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## The Role of Entrepreneurial Leaders towards Commercialization of University Research

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### ABSTRACT

**Background:** Teaching, learning and research has been identified as the traditional roles of universities and other institutions of higher learning. However, this traditional role has been challenged by the entry of universities into entrepreneurial activities mainly due to reduction of public funding and the rising competition among universities of higher learning in the academic and commercial space. University leaders have no choice but to become entrepreneurial in nature. **Objectives:** The main purpose of this study is to understand and provide a framework for entrepreneurial leadership and its role towards university research commercialization in a developing country context. **Results:** The study proposes a model of academic entrepreneurial leadership along with propositions that could further form the bases of an empirical investigation. **Conclusions:** Entrepreneurial leadership is found to be the ability to influence other people not only in an entrepreneurial business arena but also in the academic environment.

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## INTRODUCTION

The fierce competition among the organizations has compelled them to be more innovative in nature. This is not just true for profit oriented organizations but is also true for not for profit organizations like higher educational institutions (HEIs). To be innovative, organizations need to have entrepreneurial mindset characterized by entrepreneurially oriented leadership. For educational institutions innovation means to commercialize their research. HEIs need to transcend from their traditional roles of teaching and research to embrace entrepreneurship. In the developed countries, HEIs have been engaged in entrepreneurial activities for some time now. However, for developing countries, like Malaysia, these entrepreneurial activities in the form of research commercialization are a new phenomenon and not many researchers have investigated how these entrepreneurial activities can help Malaysian universities become innovative and help in the economic development of the country.

Research highlights that the major role in entrepreneurial activities is played by the leadership that has entrepreneurial mindset as well as skills to guide their institutions to become entrepreneurial (Fini *et al.*, 2010; Cassandra, 2010; Powell, 2010; Zhao *et al.*, 2011; Wang, 2008; Arham and Muenjohn, 2012, Abdul Razak, 2010). To become entrepreneurial, HEIs need to develop the leadership that not only understands the complexities involved in commercialization activities but also the consequences of its failure.

HEIs and research laboratories face multiple strategic and often conflicting mandates. Some are formal directives, but some are local cultural norms that are perceived as administrative mandates (Lo *et al.*, 2010; Cassandra, 2010; Krueger *et al.*, 2008). Leadership can serve the process well simply by clarifying what is and what is not expected. Some university administrators perceive a mandate to avoid commercialization and yet they do recognize the importance of entrepreneurship and entrepreneurial leadership (Arham and Muenjohn, 2012; Krueger *et al.*, 2008). In the developed countries, the academic leaders have recognized the need for diversification of resource portfolio to generate resources for their programs and research and development activities (Ismail and Ajagbe, 2013; Cassandra, 2010), but the case is different in developing countries especially Malaysia where many university leaders are still following traditional and bureaucratic modes of management without realizing that change is needed to make their institutions centers of innovation and excellence. Furthermore, there is dearth of literature on leadership and entrepreneurial activities in the context of

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academic environment of developing countries. The role academic entrepreneur leaders' play in entrepreneurial activities such as commercialization of research needs investigation before a detailed integration of the entrepreneurial activities in the academic setting can be recognized.

Thus, the present study is an attempt to explain the role of academic leadership towards commercialization. However, leadership is a multi-dimensional construct and to explain the entrepreneurial activities of HEIs in terms of the role academic leaders' play, the leadership construct is limited to entrepreneurial leadership. The entrepreneurial leadership is a new construct (Jenssen *et al.*, 2013; Bass and Bass, 2008) which is forwarded as a new way of understanding the commercialization of academic research. Hence, by exploring this new mode of leadership, the study aims to help the field of academic entrepreneurship move from a position of fragmentation to consolidation. This is more important since existing authors have put forward that entrepreneurship is more related to individualism while leadership explores the relevance of the perspectives and followers (Fini *et al.*, 2010). Findings of past researchers reveal that entrepreneurial orientation and commercialization are somewhat connected between the variables particularly in government organizations (Zhao *et al.*, 2011; Ajagbe, 2014). Bass and Riggio (2006) highlighted that the ability to influence people is essential ingredient for effective leadership in an academic setting. Although, individuals in any organization view and design their own vision and objectives that are influenced more by their self in the perspective of the business (Lo *et al.*, 2010).

The present study is guided by one main research question: What are the characteristics of entrepreneurial leadership that enhance commercialization in universities? This research question tries to find out the entrepreneurial leadership characteristics of university leaders that enhance commercialization of university research in Malaysia. This question would further enhance the knowledge regarding entrepreneurial leadership and its role towards entrepreneurial activities especially in an academic setting. The present research study is arranged in the following format. The first section highlights the background of research. The second section briefly discusses the evolution of higher education and commercialization in Malaysia. The third section highlights the role of universities and leadership in knowledge transfer. The fourth section discusses the entrepreneurial leadership with its theoretical underpinnings. Finally, the need for a new model and the conclusion are provided.

#### ***Higher Education and Commercialization in Malaysia:***

Malaysia at the time of its independence was an agrarian society that followed labor intensive policies. With only one university serving the needs of the country started its journey towards self-reliance and economic development (Low, 2011). The education sector especially the higher education started getting attention with the adoption of the New Economic Policy 1970. From 1970 to 1990, government spending increased many folds for the development of higher education system in the country to help the transforming economy. With the adoption of New Economic Policy of 1970, enrollment of different races into the institutions resulted in the restructuring of the Malaysian community. World Bank in its 2007 report also acknowledged the Malaysian policy due to which admissions were raised at every level of education and that peaked to 65 percent during the years 1970-75 (World Bank, 2007; Low, 2011). Capable ethnic Malays were also encouraged with foreign scholarship with the aim of building an unrestricted constant civilization to replace the Darwinian culture of the survival of the fittest (Low, 2011; Ling and Jaw, 2011).

The change in the higher educational system was witnessed as a result of the delegation of government activities in business to some private companies through privatization and Malaysian Incorporated Act of 1983 during the 1980s. This led to a new source of private education funding in Malaysia. The 1985-1986 financial crunches further accelerated the privatization policy of the government because of the pressure to cater for the expansion of public higher education. Lessons learnt from the financial crises supported the need to participate in the world economic activities by transforming to a knowledge intensive economy. The liberalization of the education sector was advantageous because it resulted in the production of knowledgeable graduates.

The introduction of the Universities and University Colleges (Amendment) Act 1996 provided the much desired university independence to chart their financial freedom. Universities and University Colleges (Amendment) Act 1996 permitted the universities to source external funding; establish commercial ventures, set up firms and take up shareholdings from quoted companies (Ismail *et al.*, 2012). The Act anticipates universities to source their own financing to cater for their running expenditure. This resulted in the development of university- industry partnerships and alliances in Malaysia (Lee, 1998; Low, 2011). Furthermore, government spending on research and development activities increased many fold with the 9<sup>th</sup> and 10<sup>th</sup> Malaysian plans. Universities have been encouraged under the plan to commercialize their research activities and develop strong industry linkages. In addition, some of the public sector universities have been upgraded from mere teaching and research universities to research university status to encourage other universities to follow their suit in commercialization process. Overall, the commercialization of university research is new to Malaysian universities and need an in depth investigation especially the role of university leaders towards

commercialization. Thus, the present research aims to investigate the role of academic leadership towards commercialization by taking into account the concept of entrepreneurial leader in academic setting.

### ***Higher Educational Institutions and Leadership in Knowledge Transfer:***

Previous studies recognize the need for universities to become entrepreneurial, which requires a change in approach to university leadership. The ability of university leaders to be risk takers, innovative and proactive in their approach are the characteristics of entrepreneurs identified in the private sector (Jacobsson *et al.*, 2012; Fairouz *et al.*, 2010). Litan and Mitchel (2010) point out that the degree of an entrepreneurship in public institutions like universities has not been investigated. Entrepreneurship in universities may be reflected in the way entrepreneurial leadership is viewed within the university, the manner in which risk-taking is considered in performance reviews, or the means by which success is measured (Short *et al.*, 2010). Kenny and Patton (2011) suggest that entrepreneurial skills needs to be developed by the universities. Hence, the perception of the importance of the market in forming a new philosophy for the future of higher education with respects to traditional academic principles (Litan *et al.*, 2007; Kenny and Patton, 2011).

The globalization of university education has resulted in the demand for a new type of administrative leadership with increased accountability as well as to produce commercialized technologies by public research institutions and universities (Litan *et al.*, 2007; Eurostat, 2012). In response to this, Malaysian government has announced some public universities as research intensive universities that should focus on the need to be flexible and act entrepreneurially (Ling and Jaw, 2011). Public sector managers are reported to use entrepreneurship to gradually change their organizations by making staff more flexible, innovative and adaptable. Within the university environment, there is an increasing emphasis on the commercialization of university research. Because the creation and application of new technology is the primary factor that drives economic growth, calls for the commercialization of university research have become louder (Ajagbe and Ismail, 2013; Universities UK 2010).

Knowledge transfer has been identified by universities and research institutes as an activity that can help eliminate this gap left by a lowering government funding (O'Shea *et al.*, 2008). Certain key initiatives like technology incubators, subsidy programs, entrepreneurship centers, commercialization offices, royalty regimes etc when implemented by universities could enhance their commercialization success rates (Short *et al.*, 2010; Kenny and Patton, 2011). Other researchers have investigated the aspects of technology transfer and commercialization by universities (Juanola-Felis *et al.*, 2012). However, many of these studies have emanated from advanced countries, for developing countries like Malaysia, this phenomenon is new and the research capabilities are still emerging. The recent entrance of Malaysian universities into the research commercialization space is evidenced from the MOHE's emphasis on driving R & D activities among the universities through establishment of research culture by generation of innovation and its commercialization. This is enhanced by constant monitoring and evaluation of public sector universities achievements in terms of research commercialization. MOHE (2010) reports that of the 20 public sector universities in Malaysia, only a paltry 125 products out of 442 potentially commercially viable products have been commercialized. The private sector universities are no better than the public sector universities in commercialization of research. The situation compels a leadership that could bring in new ideology and help universities to perform better by adopting entrepreneurial skills and also motivates the faculty and staff to be entrepreneurial in their approach (Swank, 2010).

The focus on public universities has also affected public perception about universities and research institutions. Universities are now expected to take a leading role in enhancing and aiding commercialization and economic development (Boehm and Hogan, 2012). This in public expectations has resulted in a similar shift in funding requirements. Funding is not always available or rare, often project-aim, and comes with the expectation that commercialized technology will result (Fini *et al.*, 2010; Astebro and Bazzazian, 2011). Studies looking at these initiatives have found that universities were able to generate increased revenues from new venture spin-offs, as well as from the patenting and licensing (Astebro and Bazzazian, 2011). There is evidence in the university environment that entrepreneurial leaders who recognize the change taking place in higher education succeed in transforming their universities into entrepreneurial universities (Cassandra, 2010; Egardt, 2011).

### ***Entrepreneurial Leadership:***

The concept of entrepreneurial leadership is fairly a new one. After decades of theorizing about entrepreneurship and leadership separately, researchers have combined the two concepts to explore the behavior of both leaders and entrepreneurs (Tarabishy *et al.*, 2005; Bas and Bas, 2008; Jenssen *et al.*, 2013), into what is now known as entrepreneurial leadership. Researchers have tried to define the entrepreneurial leader in terms of opportunity identifier, creative and innovative visionary, proactive, competitive, risk taker and charismatic (Drucker, 2006; Zhao *et al.*, 2011; Phillips, 2012). According to Kuratko (2012) entrepreneurial leadership encompasses entrepreneurship - a dynamic process of vision, change and creation and that requires willingness

to take calculated risks, ability to formulate effective venture team, skills to rally resources and develop sound business plan and a vision to recognize opportunities.

Cohen (2013) stresses that today's dynamic and competitive environment requires a new form of entrepreneurial leader that is not afraid of taking risks and is also different than the traditional leadership. To be an entrepreneurial leader an individual must possess skills and attributes of both an entrepreneur and a leader (Roslan *et al.*, 2009; DuBrin, 2012) and should be able to consider the opinions and feelings of the follower population (Meijer *et al.*, 2010.) The entrepreneurial leadership is infused in the strategic realm of larger organizations (Kuratko, 2007) that are continually acquiring skills to act and think entrepreneurially (Ireland and Webb, 2007). Understanding entrepreneurial leadership is important for theoretical and practical reasons because entrepreneurial leaders are the individuals that would need to lead organizations in today's dynamic market. For this purpose, the next section will look at the concepts of entrepreneurship, leadership and the academic leadership before a discussion on the characteristics of entrepreneurial leadership ensues.

### ***The Theory of Entrepreneurship:***

The domain of entrepreneurship has been evolving for the past three decades or so and yet researchers find it hard to develop a consolidated and comprehensive definition of entrepreneurship (Yusuf, 2005). According to Kuratko (2007) a theory of entrepreneurship encompasses verifiable and logically coherent formulation of relationships that has the capability of either explaining the entrepreneurship or to predict entrepreneurial activities. Kuratko and Hodgetts (2007) have termed entrepreneurship as a dynamic process of vision, change and creation. Similarly, entrepreneurship has been linked to a process of creating customer defined values by innovating and exploiting resources (Tarabashy *et al.*, 2005; Meyers and Pruthi, 2011) with window of opportunity being the core concept (Romero Martinez *et al.*, 2010; Meyers and Pruthi, 2011). The value to customer is the customer's willingness to pay for a product or service (Elenurm, 2012; Meyers and Pruthi, 2011). At the highest level, the study of entrepreneurship has been approached from two perspectives. Each perspective carries with it an implied definition of entrepreneurship. In one view, it is a content perspective (the inputs and the outputs of entrepreneurship), and the other view is a process perspective (the process by which the inputs produce the output). Content models dominate the entrepreneurship literature, though process models offer the possibility of linking content models as well as integrating different theoretical perspectives (Garcia-Marales *et al.*, 2006).

The most influential of entrepreneurship definitions have been provided by Schumpeter in his Theory of Economic Development. He described entrepreneurship as a creative destruction. According to him, in entrepreneurship older products are replaced by new and improved products and similarly older firms are displaced by newer and innovative firms. To understand the topic of entrepreneurship and academic entrepreneurship, it is important to have a conceptual overview of these domains. For example, Busenitz *et al.* (2003) have used boundary and exchange theory in developing their conceptual overview of entrepreneurship literature; while Rothaermel *et al.* (2007) using inductive analysis categorized academic entrepreneurship into four types: entrepreneurial research university, technology transfer office productivity, spin-offs, and networks of innovation.

The field of entrepreneurship has been analyzed from individual, group or organizational level, yet a concrete and definitive theory of entrepreneurship has yet to be constructed (Cassis and Minoglou, 2005). In constructing a theory for entrepreneurship, Acs *et al.*, (2005) is of the opinion that earlier theories were based on weak assumptions by neglecting the nature and sources of opportunities. As a result of this belief, they proposed an alternative theory of entrepreneurship referred to as the 'knowledge spillover' theory. Accordingly, Acs *et al.* (2005) state that new opportunities are risen with the creation of new knowledge. Thus, entrepreneurial activity involves not only the arbitrage of opportunities but also the exploitation of new ideas not perceived by the firms. In other words, existence of opportunities does not necessarily mean that everyone would perceive them. Opportunities are perceived by individuals having right qualities and skills and perception is a cognitive process that takes place at the individual level (Elenurm and Alas, 2009). This theory is more akin to the roles HEIs play in the society that is creation and dissemination of knowledge. The knowledge is created at the individual level by the researchers and disseminated to stakeholders in the form of either publications or commercialization.

Contrary to the perceived definition of traditional entrepreneurship, academic entrepreneurship is a hallmark of universities categorized by knowledge and technology transfer practices (Lissoni *et al.*, 2008; Dechenaux *et al.*, 2009; Rivera, 2010). Universities are deemed entrepreneurial in nature when they maximize the potential for commercialization of their ideas and create value in society without seeing this as a threat to academic values (Meyer and Pruthi, 2011). This is done by creating a research and innovation culture within the university boundary and by developing entrepreneurial mindset of graduates and faculty by building the structures and processes that stimulate innovation. Thus, in the process create value not just for universities alone but also for other stakeholders they serve (Lucas *et al.*, 2009).

### ***Theory of Leadership:***

A leader is someone who wields power to influence other people (Hawkins, 2007; Yang, 2008). Simply put, a leader projects a relationship of social influence (Spillane, 2006; Naqvi, 2009). The behavioral sciences is abound with leadership theories such as charismatic leadership, participative, referent, laissez- fair, mission expert, autocratic leadership etc (Pellerin, 2007; Bass and Riggio, 2006) all contain diverse philosophies, yet possess many similar concepts. The early management theorists like Weber, Taylor, and Stogdil were concerned with the understanding of the leadership and the work environment. Focus of both leadership and managerial efforts were outcome driven toward attaining higher production levels, increased labor efficiencies, and overall increased productivity.

A study of past and present leadership styles was imperative to research on developing skills, knowledge, and a foundation from which to lead organizations into a new millennium. According to Kezar *et al.* (2006), leadership is a process central to employees' involvement and focused on accomplishing the mission of an organization. Finnie and Abraham (2002), posited that leadership was necessary to transit an organization to meet the challenges of industry changes and every successful organization has superior leadership who led the organization through the transition from good to successful ( Shirazi, and Mortazavi, 2009).

### ***Academic Leadership:***

Higher education is expected to evolve with society's ever-changing demands (Eisler and Carter, 2010). Keenan and Marchel (2007) have identified external influences driving change within higher educational system, including increasing accountability for providing high quality, relevant educational experiences, increasing global competition, technological advancements, financial pressures, evolving demographics, increasing methods of acquiring knowledge, and an increasing overall rate of change throughout the world. Leaders of higher education are faced with the challenge of meeting the needs of society while supporting existing organizational frameworks and traditions (Nelson, 2011; Taylor *et al.*, 2008). In addition, as with the leaders of any academic institution, these leaders have to be aware of such institutional variables as shared governance (Salguero, 2010) and a culture of entrepreneurialism (Godwyn, 2009) and how to leverage them effectively to transform their institutions in a manner that prepares students and faculty members optimally for an information-based society (Bolden, *et al.*, 2008; Jones *et al.*, 2008). Thus, for HEIs the academic leader should have the skills and the abilities of both the entrepreneur as well as of the leader (Tarabishy *et al.*, 2005; Geels, 2010), which entails that academic leader should be entrepreneurial leader.

### ***Characteristics of Entrepreneurial Leader:***

The characteristics of successful entrepreneurial leaders are optimism, need to achieve, self-esteem, locus of control, goal orientation, courage, screening for opportunity, tolerance for ambiguity, and strong internal motivation (Bass and Bass, 2008). The authors put forward that entrepreneurial leader self-esteem is valuable to take on tough challenges. This self-esteem gives them a sense of their own self-worth. Secondly, entrepreneurial leaders need to have a sense for achievement. Leaders high on this need to achieve are not only open to feedback but are also goal oriented and strive for accomplishment based on their own efforts. Thirdly, entrepreneurial leaders should possess the intelligence to separate useful information from useless information. Knowledge of environment and experience helps entrepreneurs to make strategic choices that would have a direct bearing on the success or failure of his/her venture (Collini, 2012). The intelligence and knowledge helps entrepreneurial leaders to exploit opportunities that others have missed. Fourthly, successful entrepreneurial leaders typically show a high internal locus of control. Comparing the high and low locus of control, Jenssen *et al* (2013) is of the opinion that individuals with higher internal locus of control would wield more success as compared to individuals who are high on the external locus of control. Fifth, entrepreneurial leaders have the relentless drive to achieve goals. Underlying successful entrepreneurial leadership is a boundless optimism that helps them to view a challenge as a new direction. Entrepreneurial leaders are also very high on tolerance for ambiguity. As majority of entrepreneurial ventures start up in uncertain environment therefore, this characteristics gives entrepreneurial leaders resilience to many problems and challenges that they face. Lastly, entrepreneurial leaders are driven by strong internal motivation to achieve. These entrepreneurial leadership characteristics are consistent with those identified by other researchers (Elenurm, 2012; Jenssen *et al.*, 2013).

Burns (2005) and Parks (2006) posit that a shared understanding between entrepreneurial team and leader regarding vision is needed for successful entrepreneurial activity. This shared vision in turn creates enthusiasm and motivation, builds confidence, and strengthens connections within a team and throughout an organization by working on people's emotions (Bass and Riggio, 2006). Being able to communicate at an emotional level and engender a sense of common concern through appropriately deployed influencing strategies is an important trait of entrepreneurial leaders, and should therefore be an important objective of entrepreneurial leadership. Thus, entrepreneurial leadership should also incorporate influencing tactics such as reason, friendliness, coalition forming, bargaining, assertiveness, appeals to higher authority, and the judicious threat of sanctions (Duening and Sherrill, 2005). Hence, the task of entrepreneurial leadership in an academic setting is to groom faculty

members on interpersonal skills that win them the trust, credibility, and respect of teams, and the ability to inspire and motivate performance (Dubrin, 2012). Relying on the findings from Roomi and Harrison (2011) study, a second motivation in entrepreneurial leadership is to give focused emphasis to the areas of entrepreneurship that are essential to leadership. Previously, authors recommend specific training approaches that are critically reflective, socially interactive, and experiential. Entrepreneurial leaders are supposed to enlighten faculty members, students and future entrepreneurs, methods of exploiting and adopting an entrepreneurial mind-set—their own, as well as those of people working with them.

#### **Commercialization of University Research:**

Commercialization has been defined variedly by researchers but in simplest form it means presenting or introducing a new product to market (Von Proff *et al.*, 2012; Lissoni *et al.*, 2008). Kenny and Patton (2011) suggest that through commercialization, developing and selling costs of a new product decreases to the extent it matches with the customer requirements. Commercialization has also been termed as set of actions which convey knowledge to a product (Juanola-Feliu *et al.*, 2012). According to researchers commercialization process has four stages namely exploratory and conceptualization; technical development and product designing; prototyping and commercialization of product (Fini *et al.*, 2010; Kenny and Patton, 2011). For successful commercialization, researchers suggest that certain actions such as goal-oriented market research, determining target market, providing business plan, tracing potential customers, encouraging potential partners and financing should be undertaken (Juanola-Feliu *et al.*, 2012). From academic perspective, commercialization is simply transferring of knowledge to industry. For universities and research institutes it is a matter of survival in this competitive environment in the wake of dwindling public funding. To survive an institution is required to make substantial changes within its operations. In view of the changing circumstances, Juanola-Feliu *et al.*, (2012) suggest that today's universities need to develop entrepreneurial skills and traits that would enhance their competitive abilities. There is also a need of leadership that would help the new ideology of academic entrepreneurship. Bathelt *et al.* (2010) recognized that the increased pressure for public research universities to be more accountable as well as to produce commercialized technology has compelled several public universities to become dynamic and operate entrepreneurially.

Technology transfer is also seen as a way to raise the rewards of universities to the public. Universities have identified that knowledge transfer is an area that can help fill the short fall in government financing (Fini *et al.*, 2010). Prior to this, technology transfer proceeded almost exclusively through the patenting and licensing of university research. Because of this, university patenting and licensing revenue have increased considerably in the last few years. Link *et al.* (2007) recommend that patenting and licensing symbolize one of the few information sources available to be used as performance measurement tools. However, Hughes *et al.* (2010) conclude that patents are reported not to be the most advantageous innovation corridor for every type of invention, even within the same faculty. Collini (2012) opine that universities have also involved in operations other than patenting and licensing, as a result that they have taken a more undeviating position in spin off formations. Bathelt *et al.* (2010) suggest that a few research universities have established technology incubators and have motivated university-based consulting as a supplement to academic efforts, leading to academic programs that are more applied than they were in the past. In order for the firms to apply university research they need to have high absorptive capacity (Swank, 2010) which is the ability to assimilate and replicate new knowledge gained from external sources (García-Villaverde *et al.* 2012) and further, they need to be closely connected for successful knowledge transfer (Berman, 2008).

#### **Entrepreneurial Leadership and Commercialization:**

In the past three decades or so, the universities have found themselves in a situation where they are able to sell what they know mainly due to individuals and the organizations who are willing to pay for their knowledge. These institutions of higher learning have become the chief sources of skilled human resources, expert knowledge and scientific discoveries that are much needed for the development of economy and a nation as a whole (Bok, 2003). All these changes have been brought about by the leadership of these HEIs. Research highlights that leadership is instrumental in all entrepreneurial activities undertaken by the universities by enacting policies that would incentivize the faculty research (Thursby and Thursby, 2004; Wu, 2010; Grimaldi, *et al.*, 2011). Grimaldi *et al.* (2011) suggest that commercialization of university research can only be maintained if academic leadership is innovatory in nature. This compels the HEIs to have entrepreneurial leadership that is not afraid of taking risks.

Researchers have highlighted that leadership support is critical to support the range of activities that encourage technology commercialization (Bagheri and Pihie, 2010; Chan *et al.*, 2012; Berman, 2008). Leadership can serve the process well simply by clarifying what is, and what is not expected. Some university administrators perceive a mandate to avoid commercialization (Chan *et al.*, 2012; Krueger *et al.*, 2008). However, even if this is not the real mandate, it is perceived as such by key actors in the technology commercialization. Researchers argue that successful organizations need a clear strategic intent provided by

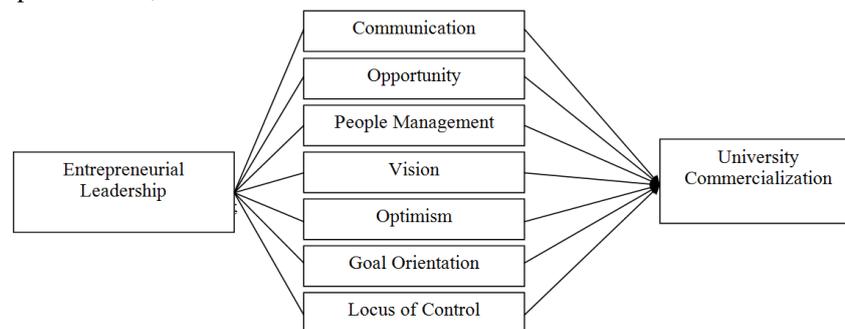
clear minded leadership to guide the activities of the organization and its members (Shane, 2003; Muscio and Orsenigo, 2010). In recent decades, the universities are confounded with a major problem of lack of funding to run and sustain their current programs and research work activities. This along with their changing role in economic development has compelled the leaders to take on innovative approaches for sustaining and making their institutions competitive. The challenge facing the entrepreneurial leadership in academic setting is to infuse the entrepreneurial values into the faculty and act as a bridge between various stakeholders and the faculty (Gibb, *et al.*, 2013). These leaders must embrace the uncertainty and the need of other stakeholders to maintain the overall entrepreneurial integrity of their institutions (Chan *et al.*, 2012).

Researchers argue that to initiate entrepreneurial activities within academic setting, the leadership and the positive attitude of the academics is essential, which could help the universities to change within themselves and provide an environment conducive for the commercialization of research and other entrepreneurial activities (Guerrero and Urbano, 2010; Ajagbe, 2014). Furthermore, researchers have highlighted that academic entrepreneurial activities like commercialization are related to leadership process of creating value through research and innovation both within and outside the university setting (Yusuf, 2010) and without entrepreneurial leadership these activities cannot be undertaken. Thus, the literature affirms that entrepreneurial leadership is an essential ingredient, if the universities want to take up third mission in the form of commercialization of their research.

#### **Why New Model is Needed:**

An inclusive multidimensional framework based on previous studies is required to guide future research in the field of entrepreneurial leadership and commercialization of university research. This will guide the authors to model not only the direct relationships between constructs of interest and the outcomes, but also the indirect effects through intervening variables. Previous studies on entrepreneurial leadership and university research commercialization reveal that there is a rising tendency that the universities in recent times are shifting from their traditional roles of teaching, learning and research and the new ideology of positioning the ivory tower as a domain of commercial activities is becoming the trend in the developing countries. Countries such as Malaysia was noticed as among those that have outperformed their peers in the developing country context, although more still needs to be done if the rhythm is to be sustained. Although, some studied empirical researches show that the concept of entrepreneurial university and commercialization of university research in Malaysia is nowhere when compared to their counterparts in other countries and the four Asian tiger countries including China when amount government have invested so far in education is to be considered. This position has raised some questions on the factors affecting the growth of university research commercialization in Malaysian universities. This fact exposes the need for a comprehensive research in the field of entrepreneurial leadership and commercialization of university research in Malaysia. Thus, to investigate this phenomenon further, following conceptual model is proposed in Figure 1.

The propositions put forth are;



**Fig. 1:** The Study Conceptual Model.

P1: University commercialization would be enhanced in the presence of clear and direct communication by the leadership.

P2: Opportunities recognized by the entrepreneurial leader would have a direct influence on the rate of university commercialization.

P3: Entrepreneurial leaders while managing their employees effectively can enhance the university commercialization.

P4: A clear and precise vision communicated by the entrepreneurial leader would have a strong influence towards university commercialization activities.

P5: Optimistic attitude of the leader regarding entrepreneurial activities would enhance university commercialization activities.

P6: Strong goal orientation exhibited by entrepreneurial leaders would motivate employees to achieve the desired objectives of commercialization.

P7: A strong internal locus of control of the entrepreneurial leader would help in enhancing the commercialization activities of the university.

### **Conclusion:**

This study explores entrepreneurial leadership and commercialization of university research. By exploring the phenomenon of entrepreneurial leadership within university context, the study aimed to broaden the knowledge regarding the entrepreneurial academic leadership and research commercialization activity in Malaysian Universities. The conceptual research framework has been proposed along with the proposed hypothesized relationships based on review of past literature. This study affirms that entrepreneurial leadership is the ability to influence other people not only in an entrepreneurial business arena but also in the academic environment. Universities, if they want to be competitive, have to change themselves according to the needs of the society and shed the traditional roles they have been playing. They have to adopt new leadership model and adopt entrepreneurial mindset. The present study has provided a conceptual background and future researchers could divulge themselves into empirical testing of the model and confirmation of the propositions put forth. Furthermore, the study has limited itself to the entrepreneurial leadership construct only. Future researches can take into account the external as well as internal organizational factors including the regulatory environments regarding commercialization, government sponsorship and funding for commercial activities, organizational culture especially related to research culture prevalent in the universities. Traditional leadership styles of transformational, transactional and laissez faire can also be equated to the characteristics of entrepreneurial leadership and their influence empirically tested on the university commercialization activities.

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