

STUDY REGARDING THE POSSIBILITIES OF TRANSITION TOWARDS AN SUSTAINABLE ENTREPRENEURIAL UNIVERSITY

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Abstract: *The paper aims to identify and analyze factors that determine the transition from a traditional technical university to a sustainable entrepreneurial university. The research is based on Web-based questionnaire method and was made at the University "Politehnica" from Timisoara, based on a scientifically representative sample taken. The universities, are thus intended to play a highly central part in the innovative and entrepreneurial process.*

Key words: *sustainable, entrepreneurial, managerial, financial*

1. INTRODUCTION

In the current environment, society suffers radical changes, which must be reflected, primarily in organizing social institutions. Universities have shown flexibility over time, starting their evolution from institutions with a the teaching "mission" – Teaching University, later adopted a knowledge generation function (research) – Research University. Today, universities need to assume another mission, namely to contribute to society development more directly, in order to join themselves into this process of transformation - Entrepreneurial University. The mode in which these universities can become entrepreneurial universities is reflected in the triple helix model. Taking in account the role of the universities, as starting point for the development of new knowledge, these must be consolidated through the "triple-helix" philosophy, which is an spiral type model of innovation that describes mutual relations in many different points of the process of accumulating knowledge.

The "triple-helix" model of university-industry-government relations is a neo-evolutionary model of innovation process being a model for the analysis of innovation in the knowledge based economy (Etzkowitz, 2008). The model integrates activities from three "institutional spheres": the universities, the business sector, the public sector. The first category is composed of universities that develop their educational programs aimed at training new skills for future graduates. The second category consists of decision makers in industry (entrepreneurs, investors, managers, executives). The third category consists of policy makers in legislative and executive institutions of the state, which regulates the legal conditions for the industry, research centers and universities, public funds for R & D and education (Etzkowitz, 2000).

Entrepreneurial University is one of the concepts born as a result of reaction of universities to changing external environment and is characterized by the following: has an independent activity, on own risk, are engaged in economic and social development of the surrounding region, are flexible, are using creatively the existing resources, redeploy its staff to adapt to environmental demands and are operating under strict parameters of costs and profits (Clark, 2004).

The institutions of higher education and the universities, are thus intended to play a highly central part in the innovative and entrepreneurial process – in society at large and in the individual region.

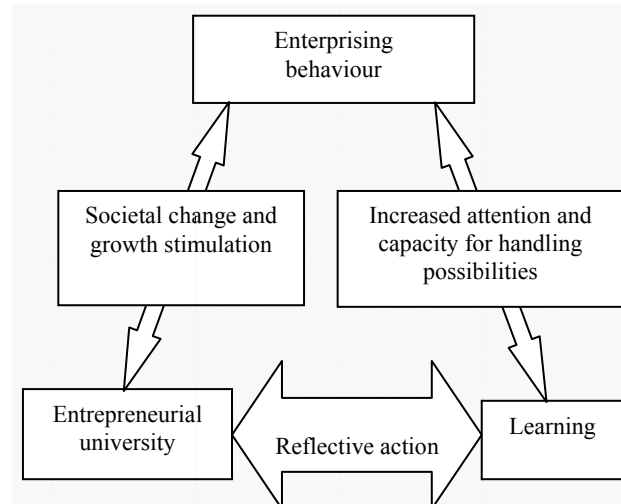


Fig. 1. The new perspective on the role universities

Figure 1 presents the new perspective on the role of the universities, on learning and learning objectives.

Therefore, the universities must play a more important role in the creation stage of a new technology and industry period and the industry must play a more important role in its later improvement stages.

The Entrepreneurial University is a non-traditional institution which runs an independent activity on its own risk, being strongly involved in the economic and social development of the region where it is located (Fiet, 2000). All the resources the University uses are allocated creatively, including the human resource which may be distributed and re-distributed among departments according to the institutional needs and economic reasons. The characteristics of the entrepreneurial university are: autonomy, innovativeness, risk taking, proactiveness, competitive aggressiveness.

2. DATA AND METHODOLOGY

The survey was conducted through a web-based questionnaire and a personal e-mail was sent to faculty members of "Politehnica" University from Timisoara.

Due to the array of characteristics analyzed through the survey, the sample size was established on first instance based on linear characteristic, in unrepeatable variant (Isaic-Maniu et al., 2004):

$$n \cong \frac{N \cdot z_{1-p}^2 \cdot \sigma_b^2}{N \cdot \delta^2 + z_{1-p}^2 \cdot \sigma_b^2} \quad (1)$$

where z_{1-p} are Laplace's variable values, for a probability $\alpha = 1 - p$, where α is the significance level, in our case $\alpha = 0.001$ ($p = 99.9\%$), and therefore $z_{0.001} = 3.09$; σ_b^2 - is the binary characteristic's variance, that is $\sigma_b^2 = \alpha \cdot (1 - \alpha)$. In order to reduce statistical uncertainty, maximum variance has been

utilized, therefore the sample was designed at the worst case scenario, that is in our case $\sigma_b^2 = 0.5 \cdot (1 - 0.5) = 0.25$; δ^2 is the probable error, established in our case at a level of 4%. After calculation, a sample size of $n = 338$ units (questionnaires) was obtained. To reduce further the uncertainty of the research, there has been a supplementary increase of sample size by 8%, that is approximately with 28 units (questionnaires). The response rate is 45,92%, this figure can be considered a reasonable response rate within the context. Finally 12 questionnaires were scrapped due to some uncorrectable errors, the survey being performed on 156 questionnaires.

For the beginning, there were identified the factors which are mostly influencing the transition measure to an entrepreneurial university. They were grouped into four categories namely: managerial, financial, qualitative and entrepreneurial, connection with the external environment.

The analyzed managerial factors are: performant academic management (PAcM), performant administrative management (PAM), curriculum strategic and operational management (CSOM), financing strategic and operational management (FSOM), curriculum monitoring (CM), delegating mechanisms (DM), change orientation mechanisms (COM) (fig.2).

The analyzed financial factors are: identifying durable financing sources (IDFS), obtaining durable financing sources (ODFS), cost management system (CMS), profit centers (PC), financing academic and research structures through results (FARSR), optimum ration between self-financing and state financing (ORSSF), optimum ratio between financial resources, obtained through third party research capitalizing and state financing (ORPSCSF) (fig.3).

The analyzed qualitative and entrepreneurial factors are: developing an entrepreneurial culture (DEC), encouraging innovation and creativity (EIC), quality culture orientation (QCO), efficient procedures regarding quality assurance of academic management (EPQAM), competition strategies on education market (CSEM) (fig.4).

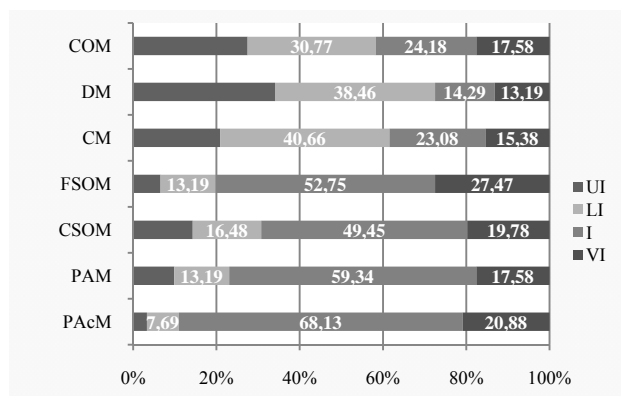


Fig. 2. Managerial factors analysis

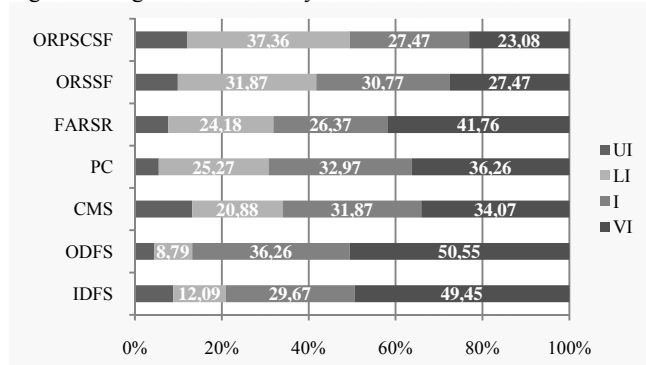


Fig. 3. Financial factors analysis

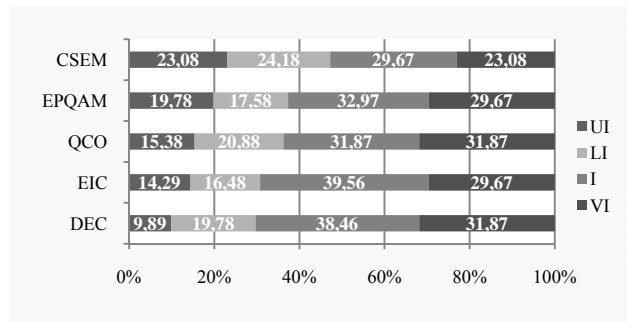


Fig. 4. Qualitative and entrepreneurial factors analysis

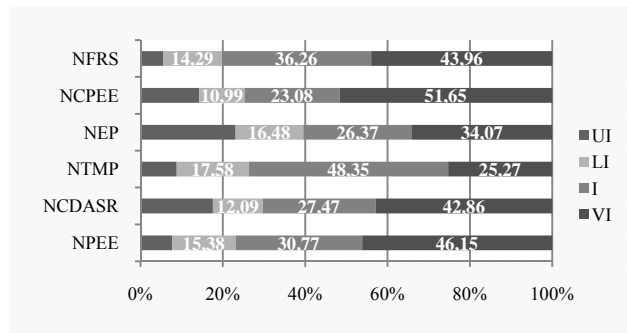


Fig. 5. Connection with external environment factors analysis

Connection with external environment is ensured by the following factors: partners from external environment with which university is collaborating (NPEE), centers developed through applicative scientific research (NCDASR), technologies, methodologies and procedures transferred to external environment (NTMP), employers with which university has partnerships (NEP), curriculums agreed with partners from external environment (NCPEE), finalized research projects in collaboration with partners from external environment (NFRS) (fig.5).

3. CONCLUSION

Analyzing the factors that determine the transition to a sustainable entrepreneurial university, based on the study conducted at University "Politehnica" from Timisoara there were obtained the following conclusions: the most important factors are: performant academic management (89.01%); obtaining durable financing sources (79.12%); developing an entrepreneurial culture (70.33%); number of finalized research projects in collaboration with partners from external environment (80.22%).

This has resulted in a need to apply a new perspective on the role of the universities and on the learning objectives the universities should comply with. This also entails new requirements to the implementation of the most advantageous learning processes.

4. REFERENCES

Clark, B.R. (2004). *Sustaining Change in Universities*, Open University Press, ISBN 978-0-335-21590-4, NY

Etzkowitz, H. et al. (2000), *The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm*, Research Policy, vol. 29: 313-330, ISSN 0146-5945, Washington DC

Etzkowitz, H. (2008). *The Triple Helix: University-Industry-Government. Innovation in Action*, Routledge Taylor and Francis Group, ISBN 978-0-415-96451-7, NY and London

Fiet, J. O. (2000), *The Theoretical Side of Teaching Entrepreneurship*, Journal of Business Venturing, vol. 16: 1-24, ISSN 0883-9026, NY and London

Isaic-Maniu, Al.; Mitru, C. & Voineagu, V. (2004). *Statistica*, Editura Economica, ISBN 973-8499-88-7, Bucuresti