

## DETERMINANTS OF ACADEMIC ENTREPRENEURSHIP: AN ORGANIZATIONAL LEVEL MODEL

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### Abstract

*Universities have adopted academic entrepreneurship as the strategy to grow and influence economy and society. The study aims to study the role of organizational climate and organizational culture of universities coupled with innovative work behaviour of academics in determining academic entrepreneurship. The study premises that the entrepreneurial climate, entrepreneurial culture and innovative work behaviour in universities will account for academic entrepreneurship. It is proposed that the right combination of these variables will enable universities create an overall university environment to promote academic entrepreneurship. The implications and limitations are presented.*

**Keywords:** *Organizational climate, Organizational culture, Innovative work behaviour, Academic entrepreneurship*

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### Introduction

The universities in industrialized countries are engaged in teaching, scientific research and also the commercialization of its scientific knowledge (Armano & Domenico, 2012). Entrepreneurship in universities is part of university's institutional DNA and its culture, and it applies to academics, administrators and students of a university (Morris et al., 2014). Today, the universities are considered as a source of innovation for various industries (Chang et al., 2006), therefore, universities possess an important place in innovation policies of various governments (Wright, 2007). The importance of the universities worldwide in entrepreneurship, technology transfer and commercialization is well established in the academic literature (Rothaermel et al., 2007; Yusof & Jain, 2010).

Considering academic entrepreneurship as a phenomenon which is available in entrepreneurial universities (Yusof and Jain, 2010), it is argued that universities as

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organizations need to develop the institutional environment to support academic entrepreneurship activities. To promote entrepreneurship in universities, it has to involve individuals, groups, departments and university as a whole with suitable infrastructure (Rasmussen & Wright, 2015). Therefore, this study focuses on university as an organization and attempts to develop a theoretical model for the promotion of academic entrepreneurship in universities.

The following sections discuss the core components of organizational model of academic entrepreneurship in universities.

## **Literature Review**

### *Academic Entrepreneurship*

Louis et al. (1989) defined academic entrepreneurship as “the attempt to increase individual or institutional profit, influence, or prestige through the development and marketing of research ideas or research-based projects” (p.110). This is one of the earliest definitions of the concept that provided the base for future studies and the development of additional approaches to definitions. For Klofsten and Jones-Evans (2000), academic entrepreneurship comprises all commercialization activities along with basic research and teaching. Similarly, it includes technology transfer for commercial benefit (Jain et al., 2009), establishment of new firms based on research by academics (Padilla-Meléndez, Del Aguila-Obra and Lockett, 2013) and creation of technology ventures (Wright, 2007).

Based on the earlier literature on academic entrepreneurship, Aberu and Grinevich (2013) broadened the scope of academic entrepreneurship activities in universities and extended the definition from spinouts and licensing, and included all the entrepreneurial activities of academics beyond their traditional roles of teaching and research. These activities are categorized as formal commercial activities, informal commercial activities and non-commercial activities (Aberu & Grinevich, 2013).

Wood (2011) considered academic entrepreneurship as a process rather than a single event. Similarly for Yusof et al. (2012), academic entrepreneurship is a leadership process that creates value from research and technology commercialization. Being the commercialization activities or the process of commercialization, academic entrepreneurship flourishes within universities. For the development of academic entrepreneurship in universities, Wright (2014) recommends two roles for universities, first role is the creation of spin-offs involving academics and second is education and research in universities which may lead to entrepreneurial actions by students and alumni. The authors highlight the role of university as an organization to promote academic entrepreneurship directly and indirectly. This study conceptualizes academic entrepreneurship as an organizational level construct with the dimensions of organizational creation, organizational innovation and organizational renewal (Yusof et al., 2012).

### *Organizational Climate*

Organizational climate is an important determinant of an organization's performance and success (Burton, Lauridsen & Obel, 2004). Schneider et al. (1998) defined organizational climate as the shared perceptions of employees towards the organization. These perceptions help employees shape their response in an organizational context. This organizational context creates the behavioural norms and shapes attitudes towards commercialization (Audretsch & Aldridge, 2009). Organizational climate has been approached differently in the literature and there is no such one model of the construct. This construct is applied to universities also when determining the climate for innovation and commercialization activities.

From a corporate entrepreneurship perspective, internal environment of organizations is defined by rewards, resources, organizational structure, management support and risk taking (Hornsby, Kuratko and Montango (1999). Corporate entrepreneurship variables enhance the organizational performance like innovation and entrepreneurship. In other instances, Yusof et al. (2012) studied internal environment of universities on the dimensions of control systems, organizational culture, human resource management systems, organizational structure and entrepreneurial leadership.

Organizational climate has the positive influence on organizational level outcomes like performance, job satisfaction and commitment (Rogg et al., 2001). Considering academic entrepreneurship as the organizational level dimension of performance of academics it can be theorized that supportive climate will facilitate academic entrepreneurship in universities.

An organizational climate supportive of commercialization influences innovation disclosures and patents (Hunter et al., 2011). Similarly, Siegel et al. (2004) recommend an organizational climate supportive of technology commercialization. Therefore, this study proposes that;

***Proposition One: A supportive organizational climate of universities promotes academic entrepreneurship by the academics.***

#### *Organizational Culture*

The entrepreneurial activities are influenced by the changes in organizational culture (Thursby & Thursby, 2005). Organizational culture represents the norms and values prevailing in an organization. Specifically, Schein (2006) defines organizational culture as "A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (p.17). Glassman et al. (2003) insists on creation of an organizational culture that embeds the entrepreneurial values of risk taking, optimism and ambition among academics to involve in commercialization activities. In a seminal work, Van Burg et al. (2008) emphasized on university culture and norms to reinforce academic entrepreneurship.

Organizational culture of universities plays an important role in determining the entrepreneurial behaviour of individuals and entrepreneurial orientation of universities. Osiri et al. (2013) proposed that entrepreneurial culture in universities creates the right environment for the entrepreneurial activities (AE) and lowers the barriers for creation of

new ventures by academics. Universities are required to develop an organizational culture that supports academic entrepreneurship (O’Shea et al., 2005). A University strategy focused on supportive organizational culture along with the organizational arrangements of technology transfer offices, science parks and incubators will enhance the entrepreneurial activities (Huyghe & Knockaert, 2015). Therefore, following proposition is formulated;

***Proposition Two: A supportive organizational culture of universities promotes academic entrepreneurship by the academics.***

#### *Innovative Work Behaviour*

Innovative work behavior of an individual comprises the generation of new ideas and the behaviors to implement those ideas in the workplace (Janssen, 2000). Creativity and innovation at work should be coupled with required behaviors. To engage in innovative work behavior, an employee must be able to innovate and willing to innovate (Parjanen, 2012). Innovative work behavior is considered a multi-dimensional behavior encompassing idea generation and the application behavior of an individual (De Jong & Den Hartog, 2007). In a seminal work De Jong and Den Hartog, (2010) mentioned four behaviors or dimensions of innovative work behavior: opportunity exploration, idea generation, championing and application. Innovative work behavior is a composite of behaviors which lead an employee to generate new ideas about his work and make possible implementation of those new ideas. An innovation is a key to all the academic entrepreneurship endeavors. In an academic entrepreneurship perspective, Wood (2009) defines innovation as “any invention, new technology, idea, product, or process that has been discovered through university research that has the potential to be put to commercial use” (p. 930)

The research in universities leads to new discoveries and innovations which are then commercialized (Wood, 2011). These potential innovations are utilized by both university and the industry. Common forms of academic entrepreneurship are consulting, contract research, patents, licensing, spin-off firms (Klofsten & Jones-Evans, 2000). Similarly at organizational level these activities are organizational creation, organizational innovation and organizational renewal (Yusof et al., 2012).

Above discussion leads to an idea that innovation and academic entrepreneurship are interlinked concepts within universities because both are embedded in scientific research conducted in universities. The innovative behavior of academics like generation of ideas and implementation of these ideas will influence academic entrepreneurship positively. Therefore, this study presents a thesis that innovative academics will be successful in academic entrepreneurship. The innovative work behavior supplemented by entrepreneurial climate and entrepreneurial culture will promote academic entrepreneurship. Therefore, this study proposes;

***Proposition Three: Innovative work behavior of academics positively moderates the relationship between organizational climate of universities and academic entrepreneurship.***

***Proposition Four: Innovative work behavior of academics positively moderates the relationship between organizational culture of universities and academic entrepreneurship.***

#### **Discussion**

From a scholarly standpoint, the above discussion leads to an understanding that academic entrepreneurship being an organizational phenomenon in universities is influenced by the organizational level factors like organizational climate and organizational culture. To become entrepreneurial universities, Clark (1998) also depicted the organizational transformation of universities on the following core elements;

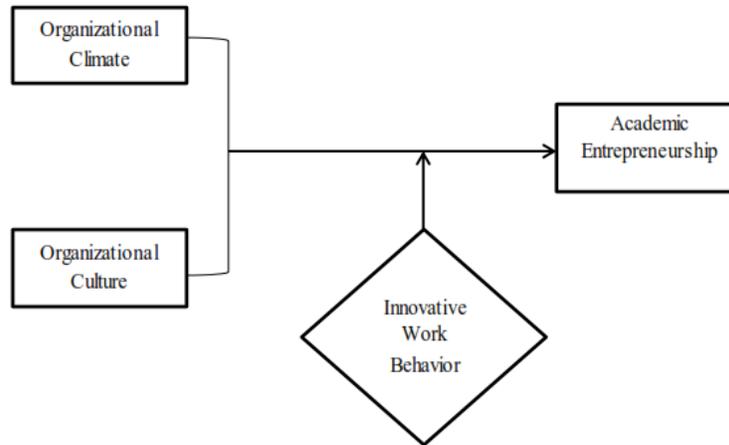
- i) Strengthened managerial core
- ii) An enhanced development periphery
- iii) A diversified funding base
- iv) A stimulate academic heartland, and
- v) A rise of entrepreneurial culture

However, the role of individual academics in the process cannot be ignored. It is individuals who make organizations. The innovative work behavior of academics will definitely improve the organizational performance like academic entrepreneurship. Fogelberg and Lundqvist (2012) argue that the researches have accepted the entrepreneurial role because of the university support for patenting and licensing.

Innovation lies at the heart of entrepreneurship. It is innovation in new businesses that makes the entrepreneurship create its effect on the development of economies (Shane, 2009). Behind every innovation, there is knowledge to create new opportunities for innovative business startups (Acs et al., 2009). Academic entrepreneurship encompasses both the creation of new knowledge in the universities through research and commercialization of this knowledge for profitable gains. Universities achieve commercialization by creating university spinoffs or passing this knowledge to local industry through licensing and patenting.

Although innovation and entrepreneurship are two distinct fields but the literature finds the similarities in two areas at organizational level (Clausen et al., 2012) as quoted by Landström et al. (2015). This leads to creation of an organizational model embedding innovation into the development of entrepreneurial practices within universities. The conceptual model (Figure 1) combines all the organizational level variables including academic entrepreneurship as an organizational level construct.

Figure 1. Proposed Model



### Implications and Future Research

The study developed an organizational model of academic entrepreneurship within universities. The conceptual model depicts the role of organizational climate and organizational culture of universities in promoting academic entrepreneurship. The model shows that the innovative behavior of academics will moderate the relationship between organizational climate and academic entrepreneurship and also between organizational culture and academic entrepreneurship. The model adopts holistic approach on universities as organizations and combines the organizational approach and innovative approach to promote academic entrepreneurship. This approach creates the opportunities for empirical research for various contexts. There is an opportunity of interdisciplinary research into the area of academic entrepreneurship.

At practical level, the model will help universities devise future strategies on the basis of relevant role of organizational climate and organizational culture. The role of innovative work behaviour can also be made part of university policies. It is suggested that model may be used with care because it focuses only on organizational factors, while individual level factors may play their role in explaining academic entrepreneurship in universities.

### Conclusion

The study recognizes the role of organizational climate, organizational culture in promoting academic entrepreneurship in universities with the moderating role of innovative work behavior of academics. The entrepreneurial climate and entrepreneurial culture of universities facilitate academic entrepreneurship by academics in addition to their traditional roles of teaching and research. It is proposed that academic entrepreneurship is an organizational construct which is influenced by organizational climate and organizational culture. The study presented research opportunities in this area of academic inquiry and research implications for various stakeholders.

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