth and generator of new jobs, opens new markets, and stimulates new skills and capabilities. Therefore, the initial idea that the term '*sustainability*' sought to express is the idea that living generations do not have the moral right to compromise or diminish, through their pursuit of limitless well-being and comfort, the chances of future generations to have more resources necessary to ensure a decent and prosperous life. This complex and noble mission can be achieved by promoting social, economic, and political change, which can be supported by professional leaders and specialists (Bejinaru & Hapenciuc, 2016). The foundation of society, in which human resources become the key sources of solid development, is based on education and implicitly on economic and social prosperity. Formal education is understood as curricular education and non-formal education consists of extracurricular activities offered by universities (outside the official learning program) (European Commission, 2017; Zbucea & Leon, 2015).

For a long time, the debates regarding the role of students in the development of the university and society were finally dominated by the strategic importance of actors with superior authority, but the time has come when these roles need to be re-evaluated. The actions of the actors from the academic environment (teachers, administrative staff, and students) must be trained simultaneously in the same direction so that their effect is one of impact in the local community (Hapenciuc et al., 2016). Although the student has long been considered only a "client" of the university, the reality shows that the student is the main resource for sustainable development in this ecosystem (Bejinaru, 2018). The involvement of the university in sustainable development has been influenced by the

confrontations of its members and its partners with the adverse conditions of the global economic environment (Bratianu, Hadad, & Bejinaru, 2020).

International business forums approach entrepreneurship as a driving force, aiming for globalization, ensuring the flow of goods and services, as well as assisting emerging markets in enriching their potential. Developing firms are very important in this process. In the United States, for instance, it is estimated that although medium-sized enterprises make up only 1% of total firms, they generate a quarter of total sales and involve one-fifth of the total private sector workforce (Harrison & Turok, 2017). In the case of the United Kingdom, out of every 100 small firms, the first four companies in the growth ranking create half of the jobs in this group over a decade. In other countries, however, it may be difficult to find a small group of companies to dominate employment growth at the national level (Davidsson & Delmar, 2001). Thus we may appreciate that to generate growth in an economy, newly established companies, and entrepreneurship must first generate internal growth and sustainability.

Components of the entrepreneurial university model

Integrating the discussions about characteristics of the entrepreneurial university by various authors (particularly Clark, 1998 and Gibb, 2005) with the knowledge on the functioning of entrepreneurially oriented organizations proposed is the model of the entrepreneurial university (Suncica & Salihov, 2015), as the answer to the research question: What kind of university we need today to best meet the needs of the turbulent environment in which we live (Figure 1). Within an academic context and environment, entrepreneurship can be perceived as the development of a set of individual behaviors, skills, and attitudes as characterized by the entrepreneur (Hannon, 2013). The same characteristics can be applied to the intrapreneur, the social entrepreneur, the technopreneur, and across many other contexts. But why is this important? Why is entrepreneurship important in higher education? Why are these concepts of relevance to higher education institutions? What role should an HEI play in stimulating entrepreneurship across its campus? Why does a university need to be entrepreneurial?

To advance some possible answers to the above mention questions we bring arguments for the basic components of the entrepreneurial university model:

1. Entrepreneurial university core consists of university components, which perform the basic research and education functions (faculties, departments), and supra-organizational structure of an integrated university.
2. Developed university periphery represents university's interdisciplinary, project-oriented research centers, which work on the transfer of university's knowledge and technology to the business community (applied research), develop and take care of university's intellectual property, organize and implement (in cooperation with other university departments) continuous education programs (lifelong learning), help with university fundraising activities, develop contacts with the alumni, help with the development of their students' careers, and organize and participate in all the activities through which university establishes contacts with its environment.

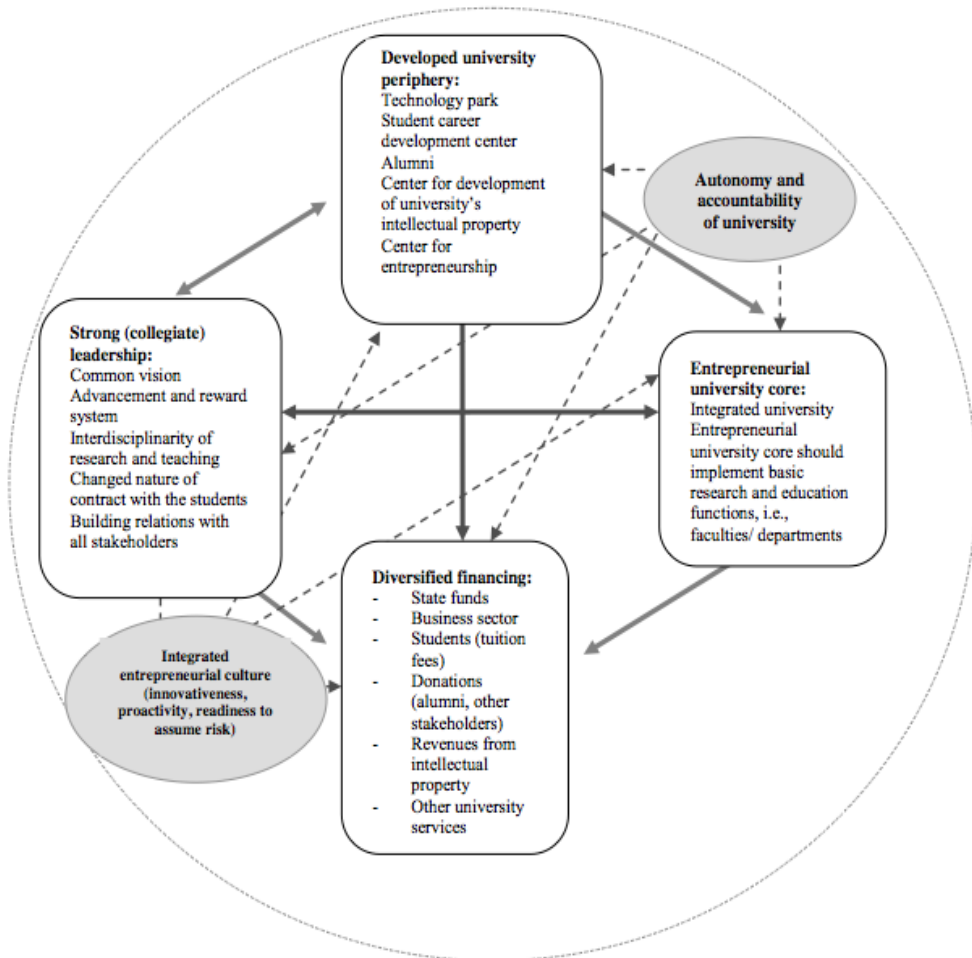


Figure 1. Model of the entrepreneurial university

Source: adapted after Suncica and Salihov, 2015

3. Strong (collegiate) leadership; university leadership capacity is very important in the creation of an entrepreneurial university. Strong leadership is essential in the process of university transformation. If university leadership doesn't accept the concept of the entrepreneurial university, it is unlikely that transformation to an entrepreneurial university will take place. Collegial leadership relates to the creation of governance structure, which motivates and encourages all parts of the university to proactive and enterprising behavior, and achievement of team goals is ahead of the realization of personal goals ("we" vs. "I").

4. Diversified financing; creation of financially independent (on state sources of financing) university is an important prerequisite for the creation of the entrepreneurial university. Financial independence (of university) creates a sense of controlling one's destiny because it allows the university to launch and implement projects according to its own wishes and priorities, and prevents unwanted commercialization of university services because it provides the freedom to choose projects.

For these components to adequately function, there must be applied a set of academic context principles, like autonomy and accountability of the university and a series of entrepreneurial culture issues like innovativeness, proactivity, or readiness to assume the risk.

Similar components were specified by Spigel & Harrison (2017) who have defined in a more integrated way that an entrepreneurial agenda is a combination of social, political, economic, and cultural characteristics that support the creation and development of innovative start-ups and promotes new entrepreneurs and other stakeholders for them to take the risks involved by supporting high-risk business initiatives. It groups the above characteristics into three categories: -material characteristics (universities that educate young entrepreneurs and at the same time produce new knowledge, support policies, infrastructures, open markets, and support services); -cultural characteristics (support culture, business exceptional success) and -social characteristics (talented human resources, successful local entrepreneurs who provide advice to young entrepreneurs, available investment capital, social networks between consultant entrepreneurs and individuals who allow the dissemination of knowledge). The three presented dimensions are very important when discussing initiating successful start-ups (Di Gregorio & Shane, 2003).

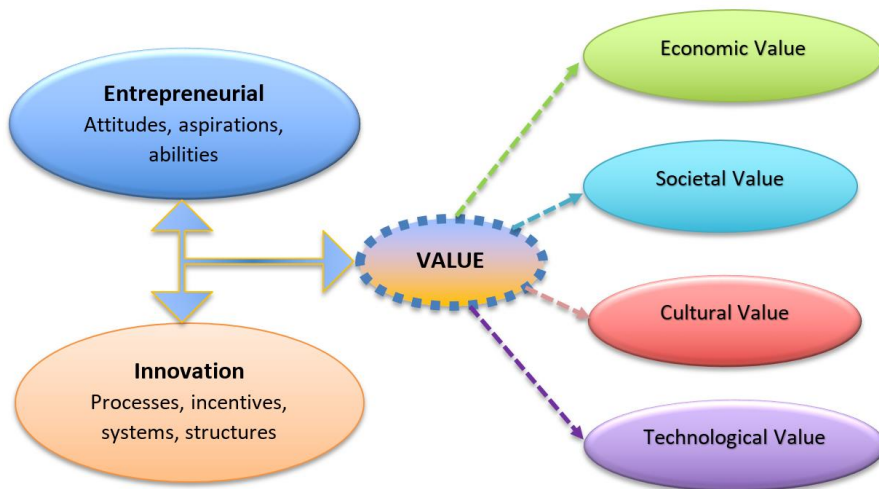


Figure 2. The Innovative & Entrepreneurial Higher Education Institution

Source: adaptation after Gibb, 2017

Each entrepreneurial agenda must have the following six separate sectors: political, financial, cultural, support, human resources, and markets (Isenberg, 2010). In particular, according to the World Economic Forum, the main pillars of an entrepreneurial system are the human resources, the study programs of the big universities that promote entrepreneurship, and the predominant business culture (risk tolerance and failure, presentation of the most successful businesses and innovation in society, etc.), systems for the support of entrepreneurs - mentors and consultants, access to national and international markets, funding means, state (legislative and regulatory framework and infrastructures), education and training (provision of qualified human

resources) (World Economic Forum, 2014). International literature recognizes the role of universities as particularly vital to the development of human capital, knowledge, and entrepreneurship (Audretsch, 2014; Carlsson et al., 2002; Elena-Pérez et al., 2017; Guerrero, Cunningham, & Urbano, 2015; Isenberg 2010; Mason & Brown 2014; Amorós & Bosma, 2013). Universities are knowledge-intensive organizations with a high potential of intellectual capital, and a high level of knowledge entropy (Bratianu, 2011, 2014, 2019).

The entrepreneurial mission of the university stems from the fact that it is, in fact, an incubator in terms of teaching, research, and entrepreneurship and moreover provides a favorable context for collaboration within the academic community to identify, explore and exploit innovative ideas that can be turned into development projects (Kirby, Guerrero, & Urbano, 2011). Over time, the successful exercise of the core function, that of educating and training graduates who were capable and competent to contribute to the development of society, has led to the prospecting of more ambitious horizons. Thus arose the second function of the university, namely that of research. The research mission of the university serves the desire of academic staff to advance and deepen their field of activity as well as to disseminate the results of their activity with the general public (society in general) but also with the specialized public (companies or laboratories) (Prelipcean & Bejinariu, 2018). The entrepreneurial mission intervened in several forms in this context. Some experts argued that the entrepreneurial mission has the role of connecting the results of academic research with their practical implications for society (Nastase, Butnariu, & Lucaci, 2019). The dissemination of research results can lead to multiple effects such as the progress of existing economic activity but also stimulating start-ups (Mahdi, 2016).

The European model for the entrepreneurial university

The European Commission working with OECD has built an online self-assessment tool, HEInnovate (access at www.heinnovate.eu), as a guiding framework for the entrepreneurial university. This framework focuses on 7 key pillars identified through a thorough review of existing research and strategically analyzing with a group of experts from across Europe. The tool aims to provide higher education institutions with the opportunity to reflect on their perceptions of strengths and weaknesses in each key area, thereby helping to identify institutional development needs. The 7 pillars are:

- Leadership and governance
- Organizational capacity, people and incentives
- Entrepreneurship development in teaching and learning
- University-business/external relationships for knowledge exchange
- The entrepreneurial HEI as an internationalized institution
- Pathways for entrepreneurs
- Measuring the impact

Creating an environment for the enhancement of entrepreneurial thinking and behaviors across all subject areas also creates challenges. The UK has been investigating this and the Quality Assurance Agency published a guidance note (QAA, 2012, <https://www.qaa.ac.uk/>) for embedding enterprise and entrepreneurship in higher education. This document aims to provide examples of how entrepreneurial learning opportunities can be provided within formalized curricula and through extra-curricular

provision. The framework also proposes the idea that a learner's journey begins with raising awareness, progressing to the development of an entrepreneurial mindset, enhancing entrepreneurial capacities, and finally to enhancing entrepreneurial effectiveness. The challenge is for universities to review what they do and how and the effects on the enhancement or inhibition of the development of entrepreneurial capacities that will underpin innovation capacity. How often are the institution's structures and policies, all curricula, business, and industry collaborations, internationalization activities reviewed? There is much that can be changed in an institution: conceptualizations of entrepreneurship; strategies for embedding entrepreneurship across the campus; opportunities for entrepreneurial learning; new combinations of multidisciplinary knowledge (Gibb, 2005; Zbucka & Vidu, 2018).

A comprehensive and dynamic perspective is given throughout the following definition: "Travelling the journey towards an entrepreneurial university is not a lone activity. There needs to be a number of actors stimulating change, for example: -visionary and transformative leaders at all levels in the organization; -entrepreneurial staff acting as inspiring role models; -students empowered to act and take risks; -mentors and coaches who can inspire and support entrepreneurial development opportunities; -education activists and critical friends who will lead innovation in the curricula and learning; -learning technologists; dynamic and effective entrepreneurial ecosystems; -a diversity of stakeholders from all key communities of practice; -celebrators of learning from failure" (Hannon, 2013, p.15).

The American model for the entrepreneurial university

Entrepreneurs in the USA are well-known to be great cultivators of entrepreneurial spirit and have greatly contributed to the American economy by creating countless well-known ventures (Lee, Chang & Lim, 2005). Streeter, Kher, and Jaquette (2011) observed more than 2000 entrepreneurship programs in American universities, many of which are at top-ranked universities. These programs are offered by more than 1500 colleges and universities and more than 100 active university-based entrepreneurship centers (Charney & Libecap, 2000).

For example, Babson College is well-known for its international stature in entrepreneurship education including being a founding member of the well-known Global Entrepreneurship Monitor Report and has strong links with several international universities. USA university students are free to select their electives that accompany their majors and are, therefore, not limited by fixed modules within their chosen programs. It is less onerous to introduce alternative modules within such universities. Entrepreneurship-focused programs are offered through centers for professional development or executive education. These are focused on stand-alone, workshop-based programs to train entrepreneurs in creating new ventures and growing these ventures. The targeted audience for such workshops is formed by both international and local entrepreneurs, as well as educators and academics. Interestingly programs, especially grounded on effectuation theory, were found to develop educators and academics to teach in entrepreneurship. The existence of these programs could explain the stature and reputation in entrepreneurial initiatives of the universities that were analyzed (Nieuwenhuizen, 2016).

"Stefan cel Mare" University like an open entrepreneurial system

The practical contribution of this paper is rather analytical and deductive referring to the case of the "Stefan cel Mare" University of Suceava. From the analysis of the relations that the University of Suceava establishes with the insertion environment through the exercise of the five functions - development of creative human capital, regional innovation, community development, participation in regional leadership, and economic influence, it is found that the higher education institution behaves as an open system that contributes to the development of its area of influence. The inputs generated by the local and regional insertion environment of the University of the type of human, financial, and material resources (Figure 3) are capitalized by the higher education institution and transformed by specific mechanisms into outputs useful to the insertion environment.

By exercising the functions aimed at the development of creative human capital, regional innovation, community development, and participation in regional leadership, the University generates several specific outputs (Figure 3). These outputs are directly monitored by the higher education institution, being the result of human capital formation, scientific research and innovation, and involvement in community development. In a subsidiary way, these university "results" have an economic impact on the insertion environment of the University, determining an increasing capacity to influence the business and social environment.

The effects of the entrepreneurial actions implemented by the university are easy to notice in the outside landscape. The financial university inputs "return" in another form in the insertion environment that generated them. Certain percentage returns to the local or regional economy in the form of salaries, scholarships, or other forms of financial support offered to employees or students. Also, another significant part of these financial resources is transferred to the business environment in the form of remuneration for the different services that contribute to the development of the material base and the infrastructure of the university campus.

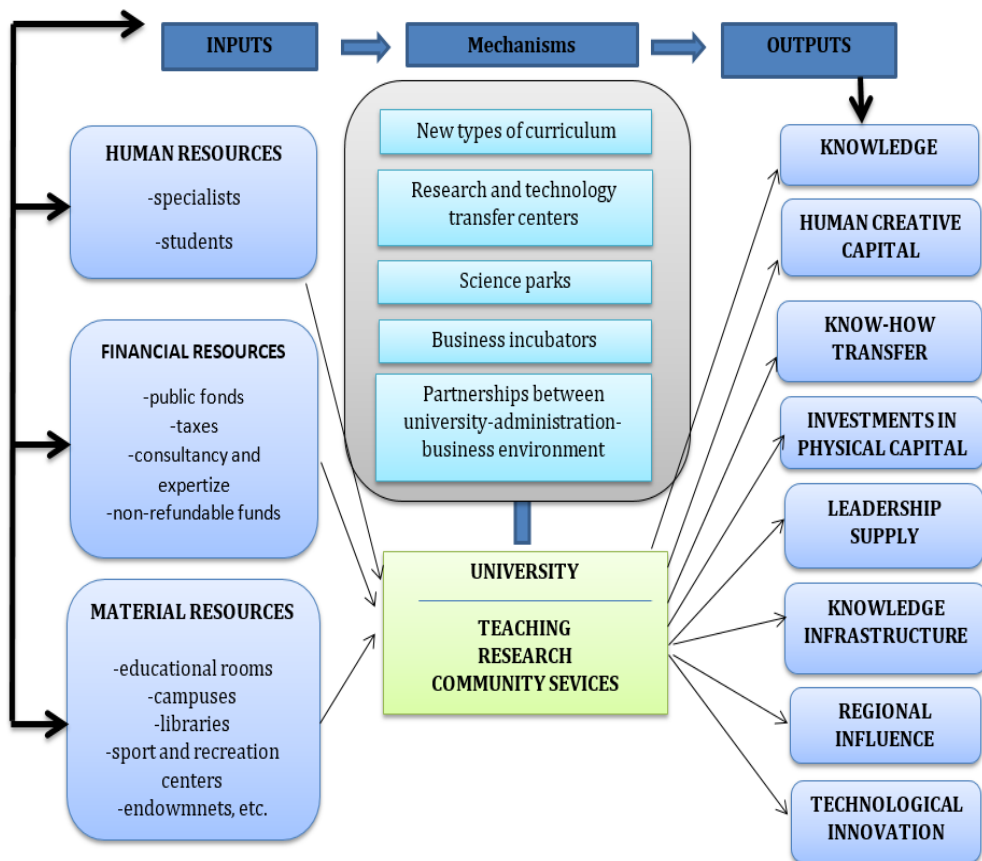


Figure 3. The university as an optimal open system

Source: adaptation after Goldstein and Renault, 2004

Scientific research projects with non-reimbursable funding, in addition to the direct impact determined by the financial resources attracted to the insertion environment of the University, also determine a strong indirect impact. It is generated by the technological transfer and knowledge of the results of these projects, the impact they have on regional innovation, or the influence of human capital with a higher level of training and specialization determined by the participation in programs that took into account the development of human resources. Also, the development of human resources through initial education or continuous training has an important economic impact on the labor insertion environment, generating besides the high-skilled workforce also side effects of the type of business location decisions in the area of influence of the higher education institution or the transfer of knowledge, skills and abilities towards employers (Pinzaru et al., 2016).

In the following, we will provide several examples of such, programs, projects, and initiatives of institutional innovation, which we found being developed by the "Stefan cel Mare" University of Suceava.

Research laboratories. The laboratories offer the possibility of achieving innovation following the activity of scientific research and experimentation, in spaces

equipped with specialized equipment, principally by the teachers and students from the University of Suceava.

Business incubators and technology parks. Another factor favoring technological transfer and innovation is the activity within the technology parks and business incubators. "Stefan cel Mare" University of Suceava is also involved in this process, by providing scientific assistance of profile to the economic agents. This also implies the cooperation of the university with research institutes, companies, the business environment in the North-East Region of Romania. In the 2003-2007 Strategic Plan of the "Stefan cel Mare" University of Suceava, it was recalled that *"the foundations for the creation of the Technological Park Suceava, a commercial company, were set up within the perimeter of which investment activities will be carried out, involving also advanced technology of industrial production and related services"*. The activity in this park contributes to the development of scientific research through qualified scientific assistance, by involving the teaching staff in the process of technological transfer, by providing consultancy in the economic, technological, environmental field, etc.

Partnerships and consultancy with private companies. The partnerships of universities (with certain private companies, public institutions, research institutes, other universities, etc.) offer the possibility of collaborations between the university and these institutions/units specialized and used primarily for scientific experimentation activities. During the pandemic period generated by the SARS-COV-19 virus, the University through the Business Incubation Laboratory has opened up a voluntary initiative, called *Grow with USV*, to collaborate with the companies affected by the political, economic, and social changes and provide consultancy in the business field on several areas, like management, finance, law, human resources, marketing, and accounting.

Cooperation based on joint projects. Most of the university's partnerships are made within cooperation networks and consortia, based on joint projects and programs. The activity within such structures implies the aggregation of the different competencies of the members, which facilitates the research-development-innovation, the universities returning the role of predominant involvement in the fundamental research.

Participation in international research networks. Among the cooperation and partnerships in the form of cooperation networks and consortia, based on joint projects and programs, the international ones offer the opportunity to collaborate with partners from outside the borders of the country, who are leaders in that sector of activity, all partners benefiting from the shared knowledge. In the network, the final product storing top-level development-research-innovation processes.

Involving students in research. The formation of the human resource highly prepared for the development of activities in research-development-innovation supposes the involvement of the students in the research realized in the university, by attracting them in the different research laboratories and by including them in research teams to finalize grants or other contracts, for the purpose of their co-interest. In all the universities which we have analyzed and also in the "Stefan cel Mare" University of Suceava, the emphasis is placed not only on the research undertaken by teachers and researchers but also on encouraging the research carried out by students, "by their material and spiritual co-interest" - for example by granting research scholarships - within the research laboratories of the university or in the research laboratories of the partners from research or industry.

Conclusions

During this research, we have learned that the previously presented models, components, or strategies of the entrepreneurial university are extremely dynamic, flexible, and adjustable in order to offer fair chances for any university framework to transform itself and adopt the entrepreneurial model. As we could notice from the information presented across the paper sections, there is a multitude of models for the entrepreneurial university but which largely encompass the same components. In the end, we are cautious about expressing our definition of the entrepreneurial university or about crediting a certain model. Thus synthesizing the ideas argued above we shall only propose that the entrepreneurial university is characterized by the policy of supporting staff and students in entrepreneurship, through innovation and creativity, by the capacity of generating value for society by collaborating with local, regional, national, and international partners and by the ability to operate efficiently in dynamic environmental conditions.

Finally, we state that the university plays a fundamental role in creating and sustaining an entrepreneurial culture capable of stimulating the local ecosystem. As much as we have tried to understand how to learn entrepreneurship the major obstacle is the absence of a clear and precise guide. This lack is due firstly to the complexity of entrepreneurship, which includes knowledge and different competencies, and secondly that it is not easy to fully measure what impact have the entrepreneurial strategies, policies, or courses. It is a fact that the impact of the entrepreneurial university is visible and furthermore its future potential is all the more exciting for state administrations. In an attempt to cultivate entrepreneurship, support programs and business incubators have emerged worldwide for increasing the number of start-ups and achieve the maximum return on investment in research and development. Support programs aim to increase the number and quality of start-ups, while business incubators strive to reduce the gap between innovation and marketing.

In conclusion, we consider it justified to complete the arguments discussed above, both about international models of the entrepreneurial university and about the realities facing the University of Ștefan cel Mare in Suceava - with the statement made by the experts of the OECD Report (2019, p.46), namely that the "Ștefan cel Mare" University of Suceava is an "anchor institution for a region, playing a key role in the community and the surrounding ecosystem, being clearly committed to developing an entrepreneurial agenda."

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