UNIVERSITY AGENDA FOR DEVELOPING STUDENTS' SKILLS IN THE KNOWLEDGE ECONOMY

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***Abstract**: The topic selection of this paper is motivated by several aspects like its intriguing character, the challenges that promotes, the multiple perspectives it requires and mostly by the potential it has of generating positive effects for society. The roles of the university changed across history enumerating titles as: moral symbols, social etalons, education providers and innovation facilitators, promoters of entrepreneurial talent, economic and civic leaders and mostly as knowledge pioneers. Throughout the content of this paper we argue, in the first section, the major roles that the university played across time, the ones that it presently performs and we forecast its future powers. Within the second section of the paper we connect the paradigm of the 'learning organization' with the strategic knowledge management model for transforming the potential of the university (in terms of intellectual, financial, material resources) into operational (pragmatic) results. The undeniable strategic advantage of universities is that they can equally provide information and knowledge to both the private and the public domain. Debating about the options of transforming a university into a learning organization will provide new directions for the university leaders in order to increase their value creation for society. Throughout the third section of the paper we will present 'the University agenda for developing students' skills in the knowledge economy'. Under this section we approached the major shifts on the labor market regarding the employability skills. Further we provide argumentation for the most wanted categories of skills in the time horizon of 2030, which are considered to be: fluency of ideas, judgement and decision making, originality, active learning, system evaluation, learning strategies, complex problem solving, critical thinking, system analysis, deductive reasoning. In this context we analyzed the university contribution and perspectives as main player.*

***Keywords**: employability; labor market; learning organization; knowledge economy; skills; university.*

Introduction – University role of transferring knowledge

The theories about the influential roles and strategical 'skills' of universities have been intensively debated during the last decades and many of them have been implemented throughout large scale projects. Due to the speedy developments in all areas, education must increase the rhythm of adapting its structure and processes in order to respond to the global market requirements (Altbach & Salmi, 2016; Bratianu, 2018; Hapenciuc et al., 2016; Störmer, 2014; Volkmann, 2014).

During historical stages, the teaching paradigm has switched from teaching knowledge to teaching skills. In this sense, universities have mainly the role of educating students in terms of providing them with the necessary skills for future job tasks. The knowledge transfer of technical and soft expertise towards students represents actually the central part of the university activity. Universities are perceived also as social and civic leaders because there are situations when they can influence the public opinion, they can support a social cause, they can provide consultancy for local development strategies or promote public engagement, community well-being and active citizenship skills (Prelipcean & Bejinaru, 2016).

Today, universities are seen to act like magnets that attract investments and are even assigned the role of economic ambassadors. The presence of a strong university certifies a valuable social and economic environment in which companies can identify the talent resources needed for their field. Universities are given the role of anticipating the needs of the market that are to come and are thus called upon to be involved in creating policies that stimulate research and innovation to increase efficiency and efficacy (Altbach & Salmi, 2016; Bejinaru, 2017, 2016; Bratianu & Pinzaru, 2015).

University needs the skills of the 'learning organization'

In the perspective of this review paper, we will discuss the potential of a university for developing its teaching skills in accordance with the necessities of the knowledge economy. In this sense, we will provide arguments firstly based on the theory of the 'learning organization' and within the further sections, we will argue the potential contribution of the University for delivering the forecasted skills for 2030. The theory of the university as a learning organization is going through its expansion stage and are required new explorations starting from the real world and going toward some levels of abstractions which will allow scientists to reveal new principles and mechanisms able to increase the power of that paradigm. In the same time, universities face today an intense competition as a result of globalization and mostly of the ranking systems which influence their financing resources and their intellectual capital dynamics (Bratianu and Bejinaru, 2016; 2017). Searching for ways of transforming universities in learning organizations will lead to new perspectives for academic leadership to conceive strategies to increase their value creation for society (Chan & Lo, 2007; Davenport & Prusak, 2000; Örtenblad, 2015; Powell & Snellman, 2004; Senge, 1999).

Universities must continuously look forward to becoming learning organizations, in the sense, explained by Peter Senge (1999). Nowadays higher education it is strongly linked with research and innovation and thus plays a crucial role not only in individual and societal development but also in the process of delivering the European Union's strategy, to drive forward and maintain growth in each and every domain. Universities are the main actors responsible to provide the highly skilled human capital that Europe needs in order to create jobs, economic growth, and social prosperity. This role has been designated by a considerable body of academic researchers after evaluating the effects of intellectual property and technology transfer policies on research activity and on academic and business communities (Bejinaru & Hapenciuc, 2016; Barath, 2015).

Well-known authors and researchers of this subject say that universities would greatly benefit if they succeed to become learning organizations (Spender, 2014). This growth

potential resides in transforming their theoretical knowledge into practice and also the individual knowledge of its staff into organizational knowledge. Of major importance is the aspect of universities' adaptation to the features of this new economic and social environment which means continuous change and increasing competition. Nowadays, a new challenge is to prepare students for jobs that are not known at the time of their training and to teach them to solve problems that haven't even been. Thus achieving the functional status of a learning organization will enable universities (and implicitly their stakeholders) to strategically adapt and survive to any possible futures. The sustainable competitive advantage is crucial for universities also. On one hand, companies strive to obtain growing profits and are stimulated to continuously adapt to the changing environment and to consumers' preferences. On the other hand, universities are motivated by a core set of principles in order to preserve the significance of their *social role* (Barath, 2015; Deca, 2015; Duderstadt, 2003; Bejinaru & Iordache, 2011).

The research topic is very complex since learning organizations constitute at this moment desirable knowledge-intensive organizations and the theoretical and practical research are still in the extensive stage. For example, in Romania, debates in this domain are striving to reach the critical mass necessary for implementing adequate changes. Romanian universities are coming out of an over-centralized system and even if they got some autonomy in decision making on curriculum and internal structure organization, they need a great effort to compete against world-class universities and to create value for society at the requested levels of the knowledge economy. Since almost 30 years ago the Romanian Higher Education System represents a testing laboratory for various international processes, norms, and institutions that have contributed in many attempts of reformation during the transition to democracy. Even if the Romanian Higher Education System has been defined as a national and European priority (according to Strategy Europe 2020), reforms in the field have rarely been coherent and with a positive impact on this domain development.

In a recent post of international rankings (SCImago Institutions Ranking) Romanian universities have positions that make us proud and strongly motivates the young leaders. Additionally, there are some better positions obtained on disciplines, which demonstrates that there are some isolated nuclei (as more compact research teams) that generate performance (Deca, 2015). A valid example we consider the fact that "Ştefan cel Mare" University of Suceava, Romania occupies the leader position at inventions and licenses for Romania according to data recorded by the Official Intellectual Property Bulletins published by OSIM (2017) (available at http://www.usv.ro/index.php/ro/17/Proiecte/20/4). Considering together the significant gaps between theory and practice in the field we argue that there is a strong need for academic leadership and for a new vision in order for our universities to become 'learning organizations' which actually means 'knowledge-intensive organizations'.

The widely acknowledged and applied building blocks (Senge, 1999) – have to be re-designed accordingly to each organization, depending on its resources, structure, and potential, as IC and more–and in accordance to its goals, mission, and vision. Limitations of current research works mainly reside in the linear way of thinking which limits the systemic comprehension (as a functional and interdependent whole) promoted also by Senge and other followers. Bratianu (2017) is the Romanian author who widely promoted through his works a superior conceptual approach as the non-linear thinking

models which generate a dynamic type of thinking. We consider it is essential as the non-linear thinking should be used by the university leadership and by university practitioners in order to build a strong organizational culture that ensures development by itself. We don't say that some approaches are wrong and others are right but from our point of view and researching the most prestigious publications and authors - our conclusions converge towards a certain type of approach -that we choose to promote.

University agenda for developing students' skills in the knowledge economy

Related to universities in the knowledge economy, we are considering another globally topical issue which refers to aspirations which have reached the academic mainstream. The academic involvement in technology transfer, firm formation, and regional development represent a step closer to the academic ideal which is the entrepreneurial university. The more the universities become entrepreneurial, the more the chances for tensions between the old (research and teaching) and the new (entrepreneurial) are intensifying (Curtin, 2004; Dawe, 2004; Etzkowitz, 2013; Gibbons-Wood & Lange, 2000).

It is a fact that entrepreneurship education has gained very much interest but despite this successful proliferation remains the question about the real mission of such education programs whether they are meant to provide specialization of students in entrepreneurship, to increase the number of start-ups after graduation, or to facilitate students to acquire the necessary skills, attitude, and behavior necessary to face the competitive environment and to become future entrepreneurs? For these purposes, the actors which drive the learning are either academic teachers, working in higher education institutions, or practitioners, as businessman, managers or real entrepreneurs (Bedwell et al., 2014; Bejinaru, 2011; Davenport & Prusak, 2000).

The necessary set of skills for business success in the knowledge economy can be widely discussed but we shall refer to the top 10 priorities. It is impossible to know for sure which these employability skills will exactly be but from public debates, data and analysis published by European governmental authorities and many other interested authorities and researchers we are able to estimate a few (Bakhshi, 2016; Bedwell, 2017; Choudaha & Van Rest, 2018; Laurillard, & Kennedy, 2017; Powell & Snellman, 2004; Störmer et al., 2014; Zemsky & Shaman, 2017).

Thinking forward we can comment the estimations based on previous happenings and logic deduction. We will further present the categories of skills that we identified as common for the two decades 2020 and 2030 (Table 1). The categories of skills foreseen to be required for both 2020 and 2030 on a global scale on the labor market are *complex-problem solving skills, critical thinking skills, originality skills, active learning skills and judgment and decision making*. These categories have been already debated in a couple of papers (Bratianu & Vatamanescu, 2017; Dawe, 2004; Volkmann, 2004). According to the literature review, we can state that these categories of skills serve a certain type of objectives which are the most popular in a specific time period and context. These five types of skills are necessary for accomplishing tasks like analyzing and deciding the causes of a given problem; generating multiple solutions which will lead to achieving the planned objectives; efficient deliberating for the final solution; complete and effective implementation of plans. For example, good skills of critical thinking will enable the individual to take the best decision when confronted with several options regarding a

certain problem. Originality skills are very useful for business decision-makers because they can achieve novel and unique solutions for certain yet unknown problems which will give them a competitive advantage. Based on active learning skills the processes of adaptation, innovation, and teamwork are easier developed. Due to the complexity of nowadays working environment and multiple factors involved there are required good skills of judgment and decision making.

Table 1. Top 10 skills for 2030
(Source: Observatory of Educational Innovation)

1. Fluency of ideas
2. Judgment and decision making
3. Originality
4. Active learning
5. System evaluation
6. Learning strategies
7. Complex problem solving
8. Critical thinking
9. System analysis
10. Deductive reasoning

Following we shall analyze the new entries, which are: *fluency of ideas, system evaluation, learning strategies, system analysis, and deductive reasoning*. *Fluency of ideas* it is a new type of requested skill due to the speed of today environment. Actually the 'fluency of ideas' is rather considered an ability to generate very quickly a great number of ideas regarding a certain topic. The bigger the number of options the better the ability is considered regardless of their consistency, quality, or originality. The fluency of ideas is possible through lateral thinking and represents the cornerstone for creativity and complex problem-solving. Thus, educators must stimulate students to exercise this skill, mainly throughout brainstorming, because will ensure in the future the facile evaluation of a problem and fast generation of alternative solutions which is actually critical due to the continuously changing scenarios inside and outside the organization. Having skills of *systems evaluation* means to identify the necessary instruments of measurement or indicators of system performance and to propose the actions needed to improve and adjust performance, taking into consideration the objectives of the system. It is rather a white collar type of skills. Next, the skill of *learning strategies* refers to selecting and implementing the appropriate methods and procedures for a self-education process of teaching and learning new contents or activities. Actually, this skill refers to the self-implementing of three learning strategies: intrinsic and extrinsic reflection, seeking help from others and trial and error. In order for students to develop this skill, educators should teach students the mechanism of thinking, the reflection process and problem-solving. In this sense, must be provided a comfortable environment for students to freely express themselves and to receive feedback. Further, we have *system analysis* which represents the skill of coordinating the operations within the systems in order to correspond to the desired outcomes. System analysis skill ensures the necessary supervision of work and the realization of needed changes for the purpose of achieving the scheduled objectives. Last, but not least, *deductive reasoning* is the ability to apply general rules to very specific issues in order to obtain solutions that are suitable in the given context (Choudaha & Van Rest, 2018; Zemsky & Shaman, 2017).

Global trends and scenarios for employability skills

Worldwide surveys, research and analysis forecast, reveal and comment on the trends of the employment market and thus universities should take action in adapting to these challenges. Paying close attention to these estimations, universities must transform their mission of teaching knowledge into teaching skills, but not any skills. Individuals must adapt or even re-professionalize throughout life-long learning which will open new markets that can be developed both by existing and new players, and by public and private players alike (Bejinaru & Prelipcean, 2017).

The necessary skills for increasing employability are changing at the pace of evolutions in technology, human resources, marketing, bioeconomy, environmental sciences, medicine and other areas of great influence for the world's economy and society. In this period of fast advancements in all domains, the major dilemma is what helps graduates more in order to get employed: knowledge or skills? Closely analyzing these categories of skills proposed as priorities for 2030 we should acknowledge that the adequate combination of knowledge and skills will be the most wanted cocktail that employers seek at their potential workers. This is the main reason why universities as knowledge providers and skills' shapers should be the first interested in the evolution and requirements of the labor market in terms of graduates' employability. In this sense, there are other parties which should pay attention to the evolution of jobs like parents, schools, and governments. Even if the major fear about future jobs is that of digitalization, when robots will replace the human work, historically we can observe that industrial automation has created more jobs, growth and prosperity and nor involution nor destruction. Thus, historically speaking we should trust and embrace the advancements in all areas of life. Nowadays students will be the decision makers in the labor market in 2030 and by thinking strategically about the future we can prepare them to face yet unknown challenges. Presently the focus of the education sector should be on providing that knowledge and those skills necessary to bridge together and to generate new competencies for the forthcoming workers (Bakhshi et al., 2017; Choudaha & Van Rest, 2018; Zemsky & Shaman, 2017).

For sure that people, ask so much from the future and thus the combination of our aspirations results in huge challenges that we will work our way through implying the acquiring of new skills which are triggering more stress and restlessness. However, we should count also on the innate ability of human adaptation. In order to achieve delivering these categories of skills for their graduates, universities should "focus on development of key skills and attributes that will be at a premium in future, including resilience, adaptability, resourcefulness, enterprise, cognitive skills (such as problem-solving), and the core business skills for project-based employment" (Störmer et al., 2014).

In Figure 1, are reflected 4 scenarios for the future with possible disruptions for the trends regarding UK jobs and employees' skills. The figure is extracted from the report entitled "The Future of Work: Jobs and Skills in 2030" elaborated by the UK Commission for Employment and Skills in 2014. Within this report are previewed and debated four possible scenarios for the upcoming future – the year 2030 – and for each are emphasized the eventual implications. Throughout the report are suggested potential strategies and actions that employers and individuals might implement in order to get ready for tomorrow's world of work. These new skills were brought to the fore by a

UKCES report (Störmer et al., 2014) and are proposed with the amendment that they must be adapted to the major global trends like demographics, urbanization, globalization, inequality, political uncertainty and climate change. The first scenario called 'The Great Divide' focuses on the disruptive developments. This implies that even if the world experiences great technological and industrial advancements, it is increasing the division of two socio-economic layers which are called the "haves" and "have not". The foreseen situation is that the difference between regions with high and low-income levels and offerings will be obvious. The critical issue will be faced by low-skilled labor force in any domains. In this sense, employers will recur to searching their recruits globally and job tasks will be increasingly developed online via virtual collaboration platforms. The second scenario, called 'Skills Activism' is fueled also by disruptive developments. As previously mentioned, technological innovations bring large-scale automation which will lead to a massive crisis for white-collar jobs. At this point, the government intervention will be necessary throughout programs of skills-conversion. The third scenario generated by disruptive developments refers to the phenomena of 'Innovation Adaptation'. Once more the insertion of high-level technology will make the competition between companies tougher and in order to survive business owners will reduce the number of employees and will invest more in technological endowments. The fourth scenario is generated by the 'business-as-usual' trend which means a 'greater business flexibility and incremental innovation leading to modest growth in the economy - but this flexibility often results in less opportunity and weakened job security for the low skilled. At this point market volatility drives increased flexibility in work arrangements, and temporary or zero-hour employment contracts are the rule in many organizations' (Störmer et al., 2014, p.xv).

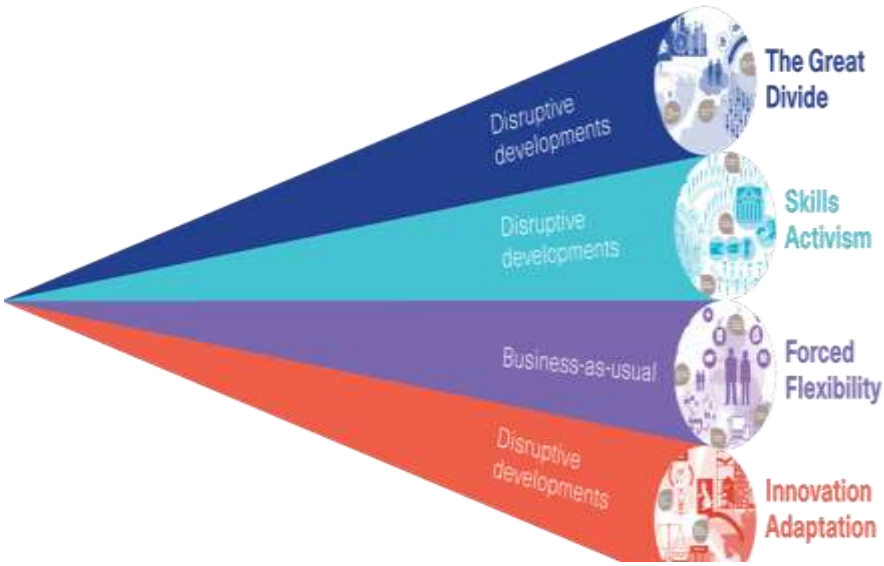

Figure 1. The four scenarios of future work skills in 2030
Source: Störmer et al., 2014, p.XIV

University strategies for providing future skills

Nowadays universities are facing a critical position in the perspective of their stakeholders, whose demands are increasing at the pace of global competition. In this sense, universities must know the profile of their stakeholders because they must comply with global trends, specific requirements of beneficiaries and a certain level of standards (Sin et al., 2016). Universities in emerging countries have a growing interest in raising research and education performance, while the top universities in the world are making efforts to maintain their level and even rise within the global rankings (Wang et al., 2012; Zack, 1999).

Stefan cel Mare University of Suceava is focusing efforts towards strategies for developing its research and education infrastructure, towards building strong and fruitful networks for collaborations with national and international organizations, towards providing educational opportunities for domestic (Romania citizens) and foreign students, towards facilitating career achievement for its personnel. The university leaders have made great advancements towards attracting investments and international funds for implementing complex research projects in several domains: economics, business administration, electrical and mechanical engineering, computer science, food engineering and forestry. We consider relevant to present a couple of the major strategies that the University leaders are undertaken throughout the implementation of complex R&D projects.

The strategy for increasing the capacity of research is developed throughout MANSID, which is the largest project in the university's history, having granted a sum of 6.7 million euro. The overall objective of the project is to increase the multidisciplinary and interdisciplinary Research & Development (R&D) capacity through the development of specific infrastructure and the attraction of young researchers and highly qualified specialists both to the University and to firms with research and development departments in the North-East of Romania. The investment aimed at meeting this strategic objective is the creation of a new R&D infrastructure entitled "Integrated Research, Development and Innovation Center for Advanced Materials, Nanotechnologies and Distributed Manufacturing and Control Systems" (MANSID), comprising 11 research laboratories, equipped throughout this project with more than 130 R&D equipment, out of which 21 pieces of equipment are worth over 100,000 euros.

A strategic approach of the business and social dimensions is being realized by the University under the aegis of the project ANTUR, A Start for Entrepreneurship - Increase Employment in the Urban Area. The project's general objective is 'supporting entrepreneurship and improving entrepreneurial skills at the regional level as a factor for encouraging new business development and employment growth in the North-East Region. Through this project, 37 new non-agricultural businesses will be set up in the North-East Region, in both creative and classical fields, at least 2 in each county of the region and will result in an occupancy increase of at least 74 employees'. ANTUR project has a budget of 1.8 million euro and will develop during a period of 3 years. Considering the entrepreneurial initiatives, the University manages a business incubator – *INCUBAF*, where students have the opportunity of learning the experience of starting their own business benefiting of experts' consultancy.

SOCERT, Knowledge Society, Dynamism through Research had the general objective to improve doctoral and postdoctoral research programs by supporting collaboration between universities and research institutes as well as developing human resources in research, in particular by providing financial support to doctoral students and postdoctoral researchers to increase motivation for developing a career in research and ensuring career debuting, including by participating in mixed teams (doctoral students, postdoctoral researchers). The project will generate a positive long-term effect through the selection of doctoral students and postdoctoral researchers based on specific criteria related to the relevance of the research theme, financial support, and intensive monitoring during the implementation period on strengthening the scientific publishing capacity, diversification of training and development cooperation and transnational mobility.

The successful implementation of these projects is providing the necessary framework for advancing research, for increasing the number of innovations, for improving the quality of services offered to students, for increasing staff opportunities of research and networking, for extending the university's visibility, for building teaching and research infrastructure and more. In the recent years, "Stefan cel Mare" University of Suceava has raised in international rankings like the SCImago Institutions Rankings (SIR) that "is a classification of academic and research-related institutions ranked by a composite indicator that combines three different sets of indicators based on research performance, innovation outputs and societal impact measured by their web visibility" (available at https://www.scimagoir.com/methodology.php). These are only a few of the initiatives developed by Stefan cel Mare University of Suceava in order to improve in the strategically important directions. The projected strategies emphasize even greater aspirations for the future, like growing the internationalization, developing more the entrepreneurial capabilities of the university, increasing the quality of education and research and finally rising the prestige of the university.

Conclusions

The main purpose was to search for the most significant factors and conditions able to influence universities in developing as learning organizations and to discuss their opportunity in the context of the knowledge economy. In more detail, we approached the top ten skills required for the next decade -2030 in the business sector and not only. The network between the labor market and the education market is supported by the skills matching, the ones that are searched for add the ones that are offered. The bottom line is that universities have no choice but to acknowledge, accept and adapt to market needs. At this moment, it is universities 'job' to provide for the outside stakeholders and in this sense, they need to know which are the new necessary skills, to understand what are these skills useful for, how will be these skills performed in order to prepare their students accordingly. Within the paper, we discussed these categories of skills, which are totally different from those of years 2000, and to explain the causes and the effects that will be generated within the global market. Further, we considered relevant, as a study case, to present a couple of strategies developed and implemented by Stefan cel Mare University of Suceava.

As a vector of nowadays society, education contributes to the development of social and economic domains which in turn contribute to raising the life-level of the individual. Nowadays, universities should switch from creating adaptation knowledge to produce

generative knowledge, and to become learning organizations. Institutionally speaking there must be created at least a basic impact of acknowledging the actual state of universities' evolution towards the pattern of a learning organization which should be viewed as a strategic road.

Although the global competition between universities can be stressful for the institutions involved, for the states and economies they belong to, we must promote the idea that from this competition philosophy everyone has to win. Thanks to this competition, partnerships are realized, opportunities are created, knowledge is enriched and research and activity fields are expanded. Unlike other organizations that break into the competition chaos, universities retain their mission of serving the world's hopes: to solve cross-border challenges; to unlock and harness new knowledge, and to build cultural and political cooperation.

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