

# UNIVERSITY ENTREPRENEURIAL EDUCATION MODEL IN THE ENTREPRENEURIAL ECOSYSTEM

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## Abstract

*Starting from the theory of the entrepreneurial ecosystem, the work highlights an education model by integrating innovation and entrepreneurial education in the process of continuous improvement of the educational action in the university. The proposed entrepreneurial education model is the result of the integrated valorization of the opportunity offered by European funding for the development of educational products that meet the current learning needs of the academic community. It is a thought-out, developed and validated model and highlights a special type of thinking that can revolutionize the field of education by developing positive changes, in the context in which learning can be approached from a behavioral and personal development perspective. In this way, it is created in the field of higher education an ecosystem that allows the development of the entrepreneurial spirit and the entrepreneurial skills considered by the European institutions among the 8 key skills necessary to ensure lifelong learning and personal development. University entrepreneurship can be developed, as we have demonstrated both from the perspective of cultivating the entrepreneurial spirit of teaching staff and students, a component of personal development, and from the perspective of educating through entrepreneurship, highlighting the creativity of young people and the practical experience of partner economic agents and transmitted through entrepreneurial counseling, support in the realization of business plans and through the creation of innovative products in simulated enterprises.*

**Keywords:** *entrepreneurial ecosystem, education for innovation and entrepreneurship, model of entrepreneurial education, entrepreneurial spirit, entrepreneurial skills*

**JEL Classification:** *A23, M11, O21*

## 1. The entrepreneurial ecosystem and the modern university

The entrepreneurial ecosystem is considered in the specialized literature ( Lehmann, E s.a, 2020, ; Audretsch et al. 2019, Colombo et al. 2019, Acs et al. 2018, Gănescu 2014, Isenberg 2014, Feld 2012) as a framework within which are described, promoted points of view related to the way entrepreneurs interact as economic agents. Feld talks in his work "Startup Communities" about the dynamics and prerequisites for building entrepreneurial communities using talent, creativity and mutual support.

Starting from the synthesis of specialized literature, authors Bernd Wurth, Erik Stam and Ben Spigel ( 2022, p. 730) state the fact that "Current thinking about entrepreneurial ecosystems can be seen as the result of developments in several related literatures: entrepreneurship context, high - growth entrepreneurship, clusters, regional innovation systems, entrepreneurial environments and business ecosystems"<sup>3</sup>

American scholar Ezkowitz considered in the 1990s at state level the entrepreneurial ecosystem by creating the Triple helix structure in higher education in which the government, enterprises and universities are considered the three main factors for supporting the innovation system in the knowledge-based economy society. At the regional level, the entrepreneurial ecosystem is seen as the result of mobility and connectivity in a dynamic market using talent, capital and creativity, and at the organizational level the most important factors in the entrepreneurial process are resources, opportunities and the team. (Zhipeng Cao, Mei Zhou, 2018, p.1614). Universities had and have an important role in local and regional development and in the implementation of innovation dynamics. This approach can be found

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in “The triple helix model of university” (Etzkowitz, Leydesdorff, 2000) which highlights the creation of knowledge and innovation as a result of inter-institutional relationships between universities, industry and government. A substantial contribution of the university to regional development is the academic commitment represented by research contracts, research in collaboration with economic agents, consultancy as well as non-contractual relations, such as conferences, partnerships with practitioners in teaching activities, guiding students in carrying out the works of completion of studies and internships for students, complementary activities.

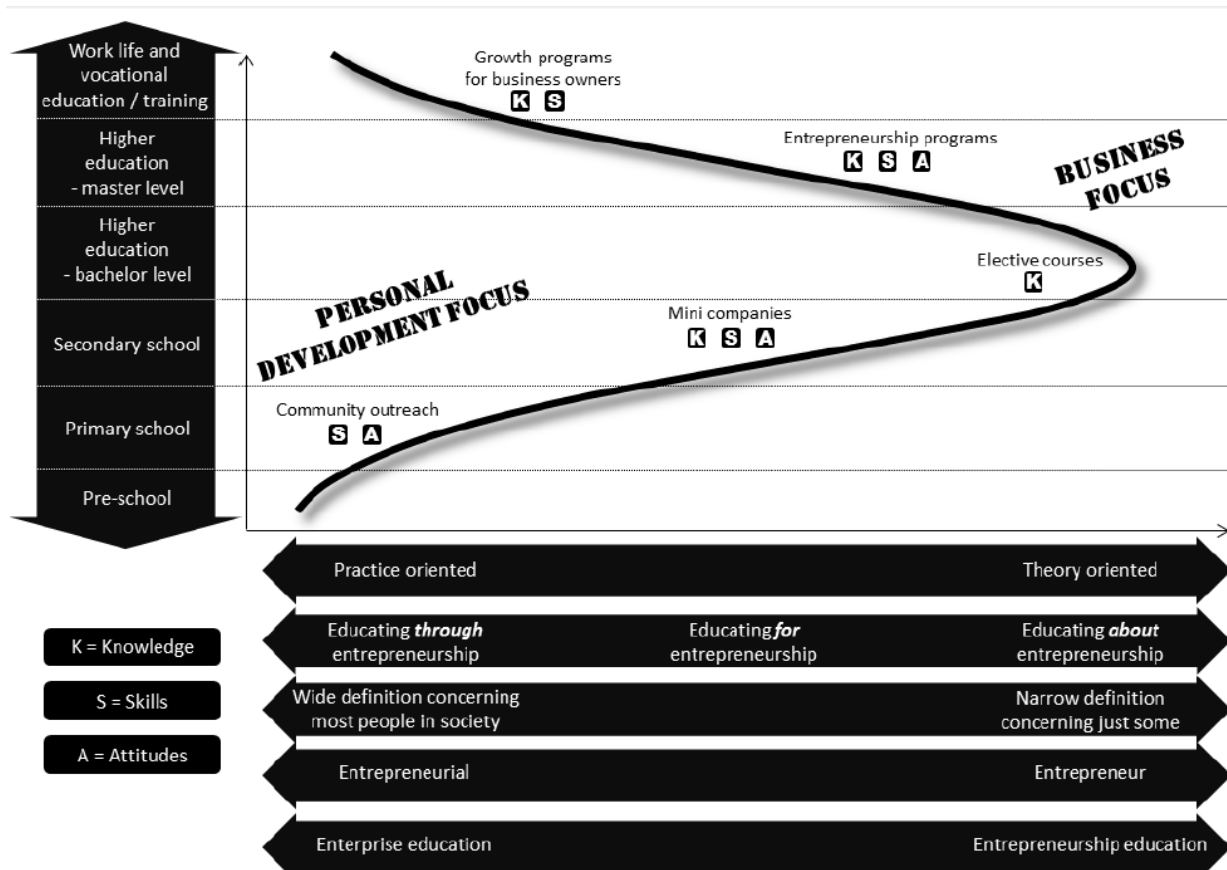
An innovation system that evolves spontaneously and that could also be used in modern universities is the concept of "**collaborative innovation block**" (CIB)", developed by Niklas Elert and Magnus Henrekson (2021, p.1). This CIB innovation system is made up of six groups that bring together their complementary competencies, skills and collaborate to achieve innovation and business success. The six groups include entrepreneurs, inventors, and financiers in early and later stages of business development, key personnel and customers. CE is a collaborative innovation block in which people can fulfill certain roles, but never all of them, each role being the ideal situation, a function. This is the reason why entrepreneurs are constantly looking for new collaborative teams. CIB theory has its origins in the works of Swedish economists Eliasson, 1996; Erixon, 2011, which has been developed with the more recent literature on entrepreneurial ecosystems (Stam, 2013) and the approach to the national entrepreneurship system (Acs et al., 2014).

In the current context, the modern university is seen as an "anchor organization in an entrepreneurial ecosystem" (Lehmann, E s.a, 2020) through the assumed mission of training specialists, developing research-innovation and involvement in the community, using tools and operational structures that make possible the development of knowledge and the transfer of the results of scientific research activity to the economic-social environment. Entrepreneurship is one of the eight key competences included in the Recommendations of 18 December 2006 - 2006/962/EC of the European Parliament and of the Council on lifelong learning and personal development. Higher education institutions have a very important role in the entrepreneurial ecosystem, meaning that simultaneously with the contribution to the continuous development of science, technology, know-how, it also assumes the role of leader in promoting entrepreneurial thinking through academic spin-off (Siegel and Wright 2014; Meoli and Vismara 2016) or technology transfer offices and licenses (Sandström et al. 2018).

Over time, entrepreneurship in universities has gradually evolved. Interest in academic entrepreneurship emerged in the mid-1990s and focused mainly on the creation of spin-offs. The model of the entrepreneurial university inspired the policy in the field of science in many countries. OECD governments have adopted similar sets of measures to stimulate the development of academic spin-offs resulted from scientific research activity and technology transfer (Mireille Matt, Véronique Schaeffer, 2018, p.4). Universities have been encouraged to develop technology transfer offices as a key bridge between academic and business environments. Since the year 2000, business incubators have developed in number, offering researchers the opportunity to get involved in the creation of new enterprises and the development of links with actors in the entrepreneurial ecosystem.

## **2. Education for innovation and entrepreneurship, trend in university education**

In the era of the knowledge economy, *education for innovation and entrepreneurship* has become an educational concept and is manifested as a trend in university education. Improving innovation and entrepreneurial education in universities is a must. From an academic perspective, entrepreneurship education aims to develop skills to train people capable of starting, managing and developing a business.



**Figure no. 1 Overview of terms and definitions currently used in entrepreneurship/entrepreneurial education.**

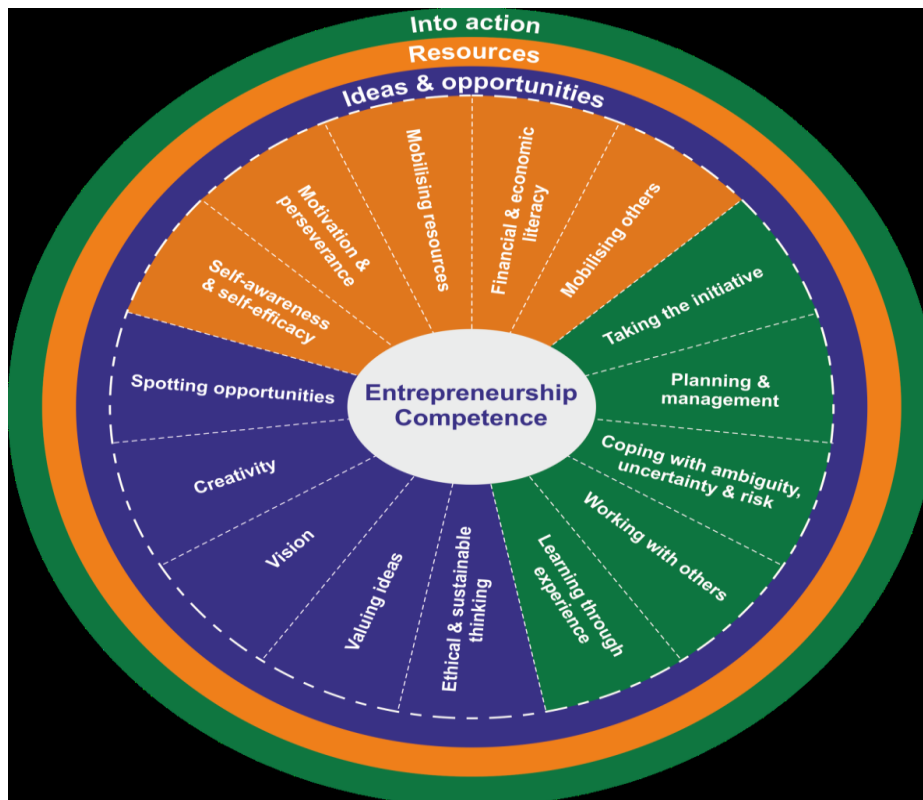
Source: Lackeus (2015), p.8 in Ivana Komarkova, Dimitri Gagliardi, Johannes Conrads, Antonio Collado (2015) Entrepreneurship Competence: An Overview of Existing Concepts, Policies and Initiatives.p.52

Antal Szabó (2019), in the work “Entrepreneurship education in Europe” formulates some recommendations referring to entrepreneurship teaching, recommendations resulted from the experience developed in the field of education and research:

- entrepreneurship can be thought/learned at an early age
- entrepreneurship must be thought of in an entrepreneurial way
- entrepreneurship must contain both knowledge and practical elements
- entrepreneurship must be delivered in an intercurricular manner and in interaction with the business community

In order to support the promotion of entrepreneurial competence in the field of education, the European Commission has developed a reference framework, Entrepreneurship competence EntreComp model (2016) which consists of 3 areas of competence ( Ideas and Opportunities”, “Resources” and “In Action”), each area including 5 skills.<sup>1</sup> *The spirit of initiative and entrepreneurship* is considered a transversal key competence, an entrepreneurial competence that every citizen needs for personal development, to be an active citizen in the knowledge society.

<sup>1</sup> Bacigalupo, M., Kamylyis, P., Punie, Y., Van den Brande, G. (2016). EntreComp: The Entrepreneur-ship Competence Framework. Luxembourg: Publication Office of the European Union; EUR 27939 EN; doi:10.2791/593884.p 7



Source: Bacigalupo, M., Kamylyis, P., Punie, Y., Van den Brande, G. (2016). *EntreComp: The Entrepreneurship Competence Framework.*, p.11

### 3. Designing a model of entrepreneurial education in the modern university, education for entrepreneurship and education through entrepreneurship

Starting from the statement of Lehmann, E s.a, 2020 according to which the modern university is seen as an "anchor organization in an entrepreneurial ecosystem" we proposed and implemented a series of activities to ensure the development of an entrepreneurial ecosystem appropriate to the economic-social context where the University of Pitesti currently operates.

The entrepreneurial education model "education for entrepreneurship and education through entrepreneurship" was built on the following activities:

A first activity proposed and implemented was the organization and approval by the relevant ministry of a **"postgraduate course for trainers of entrepreneurial skills"** that was added to the portfolio of programs run by the Department of Teaching Staff Training. Through the innovative educational content, the postgraduate program aims to develop pedagogical skills as well as entrepreneurial skills, familiarization of teaching staff with new modern and flexible learning resources of the online and interactive type, but also exchange of experience and good practices with entrepreneurs and representatives of some associations of entrepreneurs from Romania within an entrepreneurship workshop. In the development of this innovative curriculum, we capitalized on the experience regarding the training of entrepreneurial skills through innovative learning methods from an international center for assistance and consultancy in management, entrepreneurship and training recognized at the European level. In the implementation of the postgraduate course, we involved experts with theoretical and practical expertise from prestigious universities. Teaching staff who graduated from the postgraduate course of entrepreneurial skills trainers, became entrepreneurial skills trainers for students from all study programs in the university, by providing the entrepreneurship program and entrepreneurial counseling services to students.

For students, we proposed **a set of integrated educational assistance activities, entrepreneurial counseling within a complementary entrepreneurial program that also**

**included the development of support materials specific to the field of study in which the participating students are enrolled.** The educational assistance provided to the students was supplemented with study visits made to companies in the South-Muntenia Region for the analysis of successful business models. The entrepreneurial program was designed to provide students, regardless of the study program in which they are enrolled, an introduction to entrepreneurial theory and practice, aiming to familiarize them with the main issues of entrepreneurial thinking, the factors that ensure entrepreneurial success, encouraging them at the same time to turn a business idea from their field of study into a viable firm, developing their critical and strategic thinking and the ability to identify market opportunities. In the development of the set of skills and abilities provided by the complementary entrepreneurial program, *the establishment of a correlation between the needs of the economic environment and the training capacity* was considered within the program. The foundation of the course theme was made on the basis of the established set of skills and abilities, the modules included being very up-to-date and directly contributing to the appropriate theoretical and practical training of the participants in this program. The program was designed with 6 modules, as follows: (1) Module I: Introduction to the entrepreneurial economy, (2) Module II: The entrepreneur and the business opportunity, (3) Module III: The entrepreneurial process in a strategic vision, (4) Module IV : Financing and Business Performance Evaluation, (5) Module V: Marketing and Sales, (6) Module VI: Human Resource and Business Communication. The applied part of the entrepreneurial program was designed with a weight of about 67% of the total training hours (seminars and laboratory). Within the course hours, knowledge is provided regarding concepts, theories, strategies, methods, techniques specific to entrepreneurship, etc. In the seminar classes (applicative part), students perform analysis based on case studies, role-playing games, debates and challenges in solving concrete problems. In the laboratory hours, the students carry out different projects and simulations, with a special emphasis on computer-assisted learning. ***The added value of the proposed entrepreneurial program***, can be quantified in relation to several target audience categories, components of the entrepreneurial ecosystem, namely students, teaching staff, employers, the local and regional community: (1) **students** – they can acquire additional competencies and skills, complementary to those provided by the study program in which they are enrolled, this supporting the process of a much faster integration into the labor market, either as their own employee or as an employee within a company. Also, through its innovative and attractive character, the entrepreneurship program comes to create an attractive study offer for students, which will stimulate their participation in teaching activities. The entrepreneurial program is designed to help the students discover a new side of their personality - the entrepreneurial one, to develop their spirit of initiative and entrepreneurial vision in relation to a dynamic business environment and a constantly changing labor market. (2) **teaching staff** - the entrepreneurial complementary program offered to students also included the activity of developing didactic materials for each module, respectively a course support in electronic format (PPT and doc.) with the aim of acquiring the knowledge, skills and competencies defined within the program. All the didactic materials developed were made available to students through the university's e-learning platform. Within the seminar and laboratory activities, the applied part of the course was customized - case studies, role-playing games, simulations, projects, etc. - depending on the student's field of study with the help of teaching staff who are beneficiaries of the postgraduate course. Each trainer of entrepreneurial skills has developed interactive learning resources (interactive PPT, interactive PDF, didactic films, worksheets, projects and case studies, etc. adapted to the specific field of the students' study program (3) **employers** who currently emphasize the transversal skills of graduates, while entrepreneurial skills and abilities are key aspects sought by them. Thus, intrapreneurship (developing the entrepreneurial skills of employees) is an essential factor in increasing the efficiency and productivity of employees, considering the fact that, according to studies carried

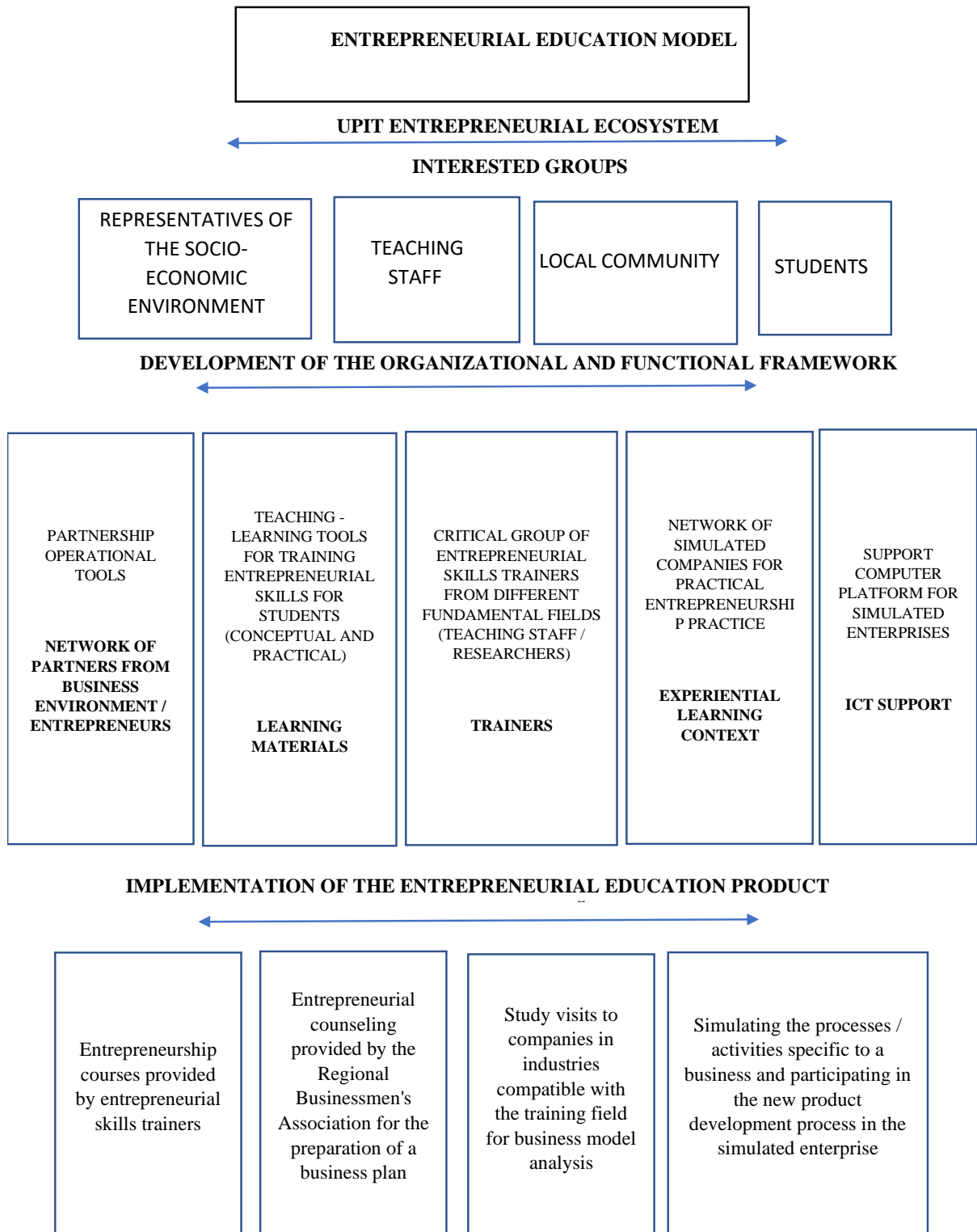
out within companies, an employee with skills and entrepreneurial spirit is more productive, assumes responsibility, has the initiative, is more involved and engaged in the activities carried out, proves his own leadership, is more creative and identifies more easily solutions to various problems of the company. Thus, the entrepreneurship program, complementary to university degree programs, comes to offer added value in the preparation of a human resource adapted to the needs of the labor market and the requirements of employers. (4) **the local and regional community** – the development of a human resource with entrepreneurial skills leads to the development of new businesses, the generation of new jobs, respectively regional economic and social development. The validation of the proposed entrepreneurial program was also achieved with the support of the representatives of the economic environment within the consultations organized regarding the content of the entrepreneurial program and the learning outcomes (targeted knowledge, skills and competences).

The students' theoretical training was supplemented with applied activities in the form of entrepreneurial counseling for the development of business plans with which the students participated in the competition, *My first business plan - start for entrepreneurship!*, competition that aimed to stimulate the competitive spirit and to motivate the students.

Another relevant activity proposed for building the entrepreneurial ecosystem in the modern university is **the scientific research activity to improve the educational offer** in relation to the requirements of the labor market and the needs of graduates, respectively the analysis of the labor market in the South-Muntenia Region and the analysis of the demand of high school graduates for fields of study and bachelor's programs. The research carried out on the labor market targeted representative companies at the regional level, from the perspective of the fields of activity (CAEN code) and size categories to know the demand for qualifications in a 10-year perspective, the main categories of transversal skills required of graduates, qualities and abilities sought by employers, employment criteria, etc. The research on the demand of high school students for fields of study and degree programs looked at the knowledge of the demand for university programs, the educational paths targeted by the students, the behavior of choosing an educational offer and a degree program, the degree of knowledge of the labor market. *The added value of this activity consisted in a job description* from the perspective of the skills, abilities and experience required by the employers and the development of the global skills and abilities profile for each qualification starting from the employers' requirements.

An innovative component of the entrepreneurial education model in the proposed modern university is **the development of entrepreneurial skills for students by participating in experiential learning within a network of simulated companies** connected through the online platform and by participating in an entrepreneurial solutions contest "I want to be an entrepreneur!" Through the operationalization of a network of simulated companies connected through innovative ICT solutions such as the virtual platform, the creativity of young students and the partnership with potential employers are harnessed, the development of an experiential learning context is ensured, where students apply the knowledge acquired during the years of study in real business situations and new transversal - entrepreneurial skills are developed. The network of simulated companies offers students an adequate framework that allows them to acquire entrepreneurial skills, to develop innovative products, to integrate and work in a multidisciplinary team, to stimulate creativity and competitive spirit, to develop the skills of communication and ICT, thus increasing their chances of rapid integration on the labor market or affirmation in the business environment. Each simulated company benefits from consulting and coordination from a group of experts made up of teaching staff and representatives of the business environment operating in fields similar to the simulated companies.

The model developed within the University of Pitesti and implemented / tested in 2020-2022



### Conclusions

The paper presented the experience developed within the University of Pitesti in the field of university entrepreneurship, experience acquired through the implementation of two European projects. University entrepreneurship can be developed, as we have demonstrated both from the perspective of cultivating the entrepreneurial spirit of teaching staff and students, a component of personal development, and as education through entrepreneurship, valuing the creativity of young people alongside the practical experience accumulated by our

partners, economic agents and transmitted through entrepreneurial counseling, through support in the realization of successful business plans and through the creation of innovative products within simulated enterprises. The effort to aggregate the existing resources at this moment in the university environment is highlighted, resources represented by: a. ideas, motivations, imagination, strategic thinking, problem solving, critical and constructive reflection within the innovation process manifested by students and teaching staff; b. the active partnerships developed over time with economic and social agents from the South-Muntenia Region; c. the effort to assume responsibilities by economic agents partners and beneficiaries of the human product offered by the university to support students in the process of professional orientation and career.

### **Acknowledgement**

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