

ACADEMIC ENTREPRENEURIAL INTENTIONS AND THE CREATION OF UNIVERSITY SPIN-OFF FIRMS IN KENYA

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ABSTRACT

This research studied the influence of academic entrepreneurial intentions on the creation of spin-off firms in Kenya. There is definitive need for tangible translation of research findings into new business venture, this is solidly determined by the entrepreneurial intentions of the researcher towards commercializing the ultimate findings to meet a market need or not through a creation of a spin-off firm. The study sample was 378 respondents randomly selected from academic staff and students. Questionnaires was distributed to the respondents to collect data. The study employed: exploratory, descriptive, and causal research design. Data was analyzed by using both descriptive and inferential statistics. From the results there is evidence that academic entrepreneurial intentions have a relationship with creation of University Spin-off firms. Conclusions and recommendations are made based on the results of findings of the study to universities and research institutions in enhancing technology transfer and hence creating university spin-off firms.

Key words: Academic entrepreneurial intentions, Academic entrepreneurship, Spin-off firms.

1.1 Introduction

For a long time, universities across the globe have been recognized as sources of knowledge creation and technological advances (Kalar & Antoncic, 2015). But in the recent times, these institutions of higher learning have positioned themselves as strategic assets in innovation and economic relevance by embracing a new role of entrepreneurial academics of commercializing of the results (Etzkowitz, 1998). The effect has led to the creation of academic spin-offs which have since been seen as important means of transferring technology from academia to the market hence bringing economic renewal, competitiveness and growth (Granhagen & Volkmann, 2014; Mueller, 2006; Prodan & Drnovsek, 2010; Solow, 1994)

The spin-off firms in Kenya are a product of interaction between three main actors: university, industry and government. This is proposed in the Triple Helix model developed by (Etzkowitz & Leydesdorff, 1997). Universities focus on establishing institutional interface structures including industry liaison/technology transfer offices, business and technology incubators, science and industrial parks and fostering entrepreneurialism among staff and students through various policies and incentives (Etzkowitz, 2008; Kalar & Antoncic, 2015)

1.2 Creation of Spin-off firms

Most industrialized countries in the last 10-20 years have been on the fast-growing entrepreneurial firms and especially the spin-offs from university research (Markman, Phan, Balkin, & Gianiodis, 2005). For instance, in the United States of America (USA), the birthplace of academic entrepreneurship, the spin-off phenomenon achieved its first success many years ago. Having been popularized by the development of the legendary 'Silicon Valley' and 'Route 128' around prestigious universities such as Stanford and Massachusetts Institute of Technology (MIT), academic spin-offs have been part of the American academic landscape for decades (Brett, Gibson, & Smilor, 1991; Roberts, 1991)

For instance, in 2007, Masinde Muliro University of Science and Technology (MMST) established the Directorate of Science & Technology Park and Industrial Linkages (STPIL) under Planning, Research and Extension Division. Its mandate was to start, develop and manage the university Science and Technology Park (STP) and market investment opportunities emanating from the research carried out within and outside the university. Its role also includes linking the industry to the Science Park through collaboration with both private and public sectors keen to incubate and establish their business in the S&TP.

In January 2012, Egerton University started an Agro-Park Project to act as a major player in provision of some practical solutions to the problems encountered in the implementation of projects under the Kenya Vision 2030. The aim is to improve the livelihoods of people, 75% of whom are dependent on agriculture and livestock production. In February, 2012, Ministry of Industrialization and Jomo Kenyatta University of Agriculture and Technology (JKUAT) launched a 2.2 billion Industrial and Technology Park designed to contribute to Kenya's growth to a newly industrialized economy within the broad framework of Vision 2030 by providing avenue for university researchers to incubate and commercialize their innovations.

1.3 Academic entrepreneurial intentions

Entrepreneurship has been defined as the process of 'emergence' in the creation of organizations (Gartner, 1988; Gartner, Bird, & Starr, 1992). This means that entrepreneurship is viewed as a process undertaken by individuals to enable an organization to come into existence and is looked upon as a 'process of becoming rather than a state of being (Bygrave, 1989). As a result, entrepreneurial intentions are central to the understanding of the entrepreneurship process because entrepreneurial intentions form the underpinnings for the founding of new organizations (Krueger & Carsrud, 1993). It is also important to understand an individual's entrepreneurial intentions because intentions correspond to a state of mind that directs the academic's attention, experience, and action toward the goal of founding a business (Bird, 1988)

Both the undergraduate and post graduate students in the universities are potential academic entrepreneurs, they have a critical role in the identification of the best way for commercialize the results of their research to improve the technology transfer process. This kind of process is a consequence of two broad categories of determinants: (1) individuals with certain characteristics, abilities, and perceptions who find themselves in (2) a context which is conducive to venturing (Bird, 1988).

Entrepreneurial intentions also embody an academic's commitment to start a new business (Krueger & Carsrud, 1993). In addition, intentions toward a behavior have routinely been proven to be the best single predictor of that behavior (Fishbein & Ajzen, 1975). Absent intention, action is unlikely. Hence, entrepreneurial intentions are crucial to understanding the overall process of entrepreneurship as they serve as the key initial conduit for subsequent actions and events that are related to organizational formation (Bird, 1988; Boyd & Vozikis, 1994; Crant, 1996; Jenkins,

1997; Katz & Gartner, 1988; Krueger Jr, Reilly, & Carsrud, 2000; Krueger & Carsrud, 1993).

Thus, the entrepreneurial intentions process may begin with the academic's personal needs, values, wants, habits, and beliefs (Bird, 1988). Academics that have the intentions to found an organization have certain precursor attitudes, interests, values, and talents regarding entrepreneurship, and these form part of the content of their entrepreneurial intentions (Bird, 1988; Gartner, 1988; Krueger Jr et al., 2000; Krueger & Carsrud, 1993). Situational factors, such as time constraints, task difficulty, and the influence of other people though social pressure; also influence entrepreneurial intentions (Ajzen, 1991; Boyd & Vozikis, 1994; Tubbs & Ekeberg, 1991).

1.4 Methodology

To investigate the influence of academic entrepreneurial intentions in creation of spin-offs in Kenya, a combination of exploratory, descriptive and causal method of researches was used. In the study, explanatory method provided the researcher with the flexibility to explore different aspects of academic entrepreneurial intentions in relation to technology transfer. Descriptive research assisted in investigating specific areas of the study that needs response to who, what, when, where, why, and how of the research. Causal research helped to probe the correlation between the study variables.

The estimated population for academic staff and students (both undergraduate and postgraduate) from Pure and Applied Sciences, Engineering, Technology, Business/Entrepreneurship faculties/ departments in the top ten universities in Kenya using the 2014 July Webometric Ranking of World universities was 152,064 by records of 2013/2014 academic year. Given the target population, the researcher used a formula to calculate the sample size to be 323 as proposed by Cooper and Schindler (2003). The researcher adopted simple random sampling technique to select the academics.

This research employed both qualitative and quantitative methods in order to strengthen the validity of data and to uphold survey findings Cooper and Schindler (2003). Questionnaires that had both open and close items were administered to both academic staff and students to collect data. Statistical package for Social Science (SPSS) was used to analyze data. Whereas quantitative data was analyzed with inferential statistics, qualitative data was analyzed using categorization.

1.5 Results

In order to assess the survey constructs, reliability test was done. Reliability test is said to test the degree to which individual items used in a construct are consistent with their measures (Kothari, 2004). The widely used Cronbach's coefficient alpha was employed to assess internal consistency. Iacobucci and Churchill (2009) stated that reliability of 0.70 is normally acceptable in basic research. Academic entrepreneurial intentions and creation of spin-off firms had an alpha of 0.857 and 0.871 respectively capping Cronbach's Alpha at greater than 0.7 indicating reliability of the data.

The number of respondents who participated in this survey and completely filled the questionnaire totaled to 378 out of the targeted 323 which translates to 117.028% response rate.

1.5.1 Academic entrepreneurial intentions and Creation of Spin-off firms.

Table 1.1 Correlation

		Creation of university Spin-Off Firms/Technology Transfer process	Academic entrepreneurial intentions
Creation of university Spin-Off Firms/Technology Transfer process	Pearson Correlation	1	.527**
	Sig. (2-tailed)		.000
	N	386	386
Academic entrepreneurial intentions	Pearson Correlation	.527**	1
	Sig. (2-tailed)	.000	
	N	386	387

** . Correlation is significant at the 0.01 level (2-tailed).

Pearson correlation was employed to show the relationship between creation of university Spin-off firms and academic entrepreneurial intentions. Creation of University Spin-off firms was reported to have significant positive relationship with all the studied academic entrepreneurial intentions with p-values <5% as indicated in the table above.

Academic entrepreneurial intentions (.527) had a significant correlation coefficient with creation of university spin-off firms with p-values <5% as indicated in the table above.

Table 1.2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.633 ^a	.401	.397	.37927

a. Predictors: (Constant), Creation of University spin-off firms, Cooperation with industry, Entrepreneurial Self-Efficiency, Personal Networks

Multiple regression with creation of university spin-off firms as dependent variables had R² of 40.1. % indicating that 40.1. % of variation in creation of university spin-off firms could be explained by entrepreneurial self-efficacy, personal networks and co-operation with industry.

1.6 Hypothesis Testing

Hypothesis was tested using t test. The hypothesis related to the relationship between academic entrepreneurial intentions and creation of university spin-off firms.

1.7 Creation of Spin-off firms

Hypothesized relationship between variables is shown in the following research hypothesis.

H₁: There is a positive relationship between academic entrepreneurial intentions and creation of University Spin-off firms in Kenya.

Table 1.3 Creation of University Spin-off firms

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.839	.184		4.568	.000
Academic Entrepreneurial Intentions	.105	.041	.113	2.523	.012

a. Dependent Variable: Creation of university Spin-Off Firms/Technology Transfer process

From the table 1.4, the t test gives a positive figure of 2.523. The probability value (p-value) of the relationship between academic entrepreneurial intentions and creation of university spin-off firms is 0.012 which is less than alpha value of 0.05. Thus the test of hypothesis supports that there is a positive relationship between academic entrepreneurial intentions and creation of university spin-off firms. These results are constant with other prior studies such as the one done by Kilonzo and Nyambegeera (2014).

1.8 Conclusions and recommendations

This research investigated whether academics staff and students have an intention to pursue entrepreneurial opportunity and commercialize their research innovations. It also examines whether personality traits, personal networks and environmental factors influence the academics to become entrepreneurs. Using questionnaire survey on 378 academics in a Kenya's public and private universities the results show that more academic staff and students have a desire to pursue into entrepreneurship. These could be contributed by regular attending of scientific and technological workshops and conferences. In addition the industry should provide budding entrepreneurs with both tangible resources (e.g., human resources, financial resources) and in-tangible resources (e.g., social support, problem solving). The findings that show more academics staff and students are interested to become entrepreneurs are consistent with Maina (2011) and Zain, Akram and Ghani (2010)

Overall, the findings in this study provide useful insights on the factors influencing academic entrepreneurial intentions in starting new business or revitalising existing ones. Such insights assist individuals and especially academics to become successful entrepreneurs on one hand, formulation and implementation of entrepreneurship -friendly policies by industry-universities -government on the other hand, and in turn contributing to the growth of the country's economies and global competitiveness.

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