In this paper we would like to highlight the role of university in open innovation concept. The open innovation university might be seen as a facilitator of open innovation interactions among diverse actors at a regional, national and international level.

Key words
Open innovation; Open Innovation University; Business Model

1. Introduction

The shift from linear towards open innovation model

Definitions of innovation may vary in their wording, but they all stress the need to complete the development and exploitation aspects of new knowledge. The fundamental view sees the innovation as a process of turning opportunity into new ideas and of putting these into widely used practice.

In general, innovation is driven by the ability to see connections, to spot opportunities and to take advantage of them. Innovation matters, not only at the level of the individual enterprise but also increasingly as the well-spring for national economic growth. Innovation and competitive success are not simply about high – technology companies. It becomes a central issue for all players - private, public, local and also regional, and even international. With the rise of the ICT, mainly Internet, and recently Web 2.0 technology, the innovation has grown enormously in every part of our life. There is also a high level of complexity which leads to the necessity of interactivity among all innovation actors. The concept of innovation isn’t new – organizations have always had to think about changing what they offer the world and the ways they create and deliver that offering if they are to survive and grow (Tidd and Bessant, 2009). The changes are along the core environmental dimensions what explain that innovation can come from external opportunities, not only as the result of internal creativity.

In light of the recent global shift from closed innovation models to open and open-source innovation models and from traditional organizational models to community – oriented organizational models, Open Innovation (“OI”) is placed at the forefront of the every new concept nowadays.

The need of open innovation has been generated by current technology development and the development of business environment in order to tackle quick changes. The main contemporary theory...
provides a better understanding of open innovation and innovation models which have been studied by Chesbrough (2003, 2006).

One of the first definitions of open innovation provided by Chesbrough (2003) emphasized the fact that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well.

The current state of knowledge on open innovation is more related to technical invention, technology transfer in R&D labs and still has many gaps on the management of OI, on new value creation and revenue models (Teece, 1986; Magretta, 2002; Chesbrough et al. 2014).

2. The role of universities in open innovation

Since Middle Ages universities have been transforming their “business models” to follow (or to be ahead of) societal and economic changes. The first generation (medieval) university was focused primarily on education – preservation and transfer of accepted knowledge. The second generation (the so called Humboldt model) university shifted gradually to research-based activities, integrating them with education. Recently, it has been argued that universities should (of even have to) step forward toward the third generation model (3GU), which put emphasis on commercialisation of the research results. Thus, the university is supposed to comply with the third mission – enhancing economic and social development. This mission may be defined in a broad sense – as all institutional activities excluding traditional teaching and research or in a narrow sense – as “technology transfer” or “university-business cooperation”. It is argued that the broad definition is unclear and multi-interpretatable, while the narrow approach involves a wide array of activities and the need to cooperate with many stakeholders (Sam, van der Sijde 2014). The transition to the third generation university comprises development of the following areas: entrepreneurial university, human resources for innovative economy, students’ and graduates’ entrepreneurship, transfer and commercialisation of technology, spin-off and spin-out companies. Wissem (2009, p. 34) argued that the third generation university must operate in the form of know-how carousel, or know-how hub defined as “a group of institutions, in and around the university, and preferably on the university’s, that collaborate with the university, its academics and research teams and each other”.

The institutional milieu in the European Union fosters fundamentally the processes of further transformation of the universities into the form of Open Innovation Universities. Firstly, the Europe 2020 Strategy within “Innovation Union” initiative puts emphasis on ensuring that the national systems of education provide adequate number of graduates in science, mathematics and engineering, as well as on the introduction of elements of creativity, innovation and entrepreneurship into curricula. Secondly, the paradigm of Open Innovation 2.0, strongly promoted by the European Commission, refers to the concept of melting pot in which universities together with industry, government and consumers come up and realise new innovative ideas (formally it is a quadruple-helix innovation approach). Thirdly, the dynamic development and growing utilisation of Information and Communication Technologies (ICT), supported within the Digital Agenda for Europe, which is another EU initiative, provide tools enhancing innovativeness in many dimensions and institution, including universities.

In recent years, there has also been a strong interest from an academic community to study open innovation. Chesbrough (2010) argued there are a number of factors which drive open innovation and affect the way organisations operate - universities are not the exceptions and are affected by similar trends.

Universities have long been acknowledged as an important source of industrial innovation and as such present a special case of open innovation (Perkmann, Walsh, 2007). They have proposed that university-industry links where a strong relational aspect (as a prerequisite for tacit knowledge transfer) could be identified, would qualify within the open innovation framework, whereas other modes of collaboration represented mainly unidirectional technology or knowledge transfer, or personnel mobility.

As the innovative potential of universities may be limited by fragmented conceptual approach and insufficient infrastructure, Birx et al. (2013) argued that implementation of the “open laboratory”
concept could enhance the universities’ innovativeness. Consequently, there is a need to reintegrate centres, departments and institutes at the universities to create the core “open laboratory” facilities.

To respond to global open innovation challenges universities need to open up their business models and review their processes in order to facilitate open innovation interactions. There is a global rise of innovative and entrepreneurial universities which are opening their organisational boundaries to play an active role in regional and national development. We will define such universities as Open Innovation Universities (Open Innovation Yearbook, 2015).

A typical open innovation university infrastructure includes the following functions: strategy office to monitor international trends and benchmarking; marketing and communication department to interact with stakeholders and public; alumni relation office; research office to monitor and develop funding opportunities; technology and knowledge transfer offices; education technology structures to develop education and learning products; industry liaison office for developing partnership with commercial companies; enterprise infrastructure focusing on entrepreneurship agenda within the university and professional and executive education units offering commercial programmes. An open innovation university infrastructure is closely connected to government innovation initiatives, policies and research assessment strategies (Open Innovation Yearbook, 2015).

In the recent empirical study on transfer of knowledge from universities to the regional ecosystems in the framework of open innovation Miller et al. (2016) identified five factors that play crucial role in effectiveness of the knowledge transfer. These factors encompass: human centric characteristics (e.g. networking abilities); organizational (establishment of dedicated Knowledge Transfer Office which strengthen the commitment to introduce internal procedures helping university staff to take part in transfer of knowledge); knowledge characteristics (business-related knowledge was the main type knowledge being transferred from the university to the regional innovation ecosystem); power relationships (the underlying issue of the potential conflict of interests between different stakeholder as for IPRs); and network characteristics (research revealed the crucial role of the Knowledge Transfer Office that helps to eliminate the communication problems among different stakeholders, and essential role of trust in facilitating the operation of the quadruple innovation helix).

The importance of trust was also reported by Razak et al. (2014), who argued that open innovation creates the base for developing social networked relationships in the areas of motivation, strategic leadership, and already mentioned trust. It seems the success of commercialization, which is outcome of innovative activities at the universities, is heavily dependent on existence of these social relationships. Unfortunately, the characteristic feature of the CEE region is relatively low level of trust among people, resulting in weak social capital, which may hinder successful creation of open innovation universities and further development of open innovation ecosystems.

Key trends in universities’ open innovation practices include:

- **knowledge co-creation and use-inspired research**

  Universities play a vital role in the innovation process. In particular, knowledge transfer from universities and research centres is increasingly considered crucial for the economic development of regions and countries.

  The UK Science and Innovation investment framework (2006) proposes a research model to combine fundamental and applied research to bring together public and private funding and research talent to work on major research challenges with major societal impact.

- **developing value networks and ecosystems**

  According to the Global Information Technology Report (2015), Europe is home to some of the best connected and most innovation-driven economies in the world. In particular, the Nordics - Finland (2nd), Sweden (3rd), Norway (5th), Denmark (15th), and Iceland (19th) - continue to perform well. Indeed, these five countries have featured in the top 20 since 2012. Baltic countries are breaking away from what was once a fairly homogenous group of Eastern European countries that have joined the European Union since 2004: Slovenia (37th, down one), the Czech Republic (43rd, down one), Hungary (53rd, down six), Croatia (54th, down eight), and the Slovak Republic (59th, no change) are either stable or losing ground.

  It is necessary to identify the position of a university within an open innovation value network as a hub of innovation dialogue and activities. These activities include e.g. collaborative innovation
projects supporting businesses to tackle targeted technology projects jointly with other businesses, industry associations, research organisations, and universities.

- **need for stronger IP (Intellectual Property) management**
  Universities need to find an optimal balance between sharing their knowledge via scientific publications and conferences whilst trying to protect their inventions, manage intellectual property and benefit from its commercialization. IP becomes a critical element of innovation, since IP flows in and out of universities on a regular basis, and can facilitate the use of markets to exchange valuable knowledge.

- **need for developing new skills and capabilities in students**
  Build in-house innovation skills and capability through a range of training programmes. Universities need to respond to new requirements and prepare students who are market ready to embrace open innovation.

- **open education programmes, e.g. MOOCs (Massive online open courses), SPOCs (Specialised open online courses)**
  The development of the MOOCs and SPOCs was a fairly natural outcome of the increasing accessibility of the digital networked world, with vast quantities of information becoming freely available, and networks forming across geographic boundaries. This way of education is attractive especially to the digital generation who prefer parallel processes, multi-tasking, video and graphics before simple text.

- **increasing use of social media**
  Universities recognise and embrace the benefits and opportunities that social media bring, from sharing news, information and students recruitment to promoting open academic debate about controversial subjects and areas of research.

- **community engagement and crowdsourcing**
  Universities are gradually exploring crowdsourcing and crowdfunding opportunities.

For the university side, the adoption of open innovation enables a shift from the role of an ivory tower focused on generating science to that of a value-adding knowledge broker (Gassman et al., 2010).

It should be noted that implementation of open innovation is not easy also in developed countries. Kipp et al. (2012) argued that main reasons why copying private sector approach to Open Innovation implementation in case of universities is not effective, are usually decentralized organisational structure and lack of dedicated R&D department which will be able to manage and internalise external ideas. From this point of view, collaboration between universities and industry in the form of research partnerships and research services is crucial to enhance innovations within the open innovation model not only at the university level, but also in companies. Roshani et al. (2015), who analysed how open innovation can be implemented within the university-industry cooperation, developed a two-tier framework in which universities are treated as external resource for companies helping to facilitate execution of the open innovation model.

### 3. The experience of Faculty of Economics, Matej Bel University

Taking into account the shift from the linear towards open innovation model, we have introduced at Matej Bel University a new master course “Corporate business model innovation”. Students will learn new concepts in business model innovation and open innovation strategies, also how to apply start-up, entrepreneurial models in a corporate context, and how to restructure their teams to inspire innovation.

The rate of technological innovation has accelerated dramatically and this sector today offers wide range of diverse actors. The evolution of ICTs has influenced not only the software, hardware used in companies but also their way of communication. ICTs require affordable connectivity network, technical literacy, skilled staff support systems, and policy frameworks. All these changes has modified significantly today’s business models. In the light of this development, the application of ICT tools in students’ proposed business model, such as ERP, MIS, Business Intelligence, is considered as a crucial part.
At the same time, students will be introduced to future business models such as Uber, Bitcoin or MOOCs. In some countries, they seemed to be rather controversial or even disruptive in comparison with traditional business models. This has triggered some protectionist measures, but on the other hand some countries see this type of business model as an opportunity to boost their future economic development.

In order to foster the links between academic and business environment, students will face the challenge to develop the business model which is based on innovation either for the existing business partner or to create a new innovative business idea. One of the most crucial tasks will be to analyze and evaluate the value creation of such an innovation. There is a fundamental aim for any innovation and/or start-up concept which can be pointed out by raising a question “what is an improvement of life that proposed innovation or start-up can offer”? The business model concept based on the value creation can provide an answer.

4. Conclusion

Without doubts, universities play significant role in creation of innovative capacity for regional, national and international innovation ecosystems. In this paper we want to emphasise the importance of open innovation university in the CEE region as a facilitator of open innovation interactions.

References

Sam C., van der Sijde P. (2014), Understanding the concept of the entrepreneurial university from the perspective of higher education models, Higher Education, 68, pp. 891-908.

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