A MODEL PROPOSAL RELATED THE CREATION OF ENTREPRENEUR UNIVERSITY IN TURKEY AND EVALUATION OF APPLICABILITY 1

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Abstract: Aim: In this study it has been focused on entrepreneurial university trend which has been very popular especially for a few decades. Entrepreneurial university interlinks its three missions: education, research and serving society. That has meant partly having in a university structure besides traditional education and research functions a technology transfer office (TTO) and active patenting of own research results by the university. That means also creating entrepreneurial competencies and mind set among university members, active position to production and implementation of university knowledge for prosperity of society and entrepreneurial environment inside and around the university supporting knowledge transfer. The concept of entrepreneurial university emerged as a response to a fast changing business environment and to the necessity to delivered graduates more capable to solve more and more complex problems that business face in the era of globalization. Here the target audience of the entrepreneurial university is industry and business world, and the cultivation of qualified manpower to do work in this area is directed to enter the entrepreneurial university of the field. In this study it has been revealed a entrepreneur model that can be applied in universities in the country. The proposed model consists of six themes and their sub-categories. These themes are: evaluation of campus facilities, academic and administrative management, government effect, financing, educational activities, industry cooperation (commercialization) Within the first 50 universities 2014 Index of Entrepreneurial and Innovative University announced by TUBITAK to the public is the population of this study. This index is determined by the method of sampling for 12 university officials and face to face interview was conducted to evaluate the applicability of the model with 12 lecturers having publications in the relevant field. It has been expressed that applicability of proposed third generation (entrepreneurial) university model has been shown to be applicable, but in our country, due to the legal, financial and administrative constraints entrepreneurial university model may not fully be implemented.

Key Words: Entrepreneurial University, Third Generation University, Multiversity, University-Industry Collaboration, Innovative University

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INTRODUCTION

The constraints on universities to be more sensitive to the changing needs of the society are being constantly expressed, and at the basis of these calls underlie the transition of the society to the information based economy (Farsi and Talebi, 2009:11). It is not a realistic and reasonable policy in now when economic activities are becoming more information intensive to expect universities to avoid economic and social changes in their environment and the needs that these changes create (information based production, innovation, commercialization of information, etc.). Today, universities get into act within the open innovation system and are in contact with companies, public institutions and non-governmental organizations instead of being closed education and research institutions in universities, (Guenther and Wagner, 2007:26).

The universities which are the center of historical mission (education and research), scientific knowledge, production center of new ideas, the place of massive high education in the last century, have not been considered as a tool of economic development until recently (Shatock, 2005:6). Factors such as globalization, information revolution, differentiation of education, change of labor market’ expectations about education, rapid increase of competition in educational institutions, change of traditional university education and paradigm, fulfillment of expectations are forced universities on a structural basis to turn into entrepreneurial university (Oleksiyenko, 2002). The continuing change in the world has forced higher education institutions to give up the “ivory tower” metaphor they once had (Colado, 2001). Universities have become more responsive to new scientific and technological demands by changing into more flexible vision to overcome the isolated perception from traditional, social environment and economy (Harloe and Perry, 2005:21).

Today’s perceptive of the university is progressing to a structure that classical functions are not sufficient alone, keep up with the new economic order, more willful to transform knowledge into a commercial meta, more sensitive to market demands by cooperating with other stakeholders, and generating revenue out of public resources, (Özer, 2011:9).

It was executed what kind of cooperation the entrepreneurial university can make with the state, the market and non-governmental organizations, and what the possible gains of the university can be as a consequence of the collaborations in this study.

As the public universities in Turkey are examined, it is seen that the almost all of the financing resources are received by the government. The financing of higher education in our country is mostly public support due to with
the decision about the removal of tuition fees taken by the Council of Ministers in 2012. On the other hand, the number of universities in our country especially in Istanbul, Ankara and Izmir, Konya, Kayseri, Gaziantep has almost doubled in the last decade with the slogan of opening a university in every city since 2006. As the increase in the number of students, the quota increase has come up and the public resources transferred to the universities have been limited despite to the masses in higher education. Therefore, the need for forming additional resources particularly for public universities has arisen. One of the things to be able to respond this need is to achieve a transition from university towards the entrepreneurial university. As stated above, the basic point of entrepreneurial university is to provide the information, technology and innovation obtained from educational and research activities for the industry in order to provide additional non-public funding to the university and in return to provide funding for further education and research. Entrepreneurial universities are considered an option for public universities whose resources are decreasing.

Entrepreneurial university is a new model that makes independent research by establishing research centers, research institutes, private companies in order to create resource on own and thus makes income, invests in new venture opportunities, recruits personnel and academicians, renews processes by acquiring new research and project grants, engages in income-generating activities that makes income from it (Shattock, 2009a:26). Hereunder, the components of the entrepreneurial university can be listed as follows (Green, 2010:6):

- Providing consulting services and knowledge transfer
- Studying for commercialization of scientific knowledge
- Setting spin off and spin out
- Setting incubator centers
- Developing social entrepreneurship
- Contributing to regional development through production
- Providing distance learning opportunities
- Offering innovative educational opportunities (virtual education, short-term courses, continuous personal development, in-service training)
- Entrepreneurship training

**PURPOSE of the STUDY**

The purpose of this study is to present the conceptual framework of the entrepreneurial university paradigm. Also it was aimed to design an entrepreneurial university model that can be adapted to Turkey based on the
literature and discuss the applicability of the model in accordance with the views of expert academic members about entrepreneurial university in the study. This study will offer a new perspective to higher education institutions, state bureaucracy and industry representatives on the basis of entrepreneurial university (Dönger, Özkartal and Sarıgöz, 2016-2017:41). Moreover, model of entrepreneurial university presented in this study provide guide for administrators of traditional university who want to transform entrepreneurial university and resource for the researchers and will contribute academically to the field and bring innovation to the studies conducted in this area. Lastly, this study is substantial from the point of view of proposing an entrepreneurial university model on the basis of theory and practice, unlike similar studies conducted in this issue.

**PROBLEM STATEMENT**

The following problems were sought in accordance with the research purpose.

What is the entrepreneurial university model that can be adapted to Turkey and what are the views of the professors in this field about the applicability of the proposed model?

**Sub-Problems**

Sub-problems oriented main problem are listed as follows:

1. What are the views of expert faculty members in this field on the applicability of the dimension of campus facilities in the entrepreneurial university model?

2. What are the opinions of expert faculty members in this field on the applicability of the dimension of administration in the entrepreneurial university model?

3. What are the opinions of expert faculty members in this field on the applicability of the dimension of state in the entrepreneurial university model?

4. What are the opinions of expert faculty members in this field on the applicability of the dimension of education in the entrepreneurial university model?

5. What are the opinions of expert faculty members in this field on the applicability of the dimension of financing in the entrepreneurial university model?

6. What are the opinions of expert faculty members in this field on the applicability of the dimension of cooperation with industry in the entrepreneurial university model?

**METHOD**

This study is a descriptive and qualitative study in the survey model. The general survey model is a research approach purposed to describe a past or present situation as it exists and the event, individual and object are be-
ing investigated are attempted to be defined as within its own conditions (Karasar, 2014). The concept of entrepreneurial university has been put forward in all aspects in study and a model based on literature and can be applied in our country has been designed and the applicability of the model has been presented to evaluation of the experts of faculty members in this field. Therefore, it has been decided that the research model should be qualitative so that information collected by qualitative data collection methods such as document analysis and interviews will provide an in-depth review.

The applicability of the entrepreneurial university paradigm in Turkey and a modeling for the “Entrepreneurial University” were made based on the literature in the study. The basis of the purposed new model is grounded on the twenty applications of the entrepreneurial university that Clark (1998) put forward in his studies.

50 most innovative and innovative universities of Turkey in each year is determined with TUBITAK’s Entrepreneurial and Innovative University Index prepared for the first time in 2012. In the Entrepreneurial and Innovative University Index, universities range 23 sub-indicators under the dimensions of scientific and technological research competence, the pool of intellectual property, cooperation and interaction, entrepreneurship and innovation culture and economic contribution and commercialization according to the indicators set out in the Entrepreneurial and Innovative University Index Indicator Set.

144 universities were assessed in 2014 and the first 50 universities that entered the Entrepreneurial and Innovative University Index were announced to public by TUBITAK. Universities to be interviewed were selected from the list of the first 50 universities that entered the Entrepreneurial and Innovative University Index in 2014 published by TUBITAK. Maximum diversity sampling technique was used by choosing participants from a total of 12 universities including 8 public universities and 4 foundation universities and 9 different cities and 11 different fields (see Table 1) in the study group. The aim in the maximum diversity sampling method is not to generalize to the world by enabling diversity, but to find out what kind of similarities exist among the diversity situations (Şimşek and Yıldırım, 2006:130).
Table 1. Study Group For Qualitative Research

<table>
<thead>
<tr>
<th>Item no</th>
<th>University</th>
<th>Interviewee</th>
<th>Field of the study</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>TOBB</td>
<td>Banu Aktalay</td>
<td>Science and Technology Policies (Master)</td>
</tr>
<tr>
<td>2</td>
<td>Yıldız Teknik</td>
<td>Prof. Dr. Osman Çakmak</td>
<td>Chemistry</td>
</tr>
<tr>
<td>3</td>
<td>Atılım</td>
<td>Asst. Prof. Dr. Elif Kalaycı</td>
<td>Economy</td>
</tr>
<tr>
<td>4</td>
<td>Anadolu</td>
<td>Prof. Dr. Yavuz Odabaşı</td>
<td>Market</td>
</tr>
<tr>
<td>5</td>
<td>Süleyman Demrel</td>
<td>Asst. Prof. Dr Seher Derya Kula</td>
<td>Business Administration</td>
</tr>
<tr>
<td>6</td>
<td>K.Maraş Süçü İmam</td>
<td>Prof. Dr. Mustafa Taşluyan</td>
<td>Business Administration</td>
</tr>
<tr>
<td>7</td>
<td>MEF</td>
<td>Prof. Dr. Erhan Erkut</td>
<td>Industrial Engineering</td>
</tr>
<tr>
<td>8</td>
<td>Mersin</td>
<td>Asst. Prof. Dr Sezen Bozyigit</td>
<td>International Trade and Logistics</td>
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<tr>
<td>9</td>
<td>Okan</td>
<td>Asst. Prof. Dr. Mehmet Kabasakal</td>
<td>International Relations</td>
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<tr>
<td>10</td>
<td>Karadeniz</td>
<td>Asst. Prof. Dr. Oktay Yıldız</td>
<td>Food Engineering</td>
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<tr>
<td>11</td>
<td>Pamukkale</td>
<td>Asst. Prof. Dr. Engin Tanim</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>12</td>
<td>Nişantaşı</td>
<td>Assoc. Prof. Dr. Öner Yusuf Toraman</td>
<td>Mining Engineering</td>
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</table>

While the study group of the thesis is forming after the universities were determined, criterion sampling technique one of the purposeful sampling techniques was used among the instructors in these universities.

The criterion taken as the basis for determining the participants in this study is the choosing instructors who have done doctorate and / or master thesis studies in the areas “entrepreneurial university, university-industry cooperation, commercialization of university researches, universities as a means of regional development” or instructors who have scientific publications in these fields and who are assigned administrative positions in technology transfer office and incubation center. The demographic information of a total of 12 participants, 11 faculty members and 1 Technology Transfer Office Manager are given in Table 2.
Table 2. Demographic Characteristics of Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
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<tr>
<td>Female</td>
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<tr>
<td>Male</td>
<td>8</td>
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<tr>
<td>Age</td>
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<tr>
<td>20-30</td>
<td>1</td>
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<td>31-40</td>
<td>4</td>
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<td>41-50</td>
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<td>50-+</td>
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<tr>
<td>Title</td>
<td></td>
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<tr>
<td>Professor</td>
<td>4</td>
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<tr>
<td>Assoc.Prof.Dr</td>
<td>1</td>
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<tr>
<td>Asst.Prof.</td>
<td>6</td>
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<tr>
<td>TTO Manager</td>
<td>1</td>
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<tr>
<td>Service period in worked institution (Years)</td>
<td></td>
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<tr>
<td>1-10</td>
<td>4</td>
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<tr>
<td>10-+</td>
<td>8</td>
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<tr>
<td>Administrative job</td>
<td></td>
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<tr>
<td>Yes</td>
<td>7</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>Total number of participants:</td>
<td>12</td>
</tr>
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</table>

A semi-structured interviewing approach comprising of standardized open-ended questions has been adopted in this study. A semi-structured interviewing is type of interview between structured and unstructured interviews. In semi-structured interview technique, the researcher prepares interview questions in advance but allows for the rearrangement and discussion of the questions formed by providing partial flexibility to the people surveyed during the interview (Ekiz, 2007:44).

The process of development of the semi-structured interview form developed by the researcher is as follows: The theoretical basis is derived from the data obtained through the literature review about the subject field; the entrepreneurial university model that was prepared in this way was transformed into a semi-structured open-ended interview form by adapting the research problem and sub-problems. Model in interview form is divided into six basic themes: campus facilities, management, government, education and training, finance and cooperation with the industry, and commercialization and also open-ended questions about that theme were prepared under each theme. There are twenty questions on the interview form, two of them under the campus facilities, four in the management, three in the government, three in the education and instruction, four in the financial dimension and four in the dimension of cooperation with sector and commercialization.

The data including the modeling part of the study were obtained by interview technique. Interview technique has some strong features such as flexibility, response rate, nonverbal behavior, control over interview environment, question sequence, instant response, confirmation of data source, completeness, in-depth knowledge compared to question-
naires used in quantitative research (Geçer and Özel, 2012:18).

The study group was contacted by telephone and e-mail and a meeting appointment was requested and the appropriate meeting time was set. All interviews were conducted in the participants’ working room.

All of the interviews were performed face to face with the researcher and all the interviews were recorded with the voice recorder with the participants’ consent and then it transferred to the computer environment by the researcher. The interviews were conducted took between 1 hour and 5 minutes and 2 hours and 12 minutes and 12 interviews taking 16 hours and 40 minutes in total. A brief presentation about the topic of study and the model designed for the entrepreneurial university of all participants were done before the interview. Moreover, interview questions were sent about designed model with the (six themes, sub-themes, and templates) to all participants’ e-mail addresses fifteen days before the interviews.

Open coding method by performing content analysis was applied in order to evaluate the obtained data so that the research is a qualitative research and the data collection tool is composed of open-ended semi-structured interview questions.

**ENTREPRENEURIAL UNIVERSITY MODEL**

Elements, components and sub-dimensions of the entrepreneurial university are extensively explained in the second part by examining the related literature. The entrepreneurial university model centered in the light of data obtained from the literature review and conducted interviews consist of six dimensions and their sub dimensions.

In this section, entrepreneurial university model and its sub-dimensions are discussed. The Entrepreneur University model consists of the following six dimensions:

1st Dimension: Evaluation of campus facilities

2nd Dimension: Entrepreneurial university management

3rd Dimension: Entrepreneurial university-government relationship

4th Dimension: Education and instruction activities in Entrepreneurial University

5th Dimension: Financing of the Entrepreneurial University

6th Dimension: Entrepreneurial university-industry cooperation
Evaluation of Campus Facilities; Model and Evaluations

A response to the first sub-problem of the study under this title has been sought. The evaluation of the campus facilities in the model is divided into two main headings; transformation of campus facilities to gain and the ability to attract and retain brilliant students and qualified academicians on the basis of internationalization. The basis of starting point of entrepreneurial university is the ability to attract brilliant students and qualified academicians in their field. For example, when we look at universities such as Stanford, MIT, University of California, Princeton, Cambridge, Oxford, L’Université de Paris and Technische Universität Berlin in the USA, which are immediately come to mind when the entrepreneur university is called, we see that the students who prefer these universities are the most selected students of the world (most of which come from international markets and are usually scholarships), as well as academics working at these universities will be seen as the most respected academicians (star scientists) in their field. So what is the power that attracts both brilliant students and qualified academics to these universities? There are countless answers to this issue, but one of the main reasons is the rich campus environment the university enables with extraordinary and oriented social life.

Entrepreneurial universities provides rich campus environment for students, academics and the business community they collaborate with. Now, students who select higher education do not behave according to the criteria such as area, department, city, university type (public, foundation, private), post graduate employment and at the same time they are in the expectation of a campus environment offering a rich social environment for at least four years. Moreover, the student expects a social living environment enriched with sporting, artistic and cultural activities that can further evaluate the remaining time in a fun way apart from the educational activities.

A participant expressed the present situation about this sub-dimension and the necessary things to do as follows:

“When I look at university, there seem to be a lot of things missing toward students. The student is very weak in social issues. Social clubs are very weak. Everything is looking at the material power. There is a social clubs building, I did not see it as active. That is, there is need to be active, financially supported, student-oriented services be increased. ... I agree with the idea of increasing social facilities. “(K5)

One of the main dynamics of the entrepreneurial university is the ability to have diversified sources of financing. Counseling services should also be enabled to represen-
tatives from the business world in addition to encouraging students and academicians to establish start-ups, spin offs and spin-outs, which provide additional revenue streams for the university. Intermediate units such as technology transfer offices, consultancy centers, accelerators, incubator centers serving in university campus should increase cooperation with the sector and open new business associations (Schulte, 2004:23).

Universities have to use the present financial resources and human resources at the maximum level in order to have the third income stream that is the public finance facilities according to Clark’s statement. Universities can increase additional funding resources by entering into cooperation with stakeholders such as industry, government and non-governmental organizations. Here, the key element is providing information, technology and innovation emerging from the conducted projects, R&D and educational activities in university for stakeholders and enabling university, academicians, students, the government, the sector and the society in the broadest sense to benefit from it. For achieve this and provide funding, the prior condition is necessary for the university is to have sufficient infrastructure facilities, technical and physical equipment and intellectual capital. In fact, one participant:

“I emphasize the idea that university does not satisfy with the budget given by the government only, in the sense that is an example to its own student ... earning income in different fields and establishment of the necessary infrastructure in terms of the creation of own capacity or physical opportunity” (K12)

Gaining income of universities using the campus facilities depends on the facilities of the university. In other words, having the third income stream is directly related to the infrastructure, academic staff and number of faculties, departments, institutes and their types in the university. For example, an interviewer explains this situation as follows:

“We have distance learning and secondary education as Business Administration department with the team consists of 18 people. Undergraduate and graduate level ... In this sense, we are entrepreneurs as department, it is good to be applied by everyone. However, our advantage is that the business department and the courses to be opened are very popular. We can enter every field and we have human resources, management organization, financing, marketing so we have possibilities for various courses and seminars. I believe that it is necessary to use it exceedingly.”

The university has to response the challenges and constraints of internationalization; presenting standard programs and course contents with processes such as Bologna, Lis-
bon Process and forming European Higher Education Area, using technology in research activities, presenting innovative education materials (Rinne and Koivula, 2005:13) such as flipped classroom (course at home homework at school model), giving English education can be listed as solution. At a foundation university, the situation can be summarized as follows:

“We are one of the universities approve most students from abroad and apart from this there are many students who came to us with different cooperation. Some of them are students from due to the cooperation between the holding behind university and Kazakhstan. There are projects and associations supported by the foundation universities due to the external affairs of Turkey and students came from there. ... good income is gaining from all of them” (K2)

Management Dimension; Model and Evaluations

In their strategic plans where they prepare events for the purpose of entrepreneurship, entrepreneurial universities blatantly state mission and vision documents; an entrepreneurial culture within the entire university is aimed with the pioneering of a leader. The theme of management is classified into five subheadings in the model: The effect of leaders in transformation, the process of strategic planning, the ability to form entrepreneurial culture in the institution, lateral organization structure and executive autonomy.

Administrator should search for the ways of long term and sustainable fund sources instead of decreasing public resources and possess additional financial resources to improve the quality of education and research in the future. Wissema (2009:146) argues that today university administration is not only perceived as a bureaucratic issue and operations; a university executive must be a good CEO in his/her abilities, a good CFO in enriching finances and utilizing the existing finances efficiently, a good CTO in following the information and development on education and research operations and using them optimum within the university. For example in Finland it has been discussed that universities should not be only managed by academicians; managers of business world should be included in the administration for the purposes of improving efficiency, utilizing the cash resources and intellectual capital correctly, hiring qualified staff (executive and academic), and imposing the entrepreneurial spirit on students (Williams and Kitaev, 2005:8).

In the meetings it was observed that a vice rector was held responsible for cooperation’s with the sector, commercializing the information and technology that results from education and research activities, TTO, incubation center, and entrepreneurship; the planning,
execution, conclusion, monitoring and control of all entrepreneurial activities were carried out by the supervision of a vice rector. A participant, for instance, describes this situation as follows:

“Sure, an attentive vice vector, as we have in our office in the leadership, he is the vice rector responsible for R&D and we work together. All workshop activities and some movements in industry take place with his guidance. ... Here the events targeted at entrepreneurship takes place at the level of vice rector. Administration appears to be very supportive in matters such as entrepreneurship; I think that contributes a lot.” (K5)

Participants state that they are supported by the management and do not confront any obstacles when they try to initiate an entrepreneurial activity. A participant for instance states:

“When people want to conduct researches and utilize project funds, they may not able to do it because they don’t know how to do it. I think administration should take the role of guide and leader in this case. ... The effect and contribution of leader is irrefutable. You see that sphere of influence for rectors are very large and that might be stemmed from the rigid hierarchy within the university. Therefore if the rector wishes, conferences and seminars could be arranged and guidance and direction can be done.” (K6)

Most participants interviewed revealed that strategic planning is of paramount importance for entrepreneurial university, however, strategic plans were not that functional in terms of application and mostly prepared due to the legal obligations. A participant refers to this as follows:

“We had some duties in strategy planning. And it was a very successful plan. We went down as far as students. Did we get to all the parties? No. Surely a larger study is required in terms of families. We only made connections with our closed circles among ourselves. Although not sufficient, I think we carried out a good strategic planning with our staff and students. If we had larger participation, if we had made targeted plans after the facts were revealed and if there were controls afterwards, more accurate results could have been obtained... In strategic plans of entrepreneurship, the bare statement of the institution only is not adequate, I believe other parties should also involve in the planning process.” (K12).

It was observed that university administration could not direct the students and academicians towards entrepreneurial activities adequately, but in some special occasions they contributed to the illustration of entrepreneurial manner of students and academicians with individual efforts. In the words of a participant:
“I’m talking about the aspect of vice rector, he explains his goals and desired event organizations. That makes us feel free, we know that if a problem occurs it can be handled, but doesn’t inject creativity. Ideas are our own products. We refer to him when we face a problem or have setbacks. We go to him when we demand his initiative. Same goes for the dean. Dean is asking us what they can do about entrepreneurship? He proposes bringing lecturers, playing theaters, conducting brainstorms, organizing workshops and meetings. We apply some of his outputs and leave some unapplied. ... All in all, the impact of executives on the formation of entrepreneurial culture inside the institution is undeniable.” (K9)

In literature, it is emphasized that the acquisition of entrepreneurial culture on all parties is at the hands of academic and administrative staff (Rinne and Koivula, 2009:4). Yet, a participant argues that the government poses an obstacle on the facilitation of entrepreneurial culture both by legal regulations and funding finances:

“The government doesn’t show the alternative ways of entering university. They don’t illustrate the other possible frames. Then what happens? The bureaucratic mindset, centralist, anti-democratic structure gets stuck in the transition to entrepreneurial university... It tries to change us later on. You’re trying to change an existing culture but those who are trying to change does not have that targeted cultural qualities... Unless the entrepreneurial spirit is present in the government in a real sense, why would the university change itself then? It would simply maintain the status quo. The finances are entering anyways.” (K11).

It is foreseen that the new administration model, especially in management aspects, is turning from colleague administration into board of trustee type structure consisting of people from academic environment, business world, civic society organizations and local administration agents. One of the participants explain this transition in these words:

“Maybe it’s not possible to change the organizational model right away; it’s too hard because there is YÖK, presidential appointments and etc. There are too many administrative discussions, I won’t even mention that. In my research, there were continuous attributions to HEC (Higher Education Council) and the system. ... I think this organization model should evolve. ...In my opinion, a change of system and regeneration in process is possible, administrative regulations can be altered.” (K6)
Governmental Dimension; Model and Evaluations

Examining the literature on entrepreneurial university, the government has the responsibilities of coordination, mediation for connecting university and other institutions with transparency and commercializing information and technology by bringing together university and industrial sectors. For instance, in the famous triangle of Clark (1998), the government stays on top of the triangle and is responsible for the coordination between the two institutions underneath (university and industry). Similarly, one of the circles in the Triple Spiral Model of Etzkowitz belongs to the government. In the advised model of this study, the theme of government is classified into three subheadings (Etzkowitz, 2003:26). According to this, the government is projected to make legal regulations to facilitate and improve successful university-industry collaborations, design intermediary institutions to reinforce coordination between parties and provide funds to projects and R&D studies.

Participants, in general, agree that the government is taking considerable steps towards government-sector cooperation and the government is doing a better job than before but still far from the expectations. In the interviews made, suggestions such as increasing circulation capital revenues, reducing/removing taxes from circulation capital, making regulations about patent and license revenues and reducing the lecture hours of academicians that involve in the R&D studies and projects were put forward. For example, a participant stated:

“Partial commercialization and entrepreneurship is now possible for us. There is the case where the patent of the academicians’s product can be gained in partnership with the university. That's how it is supposed to be since things are done with the opportunities of university. To excite people to find new things, that organization should be designed so as to benefit itself as well. I find the developments quite positive. It’s still a little bit slow. The government is late to deliver the possibilities to academicians compared to corporations. The government should be more active in terms of support.” (K12)

The existing traditional, conservative culture of university should evolve to entrepreneurial culture that promotes innovation and creativity; a change of mindset should take place and that would only be possible with government’s encouragement and support to such activities and bring together the two sides (university-industry) with various mechanisms.

A participant who believes that universities cannot become entrepreneurial with the existing valid YÖK legislation says:
“There is the obvious obstacle of autonomy before the succession of being third Generation University. Administrative autonomy, you’re both dependent on HEC (Higher Education Council) and board of trustees. What does a third generation university do? It produces firms, how could you make it in spin out? ... For that you have to found a company. We did found a company. HEC (Higher Education Council) responded to this saying “you can’t create a firm, a firm is a commercial institution. University cannot produce firms.” They made us close it down. We were forced to do it through a foundation, we located it as the commercial institution within the foundation, however the issue here is foundation and university are two separate entities. The foundation might assert “I’m not giving this capital to you” to university. The foundation doesn’t have to let university use all of its sources. Then the university is the victim here. University can’t get any money from that operation. .. In Turkey, you claim to build a third generation university but HEC (Higher Education Council) arrives at your door and prevents you from being partner to firms. .. Existing legislation is one of the obstructions ahead of third generation university.” (K4)

Most of the participants thought that regulations and laws were the obstacles of entrepreneurship and HEC (Higher Education Council) was leading the way for that matter. Participants expressed that HEC (Higher Education Council), in its current structure, was limiting creativity, entrepreneurship and innovation; academicians aiming to develop patent and license, cooperate with the market and conduct contractual research were not supported sufficiently; serious amount of tax and circulation capital cuts were made over their projects and R&D studies and entrepreneurial activities should be utilized in academic advances.

According to a participant whom believed that entrepreneurial activates within the university were not supported adequately while private sector with its various public institutions (KOSGEB, TÜBİTAK, Ministry of Development, Ministry of Science, Industry and Technology etc.) were encouraged more:

“I’m checking the grants towards private sector; let me give you a simple example. Government claims to grant 30 thousand liras for each student in a class consisting of 30 people. So, I am facing a team that can get the grant at the amount of 900 thousand liras for 30 people. Yet, the education system that claims to give them 900 thousand liras has spent ridiculous prices so far. The total amount I got until now is 3 thousand liras. Think about it, the education that was supposed to cost 900 thousand liras is granted 3 thousand liras, how could you be confident about the quality of education. I get 3 thousand liras as a professor.” (K12)
Educational Dimension; Model and Evaluations

One of the most important steps in the transition from traditional universities to entrepreneurial universities is the change and transformation needed in the dimension of education and teaching. In this context, along with the undergraduate, graduate and postgraduate education provided in university, special content service education courses, particularly designed education seminars, distance education and the development of reformist, innovative curriculums under the life-long education theme and new departments in accordance with the expectations of the sector, mutual post-graduate educations in partnership with the industry and scientific thesis studies in compliance with the needs and expectations of the sector in postgraduate level can be evaluated.

Entrepreneurial university aims to perform educational and research activities in multidisciplinary fields. Information production modes that were first suggested by Gibbons symbolizes a radical change in educational and research approaches of university. Gibbons et. al (1994) emphasize that traditional Humboldt type research operation is based on single discipline researches (Mode 1) but factors such as rapid change and development in the information and communication technol- ogies, globalization, more intimate cooperation with the market, rising demand for high information and technology based products and services and innovation requires interdisciplinary studies (Mode 2).

This type of interdisciplinary studies requires the demolition of single discipline rigid hierarchy units (faculty, department) arising from Humboldt type university organization and facilitation of inter-departmental and inter-unit transmittance. Indeed, according to a participant:

“Definitely an engineer and a designer or a manager should come together to create something. Maybe a mechanical engineer and a civil engineer can get together to develop objects. They have to develop new concepts for emerging construction materials. Therefore, I think the destruction of inter-disciplinary walls and formation of lateral hierarchy would stimulate entrepreneurship.” (K4)

One of the sub-dimensions of the suggested model is the education of entrepreneurship towards students in undergraduate and graduate level. In this courses, the culture of entrepreneurship should be imposed to students especially those studying in science, engineering and medical faculties; awareness in the field of management to help them start their own business after graduation should be raised (Gibbs, 2007:10).
A participant attending entrepreneurship courses describes the students’ approach to the education as follows:

“I lecture in entrepreneurship course sand they came to class for grades. Should I start a business or not? They are not taking this too seriously. They might earn money but they don’t care about it... Additionally, the student doesn’t know the needs of the sector. One should develop product or service that can address to the needs. Then the courses become just useful for grades. ... I can’t say that entrepreneurship course has given the desired impact as of now.” (K9)

Doctorate-level trainings create synergy for new partnerships between sector and the university. The trend in the doctorate degree in whole world is shifting towards this method. For instance in countries such as Norway, Denmark, Sweeden, Britain industrial doctorate programmers are being formed and these programmers are highly demanded. The starting point of this programmers is that; The student begins the doctorate education with the sponsorship of the company, the subject of graduation thesis is determined together with the sector in accordance with a definite physical field and a research towards the solutions in this field at the doctorate level is conducted (Garcia-Quevedo, et. al., 2011: 11). These researches are usually based on developing new products or processes and innovation centered manufacturing.

In the interviews, a participant states his post-graduate education and thesis topics related to this sub-dimension as follows:

“That’s how I think about result-oriented post-graduate thesis for the solution of sector’s problems: For instance, a different title can be brought up on this; industry doctorate degree. People from engineering and economics and administrative sciences may gather together. Inter-disciplinary studies might take place here in my opinion. Why shouldn’t a professor in engineering carry out a thesis together with an economics professor? In or field, many thesis are prepared towards the problems of SMEs, finance searches and new accounting system applications. Remarkable majority of these studies can be applied in implementa- tion.” (K6)

**Financing Dimension; Model and Evaluations**

Investigating the definitions of entrepreneurial university in the literature, the concepts of creating own finance resources and having own capital are prominent. Because the departure point of entrepreneurial university is to find finance resources for education and research independent from public sources, and having financial autonomy in utilizing these resources. Decrease in traditional public finances, rise
in the costs of education and research and internationalization has given rise to competition in higher education, increasing demands of students on quality education, the concern of being in higher ranking on various institutions’ lists (QS World University Ranking, The Times Higher Education World University Rankings, The Academic Ranking of World Universities-ARWU, URAP - University Ranking by Academic Performance), the pressure of quality control and accreditation institutions, higher influence of markets on university (Doane and Pusser, 2005:7).

In this part of the model, it is advised that the university should give incentives to public and foundation universities and make legal arrangements to attract foreign students. YÖK should also take initiatives and introduce Turkish higher education institutions abroad by ways of seminars, conferences and so on. The last data of HEC (Higher Education Council) shows that the number of foreign national students studying in Turkey is around 70 thousands.

In the interviews, all of the participants emphasized the importance of attracting foreigner students from the global market and expressed that internationalization will improve both country’s and university’s economy. A participant went on to say:

“I think especially Anatolian universities remain oblivion in terms of preference because of their geographical obstacles. ... Therefore the dimension of internationalization is important in an environment with competition where universities build multiple campuses and search for reaching every student. ... I would like to see Turkey getting better on this matter.” (K6)

Especially some of the education programs on the levels of undergraduate, graduate and doctorate should be conducted in distance learning. Public and foundation universities providing master programs with or without thesis and online master programs gain significant revenues. A participant states:

“Here, vocational high school education is completely based on distance learning. Anything you can think of: medical representation, pharmacy technician education, marketing has distance learning units. These are two-year degrees but university also has master programmers. It was founded in 2008 and has various distance learning programmers on Social and Physical Sciences Institution. These attract a lot of attention and as far as I know it brings a remarkable amount of capital to both university and professors. ... I believe this kind of educational programs should be advanced.” (K1)

In the interviews, the idea of related sector in our country should fund the researches of university was embraced. It was found that there were some expectations from both gov-
ernment and university institutionally. For instance, a participant mentioned:

“Their involvement in the subjects that could be patented is surely more useful for the nation. Not only the academic career, but we should engage in studies in which findings can be commercialized. To this end, the office of technology has started directing. The foundation of Technopark will provide the opportunities of starting a business, commercialization and working together with the firms to professors. That lays the foundation of studies. ... It is beneficial to bring together different disciplines and different universities in guided projects. In fact, instead of little and self-directed projects, we need to focus on larger projects by combining our power. The government is already trying to open doors to professors through institutions for medium and large scale projects and that’s how it’s supposed to be.” (K5).

Cooperation with the Sector; Model and Evaluations

Information, technology and innovation have started to be the core of production systems of our time (Mora and Vieira, 2009). Computational edge of countries and companies requires intense informative technology and innovation, and that largely takes place in universities. Thus, an economy based on information, technology and innovation cannot be reached without the help of universities. University should convey in which fields it can run projects for the purpose of gaining incomes with contractual researches to related sectors through a website designed by TTO, electronic mail, introduction flyers, booklet, posters and etc. Also TTO’s should introduce the university to public and companies operating in the region through various project markets, seminars, conferences, exhibitions and so on.

A participant similarly states that contractual research can be run by the guidance of TTO’s in this matter:

“Their involvement in the subjects that could be patented is surely more useful for the nation. Not only the academic career, but we should engage in studies in which findings can be commercialized. To this end, the office of technology has started directing. The foundation of Technopark will provide the opportunities of starting a business, commercialization and working together with the firms to professors. That lays the foundation of studies. ... Universities should involve in large projects along with industry, otherwise academic studies remain in academy, thesis or present the thesis to science as publication but doesn’t contribute to the society sufficiently.” (K5)

In fact academicians themselves agree that through contractual researches university, academy and in general society will get ben-
efits and this kind of cooperation’s should be supported by government bureaucracy and university administrations. Considering the fact that researches at the field of science and engineering is now being conducted more for the business world rather than for the drive of curiosity and research trend has evolved in this manner, researchers in our country are expected to accept and internalize this change. A participant, for example:

“Here, you help the sector at first hand. Actually as academy we contribute to the well-being of society that is much desired and longed for. I personally wish there were more of these researches. What does the connection with the sector provide? Being together with the professors inside the sector or in cooperation with the sector, learning how to apply theories and comparing the states... Result-oriented contract is indeed applicable and has positive outcomes. That is the real physical result, a tangible product or service. The real phenomenon that produces for the solution might be related to the process, I wish there was more.” (K11)

For the universities not containing TTOs, these interfaces are advised to reinforce cooperation with the industry. For example, in 2014, TÜBİTAK gave support to 14 different universities at the total amount of nearly 14 million liras under the concept of Supporting Technology Transfer Offices. In the suggested model, apart from TÜBİTAK, Ministry of Development, Ministry of Science Industry and Technology, other related ministries, and local administrations are predicted to support TTOs. A participant emphasizes the public support as follows:

“You plan your teaching hours according to it, you are in cooperation with the government but as a consequence even if you organize your sub-structure properly, an interface must be involved there. Activities have to facilitate works, both coordination and co-operation must be provided and activities must be monitored. Now, we got support from TÜBİTAK this year as TTO and then we won also 1513 support. What this brings to us? The entrepreneurial potential of our university is increasing as TTO structure. “(K10)

As we look at applications in the world about the establishment phase of TTOs, it is generally assumed that these interfaces are usually installed by the private sector and that the operating costs (personnel costs, transportation, subsistence and accommodation costs, tool, equipment, software, service procurement) are generally supplied by companies take service from these units. For example, R & D and project studies, private companies requesting contract research through TTO have to transfer a certain percentage of the assumed funds for research (usually 5-10%) to the TTO unit. Likewise, spin off and spin
out companies that are incubated in the TTO and are in the stage of corporation transfer a certain percentage of their annual income to the TTO. That is, as the entrepreneurial ideas that TTO incubate start to commercialize; spin off, spin out companies receive profit as provision of rent.

CONCLUSION

In the first and second section of this study, the concept of entrepreneurial university, which has been frequently come up in our country since the last few years in the higher education community has been put forward in all its aspects. The reasons for the transformation to the entrepreneurial university are explained and the internal and external factors affecting the universities towards change are emphasized in the first part. The definition of entrepreneurial university, developmental stages, financing with administrative and academic dimension, university-industry cooperation via commercialization of university researches in the process of transformation to entrepreneurial university were discussed in the second part of the study. An entrepreneurial university model that can be implemented in our country based on the literature is presented in the fourth part of the study. The model comprises of six sub-dimensions and sub-dimensions. It is suggested that traditional universities should progress to a new structure based on these dimensions in the transformation towards entrepreneurial university. The prepared model is introduced to twelve instructors who are expert in field and according to evaluations; the instructors who are interviewed believe that the model is applicable.

The dimensions of the proposed model and the participant’s views on the applicability of the model are as follows:

**Evaluation of Campus Facilities:** Universities have needed additional funding resources besides traditional public funding since the last thirty years. Although support for higher education institutions by the government is increasing, universities need additional non-public financing support due to massification of higher education and the number of university education areas is increasing day by day.

**Management Dimension:**

The university administration should provide open the campus to all parts of the society by triggering entrepreneurial spirit in all of the stakeholders. The university administration should provide commercialize the research activities carried out within the university by communicating with the companies operating in regional, national and international markets or provide to realize the R&D activities towards the expectations of sector.
A substantial aspect of the model is the forming of an entrepreneurial culture in the institution and cultivating and passing on by all stakeholders. Participants in the interviews believe that the creation of entrepreneurial activities and the channeling of students and academics towards it can only be achieved by the support and guidance of management unit in the campus.

**Governmental Dimension:**

As successful university-industry collaborations, entrepreneurial universities, academics and students are examined, it is seen that the government supports such collaborations and initiative activities.

Participants in the interviews expect government to make some improvements towards academicians in entrepreneurial activities besides the task of coordination and orientation.

**Education Dimension:**

In the proposed entrepreneurial university model, it is foreseen that the education and research should be rearranged so as to recommend interdisciplinary education and research. It is necessary for the administration to bring together academicians who study in close areas to each other in various ways, to award researchers who conduct interdisciplinary research, and to use some inspirer tools for further studies.

Participants in the interviews under the education theme emphasized that the interdisciplinary research should be the basic mission of the university and that management should take steps to provide and cooperate towards this goal and the graduate theses carried out especially in the graduate school of natural and applied sciences and engineering faculties should be in a result and application oriented manner that will respond the sector expectations and entrepreneurship courses should be must course.

**Dimension of Financing and Cooperation With Sector:**

Universities are building new funding sources by selling the information and technology obtained from R & D studies and conducted projects to companies or government operating in the relevant field and evaluating R & D demands with application-oriented result-oriented contracts. The purpose is to create added value by converting the information, technology, license and patents generated in the university to goods and services and in return, have resources that are regarded as third income revenue. Entrepreneurial universities are raising their income sources to gain additional income in several ways (spin-off - spin out companies, patents and licensees, contract research, HIE courses, online training, consultancy services, etc.).
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TÜRKİYE’DE GİRİŞİMCİ ÜNİVERSİTENİN OLUŞTURULMASINA İLİŞKİN BİR MODEL ÖNERİSİ VE UYGULANABİLİRLİĞİNİN DEĞERLENDİRİLMESİ


Problem Cümlesi: Türkiye’ye uyarlanabilecek girişimci üniversite modeli nedir ve önerilen modelin uygulanabilirliği konusunda bu alanda uzman öğretim üyelerinin görüşleri nelerdir?


Anahtar Kelimeler: Girişimci Üniversite, Üçüncü Kuşak Üniversite,-multiversite, Üniversite-Sanayi İşbirliği, İnovatif Üniversite