Selected Problems of an Entrepreneurial University - a Theoretical Perspective

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ABSTRACT

The aim of the paper is to identify university’s activities and characteristics that enable it to reorient itself towards the idea of an entrepreneurial university. In the modern world, universities have an additional important role, that is, the need to adopt entrepreneurial strategies without disrupting the quality of teaching and research. First of all, the authors discuss the idea of entrepreneurship and focus mainly on academic entrepreneurship. The idea of entrepreneurship is becoming more and more desirable in a modern organization thus also in a university. The new role of the university is to create the entrepreneurial ideas and attitudes among students and all university employees, as well as to initiate entrepreneurial activities in academic institutions. It is also necessary to plan entrepreneurial university architecture. The article focuses on presenting the theoretical foundations of the academic entrepreneurship process to finally make a synthetic comparison of the features of a traditional university and an entrepreneurial university. The main research question of the article is: In which dimensions the idea of an entrepreneurial university can lead to the development of the university?

The result of the research is a new combination of attributes and characteristics of an enterprising university and new directions of university’s development. By this paper the authors take part in the discussion about the implementation of the idea of entrepreneurship in contemporary university management.

Keywords: entrepreneurship, academic entrepreneurship, entrepreneurial university.

INTRODUCTION

Nowadays, changes in the area of education and higher education into new forms of cooperation between science and economy are related to the process of globalization, dynamic economic and social changes, as well as the development of a knowledge-based economy. In many countries and regions, opening up to business and building capacity to launch entrepreneurial potential among research workers, students and doctoral students is a beneficial and important way to develop universities. The University of Humbolt is a university model based on education and research. It has been extended to include preparation for entrepreneurship, which means shaping active behaviors that enable independent action on the market (the so-called enterprising academy third generation university) (OECD, 2012; Wisema, 2005, p. 31). The concept of entrepreneurship university focuses on promoting the transfer of academic knowledge into companies and supporting the socio-economic development. The first implementations took
place at pioneer universities in the United States, such as MIT and Stanford, defining a university-wide patent policy, establishing a technology transfer policy, setting up university-industry partnerships and introducing new companies. Then the concept became popular in Western Europe, and ivory universities were transformed into enterprising institutions supporting academic entrepreneurs. Another wave of interest in this issue occurred in newly emerging economies, where the promotion of academic entrepreneurship occupies a high place in their political programs. The actual pioneering phase has already started, but for now it is not known what policies or structures are needed to support the effective transfer of academic knowledge and the incubation of new companies, and ultimately contribute to socio-economic development.

THE ESSENCE OF ENTREPRENEURSHIP AND ENTREPRENEURIAL ORGANIZATIONS

Entrepreneurship is variously interpreted, in one approach entrepreneurship is understood as a set of personal characteristics describing a particular way of acting of certain individuals. In this sense, a person is entrepreneurial when characterized by following features: initiative, creativity, imagination, ability to take risks, independence, ambition, and leadership skills. This approach to entrepreneurship is close to the common understanding of the term, meaning ingenuity, breadth, resourcefulness (Bratnicki, 2002, p. 25). Entrepreneurship is determined by (Czerniachowicz, 2012):
- personality,
- individualism,
- professed value system.

Entrepreneurship is much more conducive to traits associated with nonconformist personality. In another approach, entrepreneurship is interpreted as a process of creating and building something new that involves innovative elements. So that the entrepreneurship is inseparable from the risk. H.H. Stevenson and J.C. Jarillo argue that entrepreneurship is a process that is to motivate individuals to create additional value and indicate that entrepreneurship should be treated as an important element of strategic management (Stevenson & Jarillo, 1999). R. W. Griffin interprets entrepreneurship as "entrepreneurship is the process of organizing and running a business and taking related risks", while an entrepreneur is someone "who takes actions covered by the name of entrepreneurship; someone who organizes and runs a business and takes risks" (Griffin, 2002, p. 730). In terms of process, entrepreneurship is also interpreted by R.D. Hirsh and M.P. Peters who say that "entrepreneurship is the process of creating a new value by making the necessary time and effort and adopting financial, mental and social risk, which results in obtaining results in the form of monetary profit and a sense of personal satisfaction and independence" (Hirsch & Peters, 2004).

P. F. Drucker interprets that entrepreneurship as a way the entrepreneur and his company behave. It means the willingness to undertake and solve new problems in a creative and innovative way. It also means the ability to use emerging opportunities and threats, and flexible adaptation to changing conditions. Drucker emphasizes that an innovation is a specific entrepreneurial tool that gives a chance to use resources in a new way and create socio and economic wealth (Drucker, 1992, pp. 34-39). In essence, this author distinguishes three concepts: entrepreneurship in the meaning of the personality traits, "entrepreneurial enterprise and entrepreneurial management", indicating that the personality itself is insufficient and must be supported by the principles and practices of entrepreneurial management. Otherwise the company instead of looking forward and being creative, becomes passive and looks back.

T. Listwan considers entrepreneurial action to be the one that is "primarily related to project initiation, creative problem solving, risk taking, creation and exploitation of opportunities, and flexible adaptation to the environment" (Listwan, 2004, p. 201). He adds that these behaviors are inextricably linked to the competences of an entrepreneurial person. The meaning of entrepreneurship involves an entrepreneur who takes an action to make a change in the world. Whether startup entrepreneurs solve a problem that many struggle with each day, bring
people together in a way no one has before, or build something revolutionary that advances society, they all have one thing in common: action. It’s not some idea that’s stuck in your head. Entrepreneurs take the idea and bring it into live. Entrepreneurship is about ideas’ implementation.

Today in large organizations there are no classic entrepreneurs who would spread the idea of entrepreneurship. Manager and specialists took their place. The phenomenon of corporate entrepreneurship is to spread the "spirit" of entrepreneurship both inside and outside the company. Entrepreneurial organizations are those that are (Targalski, 1999, pp. 134-140):

1. Focused on maximizing the value of the client, which means their inclination and readiness to change the field of operation.
2. Characterized by high flexibility and adaptability, thanks to which they quickly adapt to changing market conditions.
3. Based mainly on human capital and knowledge. They prefer a more participatory, participatory management system, thanks to which they release the initiative and integrate employees with the company.
4. Focused on maximizing the use of opportunities and minimizing threats, which means, among others, that they constantly modify their domain of activity.
5. To create value added and appropriate as much as possible.
6. Looking for new products of balance as a result of permanent search for and implementation of both product and process innovations, they infringe.
7. Characterized by freedom of action, flat structure.
8. Those which reward for the initiative.

Entrepreneurial organizations are those oriented towards change and innovation. The change is perceived as an opportunity rather than a threat. What is more the common belief is that that a company that does not introduce innovations cannot develop itself. In the period of rapid changes, this means losing competitive advantage on the market. Entrepreneurship can be considered in the context of a management approach, which means seeking and using opportunities, and not limiting oneself to the currently owned resources (Korpsyka, 2016).

ENTREPRENEURIAL UNIVERSITY

“Entrepreneurial university” is a characteristic of social systems, that is of entire universities and their internal departments, research centers, faculties and schools. In the conceptualization, universities tend to be entrepreneurial in two main ways. Firstly, academic entrepreneurship focuses on the commercialization of knowledge and research findings. In this way universities are perceived as knowledge hubs with aim to transfer a technology. A second way of becoming an entrepreneurial university is through entrepreneurial education (the university’s teaching mission) to create entrepreneurial competencies among students and employees. Despite of an increasing number of publications on university entrepreneurship scant attention has been paid to the role of context in the emergence and development of entrepreneurial universities. Basing on an extensive literature review, authors of the article conclude that research on university’s entrepreneurship lacks a complexity that is needed to better understanding interdependent processes across different actors, agents, and institutions (Gibson & Foss, 2017).

There are several definitions of an Entrepreneurial Universities and different authors do not show a consensus on the theme (see Table 1).

The entrepreneurial university is a result of complex processes by which institutional forces both shape, and are shaped by organizational and individual actions. A main contribution of this approach is to offer a greater appreciation for the history and unique nature of the entrepreneurial university’s development and operation, in relation to its institutional context, interrelationships, and interdependences (Sperrer et al., 2016).
| Year | Author          | Definition                                                                                                                                                                                                 |
|------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1983 | Etzkowitz      | “Universities that are considering new sources of funds like patents, research under by contracts and entry into a partnership with a private enterprise”                                                   |
| 1995 | Chrisman, et al. | The Entrepreneurial University involves “the creation of new business ventures by university professors, technicians, or students”                                                                           |
|      | Dill           | “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          | 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 |
|      | Röpke          | “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 patter” |
| 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      | “Just as the university trains individual students and sends them out into the world, the Entrepreneurial University is a natural incubator, providing support structures for teachers and students to initiate new ventures: intellectual, commercial and conjoint” |
|      | Jacob, et al.  | “An Entrepreneurial University is based both commercialization (customs made further education courses, consultancy services and extension activities) and commoditization (patents, licensing or student owned star-ups)” |

Nelles and Vorley have developed the university's entrepreneurial architecture in terms of five key dimensions (Nelles & Vorley, 2009):
1. Structures: Includes technology transfer offices, incubators, technology parks and business portal.
2. Systems: Focuses on networks of communication and the configuration of linkages between structures and administration.
3. Leadership: Emphasizes the qualification and orientation of key influencers including administrators, board of directors, department heads, and “star scientists”.
4. Strategies: Refers to institutional goals elaborated in institutional planning documents, incentive structures, and policy.
5. Culture: Refers to institutional, departmental and individual attitudes, and norms (Nelles & Vorley, 2010).

Organizations are made up of rules, laws, formal policies as well as groups or communities from elite networks to civic associations and neighborhood teams. It is therefore important how national and
regional institutions work together to build policies, attitudes and actions to change entrepreneurship inside and outside the university. It is also important how the university affects its regional context (Foss & Gibson, 2015).

Gibson and Foss pointed out how institutional changes should be assessed at three levels of analysis (Gibson & Foss, 2017, p. 2):

1) The Regulative Pillar contains authorized specifications, including regulations, management and monitoring systems. It comes from economics and describes a rational model of behavior, including sanctions, rules and compliance. Therefore, it answers the question: How or to what extent national or regional rules and regulations encourage or discourage entrepreneurship?

2) The Normative Pillar - concerns values, expectations and standards (including roles, repertoires of activities, conventions and standards). University cultures and surrounding contexts can encourage or discourage entrepreneurship, this pillar is important in understanding motivation for or resistance to, behavioural and institutional changes toward entrepreneurship.

3) The Cognitive Pillar - includes predispositions and symbolic values as models of individual behavior regarding individual acceptance of entrepreneurship within universities and their contexts. Are some actors e.g. lecturers, staff, students more willing to support entrepreneurship on the university?

The analysis of the significance of the five architecture dimensions for the entrepreneurial change the take into account the following factors: the number of lecturers and students, the size of research budgets, whether the university is a relatively new institution, whether the university is located in a large city or village. Although no significant patterns have emerged, it is clear that the analysis of each dimension of architecture helps to understand the return of entrepreneurship in each university in terms of: How universities interact with their institutional context in developing entrepreneurship and what actors and forces are the most important in motivating institutional change in development architecture entrepreneurship of the university?

The significance and impact of the regional and national context in which the university is set, regarding the launch, development and sustainability of programs and activities supporting the return of entrepreneurship. As the institutionalists emphasize the continuous influence of the old on the new, all case reports provided examples in which new strategies and entrepreneurial programs entered the existing contexts to which they had to adapt and which supported or impeded the return of entrepreneurship. The institutional change can be initiated "from top to bottom" and "bottom up" by formal and informal leaders and action (Gibson & Foss, 2017, p. 3-12).

Cross-sectional analysis shows that there are different ways to implement the entrepreneurial mission and that every dimension of architecture can be used in many ways. However, in all cases there is a general consensus that these dimensions were important for the entrepreneurial rotation of the academies and regional entities. While context is seen as the overriding determinant, we suggest the importance of identifying the hierarchy of influences in the five dimensions of architecture. The culture is seen as the dominant force that strongly affects the regulatory pillar as well as norms and cognitive orientations of leaders (influences) that are key to implementing effective and sustainable entrepreneurial systems, strategies and structures (Guerrero & Urbano, 2010). However, it is well known that there are important recursive and interactive loops in all architecture dimensions, Figure 1.
Figure 1: Interactive and recursive actions occur across the five architecture dimensions and the three pillars of influence as well as the context in which they are embedded.

Source: Foss & Gibson (2015), p. 271; Gibson & Foss (2017), p. 12.

Therefore, building the "structure" in the first place - without taking into account and involving university and regional leaders, systems and strategies - is not the most effective way to motivate to change entrepreneurship. The development and functioning of such structures is beneficial due to the awareness of the impact of existing attitudes on entrepreneurship at key levels or sectors of the university, as well as the region in which the structure is embedded. There are countless examples of top-down government-planned and funded structures around the world (e.g. science parks, incubators, research galleries) built as a visible and important commitment to a creative and innovative economy that ultimately does not contribute to entrepreneurship in a meaningful and sustainable way or to create wealth, jobs and new technologies (Peris-Ortiz et al., 2017). At the national level, there is also a need to structure policies for innovative research and for creating entrepreneurial capacity that recognizes and rewards established excellence. The challenge is that many institution do not have well-known research traditions. The process of academic entrepreneurship shows table 2. Younger universities have an important role to play in stimulating the culture of entrepreneurship and activity in the region. By contrast, older universities often use established research excellence and more prominent publications achievements and the acquisition of competitive financial rewards. In addition, the financial impact of knowledge transfer from universities varies depending on the regional context. Within one university, there can now be significant professional and cultural differences within colleges and research units, as well as levels of authority among lecturers and administrators, as well as students who realize the return of entrepreneurship (Gibson & Foss, 2017, pp.11-13).
Table 2: The process of academic entrepreneurship
(Source: Brennan & McGowan, 2006)

| Analysis level      | Searching for advantage | Searching for news  | Searching for opportunities | Type of knowledge |
|---------------------|--------------------------|---------------------|-----------------------------|-------------------|
| Entrepreneurial system | Triple helix. University, industry, government | Innovative systems | Entrepreneurial systems | Coded |
| University          | Creation of knowledge    | Production of knowledge | Entrepreneurial university | Embedded, rooted |
| Academic school     | Organization of knowledge to achieve advantage | Absorption capacity | Organizational learning | Educated |
| Routines, procedures| Informal networks        | Learning            | Individual areas and opportunities | Incorporated |
| Researchers         | Differences in individual styles | Climate and creativity | Domain, field of opportunity | Rooted in mind / intelligence |

Given diverse political and market contexts of universities worldwide, there is a clear need for a theoretical lens that addresses this multilevel phenomena in a diverse range of environmental settings (Oberman-Peterka & Strossmayer, 2012). Theory should emphasize that universities are both creatures of their institutional environments as well as active players in these processes. A comparison between a traditional university and an entrepreneurial university is shown in Table 3.

Table 3: Traditional university and entrepreneurial university – comparison
(Source: own study based on Alvarez-Suescun & Salazar, 2014; Olearnik & Pluta-Olearnik, 2016)

| Dimensions   | Traditional university | Entrepreneurial university |
|--------------|-------------------------|----------------------------|
| Research     |                         |                            |
| Orientation  | Science-driven and researchers interest. Monodisciplinary | Basic and applied research. Science and market-driven |
| Diffusion of results | Open: publications and conferences | Open: publications and conferences Restricted: patents, licenses, confidentiality agreements |
| Incentives   | Based on publications and scientific breakthroughs | Based on publications as well as on patents, royalties and creation of new firms |
| Innovation   | Great strength of tradition and attachment to conventional solutions | Openness to innovations in education and science, creative impact on the external environment, investment dynamics |
| Teaching     |                         |                            |
| Objective    | To create scientists and professionals | To create scientists, professionals and entrepreneur |
| Orientation  | Monodisciplinary. Focused on scientific fields, according to faculty’s background | Transdisciplinary/Interdisciplinary. Focused on scientific fields and industry needs |
| Levels       | All – undergraduate, graduate and doctorate | Focused on graduate and doctorate |
| Profile of an academic teacher | Master, authority, sage, independent proclaimer, mentor | Knowledge relay, trainer, advisor, efficient lecturer, academic manager |
| **Third mission** | **Vision** | Searching for truth, disseminating knowledge, educating elites, creating humanity and universal cultural values, serving society | Adaptation of scientific research and education to the requirements of the real economy, market, business environment and local, regional, national and international administration |
|-------------------|------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| **Orientation**   | Development of society’s knowledge repository through research and training | Development of society’s knowledge repository and economic and social development through knowledge exploitation |
| **Contribution to social development** | Improvement of national/regional advantage. Cultural diffusion | Source of intellectual fields and engine of regional transformation through firm formation |
| **Linkages**      | Bilateral cooperation: universities - government | Triple helix: universities – industry – government |
| **International environment** | The large role of scientific contacts, team cooperation, transfer of knowledge and experience | Striving for broadly understood internationalization of the university, openness to comprehensive international contacts |
| **Governance**    | Local government model, the decisive role of academic staff and university bodies | Managerial model, separation of academic self-government and professional management |
| **Financing**     | Focused: State and/or tuitions (to a much lesser extent, donations) | Diversified: State, private, donations and knowledge commercialization |
| **Strategy**      | Limited capacity of response to changes. Institutional isomorphism | Flexibility and adaptation to changes. Differentiation |
| **Leadership**    | Transactional | Transformational |
| **Structure**     | Bureaucratic, rigid. Closed | Flexible, autonomous. Open through intermediary structures |
| **Culture**       | Closed. “Ivory tower” | Open, goal-oriented, competitive, entrepreneurial |

The entrepreneurial university can be seen from the perspective of research, teaching, third mission and management. The entrepreneurial organization should implement basic and applied research for the purpose of the science and the market. Dissemination of results could be open for publication and participation in conferences, but limited in patents, licenses and confidentiality agreements (Alvarez-Suescun & Salazar, 2014). Such an organization should be characterized by openness to innovations in education and science. It should also influence on the external environment and on investment’s dynamics.

The entrepreneurial university focuses on creating scientists, specialists and entrepreneurs. Teaching orientation is related to transdisciplinary and / or interdisciplinary education, focusing on the fields of science and industry needs as well as on graduates and doctorates. The profile of an academic teacher at an enterprising university is very specific. It is a person who transfer the knowledge, ia a trainer, an adviser, an effective lecturer and an academic manager. The vision of the entrepreneurial university focuses on development of society’s knowledge and economic and social development through knowledge exploitation (Olearnik & Pluta-Olearnik, 2016). Cooperation on the basis of a triple helix is very important: universities - industry – government, regional transformation through firm formation and the pursuit of broadly understood internationalization of the university, openness to comprehensive international contacts (Alvarez-Suescun & Salazar, 2014).

An enterprising university characterized by managerial model, separation of academic self-government and professional management (Olearnik & Pluta-Olearnik, 2016). The financing of the activity at the entrepreneurial university should be diversified (state, private, donations and...
knowledge commercialization). The strategy of the entrepreneurial university is characterized by flexibility and adaptation to changes. Leadership must be transformational, not transactional as in a traditional university. The structure of an entrepreneurial university is flexible, autonomous and opened thanks to intermediary structures. Whereas the culture of an entrepreneurial university is open, goal-oriented, competitive and entrepreneurial (Alvarez-Suescun & Salazar, 2014).

DISCUSSION AND FURTHER RESEARCH DIRECTIONS

To sum up, it should be noted that an additional element has joined the traditional elements of the university's mission, education and research, cooperation with the socio-economic environment. This is an important feature of an entrepreneurial university. The university environment includes stakeholders: individual persons, groups of people, other universities, social and administrative institutions as well as market entities with which the university has various relations. The university should identify individual entities in this environment, shape the desired relationships with these entities, maintain and develop these relationships - all in the interest of the university itself and in the interest of the local environment. Universities must respond to contemporary economic and market challenges, they should have the power to adapt to these challenges (Olearnik & Pluta-Olearnik, 2016).

Internationalization is another important determinant of the entrepreneurial orientation of universities (Pluta-Olearnik, 2012). For universities in developing countries, this is a fundamental criterion, since the internationalization of universities is perceived as the developing ability of its cooperation with entities from other countries. The measure of success are international agreements concluded, the participation of students and employees in international exchange, expenditure on projects in this field, foreign employees and students visiting the university, international conferences, the number of international publications, and international research teams.

In Poland, the idea of an entrepreneurial university is gaining popularity, especially during constant economic changes, new social processes, and huge transformations in the education system (Kozłowski, 2001; Pluta-Olearnik, 2009; Gorzelak, 2009; Burawski, 2013). However, implementing an entrepreneurial university concept takes time and is not easy or simple. It depends on the changes in the consciousness, attitudes of employees, mainly university authorities in Poland. There is a demand to give up traditional way of action in favor with modern entrepreneurial university which is opened to the external environment. Changes in the law in Poland should also be introduced. It would be important to reform the centrally enacted law in the country, which is a very strong indicator, and sometimes a limitation of the university's activities. The process of transformation an university into an entrepreneurial one requires many significant and deep changes. One the most important demand refers to modification of academic self-government which should be based on substantiveness and professionalism.

Further work and research can be carried out in terms of identifying internal and external conditions for creating an entrepreneurial university. An important direction of research also refers to the creation of a university model and management of an entrepreneurial university, especially in the context of adapting the organization to new changing trends and a more complex world. Particular emphasis should be placed developing university strategy, public policy and start-up support system. Those are instruments of supporting the entrepreneurship among students, graduates and university staff.

Different perspectives related to the entrepreneurial concept of the university and its role in stimulating economic growth through cooperation with business and government are also important. Additionally, you can search for answers to the following questions:

- What are the key features of entrepreneurial universities?
- How to change the attitude of employees, students, stakeholders to build a coherent concept of an entrepreneurial university?
- What tools, processes and activities should universities use to successfully implement the idea of an entrepreneurial university?
- What opportunities and threats exist when implementing the idea of an entrepreneurial university?
All above questions define further research field.

CONCLUSIONS

In conclusion, it should be noted that promoting entrepreneurship and creating an entrepreneurial university is very important in these times. The concept of the entrepreneurial university aims to promote the transfer of academic knowledge to different organizations and lead to socio-economic development. The growing importance of knowledge in the everyday life is a challenge for an entrepreneurial university. The concept goes far beyond the traditional understanding of the role the university plays in the society. It is not any more just teaching and conducting basic research. Nowadays it is important that universities are well prepared for technology transfer, implementing marketing ideas and registering patents, creating spin-offs that contribute to industrial innovation, job creation and economic growth (Meissner et al., 2018). The enterprising university is also focused on the didactic activity and offers training programs in knowledge-based fields. There is no just 'one the best way' or a kind of 'set of best practices' to establish an entrepreneurial economy. The university-oriented policy is also often interpreted and applied in various ways within and between colleges and university departments. Different universities have different orientations toward the dimensions of entrepreneurial architecture that reflect the context in which they are embedded. Developing entrepreneurship is a complex process that take place on different levels of hierarchy, and is strongly influenced by wider institutional and organizational environments.

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