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Innovation Management and information Technology impact on Global Economy
in the Era of Pandemic

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The “Third Missionary” Impact of Universities Through A Regional Example

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Abstract

We live in a dynamically changing world where the role of higher education can also be highly variable. It is already a social and economic expectation for higher education institutions to expand their core activities, in addition to education and research, with a third mission. Academies not only have the opportunity, but also the responsibility to deal with the challenges of civilization and nature, to take on social roles and to set an example therefore the appreciation of environmentally conscious fourth generation universities has been examined. Despite the potential suction effect, examples of the presence of narrower regional embeddedness have been sought for and supported with by a primary research with 1450 responses.

The answer to the question of where a specific university in Hungary, located within the reach of triple border and thus physically international global universities, ranks among the generation universities has been looked for. Does it play the third mission role in a highly competitive environment? The conclusion to the question is that, considering the 150 km mobility catchment area, the socio-economic relationship and regional embedding of higher education and the region are strongly present. The regional socio-economic embeddedness is further supported by dual training.

The suction effect of the surrounding regions highly depends on the adaptation of the management methods and tools by the university, such as the service company model, quality vs. mass training; globalization locality, marketing tools, loyalty, communication, IT applications, graduation model, latency adaptation. The change in the model of higher education in Hungary is currently developing, therefore the paper could serve as a null basis for further researches and analyses.

Keywords: Fourth Generation Higher Education; Social Responsibility, Service University; Academic Trend;

Introduction

The impact of education and intellectual capital on economic growth is increasingly being recognized by governments around the world. One way to accumulate and increase intellectual capital is to strengthen and expand the higher education sector.

We live in a dynamically changing world where the role of higher education is also changing. It is already expressed as a social and economic expectation for higher education institutions that, in addition to their core activities, education and research, their function / activity will be expanded with a “third mission”. The three-pillar model consist of education, service and research (with development and publication). This primarily means being able to transfer and utilize the knowledge and resources accumulated during the two core missions to partners outside the academy as effectively as possible. In the age of the technological revolution and environmental crises, the role and field of higher education is becoming more valuable. The complexity (opportunity and threat) of the globalization of higher education lies in providing training for the global economy, seeking answers to the challenges and contradictions of globalization, and linking globalization processes.

In addition to their tasks is teaching and research, the internationally successful modern third-generation universities also carry out so-called “third mission” activities, within which, among other things, they are flagships of local economic and business development. They have not only the opportunity but also the responsibility to deal with the challenges of civilization and nature. They shape, make livable, generate their economic and social environment, make the economy humane, and are already considered as fourth-generation universities. But where are we in this renewal?

Corporate cooperation with higher education in Hungary reported a level of 12% a couple years ago, while in neighboring Austria this number is around 23%. In foreign countries, institutions with specialization are mostly responsible for the research service, in Hungary, primarily university collaborations fulfil these tasks. (Inzelt, 2018)

Concluding the work of economist Schumpeter: one of the most influential factors in the development of the economy is innovation. The innovation of education is the task of the present. While education 1.0 taught through lectures and memorization, education 2.0 introduced the use of technology and the Internet connection, and then education 3.0 focused

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on knowledge production. Today, education 4.0 means an innovative production in education. (Plaisent et al 2020 cit Siltharm, 2017),

The transition from state-owned to state-public forms of higher education governance and the implementation of innovative leadership forms and methods require a reform of the governance model of higher education, which must ensure its competitiveness. (Levchenko et al 2020) In the model of higher education in Hungary a shift from state ownership and operation to the non-profit state-owned operation form has recently started.

Technology itself is a catalyst for change. The global education technology market should grow to \$ 342 billion by 2025 (Plaisent et al 2020. cit. HolonIQ, 2019). According to Darling-Hammond (Plaisent et al 2020. cit 2019), the increasing introduction of technology in education is inevitable. The best jobs of today did not even exist ten years ago, which also supports the primacy of educational renewal.

The need to constantly adapt to change due to the dynamism of the sector is a fundamental challenge (Pilar, 2007). Improving the training of professionals greatly increases both the overall quality of services and also the level of quality of information provided to clients (Paulo Morais et al. 2020)

Defining its quality criteria influences the good development of the academic program and helps to overcome the limitations of space and time. Virtual training is based on autonomy, self-learning, learning the process of learning, time management, and prioritization of future competencies. (Palacios Osma et al 2021)

This process of implementing education requires a paradigm shift on the part of the academic community, a step that can be developed gradually and progressively to create new conditions and competencies. All teachers and institutions are gradually assimilated and adapted, thereby guiding the student to the pedagogical and didactic use of information and communication technologies (ICT) for their professional training. (Palacios Osma et al 2021 cit Sousa & Gonzalez-Loureiro, 2017).

The literature views globalization as a factor in the development of higher education, defines the general trends in the development of higher education in the context of globalization: it highlights massization, internationalization, and informatization as leading trends. In my opinion, the fourth generation university sets flexible boundaries for this, putting the regional social role as a local economic catalyst in the foreground. Knowledge-intensive activities based on intellectual capital make a significant contribution to both the economic and academic development of a given region.

In my research, I am looking for the answer to the question of where a triple border university in Hungary - which is physically located within reach of international global universities - ranks among the generational universities, and whether it fulfils the "third mission role" in a strong extraction environment.

Methodology

Several methods have been combined in the research. The literatures of the third and fourth generation universities and the different contents of the university triad have been examined, leading to the exploration of the potential repository of the third mission expectations of a triple border university. One of the branches of the relationship with the region is the extent to which the institution responds to the needs of the region for further learning. During the last 4 years the researcher focused on which cities or agglomerations the students came from. (1450) In addition, the results were assigned to the official geographical coordinates of the cities and then plotted onto a map for a better visualization.

The quality and quantity of relationships with companies are also considered as one of the main branches. For the descriptive research, in-depth interview with the staff of the academy were conducted, in which the researcher surveyed which companies and organizations they are related to. In examining the quality of relationships, the effect of company appearance and the level of their presence in that process are also taken into account. Students were also interviewed in order to have a deeper understanding of their experiences and how they want their institution to fulfil the role of a regional university. Data collection for this branch is still in progress at the time of writing this sub-summary.

Based on the results of the research, the aim of the study is to discover how prevalent the third mission leg is at a border university and to position it when the national and international trends are also taken into account. The research draws conclusions on the stability of the level of achievement, as well as explores the opportunities to further expansions of the third mission. In addition, it also provides a good example for international practice.

Result

41.15% of students between 2015 and 2020 have become "citizens" of the university from the closer regions (NUTS 221), 23% from the wider (150km) catchment area (part of NUTS 222-223), and almost 30% from the remaining regions of country as a whole. 6% of students residing abroad are commuters living in cross-border catchment areas, the majority came from classical remote countries. Graduates receive training recognized by the recruiting market, Alumni information allows them to position themselves in the job market, bounty hunters are always looking for the students with the best results. In case of the examination of the third mission of the research, the regional embeddedness is present on the basis of the students' place of residence. Based on empirical experience and student responses, the structured destination brand identity of the university

is on an evolving trajectory in the regional field, which can be interpreted as a repercussion of the third missionary activity, education and research pillar. Dual training and corporate collaborations at different degrees of maturity are also present.

FIG 1. 2015-2021 enrollment rates
(own edit)

Figure 1. illustrates the obtained results. For strategic reasons, the names of the cities or the map details are not included. The figure clearly shows a strong enrollment presence around the headquarters (green marking). In the figure, the dot illustrates the cities, the circular arc illustrates the catchment areas.

Maturity models are vital as they allow for a clear, accurate vision of the aspects needed to evaluate organizations, including academic processes. Cooperation – just like the economic actors - can be at different levels of maturity, and it has never been a precondition the only mature companies can be good partners. Collaborations take many forms and intensities, from consultations to joint researches, and can depend to a large extent on the environment, the human side of the actors, the abilities and skills of the actors.

Employment and the labor market are changing in quantity and quality. Meeting the needs of employers is a dual education service. Regional socio-economic embeddedness is also served by dual training: the assessment of the skills of applicants for a given company is proactive, so in addition to knowledge, companies can also measure their readiness for work. There is a two-way flow of human resources between the two sectors: mobility to and from the department, to and from practice. This is the confidence-building effect of the third mission on the other two pillars (education, R&D) in practice.

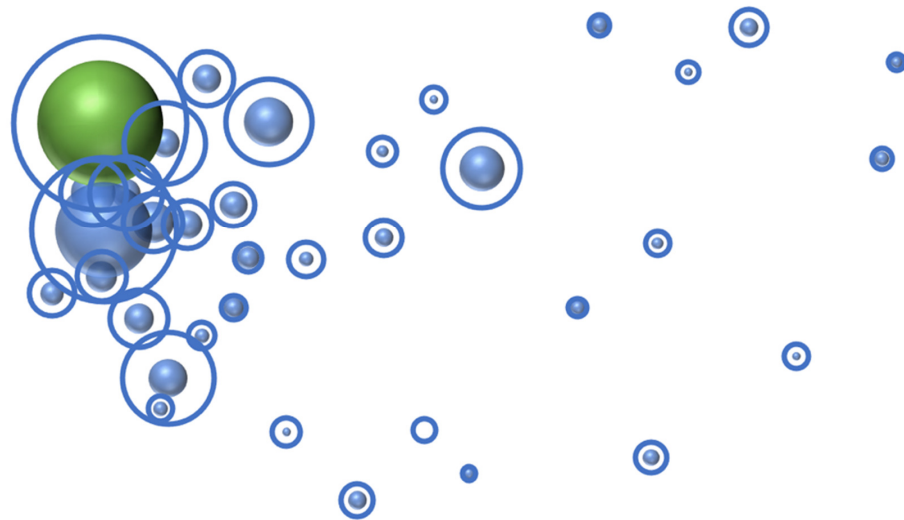


FIG. 1: 2015-2021 enrollment rates
(own edit)

Conclusion

In a stronger competitive situation than before, collaborations need to be broadened, while the globalization and the virtual space also have the draining effect of international collaborations and foreign universities. Agreeing with Wong and Wong (2020), strong competition has led higher education institutions to recognize the importance of student retention. It is cheaper to keep the student than to recruit a new one, so loyalty, emotional connection and other customer satisfaction patterns came to the fore. The supply of higher education opportunities today exceeds demand, which means excessive competition between self-financing institutions. It is a question of whether institutions are able to evoke a sense of loyalty which is already the third mission task of self-financing academies.

Since universities act as service companies, students should be treated as customers, management needs to adapt and apply management methods, marketing strategy, business models to strengthen the business and innovation approach. In order to consider higher education as an economic sector in its own right, stakeholders must be the main driving force in the region's higher education and research and service ecosystem.

One of the negative effects of globalization is the academic suction power from the regions, which in this case is not the same as inspiring exchanges. Different countries contribute to and ensure competition, scientific initiative, and scientific and technological development through the standards of the European Higher Education Area.

Currently, a predominance of third-generation universities is emerging. In academies, the main direction is still mass education for normative support, while becoming research universities mean an additional gain in reputation and financial reasons.

Fourth-generation academies have sustainable regional economic power that makes the world a better and more livable place, and the flow of innovation and academic knowledge through business have long-term benefits also for the public. The knowledge-intensive service sector is expanding, and the service itself, as an economic factor, requires an ever-increasing slice of the cake of the economy.

However, the third mission is not equal to offering the services in general, its economic, social and human aspects are also significant. The direction of the mission itself can be vertical and horizontal in interaction with many external and internal actors.

The use of IT accelerated by the pandemic has given rise to more frequent interaction between teacher and student, student and student, teacher and teacher, but the regulation and technical background of the home office is still incomplete. Patent awareness is also deficient, the presence of university patents and know-how are also rare. Foreign partner universities and corporate partners are the primary patent applicants. The ability to invent and the competence to patent do not go hand in hand and are not yet implemented in a given research organization, in this case a university. There must be a conscious aspect of the multi-corporate relationship, the "standing on several legs", as the difficult situation of the company entails the support of the given faculty and institute.

The result of the empirical research is that universities in general are mainly motivated to have international contacts and partners in order to gain access to third-generation financial resources and international funds, rather than exploiting national or local opportunities and becoming a fourth-generation university with a committed regional development opportunity.

Dual training with competence development, new university leadership approach for effective strategy planning and decision making, third mission support in skills development, teamwork, "preparing for the world" adaptability, organizational climate, digitization, virtual space, managing ethnic and cultural diversity, relationships, service programs, mentoring groups, moral, ethical development, the increased role of the human factor are just a few of the opportunities from the third mission of the future university and regional engagement. It is clear that it is inevitable to raise awareness of this mission, to integrate it into university strategies, to develop a methodology, and to develop the concept of a service university.

By increasing the Academy's social responsibility and embeddedness, the "third mission" brings together and promotes non-educational research activities in the areas of innovation, sustainability, climate protection, digitization, corporate relations, economic competitiveness, basically includes everything that cannot be categorized by the first two pillars. Innovation activity is the utilization of the knowledge created by higher education, its economic and social presentation and embedding outside the academic environment.

Increased adaptation to the latent needs of the labor market, the creation of systems for assessing the quality of education, and the mobility of students and teachers will result in high-quality and creative human resources and professionals. Regional intellectual capital ensures the innovative nature of the economy and the competitiveness of the country and the university on the international level.

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