A Macro Analytic Success Model for Entrepreneurial University

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Abstract: One of the new forming world discipline feature is knowledge based innovation. World new discipline, vitality condition is to establish new science and technology and suitable utility from that. Therefore, the new era witness those grand variations in university systems and for more utilization process in national, regional and international economical development. In this context, traditional university variation and conversion to Entrepreneurial University and holding and creating idea and supporting it to transform in final product or service is concerned, which means knowledge-based entrepreneurship. Thus, this university can develop knowledge-based staff and has nontraditional processes that warrant its success. In this article, we consider analyzing three key parameters: "structure", "context" and "content" for offering strategies to develop entrepreneurial university and then will offer a success model for it. Otherwise, this article pervades the atmosphere to achieve to a more prominent university named "Wisdom-based University"

Key words: Entrepreneurial University - Innovation - Structure - Content - Context

INTRODUCTION

Economists like Adam Smith; the father of western Economy was interested in affecting education and learning upon economical growth and development. Minser [1], Schultz [2] and Becker [3] considered training and learning upon growth and economical development as for accountancy growth and developed investment theories in human capital. Meulemeester and Rochat [4] showed that higher education is one of the most important economical factors in that countries to utilize time series data for 6 developed countries using Granjer causal test method. Wolf Alison claimed that universities and all production units have responsibility as motivate force for future growth and have direct role in this field as well [5].

University entrepreneurship is a continuum and from one side is extending teaching and research activities and from the other side has internal capabilities for transforming knowledge into products and services. This role has been played traditionally by industry and means to convert knowledge into revenue. The capitalization of knowledge is the heart of a new mission for the university, linking universities to users of knowledge more tightly and establishing the university as an economic actor in its own right [6].

Some universities that were successful in this field, like Massachusetts institute of technology and Stanford University, could achieve extensive results for universities and society [7]. Only it established 1000 companies nearby by graduations and the total number of graduated firms reached 4500 throughout the world. Students and science board members registered two inventors daily. Technology registration office registers 4 inventions weekly and deliver hundreds point right to industry and participate in implementing 15 to 20 new companies. Based on statistics, it graduated up to 200 companies since 1985 to 2001 by technology registration office and their value was 20 trillion dollars in 2001. Stanford University locates near the Silicon Valley and can establish successful corporations based on technology. The most important corporations are, Hewlett Packard, Sun Macro system, Cisco Systems and Silicon Graphic and Google. Google stock sale reached 300 million dollars according to stations [8, 9].

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Above all there is a great question, is the entrepreneurial university only a national or international economic player?

**Universities Revolutions; Procedure for Entrepreneurial University and its Cause:** University is a space that performs higher education and research to some extent and office staff, professors and students are involving in their own activities. But do all universities involve in continuous change toward suitable situation? Do all try to reuse from existing resources in searching better tomorrow? Do all move in restoring extensive, coordinate and stable indices in cultural, economical, social, political and defense as for recent and future requirements?

From establishing traditional universities allocated in training, it is so late and the trend in knowledge converting these universities from the first generation to the second generation which fundamental researches played a vital role in it. In accordance with changes the requirement to special researches in reaching to achieve industrial development aims, second generations universities established; the first university revolution happened in early 19 century and added research as new function to traditional activity [10-13].

In these universities, practical researches occupy dominant placement. There are many universities based on this plan and industries funded science and research institutes reaching economical aims and in terms of research and development unit. After that, these hold training courses for staff in addition to research; and gradually their activity converted in university. But as for huge science speed particularly in advanced technology, complicated communications industry, government and university and requirement for technological innovation; Entrepreneurial University was offered to undertake superior tasks.

**A schematic view of university revolution**

![Diagram of university revolution]

Entreprenuerial University has capability for achieving direct targeting in adjusting universities aims and in transformation of knowledge to reach economical and social suitability, for example, Milan Poly Technique University assembles an office for transforming technology in registration innovation and issue used permissions, has reports the first significant contract that production and distribution unit and play a vital role as four firms of years salary. This sample, attracted many professors ad obliged them to find commercial advantages. The university that considered results researches for finding university patterns, had many capabilities for translating results in intellectual property and economical activities. But, as mentioned above is the entrepreneurial university only economical or the cultural roles should be noticed?

**Entrepreneurial University, its Necessity and Mission:** In knowledge-based economy universities have responsibility for high partnership in innovation and developing technology as well as educational and research missions. Therefore, new networks are increasing and universities have role as for their capacities as production and distribution unit and play a vital role as entrepreneurial university in industrial innovation and developing technology [15].

University society has significant role in internal dynamism and in external relations to business and transforming knowledge and technology into required units. In late 19 century, individual and collective efforts because of lacking official system for supporting research, established an entrepreneurship innovation. In fact, entrepreneurial university emerged from down to up
whereas, in Europe, its starts was from up to down that emerged from innovation gap between America and Europe [16].

University organizations changed in parallel to these variations and in some cases, follower absorbed in knowledge-based economy. Since economy acts as resource, scientific knowledge was converted into economical function and recognition [17]. Knowledge considered as motor for economical growth that is different with three classic elements like land, revenue and labor force (traditional foundation for production wealth), but the technologies based on knowledge and outside from economical model frameworks [18]. Whereas, systematic economical and knowledge were separate and today, wrapped in together and in some cases, this wrapping was due to governmental policies and their significant tolerance reduced whether governmental or private National Heroes do not matter. Instead of, it is anticipated that key economy reaction is from corporations that result from university and have close relation with it in the form of clusters.

Entrepreneurial University involves research unit. Although, in some models, analysts considered as deviant route from university aims [19, 20].

UNESCO a Scientific and cultural organization has described new universities in world landscape for higher education for century 21 [21]:

“The placement that entrepreneur’s skills develop for facilitating graduations capabilities in higher education and converting into job funder.”

In fact, effective interaction among the university, government and industry is based on entrepreneurial university that is the key for innovation development [6], [22]. The important point is to establish new discipline between active systems for encouraging innovation. In new space, organizational innovation, new social arrangement and new channels for deliberation in speeding innovation are important than physical facilities.

We found that entrepreneurial university supported companies as well as individuals and this is same current fact locates in incubators. In this manner, strategic unions like shareholders universities share holders, in its graduate companies and others benefit from it. These issues address appropriateness between theory and practice in depth, which confirms on a multitask university including cultural affairs.

Functional Basic Difference Between Entrepreneurial University and the First and Second Generations: Learning Instead of Education: Many students achieved in significant graduation special level, they have good knowledge storage but cannot use it. First and second generation’s university or same research universities can educate persons including full occupational gaps and therefore, it needs to great movement to reaching entrepreneurs as scientific pole, university educational system is not based on learning, education based on training and this factor is important for lacking train.

Schumpeter says: entrepreneur is performer and knowledge that is not used; is useless for entrepreneur [23].

Entrepreneur is the one who has capability for recognition and evaluating business advantages and collect suitable resources and establish suitable operations for [24].

We find from above that Entrepreneurial University has different strategy for education so called "learning" instead of education. In this strategy idea creators consider suitable learning, of course, they are trained general management and entrepreneurship but we have to consider that this learning will help them to reach to final aim; implementing the better idea.

Although university can suffice for production and offer technology and deliver it to students, but this is not a complete success and it does not mean that if this technology is applied in society and deliver to entrepreneurs, then it will reach to theoretical and practical successful. University can design horizons and utility advantages for all persons and use them for utility. Its sight is not technology merely but considers entrepreneurship in using employment for younger’s in technology development and its social and cultural side effects simultaneously.

The Concept of University Entrepreneurship: We can confer three meanings regarding university entrepreneurship 1:

- University is as entrepreneur organization
- University members like professors and students behave entrepreneurially

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1: http://www.sussex.ac.uk/spru.
The interaction between university and environment lead to entrepreneurial model current.

Entrepreneurial University can be presented as collection of following related elements:

“Conversion in revenue-mutual dependence-independence-substrate structure and reaction capability”

Etzkowitz explains that an entrepreneurial university rests on four pillars as well [6]:

- academic leadership able to formulate and implement a strategic vision
- Legal control over academic resources, including physical property such as university buildings and intellectual property emanating from research.
- Organizational capacity to transfer technology through patenting, licensing and incubation and
- An entrepreneurial ethos among administrators, faculty and students.

These Principles have come from analysis of experiences in development of university entrepreneurship in America and Europe and regarding local contingencies can be used properly especially concerning innovation issues, thereby reaching suitable university situation means the was balance between them [25].

**A Macro Analytic Success Model for Entrepreneurial University from Theoretical Point of View:** Some of the most important entrepreneurship capabilities for entrepreneurial university graduates are [22]:

- Knowledge and skill for idea creation
- Knowledge for compiling business plan
- Knowledge and skill for performing the idea and offering it to society
- Positive view in life and work
- Interdisciplinary activity
- Team working and group working
- Learning dynamism
- Logical risk taking

To reach these capabilities, Entrepreneurial University has to suitable concepts, principles and mechanisms completely different from the structure and content and culture and work field of Traditional University. Since, we have change in educational programs and university culture, then, it shapes with three aspects the macro analytic model including context, structure and content to act successful in applying knowledge and it can create good interaction between knowledge and industry and motivate gross national growth index.

Therefore it needs to use a proper analytical model for achieving success in entrepreneurial university. In macro analytical organizational model (three clusters model), every organization analyze based on three clusters; including context, structure and content [26, 27].

We should notice that no organizational phenomenon can be analyzed without those aspects and their relationship [28].

**Structure Axis:** Organizational structures are the routes and channels which the organizational operations and processes are rendered through them, regarding organizational structure pathology is concerned with the crisis through structure deviations. This axis contains all nonhuman and physical element holding appropriate and connected order and regulation [28].

**Context (Behavior) Axis:** The organizational context is the all related to human being and his/her behaviors in organization pictured in object and subject oriented behaviors. The interaction between content and stature shapes organizational function [28].

**Context Axis:** This axis is the most important axis regarding its root in system theory and the relatedness of the other axes to it. In a nutshell, context is something which affects all the organization. Environment is the clearest example for context but we can offer "common vision" or "shared vision" as a context. After all, context underlines the relationship between organization and metasystem overwhelming the organization and makes the atmosphere for structure and context to interact [28]. The strategic Appropriateness between theory & practice is highly rooted in the context.

Based on so called related axes, entrepreneurial university Macro analytic model is as follow:
Structure Analysis from Theoretical Point of View and its Operational Aspects: As one of the thinkers cited about entrepreneurial university, particularities we can say that its structure has similar to the features cited above [29].

To reach to these aims, we have to make different networks to find out its structure, since when we speak about non concentrated structure, we can form different shapes and when we speak from non official groups and support them any way. Suggested strategy is as follow that involve three institutional subsystems and one team structure that can cover all items:

- Foundations that established by university are as following:
  - Entrepreneurship centers have three prominent tasks in entrepreneurship research & education and technology commercialization establishing and cooperation with industry to make social networks.
  - Office of technology patent that organize Intellectual property and commercial aspects
  - Business committee that considers educational, consultancy services and supporting
  - Consultant centers to use expert networks to guide entrepreneurial firms
  - Learning centers by means of entrepreneurship and self esteem and confidence in students

- Networks were established upon different subjects about investment and more experienced experts and special subjects and provide access to different fields of related items and they provide to take a risk and to be powerful in future by them.
Individual entrepreneurs when find their function forming many shapes, as Schumpeter said: it is not necessary that entrepreneur has a physical role in university but he has to identify many suitable situations [30].

- Form team entrepreneur that their duty is to find new product. In these teams, communications are horizontal and manage by managers that they get along with horizontal structure.

In these centers, communications between persons and groups are informal and it is necessary to hold informal sessions whereas, they have to use from mechanisms and organize suitable patterns and support deviance and manage vertical structures.

In these universities, human capitals and students are many useful and support taking a risk and their motto is: compiled vision future, thinking customer, costumer independent policy filed and financial rules and oriented based on innovativeness [31].

**Content Analysis Is From Theoretical Point of View and its Operational Aspects:** Entrepreneurial university offer knowledge-based products and services, thus, knowledge management plays a vital role in entrepreneurship spirit. Conditions for establishing knowledge management and entrepreneurship spirit are penetrating in this manner but it needs the following strategy to move:

- Define strategy as follow [32]:
  - Suitable and scalable aims
  - How to access to aims
  - Access to aims by whom

In other words, this motivation motor is flowing in this manner forever for facilitating knowledge and motivation works, thus in below examples, they have strict affects:

- To hold business plan competition
- To hold arranged lectures to invite prominent entrepreneurs
- To hold seminars and discussion groups
- To Publish magazines and newsletter both in hard copies and electronically papers.

Entrepreneurs need to be trained versatile. In other words, they direct many situations and study them and when they arrange critics sessions, direct in the proper route automatically rout. Since in these teams, that expert person present, they modify their needs directly or indirectly and replace their drawbacks, as the expertise is not transferable, monitoring is suitable in this regard especially in incubation phase [11].

Thus, to reach so called aims in macro analytical model, we suggest that:

- Educational courses pertaining to entrepreneurship
- Entrepreneurship beyond frontier
- Critic and discussion sessions
- Training (mentoring for teams for training)
- Clinical implementing affairs
- Case study

**Context Analysis from Theoretically Point of View and its Operational Aspects:** If Entrepreneurial University establish knowledge, research, value, risk and independent policy filed and financial rules and regulation, it is necessary to change the culture and sharing staff in defining landscape and its sight concerning customer and market, intellectual property regulations for financial support and donation (vaghf) is appreciated and gift culture is developing. In below we offer some notes derived from case studies is samples for reaching successful aims by knowledge-based entrepreneurship.

- Learning Culture [32]:
  - Sharing staff in defining landscape
  - Sharing interest between all staff

- Visioning based on customer and market for directing items for research.
- Intellectual property regulations for preventing non authorized use and having clear strategy for any share of shareholders like, inventors, faculties' labs and universities.
- Establishing financial support structures from real entrepreneurs in investment funds, special banks and angels and denoters networks for business.
- Directing gift and establishing its culture pertaining to develop advance culture

There are some successful entrepreneurial universities in West and East (like MIT, Stanford and National University of Singapore) with versatile mechanisms all aiming at knowledge-based entrepreneurship which is possible to refer.
It is worthwhile mentioning the intent of entrepreneurial university as a grand cultural organization to be the most important institution to drive comprehensive sustainable development from the wisdom point of view.

CONCLUSION

If we consider historical route of industrial and economical development theories, we find out that knowledge-based economy is confirmed and it is natural that the most significant thing that helps us in this route is entrepreneurship. Thus the strategy is noticing requirements of economical and social organization and the interaction with them is utilizing of human and non human forces and leading to social and economical development.

Of course cultural role of university should not be forgotten. The aim of this article is developing a success model for implementing Entrepreneurial University concerning macro analytic model including structure, content and context theoretically and practically. Since universities can communicate with governmental and non governmental agencies and their relation leads to restore innovative situations in society knowledge-based economy, the most important point is to create idea and convert it into products and services using knowledge community and establishing new discipline among networked institutions and encourage innovation. In this space, innovation and organizational creation, social arrangements and new channels are more and more important than physical facilities in promoting innovation. Establishing Entrepreneurial University underlies knowledge-based corporation. In this atmosphere, for non coping with financial interests, it is necessary to consider value elements in establishing new products and service. In fact, Entrepreneurial University is an emblem of a step beyond to establish public welfare and find easy situations for life and moving toward economical welfare in the wisdom-based framework. It seems that, research, study and offer a model for Entrepreneur University based on wisdom will be necessary in the future studies, especially defining and using is wisdom in the new atmosphere to realize “wisdom-based university”.

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