

# *A Literature Review on Entrepreneurial University policies: Definitions, Factors and Theories*

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## Abstract

*The entrepreneurial university model has gained popularity in recent years, as universities seek to increase their impact on the economy and society by promoting innovation and entrepreneurship. Many universities now see entrepreneurship as an important part of their mission and are working to create an entrepreneurial culture that encourages and supports innovation and commercialization of scientific research.*

*This paper is based on the literature review methodology and highlights the essential points about the entrepreneurial university discourse, provides the formal and informal factors that make possible the transformation of a university into an entrepreneurial one, as well as the theoretical models of entrepreneurial approaches.*

*Being new to the entrepreneurial concept, the Albanian universities face a variety of challenges. The current status of universities into the modern society requires them to play a dual role in setting high teaching standards and students' competence-oriented learning and, on the other hand, play a boosting role in innovation and economic development of the country. This paper is of interest to Albanian universities that would like to establish and formalize entrepreneurial policies and overcome implementation obstacles.*

*Keywords: entrepreneurial university; policies, university – industry collaboration, formal and informal factors, theoretical models*

## I. Introduction

The role and contribution universities play in the society are gradually developed in diverse forms (Etzkowitz et al. 2000). The primary purpose of universities has been the teaching process, as an existing knowledge coming from Philosophy (first generation of universities). The second generation of universities begins with the usage of research activities for acquiring, transmitting, and

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companies; Director of the first Community College under the “Harry Fultz” Institute, etc. Author of several publications related to entrepreneurship, entrepreneurship education, leadership in higher education, etc., at home and abroad. She has initiated several projects for UET connection with business, organizing competitions on business plans & ideas, interacted with Chambers of Commerce, creating an entrepreneurial culture within the university, as well as becoming part of European projects on entrepreneurship. During April 2018- March 2019, she has been Head of Management and Marketing Department, UET; April 2019 - November 2020, UET Vice Rector for Institutional Development and Students. Actually, Prof. Qosja is lecturer at “Aleksandër Moisiu” University, Durrës.

integrating knowledge (Salamzadeh et al. 2011). In this generation, research expands among the disciplines with reliable methods, providing scholars with participation in the creation of knowledge (Etzkowitz, 2013). The role of universities in the modern society is the knowledge production, which is very important in the economic growth (Guerrero-Cano et al. 2006). The third generation of universities has an addition in their missions: economic and social development and knowledge transfer (Laredo, 2007). This new mission (Fig. 1) becomes part of the research activities of universities to the external economic and social world (Laredo, 2007), influencing the denomination Entrepreneurial Universities (Etzkowitz, 2004)

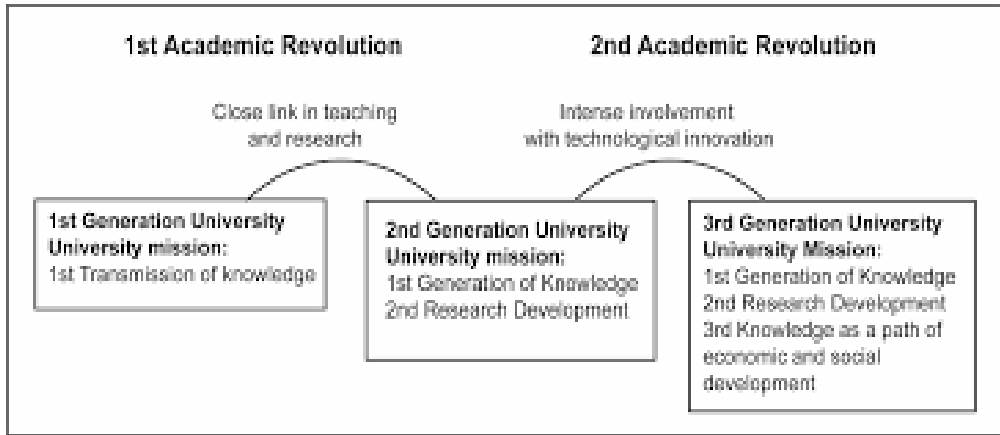
Based on the role universities have, there can be identified five types of universities: *First, the academic university*, focused on teaching students; *second, the classic university*, where research is combined with teaching; *third, the social university*, which takes an active part in the societal discourse, trying to find solution of society's problems. *Fourth, the business university*, where teaching and R&D activities are carried out based on business criteria. *Fifth, the entrepreneurial university*, which has a strong role in the social context within which it operates (Bezanilla et al. 2020).

The entrepreneurial university must fulfil three missions at the same time: teaching, research, and entrepreneurship. The entrepreneurial university needs to become an entrepreneurial organization while its interaction with the environment needs to follow an entrepreneurial approach where the academic staff need to be transformed to academic entrepreneurs (Fig.1).

The Entrepreneurial concept means that the university is one of the main drivers of a social system, for which entrepreneurship can be considered as a process and a result too (Jones-Evans et al. 1999). Other authors define the entrepreneurial university as a centre of development in an innovative society, in a process of transformation, and which, by participating internationally in research and education networks, contributes as an agent of necessary change, but not enough for construction and maintenance of the knowledge society (Hansen & Lehmann, 2006).

The entrepreneurial university means the commercialization of science, the transfer of university technology, licensing, patenting and the creation of start-up / spinoff. In this process, the academic entrepreneurship respects scientific norms and values, in which the academic, in the majority of cases, produces for the university, providing it with intellectual property (Siegel & Wright, 2015).

**FIGURE 1.** The three generations of universities



(Etzkowitz & Leydesdorff, (1997); (Etzkowitz, (2004)

The entrepreneurial university means offering technology transfer offices and science parks, it provides an emerging perspective that aims to provide a broader social and economic benefit to the university ecosystem, with the creation of entrepreneurial thinking for job generation. These involve students, alumni and entrepreneurs, as they also provide entrepreneurship centres, accelerators, student business plan competitions, collaboration networks with industry and alumni (Siegel & Wright, 2015)

The literature distinguishes between the entrepreneurial university, and entrepreneurial education which is applied at all levels of education. Furthermore, within an entrepreneurial university, two important actors need to be distinguished: the academic entrepreneur and the entrepreneurial academics. Academic entrepreneurs are academics that engage “in formal commercialization activities which often result in patent creation, license sales and or the creation of new ventures and spin out firms”. The entrepreneurial academics participate in a wider range of activities that link the university with other organizations, particularly in industry. (Alexander & Childe, 2013). In this sense, the entrepreneurial university offers opportunities not only to students and professors to connect to the outside world, but also to many stakeholders that benefit from this model. The motivation of entrepreneurial academics plays a particularly important role in connecting different stakeholders (Klein & Pereira, 2020).

Collaboration with industry has become an inevitable part of university funding and the funds from international organizations and business enterprises for R&D in the higher education sector nowadays represent a ‘significant source’ in many countries (Rybníček & Königsgruber, 2019)

*The goal of this paper* is to use qualitative literature review methodology as a tool to analyse the concept of the entrepreneurial university, the main theories related to it as well as the factors that determine the existence of entrepreneurial universities.

The research has a particular importance given the stage that Albanian university are developing their entrepreneurial activities, focusing not only on qualitative teaching process but also on internationalization, cooperation with industry and commercialization of research.

Literature review process for this paper has been mainly conducted through platforms such as sciencedirect.com, researchgate.net and academia.eu. The key words used in this article are: entrepreneurial university; university-industry collaboration, knowledge transfer between university and industry. Literature review includes more than 45 articles on the entrepreneurial university policies, and the review of the website of European Commission and OECD.

The research is divided into the following session: Introduction; Definitions of Entrepreneurial Universities; Factors that determine entrepreneurial universities; Models of entrepreneurial universities; Discussions and Conclusions.

The latter sessions of the research paper have a special importance for the stakeholders such universities, academic staff, industry, and policy makers who are focused on establishment similar structures and strategies in Albania.

## II. Entrepreneurial University's Definitions

Researchers have identified several conceptual approaches to the Entrepreneurial University phenomenon, including a series of variables to define this concept. There are some similar characteristics that present the importance of factors which affect universities as follow: activities of academic staff related to entrepreneurship; contribution to the entrepreneurial setting of the society (start-ups, enterprises, etc); internal (re)organization of the university units and decision making.

**TABLE 1:** Definitions of Entrepreneurial University

Year	Author	Definition
1983	Etzkowitz	Universities that are considering new sources of resources such as patents, research by contract and partnerships with private companies.
	Kirby (2002)	Entrepreneurial Universities have the capacity to innovate, recognize and create opportunities, work as a team, take risks and respond to challenges

1995	Chrisman et al.  Dill	The Entrepreneurial University involves the creation of new enterprises by university professors, technicians or students University technology transfer is defined as formal efforts to capitalize upon university research by bringing research outcomes to fruition as commercial ventures. Formal efforts are in turn defined as organizational units with explicit responsibility for promoting technology transfer
1998	Clark  Röpke	An Entrepreneurial University, on its own, seeks to innovate in how it goes to business. It seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future. Entrepreneurial universities seek to become “stand-up” universities that are significant actors in their own terms. An entrepreneurial university can mean three things: the university itself, as an organization, becomes entrepreneurial; the members of the university -faculty, students, employees- are turning themselves somehow into Entrepreneur; and the interaction of the university with the environment, the “structural coupling” between university and region, follows entrepreneurial pattern.
1999	Subotzky	The entrepreneurial university is characterized by closer university-business partnerships, by greater faculty responsibility for accessing external sources of funding, and by a managerial ethos in institutional governance, leadership and planning.
2002a	Kirby	As at the heart of any entrepreneurial culture, Entrepreneurial Universities have the ability to innovate, recognize and create opportunities, work in teams, take risks and respond to challenges
2003	Etzkowitz Jacob, Lundqvist, & Hellsmark	The Entrepreneurial University is a natural incubator, providing support structures for professors and students to begin new intellectual and commercial enterprises An Entrepreneurial University is based both on the commercialization of personalized education courses, consultancy services and extension activities and on commoditization (patents or startups).
2006	Guerrero-Cano, Kirby, & Urbano	An Entrepreneurial University is defined as a university that has the capacity to innovate, recognize and create opportunities, as well as working as a team, taking risks and responding to challenges. By itself, it seeks to discover a substantial change in the organizational character to reach a more promising posture for the future
2011	Salamzadeh et al.	A dynamic system that includes special contributions (resources, culture, rules and regulations, structure, mission, business capacities and expectations from society, industry, government and the market); processes (teaching, research, management processes, logistical processes, commercialization, selection, financing and financial processes, networking, multilateral interaction and innovation, research and development activities; outputs (entrepreneurial human resources, effective research according to the needs of the market, innovations and inventions, entrepreneurial networks and entrepreneurial centers) and aims to mobilize all its resources, skills and capacities to fulfil its “third mission”.
2012	Guerrero-Cano, & Urbano  Audretsch et al.	An Entrepreneurial University can be defined as a survivor of competitive environments with a common strategy, oriented to be the best in all its activities (for example, having good finances, selecting good students and professors, producing quality research). The role of universities is more than generating technology transfer (patents, spin-offs and start-ups) and, on the contrary, contributing and providing leadership for the creation of entrepreneurial thinking, actions, institutions and entrepreneurial capital.
2013	Urbano & Guerrero-Cano	The Entrepreneurial University needs to become an entrepreneurial organization, its members need to become entrepreneurs and its interaction with the environment needs to follow an entrepreneurial pattern.

2014	Melo  Guerrero-Cano, Urbano, Cunningham, & Organ	The concept of the Entrepreneurial University refers to a proactive position of institutions, in the sense of transforming the knowledge generated, aggregating economic and social value. Thus, the basis for a successful performance is the proactive action to adapt to internal and external changes in an evolving society. The nature of an Entrepreneurial University is such that graduates are seen not only as future job applicants, but also as future job creators, and the organization and content of teaching activities reflect this conception
2015	Cunha & Maculan  Tripl, Sinozic, & Smith	Term that characterizes universities in which the dimension of economic and social development gained strength and made them become proactive in seeking applications for their research. The business model claims that universities promote the development of their regions, engaging in patents, licensing and academic activities derived from university disciplines such as engineering, information technology and biotechnology in which the knowledge produced overlaps more easily with products and processes that industry and market structures can absorb.
2017	Etzkowitz	The Entrepreneurial University integrates the economic development at the university as an academic function along with teaching and research. It is this "knowledge capitalization" that is the heart of a new mission for the university, connecting universities with knowledge users more strongly and establishing the university as an economic actor in itself

Adapted from (Guerrero-Cano, Urbano, & Kirby, 2006); (Klein & Pereira, 2020)

Based on the above definitions, the characteristics of the Entrepreneurial University are: *the contribution to economic development with the creation of new ventures; commercialization of research; the organizational adaptation to environmental changes; the managerial and governance distinctiveness; the new activities oriented to the development of entrepreneurial culture at all levels.* Applying these characteristics, the entrepreneurial university can recognize and create opportunities, take risks, innovate, and respond to challenges (Guerrero & Urbano, 2012); (Kirby, 2002). Therefore, the entrepreneurial university is a hub which boosts economic and social development and provides support for internal and external resources by trying to work out a fundamental change in organizational character to arrive at a more promising attitude for the future.

It should be emphasized that the European Commission (EC) support and inspire actions to improve the entrepreneurial capacity of European citizens and organisations. Through several projects, EC improves and promotes the impact of entrepreneurship education in Europe and defines "An entrepreneurial university is a higher education institution which is committed to a culture of entrepreneurship and the proactive discovery and exploitation of commercial opportunities arising from its research and teaching activities a university that actively promotes and supports the creation of new businesses and commercialization of research and innovation." (European Commission, 2023).

The European guiding framework for entrepreneurial universities, called “HEInnovate”, is published by the OECD and the European Commission and includes the most important features for self-assessment of higher-education institutions (OECD, 2012).

### III. Factors that determine entrepreneurial universities

Most of the research carried out has been based on conceptual frameworks that seek to identify the entrepreneurial universities characteristics. O’Shea et al. (2004) proposed several factors that could strengthen the entrepreneurial university: policies that support and promote the process of academic entrepreneurship, top-down leadership, own funding, technological transfer offices and incubators, an entrepreneurial culture, entrepreneurial attitudes and aptitudes, access to venture capital, infrastructures and technology clusters. The literature is limited on the factors that constitute the entrepreneurial university as a whole; research aims to be focused on proposing theoretical models that are yet to be empirically demonstrated (Guerrero et al. 2011). An area of research interest is in analysing factors based on the creation of university spin-offs, which seeks to identify why some universities are more successful at generating them (Fini et al. 2009).

Based on Institutional economic theory, (Guerrero-Cano, et al. 2006) determined the environmental factors considered as framework for Entrepreneurial Universities (Table 2). *Formal factors* have been grouped into *university organizational structure and university government*; *support measures to university start-ups and university entrepreneurship education programmes and courses*; and *informal factors* into an *university attitudes to entrepreneurship*; *entrepreneurship programmes and subject at the university (how –teaching methodology)*, and *role models and the academic university rewards systems*. (Guerrero-Cano, et al. 2006)

**TABLE 2:** Entrepreneurial universities’ factors (Guerrero-Cano, Urbano, & Kirby, 2006)

Formal factor	Informal Factor
University organizational structure and university government, Mission, Organizational structures, Strategic Management, Professionalized university manager, Independence, Flexibility. Support measures to university startups Information, consultancy, incubators, centers to new firm creation, science parks, others. University entrepreneurship education programmes Doctoral, master programmes and undergraduate courses (what and where-transversally)	University attitudes to entrepreneurship, Students, faculty members, academic and other university employees.  Entrepreneurship subject at university How-teaching methodology.  Role models, cases and university rewards systems Success students, faculty members, academic or other university employees. University rewards systems

(OECD, 2013) and the European Commission issued the self-evaluation tool HEInnovate (Higher Education Institutions Innovation). This tool is intended to assess the entrepreneurial and innovative potential of higher education institutions across eight key areas or factors, as follow: *Leadership and Governance; Organisational Capacity; Funding, People and Incentives; Entrepreneurial Teaching and Learning; Preparing and Supporting Entrepreneurs; Digital Transformation and Capability; Knowledge Exchange and Collaboration; The Internationalised Institution and Measuring Impact.*

Errasti et al. (2018) created a model for the measurement of the level of academic entrepreneurship among faculties and universities, based on thirteen factors: *Legal and administrative context; business and organisational context; entrepreneurship funding; training in entrepreneurship for faculty staff; inclusion of professionals from businesses and organisations in the development and delivery of the curriculum; mission and strategy; policies and procedures; support from the management team; organisational design; training and research in entrepreneurship; extra-curricular training; active methodologies; and internationalisation.*

Urbano & Guerrero (2013) based on several studies, that were related to: *Entrepreneurial university's factors that influence academic entrepreneurship; Entrepreneurial university goals; Determinants of the production functions or regional economic growth under the endogenous growth theories; Contributions or impacts of the contemporary universities on the economic growth* (Guerrero & Urbano, (2012); Solow, (1956); Romer, (1986); Coleman, (1988); Audretsch & Keilbach, (2004); Goldstein & Renault, (2004); Bramwell & Wolfe, (2008); Vogel & Keen, (2010); Lendel, (2010) determined the socioeconomic impacts of entrepreneurial universities with internal and environment factors and the potential outcomes associated with them are presented in Table 3.

**TABLE 3.** Socioeconomic Impacts of Entrepreneurial University and Academic

			Socioeconomic	impacts
Activities	Inputs	Outcomes	Determinants	Impacts
Teaching	<ul style="list-style-type: none"> <li>• Support measures (entrepreneurship education)</li> <li>• Attitudes toward entrepreneurship</li> <li>• Resources (human, physical, and financial)</li> </ul>	<ul style="list-style-type: none"> <li>• Job seekers</li> <li>• Potential entrepreneurs</li> </ul>	<ul style="list-style-type: none"> <li>• Human capital</li> </ul>	Productivity gains <ul style="list-style-type: none"> <li>• Mobility (attraction of foreign students and exchange of locals)</li> <li>• Employment (labor insertion)</li> </ul>

Research	<ul style="list-style-type: none"> <li>• Support measures (knowledge and technology transfer)</li> <li>• Attitudes toward Entrepreneurship</li> <li>• University reward system</li> <li>• Resources (human, physical, and financial)</li> <li>• Capabilities (alliances and networks, status and prestige)</li> </ul>	<ul style="list-style-type: none"> <li>• Research talent</li> <li>• Academic entrepreneurs</li> <li>• Knowledge generation (scientific papers)</li> <li>• Knowledge transfer (patents, licenses, contracts)</li> </ul>	<ul style="list-style-type: none"> <li>• Human capital</li> <li>• Knowledge capital</li> <li>• Social capital</li> </ul>	Productivity gains and Competitive advantage <ul style="list-style-type: none"> <li>• Mobility (attraction of foreign researchers and exchange of locals)</li> <li>• Citations and visibility of knowledge</li> <li>• Spillover effects with the local industries and economic agents</li> </ul>
Entrepreneurial	<ul style="list-style-type: none"> <li>• Organizational structure</li> <li>• Governance structure</li> <li>• Support measures (start-ups)</li> <li>• Role models</li> <li>• Resources (human, physical, and financial)</li> <li>• Capabilities (alliances and networks, status and prestige)</li> </ul>	<ul style="list-style-type: none"> <li>• Entrepreneurial university culture</li> <li>• Intrapreneurs at all university levels</li> </ul>	<ul style="list-style-type: none"> <li>• Entrepreneurship capital</li> <li>• Social capital</li> </ul>	Regional dynamics, networks, identity <ul style="list-style-type: none"> <li>• Attract inversion</li> <li>• Increase the number of enterprises</li> <li>• GDP</li> <li>• Social benefits</li> </ul>

Entrepreneurship (Urbano & Guerrero, 2013)

Although the entrepreneurial Universities play an essential role to economic development in different countries, it should be noted that some critics defend thesis that universities should limit themselves to traditional academy-industry relations such as consultation or the dissemination of researches through scientific publications (Etzkowitz, Webster, Gebhardt, & Cantisano, 2000). These authors think that a donor-dependant and money-seeking university might negatively influence its crucial role of independent critic of society.

#### IV. Theoretical models

The entrepreneurial university model refers to a type of university that prioritizes innovation, entrepreneurship, and commercialization of research and development. These universities are typically focused on fostering a culture of innovation and encouraging students and faculty to create new businesses and commercialize their research. The model is often characterized by close partnerships between universities and industry, with universities actively seeking out collaborations and partnerships with businesses to commercialize their research and bring new technologies to market. Entrepreneurial universities often have dedicated programs and resources to support entrepreneurship, such as business incubators, entrepreneurship

centers, and startup accelerators. They may also offer entrepreneurship courses and programs to help students learn the skills and knowledge necessary to start their own businesses. The literature provides eight models, which, based on formal and informal factors, describe the Entrepreneurial Universities.

The first model is suggested by Clark in 1998, who provided the entrepreneurial transformation models of 5 European Universities. He identified that a university to become more entrepreneurial when it has an institutional transformation follows five elements or pathways: three associates with formal factors, a strengthened steering core, an expanded developmental periphery, and a diversified funding base; and two with informal factors, an integrated entrepreneurial culture and a stimulated academic heartland (Klein & Pereira, 2020).

Afterwards, Etzkowitz et al. (2000) explained the mechanism and emergent structures to development Entrepreneurial Universities. It can be obtained thought of next formal process: i) internal transformation that includes a revision of existing tasks, ii) trans-institutional impact with projects that help to archive a stabilization, iii) interface process where a centralized institution to became decentralized and iv) recursive effects with the collaboration of trilateral organizations. Etzkowitz et al. (2000)

Interestingly, Sporn (2001) built a model for studying the adaptation of higher education and connect the university structure and environmental forces thought the management, governance and leadership. In conclusion, she shows six formal factors (missions and goals, the structure, the management, governance and leadership), one informal factor (organizational culture) in the adaptation process, and one moderator (environment). (Guerrero & Urbano, 2012)

The following model was proposed by Etzkowitz, 2004, who studied five inter-related propositions derived from his analysis of entrepreneurial universities in USA, Europe and Latin America. This is a guideline for institutional renovation that includes the follows formal factors: capitalization of knowledge, interdependence with the industry and government, independence with another institutional spheres, hybrid organizational forms and renovation in every time (Klein & Pereira, 2020).

And recently, Kirby (2005) offers seven strategic actions intended to promote an enterprise that has been identified as formal factors those strategic actions related with the organization, the endorsement, the incorporation, the implementation and the communication. And as informal factors those actions related with the promotion, the recognition and reward, and the endorsement (Guerrero-Cano et al. 2006).

Table 4 presents the integration of theoretical elements of each model; the majority has identified both formal and informal factors in their studies

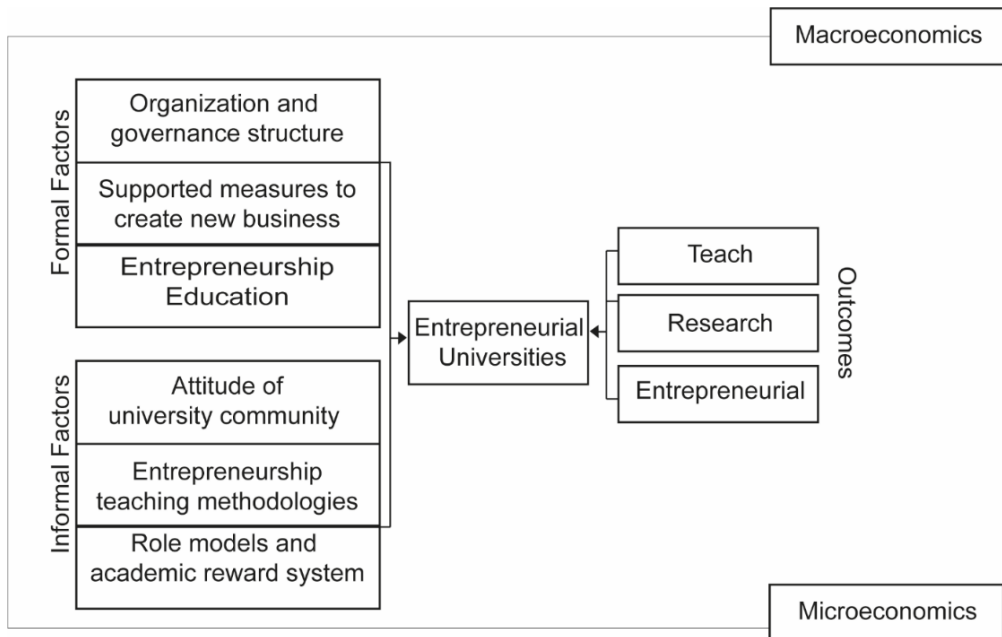
**TABLE 4:** Theoretical models about Entrepreneurial University

Model	Formal Factors			Informal Factors		Moderators
Clarck 1998	A strengthened steering core	An expanded developmental periphery	A diversified funding base	A stimulated academic heartland	An integrated entrepreneurial culture	
Sporn 2001 Model	Mission and goals, Structure, management, governance and leadership		Networks, conglomerates and strategic alliances		Culture	Environment
Etzkowitz 2004 Model	Interdependence with the industry and government and independence with another institutional spheres	Hybrid organizational forms	Capitalization of knowledge		Renovation	
Kirby 2005 Model	Incorporation Implementation Communication Organization.		Encouragement and Support	Recognition and reward.	Endorsement. Promotion	
Guerrero, Urbano, Kirby 2006 Model	University organizational structure and university government	University education  Support university start- incubators and entrepreneurial	entrepreneurship programmes  measures to ups, university others activities	Teaching methodology and academic reward systems	Institutional values, university attitudes towards entrepreneurship, role models	Macroeconomic and microeconomic influences that affect at higher education

(Guerrero-Cano, Urbano, & Kirby, 2006)

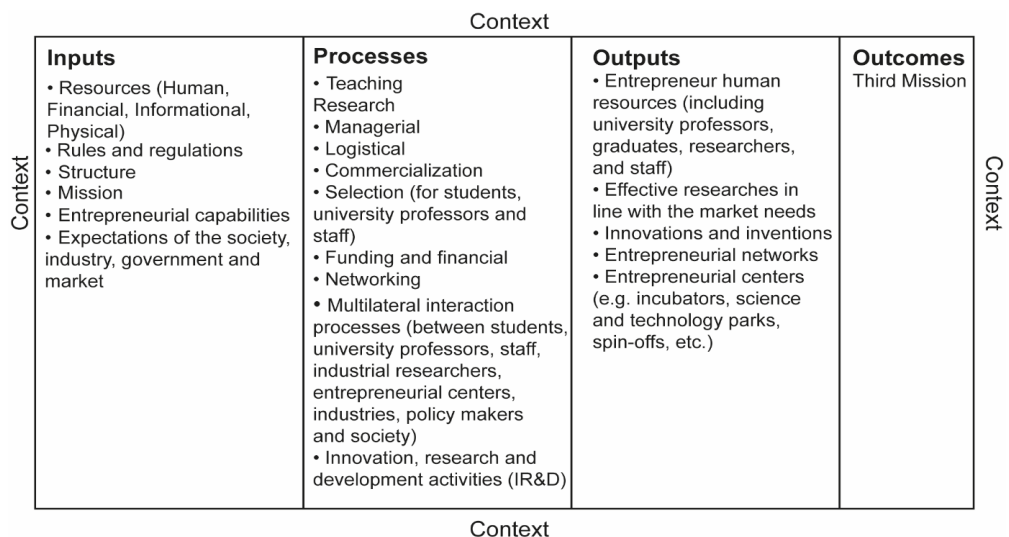
Based on the literature revised and in the light of Institutional Economics, Figure 2 shows the model proposed by Guerrero-Cano et al. (2006) to analyze the factors that affect the creation and development of Entrepreneurial Universities, considering the macroeconomic and microeconomic factors that can influence in this process and finally the outcomes obtained following the three-mission proposed by Etzkowitz.

**FIG. 2.** Guerrero-Cano, Kirby and Urbano 2006 model



Based on the Systems Theory, Salamzadeh et al. (2011) develop an Entrepreneurial University model, with a systematic approach to the IPOO (Input-Process-Output-Outcomes) model. The model originated from the respective research is presented in Figure 3.

**FIGURE 3** - IPOO model (Salamzadeh, Salamzadeh, & Daraei, 2011)



Based on the models of Guerreiro-Cano et al. (2006) and Salamzadeh et al. (2011) *(Sooreh, Salamzadeh, Safarzadeh, & Salamzadeh, 2011) develop a new model* (Fig4).

**FIGURE 4** - Sooreh, Salamzadeh, Safarzadeh e Salamzadeh model

Environmental Factors			Internal factors	
Input	Formal	Informal		
	<ul style="list-style-type: none"> <li>• Entrepreneurial policies and missions of the higher education system</li> <li>• Characteristics of the university manager</li> <li>• Communication channels available</li> <li>• Business courses available</li> <li>• Business programs available</li> </ul>	<ul style="list-style-type: none"> <li>• Potential student intentions</li> <li>• Potential students desire</li> <li>• Feasibility of potential students</li> <li>• Academic intentions</li> <li>• Academic feasibility</li> </ul>	<ul style="list-style-type: none"> <li>• Existing students, academics and staff</li> <li>• Financial resources</li> <li>• Informative resources</li> <li>• Entrepreneurial skills</li> <li>• Expectations of society, government of industry and market</li> <li>• University Entrepreneurial Mission</li> </ul>	
	<ul style="list-style-type: none"> <li>• Organizational structuring</li> <li>• Systems and procedures</li> <li>• State Autonomy</li> <li>• Determination of hierarchical levels</li> <li>• Expenditure invested in support measures</li> <li>• Expenditures invested in communication channels</li> </ul>	<ul style="list-style-type: none"> <li>• Teaching resources</li> <li>• Training teacher</li> <li>• Rewarding environmental processes</li> </ul>	<ul style="list-style-type: none"> <li>• Rules regulation</li> <li>• Teaching methods</li> <li>• Management methodologies</li> <li>• Logistic methods</li> <li>• Marketing processes</li> <li>• Student selection methods</li> <li>• Financing methods</li> <li>• Networking</li> <li>• Multilateral interaction processes (between students, university professors, employees, industrial researchers, business centers, industries, policy makers and society)</li> <li>• Innovation, research and development activities (IR &amp; D)</li> <li>• Reward systems and compensation processes</li> </ul>	
Output	<ul style="list-style-type: none"> <li>• Entrepreneurial network systems</li> <li>• Conglomerates and strategic alliances</li> <li>• Marketing and convention systems</li> </ul>	<ul style="list-style-type: none"> <li>• Custom templates</li> <li>• Corporate culture</li> </ul>	<ul style="list-style-type: none"> <li>• Entrepreneur's human resources (including university professors, graduates, researchers and employees)</li> <li>• Effective researchers in line with market needs</li> <li>• Innovations and inventions</li> <li>• Entrepreneurship centers (for example, incubators, science and technology parks, spin-offs, etc.)</li> </ul>	

This model uses nine blocks: formal, informal and internal inputs; formal, informal and internal processes; formal, informal and internal outputs. In the “input” block, the environmental factors based in the study by Guerrero-Cano et al. (2006) are categorized, while the “outputs” correspond to the elements referenced at the Entrepreneurial University itself through the result of the authors’ research,

The collaboration of the study by Salamzadeh et al. (2011) focuses on the structure of the model and maintains the emphasis on the “input process-output” method and the elements listed. However, this model is developed based on the Iranian context, and the authors emphasize that this one is suitable for that region (Klein & Pereira, 2020).

## V. Discussion & Conclusions

Referring to the Entrepreneurial University’s literature review, there are four areas of research: a) *taxonomy of definitions*; b) *factors that affect the Entrepreneurial University*; c) *effects of entrepreneurial issues on university activity*; d) *measurement of the Entrepreneurial University’s performance*. emphasizing an integration model of learning processes for university innovation (Centobelli, Cerchione, & Esposito, 2019).

From the “Triple Helix Model” approach (Etzkowitz & Leydesdorff, 1997) that investigates the interactions between university-government-enterprise, the literature recognizes the “Quadruple helix model” (Carayannis & Campbell, 2009) that investigates the interactions with civil society and the media. While the “Development Model of an Entrepreneurial University” (Guerrero-Cano & Urbano, 2012) brings as a lens the resources, capacities, structures and attitudes for the development of the Entrepreneurial University (Klein & Pereira, 2020).

Entrepreneurial universities as natural incubators provide an adequate atmosphere in which the academics, students and staff can identify, explore and exploit innovative and creative ideas that could be transformed into new ventures (Kirby DA, Guerrero, & Urbano, 2011). The academic entrepreneurship occurs at the boundaries of different scientific and professional backgrounds. There are critics who doubt that the technical sector is the right place to implement an entrepreneurial university because the concept includes numerous elements of business education and it influences the autonomy of the universities (Krimsky, Ennis, & Weissman, 1991). Furthermore, the entrepreneurial universities phenomenon has gained the attention of academics, governments, and policymakers in developed countries, and the existing literature provides insights about the transformation process of entrepreneurial universities in these countries (O’Shea R. et al, 2005; Guerrero & Urbano, 2012). The literature on entrepreneurial universities is limited for the developing countries (Guerrero, Urbano & Salamzadeh, 2015). In developing countries, the human resources seem to be the most critical element in the entrepreneurial transformation process of the universities, because of the lack of talented staff and low funding from the state (Guerrero, Urbano & Salamzadeh, 2015).

Scholars agree on the high potential of entrepreneurial universities in today's unforeseeable markets. Based on literature review, the steps to go towards the entrepreneurial university are: *Develop the strategic and institutional capacity for U-I cooperation; the formulation of a clear strategy for the U-I cooperation; Develop a culture helpful to thinking and acting entrepreneurially; Increasing entrepreneurial education, appointing the faculty of entrepreneurship faculty; Providing incentives and rewards to academics for entrepreneurship; Incorporate entrepreneurial skills into staff recruitment and promotion; determine goals and measurable actions of different people in the institution; develop a monitoring system; etc* (Ranga, 2020)

It is important to facilitate two-way flows of people, ideas between universities and industries through the participation of business professionals and entrepreneurs in university governance, in teaching and curriculum development; more company placements and internships for students and to develop programmes according to the needs of companies (Kallaste, Poder, Raudsaar, & Venesaar, 2017).

Also, the involvement of policy makers is very important, because the higher education policy should be coordinated with wider economic and social policies. There is also significant opportunity for connecting higher education policy to emerging policies in digitalisation, green transition and industrial transformation (Dinh & Hoang, 2021). The entrepreneurial university cannot be separate from an external environment that promotes innovation and commercialization activities (Din Van Toan, 2020). This environment forms an ecosystem for business development through entrepreneurship support associated with innovation and creativity from academia.

For Albanian Higher Education Institutions context, the entrepreneurial transformation process is still in an initial phase, also different when it comes to public and private owned universities. While private universities have a slightly more developed sense of entrepreneurial activities and autonomous ecosystem, the state owned one still lack the spirit of initiative, creativity, and competitiveness. The overall governance model does not allow much for a systematic model of entrepreneurial universities to develop. Inert alia, the legal and institutional framework should be improved and aligned to promote academic freedom and democratic governance of the three-level governance mechanism (university, faculties, and disciplines). On the other hand, autonomy and accountability of universities is still in a transitional phase, which puts an obstacle into the entrepreneurial university model.

Overall, the above-mentioned challenges should be addressed in a micro and macro level to form an entrepreneurial and autonomous ecosystem for universities as well as foster regional competitiveness.

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