

Towards an Entrepreneurial University

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Master's Student at the University of Zenica, Bosnia and Herzegovina

THE TRANSFORMATION of a traditional research university into an entrepreneurial university is a current phenomenon, and the number of such transformations is increasing due to the reduction in the university funding from government sources and the emergence of a competitive market for education and research. If universities do not become agents of innovation, i. e. entrepreneurial universities, they will hamper regional and national development as well as international competitiveness. The University of Zenica is still a teaching university, but creating an entrepreneurial university is vital to achieve sustainable economic growth in this region. The overall goal of this paper is to highlight the importance of an entrepreneurial university and to analyse current characteristics of the University of Zenica. This paper presents the identification of what is necessary to become an entrepreneurial university and answers the question how to implement transformations in order to become an entrepreneurial university; in addition, it presents the identification of possibilities and obstacles during such a transformation.

INTRODUCTION

Universities have been struggling with different issues over the past ten years, such as the Bologna process, globalization and internationalization of higher education, rising number of the student population, financial restrictions and the recent financial and economic crisis. The main question for universities today is how to adapt to the dynamic and ever-changing environment.

The potential and real contributions of universities to economic development have long been discussed and much has been written over the past decade about the concept of the entrepreneurial university. Drawing from the US and European literature and experience (Clark 2004) it can be argued that Universities are entrepreneurial when they

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are unafraid to maximise the potential for commercialisation of their ideas and create value in society, and do not see this as a significant threat to academic values. Behind this lies recognition of the need for a diversified funding base involving raising a high percentage of their income from non-public sources. A new approach has emerged focusing on promoting the spill-over of knowledge through *an entrepreneurial university*. Integrating a university's mission for economic and social development urges universities towards transformation of traditional teaching, and research universities towards entrepreneurial universities. There is now a considerable international literature addressing the notion of what has been termed *the entrepreneurial university* (Gibb, Haskins, and Robertson 2009). The entrepreneurial university concept embraces universities of all types including those with a strong research tradition as well as newer organisations. The literature, both academic and pragmatic policy-oriented, ranges over a wide range of issues including (Gibb, Haskins, and Robertson 2009, 3):

- The basic philosophical idea of a university and how this is changing over time and the culture of the university;
- Commercialisation of university know-how;
- Process of technology transfer and exchange;
- The associated closer engagement of the university with industry and indeed stakeholders of all kinds;
- The movement towards a *Triple Helix* model of partnership between government, industry and higher education;
- The employability and skills development agenda of graduates and their preparation for a global labour market;
- The strategic response to the *massification* of demand for higher education;
- The internationalisation of universities and their strategies for dealing with global competition (both opportunities and threats);
- The changing nature of the knowledge society and the challenge this poses to the organisation of knowledge within higher education;
- The pressures on universities to respond to social as well as



economic local and regional development problems albeit in a global context;

- The central pressure upon higher education, from central government, to foster innovation and demonstrate relevance to national and international competitiveness agendas;
- The autonomy and future funding of universities; and
- Overall, in response to the above, reflections on the *public value* of higher education institutions.

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All of the above pressures have served to shape change in the organisation and governance structures of universities, and they are also leading to changes in mission statements and strategies. These changes have been the focus of much of the debate concerning the entrepreneurial paradigm.

The past decade is marked as the period of Europe's worst economic performance, and growth of interest in entrepreneurship. Such development has its ground in economic recession, growth of unemployment in most countries, etc. Policy makers throughout Europe have become aware of the key role that entrepreneurship plays in the achievement of economic growth, development and growth of employment rate. Higher education institutions, especially universities, play an important role in providing the necessary education for future entrepreneurs. The transformation of a traditional university into an entrepreneurial university will play an important role in advancing the global knowledge-based economy (Lazzeretti and Tavoletti 2005). The role of an entrepreneurial university in the dynamic environment of the knowledge economy is to support economic development by increasing the amount and quality of research (applied and basic) and transferring such new knowledge to the community quickly through education and entrepreneurship. The traditional university is usually engaged in two main activities: research and teaching. Knowledge is transferred to the community through students who are later incorporated into the labour market, by publications in scientific journals, which can take a considerable period of time. Entrepreneurial universities redefine the traditional roles of a university in the community as a knowledge creator through basic and applied research, technology and

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knowledge transfer agent, innovator, and supporter of economic development (Bercovitz and Feldman 2006). The new activities assumed by an entrepreneurial university aim to speed up the process of translating research into applications that can be quickly commercialized. This transformation is made possible by the creation of alliances with industry that make available to the university fresh resources and intangible assets that public moneys cannot afford. At the same time the government may continue to play an important role in defining, coordinating and supporting research in critical areas which society needs and which may not be attractive to industry, in order to accomplish a balanced development. Universities must turn into evolutionary entrepreneurial organizations to fulfil their mission in an economy which must increase wealth and create employment by incorporating new knowledge in innovative products and technologies (Röpke 1998, 8).

An entrepreneurial university is characterised by a number of key factors (Robertson 2008):

- Strong leadership that develops entrepreneurial capacities for all students and staff across its campus;
- Strong ties with its external stakeholders that deliver added value;
- The delivery of entrepreneurial outcomes that make an impact on people and organizations;
- Innovative learning techniques that inspire entrepreneurial action;
- Open boundaries that encourage effective flows of knowledge between organizations;
- Multidisciplinary approaches to education that mimic real-world experience and focus on solving complex world challenges;
- The drive to promote the application of entrepreneurial thinking and leadership.

In order to be entrepreneurial, the university must embed entrepreneurship in every part of itself, from its leadership through to its teaching and student impact. It needs to demonstrate excellence in strong leadership at all levels, innovative faculties and a clear, tangible impact on staff, stronger engagement with students in a diversity



of learning opportunities, business and the local community, and it needs to demonstrate a long term commitment of higher education institutions to engaging in enterprise and entrepreneurship, which will consequently help to develop the economy.

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CHANGING UNIVERSITY PARADIGM

There is a structural shift at European Universities from their traditional missions of education and research to a third task, the commercialization of new knowledge for economic development (Etzkowitz et al. 2000). The changing dynamic environment of higher institutions and their respondent evolution is portrayed in figure 1. The figure attempts to characterise the evolving nature of the task environment facing universities on a simple/complex and certain/uncertain axis. It highlights the way that the notion of *Excellence* might be changing. Certainty in the environment has been reduced by changes in funding. There has been a movement away from a system that was at one time nearly total central or regional public funding, to a situation where a growing proportion of finance has to be sought from non-direct public sources including fees, research grants, local development monies, alumni, industry and social enterprise, contract research and philanthropy. While government remains a key player in most countries, it has moved its disbursement stance into a more directive mode. Thus the uncertainty resulting from having to seek a greater proportion of funding from other sources is matched by pressure to move away from the simpler, more certain, *autonomous* environment (guaranteed by the public purse) within which to pursue individualistic research and teaching. There is now an imperative to demonstrate more direct public value. The public pressures for change are underpinned by a number of factors (Gibb, Haskins, and Robertson 2009) which are also contributing substantially to uncertainties and complexities (explained hereinafter).

Of major importance is the move to what has been labelled the *massification* of the education offer from the university sector. It is difficult, if not impossible for this growth in demand to be wholly funded by the state. This leads in turn to the creation of a more openly competitive market for students, requiring a more entrepreneurial response from institutions, and it is also leading to a more critical and demand-

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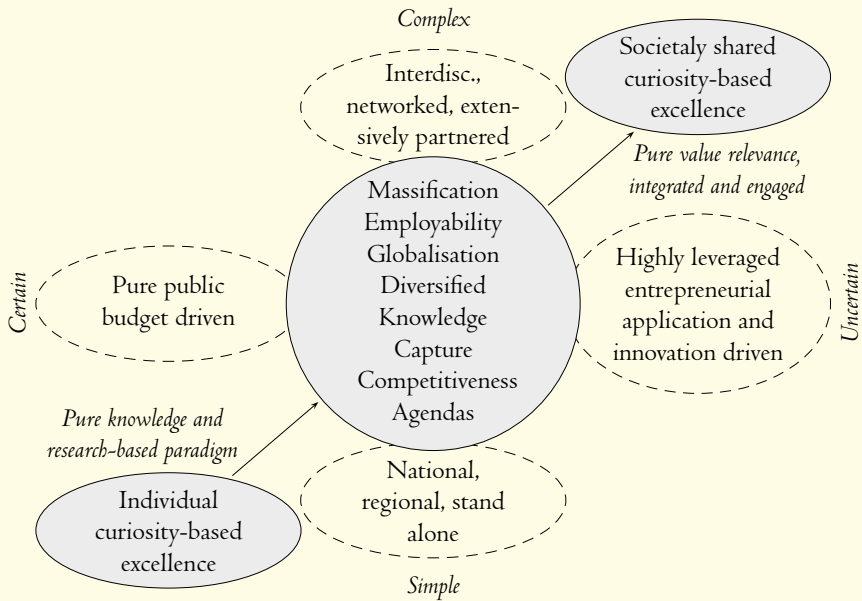


FIGURE 1 Changing university paradigm (adapted from Gibb, Haskins, and Robertson 2009)

ing student consumer group many of whom are now funding more of their own education through personal debt. The global downturn has also impacted substantially on the issue of the employability of graduates.

However, this issue goes beyond that of simple graduate unemployment and employment prospects. Now there are calls by industry and indeed governments for graduate education to incorporate a greater skills focus across the whole curriculum. Employers express the need for graduates to be equipped with a range of *enterprising skills* with foci upon creativity, capacity for innovation, networking relationship management and risk taking. This *need* is calling for the development of the *Entrepreneurial Mindset* in the student population. But industry needs to move beyond industry demand towards articulating the need to equip students at all levels in the education system with personal entrepreneurial capacities to deal with greater levels of uncertainty and complexity in both their work and personal life, and in that way entrepreneurship becomes almost an intra-disciplinary concept intrinsic



to the development of all students and teaching staff (Gibb, Haskins, and Robertson 2009).

In the context of a global labour market, internationalisation is seen as part of a competitive strategy to improve quality of staff and students via overseas recruitment as well as a means of enhancing student experience and existing staff development. Commitment to it involves elements of entrepreneurial risk taking and strategic choice. Prestige, not finance, appears to be a major motivation. Also there has been a substantial growth of student societies in universities across the world, with many of them linked internationally in partnership. These societies become a mechanism for articulating student needs to the university and to the demand for entrepreneurship programmes across the whole curriculum.

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A major influence upon the drive to internationalisation is the rise of the global knowledge economy accessed substantially through the internet. The web has effectively eaten into the local and national monopoly of knowledge that universities have traditionally enjoyed. The sharing of experiential and tacit knowledge via the internet also exposes *the know how* position of universities. In that way, academe is confronted with the challenge of becoming more of a *learning organisation* rather than solely a *learned organisation*, opening itself up to learning from a wider range of stakeholder sources (Gibb, Haskins, and Robertson 2009). The development of university technology transfer as a professional field also offers new career perspectives to university employees but also for students (Siegel, Wright, and Lockett 2007; Mosey, Lockett, and Westhead 2006). In the developed economies, active university engagement in knowledge exchange has also been substantially driven by a public policy agenda which has placed higher education firmly in the forefront of the enhancement of national innovation and competitiveness.

*Triple Helix - Higher Education, Government and Private Sector
Partnership*

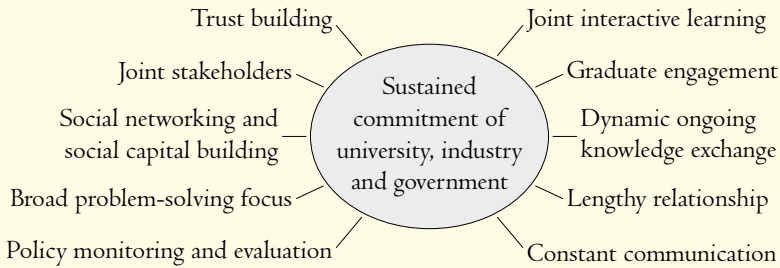
While much of the discussion of the Triple Helix model is narrowly focused upon knowledge transfer, universities have increasingly been drawn into a playing a stronger regional social and economic develop-

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ment role in many other ways (Arbo and Benneworth 2008). While they are often important employees and indirect job generators in a region in their own right, they can take on the mantle of being a leading network hub for focus upon regional development issues. They can act as animateurs for the development of sustainable networks of exchange on important issues. They can focus upon supplying skilled young people to a region and are a mechanism for enhancing social mobility. Through their outreach education and training programmes, they can seek to bring forward the future and act as a major learning source for regional stakeholders. They can, through their reputation and specialist expertise, play an important role in attracting investment to a region. Via research they throw independent light on key development issues and act as a means for independent evaluation. They are often an exporter, bringing in income to a region; but also, through their internationalisation work, they can bring major contacts into the locality and thus raise its visibility and capacity to build networks abroad. They also often act as an intermediary in articulating regional development issues to central government in areas of technology policy, education and skills development and competition policy. Overall they may take a central place in the development of many aspects of a region's culture (Gibb, Haskins, and Robertson 2009). There is clear evidence that across Europe universities are taking on more of the role of bridging local with global (Arbo and Benneworth 2008). Whether an individual university wishes to play a transformational role as a regional change agent is, however, an issue for its individual mission and strategy. Throughout the world there has been a gradual evolution in the way that universities are funded, as public budgets fail to take the strain of rapidly growing student numbers (Williams 2009). In reality the detail is more complex and depends upon the mix of funding.

Altogether, the financing issue is yet another central focus for entrepreneurial management, with considerable risk attached, not only of a simple resource nature. Today, universities increasingly operate within an open innovation system, interacting with firms and governmental institutions instead of being a closed research institution (Chesbrough 2003; Etzkowitz 2004).





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FIGURE 2 The basis of triple helix (adapted from Gibb, Haskins, and Robertson 2009)

A New Approach – University as an Entrepreneurial Organisation

Much emphasis has been placed by many of the referenced authors to the need for a university to be highly flexible in its response to the environment described above. The combination of different demands being made by government, still a major source of funding, via processes of quality measures rather than direct control, combined with the competitive market and stakeholder demands, have presented considerable challenges to university organisation design around the world (Pilbeam 2008).

Hannon (2008) expressed his vision of the entrepreneurial future as follows:

- The Entrepreneurial University
- The Entrepreneurial Graduate Career
- The Entrepreneurial Educator
- The Entrepreneurial Stakeholder Partner
- Delivering the Entrepreneurial Outcomes (Framework)

Focus here will be on the entrepreneurial university since that is the topic of this article. Hannon (2008) defines the entrepreneurial university as an institution with the following characteristics:

- A great environment for encouraging entrepreneurial behaviours, thinking and opportunity;
- Cross-campus approach creating access to all students;
- Multi-disciplinary working across academic faculties and departments;

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- Engages external stakeholders in the design and delivery of entrepreneurship provision;
- Has strong institutional leadership and support;
- Staff/student rewards and incentives;
- Takes a broad approach to entrepreneurship to be more than starting a business;
- Teaching focuses on *for* rather than *about* entrepreneurship.

Perhaps the most influential writer in this field, Burton Clark (2004), argues on the basis of a number of case studies, for five key components of entrepreneurial university organisation:

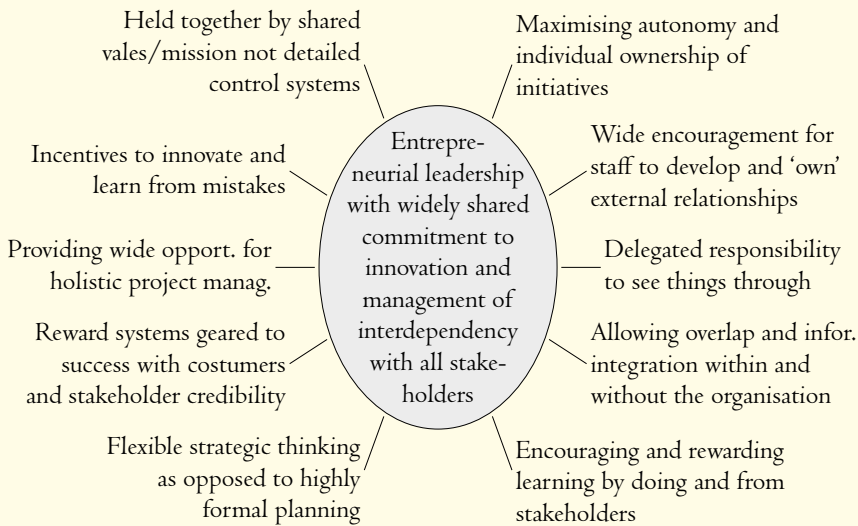
- A strong central steering core to embrace management groups and academics;
- An expanded development periphery involving a growth of units that reaches out beyond the traditional areas in the university;
- Diversity in the funding base, not only by use of government third stream funding but from a wide variety of sources;
- A stimulated academic heartland with academics committed to the entrepreneurial concept; and
- An integrated entrepreneurial culture defined in terms of common commitment to change.

Etzkowitz (2004), another leading writer on this issue, puts forward five propositions concerning the entrepreneurial university concept, namely that such institutions are focused upon:

- The capitalisation of knowledge;
- Managing interdependence with industry and government;
- Are nevertheless independent of any particular sphere;
- Are *hybrid* in managing the tension between independence and interdependence; and
- Embody reflexivity, involving continuous renewal of internal structures.

The observations of these writers and others can be plotted against a broader conceptual frame setting out key components of an organisation moving to cope entrepreneurially with high levels of uncertainty and complexity. Such an organisation is designed to maximise





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FIGURE 3 University as an entrepreneurial organization (adapted from Gibb, Haskins, and Robertson 2009)

the use of effective entrepreneurial behaviour appropriate to the task environment. Figure 3 presents such a framework for evaluation of the broad entrepreneurial challenge to university organisation design (Gibb, Haskins, and Robertson 2009).

It has been argued that, in terms of organisation, entrepreneurial universities are managed in such a way that they become capable of responding flexibly, strategically and yet coherently to opportunities in the environment. Burton Clark (1998) describes this as having a strong steering core with acceptance of a model of self-made autonomy (as opposed to it being bought by the public purse) across the academic departments. University's need to transform and change is a result of various factors, such as governmental and funding pressures, changes in the society, massification of higher education, globalization, rising number of private higher education institutions, etc. Creation of the entrepreneurial university is a result of the mentioned influences and internal development of the university itself. Governments in virtually all parts of the world are focusing on the potential of the university as a resource to enhance innovation environments and create a regime of science-based economic development (Etzkowitz and Leydesdorff

2000). A university becomes entrepreneurial in order to respond to the changes in its environment and to ensure socio-economic development, and improve its own financial situation.

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THE UNIVERSITY OF ZENICA:
AN ENTREPRENEURIAL UNIVERSITY?

Bosnia and Herzegovina has a complex political structure on three levels state, entity and canton. On the state level there is no single ministry dealing with education. The authority over education is given to the two entities: the Federation of Bosnia and Herzegovina and Republika Srpska. In Republika Srpska a single ministry of education manages the educational sector, including higher education. There are two Universities: University of Banja Luka and East Sarajevo. In the Federation of Bosnia and Herzegovina, the Federal Ministry of Education has transferred the authority of education to the ten cantons, so that each canton has its own ministry of education, which is also in charge of Higher Education. Out of the 10, only 5 cantons have Universities and these are: Sarajevo, Tuzla, Bihać, Zenica and two Universities of Mostar. No legislative or procedural mechanisms ensure the homogeneity of academic standards or allow for the comparative assessment of the performance of academic institutions. Such a situation means that higher education in Bosnia and Herzegovina faces unresolved issues of governance at the levels both of coordination and the management of institutions. In order to achieve the development goals government, structures at all levels in Bosnia and Herzegovina need to stimulate entrepreneurial mindsets of young people and foster establishment of a culture that is friendlier to entrepreneurship. Education institutions play a key role in achievement of these goals. As already mentioned, universities in Bosnia and Herzegovina have been facing the need for reforming the higher education sector, as well as all other segments of the society and economy, after signing the Dayton peace agreement. After signing the Bologna declaration by the government in Bosnia and Herzegovina, higher education institutions were facing the necessity of implementing numerous organizational changes. Universities in Bosnia and Herzegovina are traditionally teaching and research universities with a traditional organizational structure and cul-



ture. The process of transformation to entrepreneurial universities is necessary and inevitable in order to ensure the development of university and society as whole. Considering the specific constitutional and political conditions in Bosnia and Herzegovina and the ongoing higher education reform, the transformation of universities will be a hard and long-term process. In the past ten years small steps forward have been made in reform of the higher education system. A much stronger commitment towards changes is needed within the academic community itself, since the universities have been slowly adapting to the new and changing environment.

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Case Study

The subject of this research is the University of Zenica, the youngest university in Bosnia and Herzegovina, formed in October 18, 2000, by declaration of the Zenica-Doboj Canton Assembly in the Agreement on the National Law of Education. The University is comprised of seven faculties and several institutions (Metallurgical Institutes, Institutes for mechanical engineering, Institutes of Industrial Engineering, Centre for development, management and quality, Centre for Social Studies and Inter-religious projects, Science-Technology Park, ODL Centres etc.) located in the university campus in the heart of Zenica city.

As one of the first Bosnian Universities, the University of Zenica finished complete regulation for the Bologna Declaration about registration, university autonomy, ECTS system, joint chairs, quality management, university integration, etc. That means, in the case of the University of Zenica, that the University is fully integrated and faculties, institutes and centres are organizational units inside the university without formal or financial autonomy. Today, the University of Zenica counts about 5,000 students and employs more than 300 professors, assistants and other staff, full or part time.

Method

The transformation of a traditional teaching university, like the University of Zenica, depends on the ability of its management to redefine the university's mission statement, develop strategic develop-

TABLE 1 Presentation of survey results (%)

Question	Yes	No
Is the University of Zenica an entrepreneurial university?	22	78
Is the University of Zenica autonomous?	44	56
Is the academic community interested in change at the University?	44	56

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ment plans, implement the necessary organizational changes, develop and strengthen entrepreneurial organizational culture of the institution and promote the need for the transformation process in the academic community and in the public domain. In order to determine the perception of the University of Zenica and its current characteristics, a survey has been conducted (in 2010). The survey was conducted by creating a questionnaire. Questionnaires were given to the University employees. The aim was to determine the necessity, as well as the basis for a framework, for transformation towards an entrepreneurial university.

Results

The necessity of this transformation is evident when taking into consideration the fact that 78 % of questioned employees finds that the University of Zenica is not entrepreneurial and 56% stated that the University is not autonomous (table 1). One of the fundamental characteristics of an entrepreneurial university is the relationship with its stakeholders. In the survey, all of the examined employees stated that the relationship and cooperation between the University and its stakeholders is very important, which implies that they realise the importance of the university-stakeholders relationship. And when asked about the influence of the environment on the University, 89% of respondents stated that the University is influenced by trends and affected by its environment, among which 33% stressed the negative environmental influences on the University itself. Considering the fact that two thirds (66%) of the examinees pointed out the positive influence of the environment on the University, it becomes clear that the university-stakeholders relationship is not much disturbed. Therefore, it is important for the University to use this as an advantage and to regain, where needed, a closer cooperation with its stakeholders, especially with external stakeholders. In order to answer to these challenges



and use environmental influences to its advantage, the University of Zenica needs to become more entrepreneurial.

An entrepreneurial university should deliver attractive, innovative and business-oriented knowledge to its students. The results of the survey show that 78% of University employees think that the knowledge transferred to students at the University of Zenica is not compatible with the needs of the business environment. And, they all think that modernization of the curricula is needed. From this we can conclude that modernization of the curricula is inevitable and it should be based on the practical, innovative knowledge while, at the same time, preparing the students for the modern business world and practices.

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The University of Zenica needs to implement the necessary changes in order to resolve the mentioned problems. According to the results of the survey, 56% of questioned employees think that the academic community is interested in change at the University (table 1). This means that there are enough academics who are willing to make changes and to make the breakthrough toward an entrepreneurial university. But still, according to the current situation, academia needs encouragement and motivation. In order to successfully implement organizational changes and experience development, management of the University needs to encourage changes and accent their benefits for the institution and its employees.

CONCLUSION

The university is one of the world's most durable institutions and now it must pass a complex new test. The new quality of international competition dramatically changes the role and function of universities and research systems. An entrepreneurial university can mean three things (Röpke 1998):

- 1 The university itself, as an organization, becomes entrepreneurial.
- 2 The members of the university (faculty, students, employees) are turning themselves somehow into entrepreneurs.
- 3 The interaction of the university with the environment, the structural coupling between university and region, follows entrepreneurial patterns.

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To achieve the second, the first must be accomplished. And to achieve the third, the second is necessary. All three together are necessary and sufficient conditions to make an university *entrepreneurial*. In theory, entrepreneurship becomes part of the university's core strategy, so that the ultimate outcome is the creation of an *enterprise culture*, defined particularly as one open to change and to the search for, and exploitation of, opportunities for innovation and development (Gibb 2005).

In the midst of crisis it is important to support all contributors to an entrepreneurial economy. Universities as centres for knowledge creation and diffusion can be leveraged to generate future economic growth. The main question – *What kind of a university do we need today?* – has a rather simple answer, a university which will meet the needs of a dynamic and turbulent working and life environment in the best way. The University must become entrepreneurial in order to ensure its development. The need for strengthening relations between the universities, business sector and government is evident. An entrepreneurial university should ensure building of its sustainability, and become a desirable partner for the business and government sector. In order to achieve the mentioned goals, a university needs to be unique, autonomous, and responsible towards its environment. This is the only way for universities to be able to respond faster and in a better manner to changes in the environment, produce practical, business-oriented knowledge, educate people who will be able to manage their own careers, deal with the reality and complexity of the business world, and contribute to the society's development.

Analysis of the University of Zenica indicates that the University of Zenica is still somewhat far from becoming an entrepreneurial one. This is mostly because of some key problems, like low level of university autonomy, difficult financial situation, inadequate organization and management capacities, lack of compatibility of the mission and development goals of the university, curricula, and compatibility of transferred knowledge. There are a number of activities which need to be undertaken. Some of them include activities aimed at: stimulation and encouragement of the process of change at the University, increase of institutional autonomy, change of the financing system of



higher education institutions, creation of innovative, business-oriented curricula, introduction of up-to-date teaching methods, and activities aimed at strengthening the university-stakeholder relationship.

All change may not be good. All continuity may not be bad. That means that a blunt and unstructured transformation of the university can result in reduction in prestige, decrease in academic quality, uncertain long term financial performance, and reduction in the number of students and sponsors. The transformation of a university into an entrepreneurial one must be adequately managed and controlled.

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Creation of an entrepreneurial culture in a university environment is a complex task and a long-term process that requires the efforts of many dedicated individuals. All of them need to understand what an entrepreneurial university is, and how important it is for the socio-economic development of a society. These individuals are located in industry, academia, and government, and often are only loosely coordinated with one another in their activities. But they all should share a common passion to provide new and expanded opportunities for the state's economy and citizens.

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