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Modern universities in a digital environment

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MODERN UNIVERSITIES IN A DIGITAL ENVIRONMENT

MODERN EGYETEMEK EGY DIGITÁLIS VILÁGBAN

Lukovics Miklós
Zuti Bence

Abstract

Nowadays the digitalization of all aspects of our lives is becoming more and more general. This pattern is also true in case of modern institutions of higher education. In case of the operation of universities, we can identify a shift towards a growingly increasing approach, which is proactive strategic thinking done by university management. Many successful examples throughout the globe prove that universities may positively affect the level of economic development in given regions. This can happen with the collective presence of three key activities carried out by these institutions. Excellent education, successful research and embedment in the local economy are all necessary activities. It is recognized that without a proper knowledge management system, universities are less competitive. They need to possess outstanding IT-infrastructures, large databases and host professional forums that can enhance knowledge transfer. Thus, knowledge management and a vision for digitalization in the everyday lives of universities should be considered as an integral and inevitable part of university strategies. The study has two goals: It attempts to identify, how digitalization can contribute to the excellence of the first mission of universities and also examines the role of modern universities in activities that can enhance knowledge-transfer.

Key words: knowledge management, third mission, modern universities, digitalization
JEL codes: I20, I25, O30.

Összefoglalás

Napjainkban életünk számos aspektusára érvényesíthető a digitalizálódás. Ez a minta a modern felsőoktatási intézmények esetében is igaz. Az is észrevehető, hogy az egyetemek vezetése kapcsán egyfajta eltolódás mutatkozik meg a proaktív stratégiai gondolkodás követése felé. Több sikeres nemzetközi példa bizonyítja, hogy az egyetemek pozitív hatással lehetnek a helyi gazdaság fejlődésére adott régiókban, ez többnyire három kulcsfontosságú tevékenység magas szintű művelésének következménye. A kiváló oktatás, a hatékony kutatási tevékenység végzése mellett a helyi gazdaságba való beágyazódás mind szükséges feltételek ennek kapcsán. A megfelelő tudásmenedzsment rendszer megléte nélkül ma már az egyetemek kevésbé versenyképesek. Kitűnő IT-infrastruktúrával, nagy adatbázisokkal kell rendelkezniük, helyt kell adniuk különféle akadémiai, szakértői fórumoknak. A tudásmenedzsment, illetve a digitalizálódás trendjének felismerése integráns részét kell, hogy képezze az egyetemi stratégiáknak. Jelen tanulmány célja kettős: Egyrészt megkísérli azonosítani, hogy a digitalizálódás hogyan tud hozzájárulni a kiváló oktatási tevékenység realizálásához, másrészt pedig a modern egyetemek szerepét vizsgálja a tudástranszfer-tevékenység sikeresebbé tételében.

Kulcsszavak: tudásmenedzsment, harmadik misszió, modern egyetemek, digitalizáció

Introduction

Nowadays, our world is immensely digitized, the exchange of data and information is constant. Humanity has in possession of so much data that we can experience a unique paradox. As it is impossible to interpret all existing data, we are forced to filter this. We only process data that is important to us. The revelation of this set of important data is quite a challenge. Sometimes this isn't even enough, as the method of the utilization of this data is also a crucial factor (Lang 2001).

The art of this process can be considered as efficient knowledge and information management. Every knowledge management system has a purpose, which is mostly the assistance of decision making, promotion of cost-efficient processes and institutional strategies and also the introduction of new business models. As universities highly rely on sharing information and knowledge, the conscious operation of knowledge transfer activities is inevitable (Oprea 2011).

As the competition among universities strengthens, and the connections between universities and business actors deepen, there is also a new trend that emerges. This is the spread of digital technologies in higher education. Besides traditional courses, there are many online or virtual courses that are available for the students. The traditional framework of education sometimes is not enough. Many universities aim towards the spread of experiential education, mainly to satisfy the needs and expectations of Generation Y and later on, Generation Z students (Plymouth 2014).

University Generations and the Utilization of Knowledge

Local embedment is even more and more emphasized during the everyday operation of modern universities, as new needs are emerging from economic and even social aspects. The university needs to potently react to the current trends. Recently there was a great number of changes in economic, financial and social circumstances that led to the fact that universities tend to explore their environments in a broader perspective. They also decided to be more committed to local economy and society. They are open to affiliate with innovation endeavors and local businesses. The formation of these types of universities is a result of an adaptive process. Adaptivity is a crucial feature, as there are numerous arrangements globally that requires effective adaptation skills [Clark 1998, Clark 2001]. Clark (2001) and Chatterton and Goddard (2000) defined certain types of universities that have a decisive role when it comes to the dissemination and utilization of knowledge.

The university of Clark (2001) possesses a more entrepreneurial perspective. This type is always striving after renewal and contemporaneity. The entrepreneurial university tends to be exploratory and has a strong identity. The basis of its operation is a management-oriented leadership and the exploitation of local characteristics. The attraction of knowledge and knowledge-workers is significant in this case, as this is the base of its development.

Chatterton and Goddard (2000) describes regionally-engaged higher education institutions. Basically the authors allocate these institutions in learning regions. The learning process and the dynamic planning perspective has a great influence in these regions (Holbrook – Wolfe 2002). This system is based on the formal or informal cooperation of certain networks (Florida 1995, pp. 533). Kitagawa (2005) believes that economic development relies on the conscious support of these formal and informal networks. The processes can be considered

effective if the knowledge transfer is clear among the stakeholders. In the long run, universities assist the progression of the development of the local society (Benneworth – Dawley 2005, Arbo – Benneworth 2007, Benneworth – Sanderson 2009).

Regionally it is peculiar that the networks around universities are more and more appraised (Etzkowitz – Leydesdorff 2000, Etzkowitz 2002, B. Lengyel 2004, Etzkowitz 2008, Carayannis – Campbell 2012, Carayannis – Campbell 2014). When it comes to the analysis of the Triple Helix model, the significance of knowledge transfer is always emphasized. Universities as actors have great influence regarding regional economic and social development (Gibb et al. 2013). Besides the creation of workplaces, they are capable of attracting capital into the region. Also, their connections with the government are equally relevant (Imreh-Tóth – Lukovics 2014).

We are able to adorn the original Diamond model of Porter into a university context. We can determine, what are the factors and features that help the university to be competitive (Lengyel 2000). The determinants are updated with new content.

Regarding factor conditions, the most important from the aspect of the university are human resources and infrastructure. Here we can find those factors that are the basis of the universities' competitiveness. It is determining, how inventive and resourceful the teachers, researchers and students are or for example what kind of IT solutions and infrastructures are present in the everyday life of the university. In connection with the transfer and utilization of knowledge, this is a truly significant determinant, as knowledge is basically a human construct (McDermott 1999). From the aspect of Wissema (2009), the actors of the first and second mission of universities are the catalysts of knowledge transfer processed (Hoq – Akter 2012).

Demand conditions mean demand towards all kind of university outputs. In harmony with the input side, it is important that on the output side we would find highly qualified, skilled graduates. Today, most of the (innovative) enterprises and companies search for graduates who have high problem-solving skills and are capable of solving weakly defined business issues on the market.

Related and supporting industries describe all partners that have direct or indirect influence on the success of the university. Connecting with partners is crucial as the third mission of the universities is based on fruitful business relationships (Wissema 2009).

In connection with firm strategy, structure and rivalry it is a requirement that the institutional documents should be written in accordance with the characteristics of the local region. This is crucial from the aspect of success. Based on the thoughts of Pawlowski (2009), this determinant can be connected to the concept of „fourth generation” universities, as in this case the short and long term strategies are equally and dominantly important.

„Fourth Generation” Universities

The publication of Pawlowski (2009) in this topic is considered a thought-provoking material. The author concluded that the most important differentiating characteristic of „fourth generation” universities is proactivity. With this the university aims to influence the economic and social changes locally, in accordance with the needs of knowledge-based society. The concept of “fourth generation” universities is different from the logic of the third generation

of universities, as in connection with prior, the university itself is a crucial actor in determining the potential development strategies of the region both from economic and social aspects, as strategic thinking is even more and more important in the age of digitalization and information technology. Universities need to be successful in positioning themselves on local, regional and global levels as well.

The creation of highly qualified workforce, the marketing and utilization of innovations and the sustainment of dense cooperation networks is substantial (Lukovics – Zuti 2013, Lukovics – Zuti 2014).

Based on the thoughts of Wissema (2009), currently the second big transition of universities takes place. Universities educate experts, scientists and entrepreneurs as well. Besides the three mission of universities, „fourth generation” universities consciously aim to develop local economy with in a future-oriented view. The university is simultaneously the catalyst and the engine of the economy. The „fourth generation” can be considered as a multilingual institution due to connections that are beyond county borders. The strategic and operative activities are carried out by a professional management where local experts also have a significant role (Lukovics – Zuti 2013, Lukovics – Zuti 2014).

If we want to address the relation of different generations of universities with knowledge management, we can establish the following thoughts. In case of first generation universities, knowledge is “concrete and given”, meaning that people are educated based on material that has been existing for a long time (e. g. ancient philosophy, arts, history, mathematics, etc.). In case of second generation universities, this previously mentioned “concrete and given” knowledge becomes more and more questionable in the minds of researchers. They query the validity of previous results of researches. Researchers examine phenomena or facts from another perspective. Due to experiments, the boundaries of science are broadened. In case of third generation universities, there have been many discoveries and experiments, several topics have been examined from a great number of perspectives. The utilization of knowledge depends on the final user of the knowledge. In case of „fourth generation” universities we can examine that there are mainstream and alternative sciences simultaneously. The role of the university here is the minimization of obstacles in the dissemination of knowledge and the inspiration of the students, teachers, researchers.

Based on our current knowledge regarding universities, we are able to gather the potential success factors of universities, which have two main pillars. The two mentioned pillars represent the activities of education-research and third-fourth mission respectively. In both cases, the potential success factors are represented, that contribute to the efficient operation of the university if determined properly (Lukovics – Zuti 2013, Lukovics – Zuti 2014, Oregon 2009, QS 2012, Southampton 2010, THE 2012).

The first element of the education-research pillar is “internationalism/mobility”, which consists of the student and research associate dimensions. With internationalization, the mobility of students, both national and international, is supported. The second element of the education-research pillar is “education”. This consists of the educational portfolio (BA/BSc, MA/MSc, PhD programs and vocational trainings). The third element of the pillar is “research”, as this is one of the modern universities’ most fundamental activities.

The first element of the third-fourth mission pillar is “transfers”. This can be broken down into two subgroups, namely knowledge transfer and technology transfer. Knowledge transfer

means the forwarding of tacit, while technology transfer means the forwarding of codified knowledge. The second element of the pillar is “connections”. We can separate internal and external connections. Internal connections on national level mean connections related to the actors of the Triple Helix model, while external connections are defined as international connections of the university-industry-government. For modern universities it is important that they have dense and deep network connections and innovational collaborations as well, since these may have a significant impact on the local economy. The third element of the pillar is the “adaptive structure and system”. This can be described as a flexible institutional framework of operations that aims towards the recognition and exploitation of the most significant characteristics of the local area. Basically this is the adaptation of a management-focused leadership perspective. The fourth element of the third mission pillar is „services”. As a result of providing certain services like research opportunities or consultancy, universities are able to broaden their basis of income. Besides this advantage, it can also contribute to the development of local economy.

Conclusion

In this study, we attempted to create a new framework of how universities work and characterize „fourth generation” universities. We also questioned the role of knowledge management in case of modern higher education institutions. Nowadays the effective development and advancement of universities is unimaginable, the knowledge management activities need to be integral part of these institutions in everyday life. The Diamond Model and university generations were also examined from the aspect of knowledge management. After this we introduced the virtual model of modern universities, which includes the potential success factors. The goal of the study was the examination and analysis of modern-day universities and the inspiration towards new researches. This territory of research is quite actual and there are many more trends and potentials that are to be discovered.

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