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University-Industry Collaboration, Firm Performance and Stakeholder Theory

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Abstract

From the literature study it is obvious that university-industry collaborations (UIC) is generating interest in political, economic, and academic fields. Indeed, knowledge and technology are seen as a major source of long-term economic growth and technology transfer to the firm is critical and significant for firm performance. The purpose of this paper is to improve understanding of the importance of UIC concept and how it can create value to the firm, especially in improving firm performance. The UIC will consider knowledge transfer and technology transfer activities from university to firm. This paper also seeks to engage how Stakeholder Theory can answer the question; what is the relationship between UIC concept and value creation, and what responsibility does firm have to university. This paper presents a literature analysis concerning this research topic and explores meaning of UIC, knowledge transfer, technology transfer, firm performance and stakeholder theory. There is evidence to support that knowledge transfer and technology transfer activities have an impact on firm performance. Theoretically, Stakeholder Theory can explain the relationship between UIC and value creation concept, and the responsibilities a firm has to a university. This finding may pave the way for firms to collaborate with universities in order to achieve high performance.

Keywords: University-industry collaboration (UIC), knowledge transfer, technology transfer, stakeholder theory

1.0 INTRODUCTION

The purpose of this paper is to provide further information on how university-industry collaborations (UIC) can give impact to the issues of knowledge transfer, technology transfer, and firm performance. This knowledge can be utilized by the practitioners and experts, in both academia and industry, in order to improve the transfer of knowledge and technology and relationship.

2.0 UNIVERSITY INDUSTRY COLLABORATION

Most discussions on UIC concentrate on the role of the university. As the party responsible for producing the graduates, there are different schools of thought among scholars about the role of the university. Rosenberg and Nelson (1994), Howitt (2003), Nelson (2004) hold their stand

with their statement saying that universities have to stick to their original mission and rules, and institutional diversity should be conserved.

Although it is recognized that universities have a large role to play in producing human capital (Yousuf, 2008), however, they might already have their own mission to stick to, which is to supply the graduates with adequate knowledge in their respective fields, yet sometimes they disregard the necessity to equip them with the required soft skills or enrich them with high competency in employability. Adding on to this idea, Rosenberg and Nelson (1994), Howitt (2003) believed that a foundation is needed for those who claim that universities should have research agendas of more actual, concrete relevance, but also stresses that academic organizations should stick to their original missions and should not transform into business organizations in order to provide a platform to further discuss the matter.

Dasgupta and David (1994), Powell and Owen-Smith (1998), and Bok (2003), showed their concern about this argument by saying that there will be less fundamental, scientifically relevant studies conducted about the involvement of universities into "business-like" activities since this will corrupt the rules and mission of academia with serious implications in the long term.

On the other hand, Dunman (2005) concluded that there are four challenges faced by the university of the 21st century (1) it is everything to all people, (2) forfeit of academic freedom, (3) reinventing itself is always an ongoing concern of the institution, (4) vision of traditional knowledge to profit from the rationale for knowledge, automatically disagree with views that restrict the role of university to only teaching and learning, and producing research findings.

2.1 Existence of UIC

UIC has undergone a long history (Bower, 1993, 1992). It has been around since the early 19th century. In the United States, UIC has been around since the 1860s, when the Morrill Act officially introduced the system of land-grant colleges, which accelerate the transfer of new agricultural methods of agricultural operations on farms (Hasselmo & McKinnell, 2003).

When discussing the effectiveness and success of UIC, one must touch on the Bayh-Dole Act. The Bayh-Dole Act enacted in the U.S. in 1980 has created history and become a role model for many countries in applying the UIC concept. The Bayh-Dole Act has two very important agenda, namely (1) to give permission to the university and non-profit oriented organization to patent and commercialize the invention made under a research program from government funds and (2) to authorize federal agencies to give license to their technology to offer more incentives to them. The Bayh-Dole Act provides a national policy framework to promote the university and non-profit oriented organizations to collaborate with others in order to create new inventions and technologies. The Bayh-Dole Act gives tremendous experience and a very positive effect on the U.S. economy. More specifically, this act has given the implications for the licensing of innovations by universities in the U.S., teaching hospitals, research institutes, and firms related to the management of patents which has contributed $40 billion to the U.S. economy and has successfully created 260,000 new jobs (SMEs Division of the World Intellectual Property Organization, 2002).

Cohen et al. (1994) also supports that there has been a very positive trend with respect to cooperation between industry and research institutes. There are also studies that have identified that firms have also managed to increase their capabilities in research with the help of scientists from the university (Lim, 2000). There are also studies that indicate there is more to the UIC than

general-purpose research (Mowery & Teece, 1996) and Veugelers and Cassiman (2005) has confirmed that the collaboration between the firm and the university does not usually involve a high degree of risk to produce an innovation.

2.2 Motivation to Collaborate

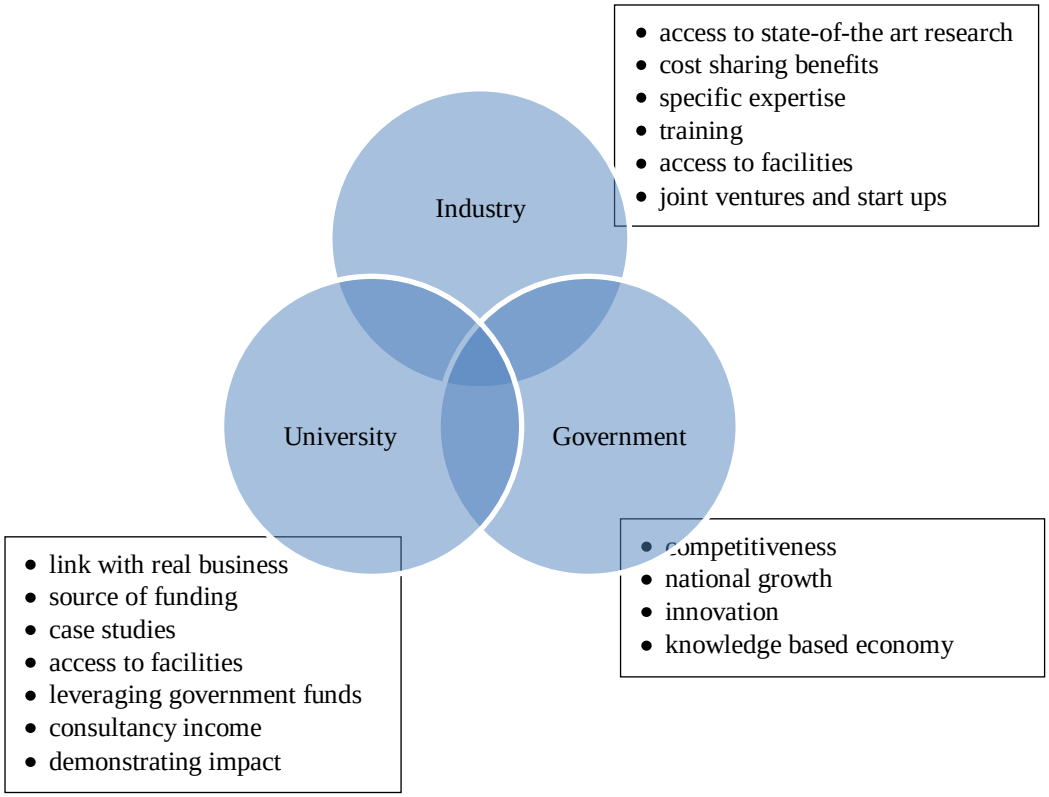
Government pressure, business environment surrounding and collaboration benefits are among reasons for industry to collaborate with the university. Following the Dearing, there is increased pressure from governments and agencies to make certain relationship between higher education institutions and employers become better. Government through the relevant ministry has urged the university to source their own funds to cover the operating costs with the objective to promote competitiveness and to enhance their efforts to commercialize university skills and research findings and at the same time as a preparation to the government in reducing the budget to university (Baaken, 2003).

Apart from producing professionals, universities have been widely identified as one of the significant entities to achieve economic growth. For instance, universities are needed to produce professionals and skilled labour which is required to develop and manage research and project and hence help one country to be sustainable. When these activities are considered from the perspective of universities, they are often referred to as "third stream" or "third mission", terms that emphasize the role of universities as promoters of economic development, besides their two traditional missions of teaching and research. Universities are, and have been, significant drivers of regional economic development. The current economic scenario has shaped significant changes in the university's standard towards industry (Nelson, 1993). The role of universities has enlarged and the university is responsible for building human capital and highly skilled knowledge, conduct meaningful research, and produce high impact innovation in order to interest the development, progress and transformation of the country (Khaled Nordin, 2009).

However, the literature discloses that, despite pressure from the government, there are a lot of different reasons for universities and firms to collaborate (Plewa et al., 2005) and one of it is business environment pressure. Business environment now under pressure as a result of the global economic environment, have made big changes to the landscape of UIC. Many industries have experienced a structural change from just being a local business to become a global business, to be more dynamic and competitive and these changes have made the industries to open up to work with the university in order to maintain their survival (Bettis & Hitt, 1995).

In conjunction with the collaboration, Lim (2000) has proposed three additional mechanisms for a firm to collaborate with the university, namely: (1) intensify the relationship with the university by giving funds for the purpose of research, collaborate, and recruit graduates (2) participate in the research alliance (3) to partner with other companies that carry out similar research.

These are among the reasons for universities and business in modern society to collaborate where the industry as a result of the knowledge economy combined with the more difficult financing conditions for education means that both parties have to get wise to remain competitive (Yousuf, 2008). After all, the university-industry collaboration can be beneficial to both parties (Gibbons et al., 1994).



Adapted from Link and Tassey, 1989; Lambert, 2003; Landry 2007, Etzkowitz and Dzisah, (2008).

Figure 1: Potential benefits of academia-industry interactions

Table 1: Motivation for collaboration in UIC

Industry	College/university
Santoro and Gopalakrishnan (2000): • Train high-quality employees • Enhance company's reputation • Use university resources and instruments • Knowledge transfer Motohashi (2005): • Look for new products and new technologies • Train talent • Upgrade R&D capability	Santoro and Gopalakrishnan (2000): • Access opportunities to handle and operate special instruments and resources • Obtain practical experience • Gain financial support from industry • Provide working opportunities for graduates Slotte and Tynjãlã (2003): • Gain practically oriented education • Gain practical support in the form of resources • Establish links with industry • Integrate academic theory with industrial practice

Source: Wen-Hsiang Lai (2011)

2.3 Form of UIC

There are several forms of UIC and these included the establishment of a start-up firm in the commercialization of university inventions, collaborative research between firms and university, contract research and academic consulting commissioned by industry, development and commercialization of intellectual property in the university, cooperation in graduate education, advanced training for enterprise staff, and program exchange between firms and university researchers (Debackere, 2004).

3.0 KNOWLEDGE TRANSFER

Inkpen (1998) in (Abou-Zeid, 2005) agreed that knowledge becomes a very important requirement of new organisation in order to sustain and enhance firms' competitive advantage. Abou-Zeid (2005) found firms were increasingly setting up various forms of collaborative arrangement since no single firm has the full range of knowledge and expertise needed for timely and cost-effective product and service innovation. He added some examples of this arrangement as a joint venture, strategic alliance and Multi-national Corporation, in order to access knowledge and capabilities unavailable internally. Bhagat et al. (2002) in El Sayed Abou Zeid (2005) stated that 'effective cross-border transfer of organizational knowledge will become increasingly critical as competition among multi-national and global organizations intensifies'.

Suggestions made by Polanyi (1966) and Nonaka and Takeuchi (1995) who classified knowledge into two classes supported the statement above. They agreed that knowledge can be classified into tacit and explicit knowledge. Polanyi (1966) later defined tacit knowledge as knowledge that is hard to express and is typically transferred by demonstration rather than description, while explicit knowledge is easily written down and easier to communicate and transfer between individuals.

Organisation for Economic Co-operation and Development (OECD, 2009) is quoted to say that university has been modified in recent years to suit the needs of business with a stress on knowledge innovation, knowledge exchange, knowledge transfer (KT) and partnership with the private sector. A range of initiatives are specially designed to stimulate economic development considering all factors of growth.

The UIC enables the sharing of personnel, technologies, and knowledge to happen between industrial firms and university. Consequently, it creates excellent knowledge pool, and competent highly trained graduates that enhances knowledge creation and transfer as well as innovation, development and commercialization of new valuable technology (Gopalakrishnan & Santoro, 2004).

The term KT is often interchanged with "knowledge dialogue", "knowledge exchange" and "knowledge translation" (Schofield). Relationship between universities and industry are considered increasingly important subject to both sides gaining which can give an advantage in stimulating knowledge development and knowledge exchange (Yousuf, 2008).

The important factor in KT is the knowledge receiver. The knowledge receiver must have capability to learn, to understand and to know how to apply the knowledge in right circumstance. Therefore all KT mechanism incorporates social interaction either from direct interaction or virtual interaction (Aziati, Hamid & Salim, 2011). The mechanism identified by Ambos has two

categories; (1) by personal coordination mechanism such as a personnel motion, training, job rotation, interaction with suppliers and customers, community of practices and post-project reviews, and (2) by technology based coordination mechanism such as software collaboration, distributed learning and business intelligence system.

KT encompasses a much broader array of highly interactive activities that include ongoing formal and informal personal interactions, cooperative education, curriculum development, and personnel exchanges (Reams, 1986). Ongoing formal and informal personal interactions to transfer knowledge take many forms. The examples of KT mechanisms are university-industry research consortia, trade associations, and the co-authoring of research papers by university and industrial firm members (NSB, 2000; NSF, 1982b). Recruitment of recent university graduates and employment of student interns continue to be the primary ways where knowledge is transferred between industry and academia. KT also happens through cooperative education programmes which are designed to encourage information exchanges and on-the-job training experiences for undergraduate and graduate students (Phillips, 1991). Cooperative education programmes help universities to train students in state-of-the-art techniques, ensuring that graduates meet industry's needs (Santoro & Chakrabarti, 2002). Staff training, observation of experts, routines, meetings, standard operating procedures, manuals and databases are knowledge transfer mechanism practiced by most public organizations.

In conclusion, KT is the key for firms to achieve an advantage in any angle of competition, including strategic planning, operation, marketing, and financial planning.

4.0 TECHNOLOGY TRANSFER

Advanced technology becomes one of the key drivers to develop and enhance the productivity of a firm with the fast pace of evolution of high technology all over the world. Statistical finding by Taiwan's National Science Council shows that, over 70% of Taiwan PhD researchers' work in universities. The results provided by the research of the council also shows that technology transfer (TT) activities between industry and universities have been gradually increasing due to the maturity of UIC and the use of intermediary institutes for TT between universities and industry (Lai, 2011).

TT, like KT, is one of UIC components involving a number of highly interactive activities. However, compared to KT, the focus of TT is on addressing direct and more precise industry issues by leveraging university driven research with industry expertise and parlaying these complementary contributions into commercialized technologies needed by the marketplace (NSB, 2000; Teece, 1987). The industrial community offers knowledge in a specific practical area along with a clear problem statement related to market demand while the university research center often provides both basic and technical knowledge with technology patent and/or licensing services (Rea et al., 1997).

The essence of TT lies in the knowledge and talent of professors and researchers in the universities. Lee's (1996) investigation on 1000 professors from 115 universities in the United States shows that reward based incentives and motivation affect professor's willingness to engage in TT collaboration in UICs. Other than that, merging outstanding talent with industrial technology usually achieves the positive outcome of university-industry synergy, since talent is an important resource in the process of upgrading and enhancing industrial technology (Lai, 2011).

UIC activities are reinforced by the changing global economy and the fast-moving nature of technological research (Furino & Kozmetsky, 1998; Ohmae, 1989). According to the findings of their studies, there are several components which represent an efficient way to encourage industrial competitiveness in an era of knowledge-based economy, namely, speeding up technological innovation, establishing an effective TT process, accumulating knowledge, and constructing intellectual property rights. In this relation, improving the TT process within UIC becomes an important issue in order to speed up technological innovation, accumulate knowledge, and construct intellectual property rights. The mentioned researchers also agree that TT becomes a highly multifaceted issue in developing countries and regions since new technology is developing at an unpredictable rate all over the world.

As portrayed by Bloedon and Stokes (1994) in their research, UIC is a continuing cooperation in research and planning. The university focuses on research while industry is responsible for planning and research budget. This view is supported by Santoro and Chakrabarti (2002) who indicate that UIC is more like teamwork because universities may gain additional financial support from industry for future advanced research and in return, the industry may gain unique knowledge and technologies from the cooperating universities. In short, UIC is a complementary collaboration connecting industry and the university, which transforms knowledge into new technologies that move from the university to industry (Lai, 2011). UIC is also seen as a platform that offers a communication channel for TT between universities and industry, as well as demonstrating a progressing trend for advance knowledge and new technologies (Cohen et al., 1998; NSB, 2000; Okubo & Sjoberg, 2000; SRI International, 1997).

Gibson, Molly and Rogalev (2000) initiated two kinds of TT; they are the transfer of creative and innovative technologies to established firms, and spinning out technologies into startup companies. However, there have been a lot of practical methods applied in transferring technology. Technological consulting arrangement is one of the ways TT may occur. Other than that, the firm's use of center sponsored extension services, and jointly owned or operated ventures could also be one of the methods. In this case, joint ventures usually signify large-scale obligations by both the firm and university to transfer technologies and are often based on successful prior relationships between the firm and the university research center (Santoro & Chakrabarti, 2002). In other literature, consulting arrangement is also mentioned as one of the methods of TT together with industry sponsored contract research and licensing of university-developed technology.

Consulting arrangement happens when a faculty member of a university accepts an engagement, on a private basis, with a firm needing expert advice. Usually, a special employment relationship with the consultant will be established by the firm to declare the relationship. The firm, which employs faculty members as consultants view consulting process as a transaction that occurs between them, by which the firm derives assistance from the faculty member's scientific or technical expertise in a field of interest to the company, yet the firm does not have to hire a full-time staff to fulfill their needs. The faculty members engaged as consultant to the firm would be treated as part-time employees subject to the firm's rules and policies. The charge will normally be based on the time spent for the consultation. By this way, small firms can get the needed skills without spending too much money. Firms often identify their science and technology needs before finding them in the university and involving in any consulting arrangement. This scenario typically encompasses firms which have a strong bond and high knowledge about the university.

Another way to practice TT is contract-supported research, which involves various arrangements between firm and universities. This method is by far the most mutual division in collaborative arrangements between business and academia. The research projects conducted by university scientists and researchers are seen to be of value to the business sponsor, and these are the basis of the arrangements. The firm expects that the research of the sponsored project or group of projects will be done on time and within budget in order to maximize their return on investment, since they are investing in the outcome of the project or research. The expected results which should be delivered to the firms by the researchers do not necessarily mean specific findings, but they are anticipated to answer the agreed-upon experimental questions. Other than that, firms are also aiming to comprehend other objectives such as access to potential hires among the group of students who handle the work.

In other situations, licensing of university inventions could be the most suitable method of TT. It normally occurs when research has proceeded to the point that a subtle invention has occurred, or a number of related inventions have been constructed. The licensee firm will invest their effort and resources in the development of the inventions. The most common mechanism used by both parties is the license agreement where the university transfers tangible intellectual property to the participating firms. Although technology can be transferred in many ways, license agreement becomes the formal mechanism for transferring tangible intellectual property, embodied in patents, trademarks, copyrights, tangible biological materials, and even in rare cases know-how embodied in trade secrets. This agreement usually consists of preset conditions of the transfer, the obligations of both parties, and the means of compensation and further protection. Compensation is often crucial in licensing university inventions because it involves the payment of royalties based on revenues from the future sale of firm's goods and services that are commonly being paid up-front (Tornatzky & Waugaman, 1999).

5.0 FIRM PERFORMANCE

Performance of a firm relies on various factors which have been discussed thoroughly in studies by researchers in the related disciplines. Firm performance is the target every firm should have to maintain its competitiveness in the global competition. Firms' resources become a part of firms' tool that enables them to implement strategies for improved efficiency and effectiveness which leads to improve firm performance. Resources of the firm, as being listed by Jones (2009), Daft (2008), and Wernerfelt (1984) include all tangible and intangible assets such as capabilities, organization processes and attributes, information, knowledge, physical structures, and almost everything that is controlled and owned by the firm (Jones, 2009; Daft, 2008; Wernerfelt, 1984).

Even though there are other channels of transfer, like citation (Spencer, 2001), patents (Hall & Ziedonis, 2001), and spin-offs (Link & Scott, 2005), knowledge from universities are usually transferred informally to firms, unlike the technology from private firms, because knowledge seems to be different from technology in the sense that knowledge has a different purpose, the degree of codification, type of storage and the degree of observability (Landry et. al, 2007). UIC may not directly influence the success of a firm on innovation due to the characteristics of knowledge or way of knowledge transfer. It may just affect the decision or management of research projects (George et. al, 2001; Mowery & Sampat, 2005). It is proven by some studies which have investigated knowledge transfer from universities that the role of the university is

more important in giving effect on R&D decision making and less important in generating tangible products (Knott & Wildavsky, 1980; Lester & Wilds, 1990). In contrast, based on a CIS data of 1460 French firms, Monjon and Waelbroeck (2003) found that cooperation with foreign universities rather than domestic, increases the possibility of radical innovation (Eom & Lee, 2010). Some believe that organisational performance of firms is contributed by the organisation's ability to transfer knowledge from one unit to another, in both the manufacturing and service sector (Sveiby & Simons, 2002).

As a conclusion, firm performance is the ultimate goal to achieve. KT and TT are among factors that enable firms to attain high performance.

6.0 STAKEHOLDER THEORY

Stakeholder theory leads the managers on how doing the operation instead of mainly addressing management theorists and economists. According to Freeman (1994) the emphasis of stakeholder theory can be expressed by two fundamental questions; (1) What is the purpose of the firm? (2) What responsibility does management have to stakeholders? The first question encourages managers to articulate the shared sense of the value they create and what brings its main stakeholders together, while the second question leads the managers to show how they want to do business or in other words what kinds of relationships they want and need to create with their stakeholders to deliver on their purpose (Freeman, Wicks, & Parmar, 2004).

The following diverse activities have been put together as part of a stakeholder approach to corporate governance, they are: corporate chartering, unions, acting in the interests of consumers, paying attention to the natural environment and some other activities suggested in Nader's proposal. (Sundaram & Inkpen, 2004). Stakeholder theory can give various understanding to many people but we cannot conclude it as "everything non-shareholder oriented" as shareholders are also the stakeholders (Freeman et al., 2004).

As stakeholder theory allows the managers to offer not only financial reward, but language and action to show that they value relationship with other groups and work, this theory gives managers more resources and bigger capability to deal with the challenge. Stakeholder theory is seen to give more resources to find success for managers in the era when firms are relying on committed value-chain partners to create outstanding performance and customer service. This theory also drives managers to hold the pragmatic and pluralistic approach and suggests us to avoid the philosophical and single theory approach. Examples of companies that have applied this theory in their business are Johnson & Johnson, Merck, J&J, 3M and Motorola (Freeman et al., 2004).

Donaldson and Preston (1995), and Freeman (1994) believed that stakeholder theory explains and directs managers better in order to consider the true interests of all parties involved in their business activities. The idea to suggest the value creation and trade is related to the idea of creating value for stakeholders. All parties involved in the supply-chain, i.e. suppliers, customers, employees, communities, managers and shareholders should be in win-win situation at all times.

Optimizing value creation by managers means to create products and services that customers are willing to buy, offering jobs that employees are willing to fill, building good rapport with suppliers that companies are willing to have, and being good citizens in the community, and it is undeniably important to have this value in business (Freeman et al., 2004). In conclusion,

stakeholder interests have to be interrelated and work to achieve the same goal (Venkataraman, 2002). To maintain a good relationship between all stakeholders in order to reduce conflicts among them, immediate solutions are needed to resolve the conflict and therefore keep the stakeholders in the value-chain. The worst scenario that should be avoided is the political interference that favours a certain party. Stakeholders, however, can see the interrelation of each important party to the organization due to the recent wave of corporate alliances and the existence of issues such as supply-chain management (Freeman et al., 2004).

In this theory, managers and participants of an organization are taught to pay fair attention to all constituencies of the firm by thinking more commonly and creatively about how they treat all important parties of the firm through their policies. Studies have proven that long term market value of a firm cannot be maximized if any important area is ignored or mistreated since the values cannot be created without good relations among the stakeholders mentioned earlier. In this case, no competing interest or no constituency can be given full satisfaction, can be applied in choosing the value criterion (Jensen, 2001).

In his study, Ventakaraman (2002) says that taking a stakeholder approach enables us to develop a stronger theory of entrepreneurship, as the theory is believed to give us the correct way to think about entrepreneurial risks, where its role is better understood. By applying this theory, management would take risks that leads to increasing each stakeholder's interest.

Stakeholder theory provides the vital framework to see a moral dimension to business activity and therefore rejecting the separation thesis which believed that shareholder maximizing will not go along with moral dimension. Taking Enron scandal as an example of ethics disaster, the theory believes that business is not mainly about profits for shareholders and that morality is either irrelevant or insignificant. Furthermore, this theory is argued to better equip managers to articulate and foster the shared purpose of the firm. Value creation and trade have to go together as they are interdependent to each other (Freeman et al., 2004).

The most frequently debated issues in the literature on this topic heve been the question of who or what establishes a stakeholder (Stanford Research Institute, 1963; Evan, 1978; Freeman & Reed, 1983; Freeman, 1984; Evan & Freeman, 1988; Donaldson & Preston, 1995; Hosseni & Brenner, 1992; Business & Society, 1994; Business Ethics Quarterly, 1994; Phillips, 1997; Mitchell et al., 1997; Rowley, 1997). Some researchers answer the question of who should be viewed as a valuable stakeholder by looking at the ethical viewpoint. Taking this perspective into consideration, Freeman (1984) defines a stakeholder as any group that affects or is affected by a firm's performance. However, the definition is criticized by Post et al. (1996) as too broad to be of analytical value.

Mitchell et al. (1997) prefers a narrower approach that captures the level of influence of potential stakeholders. In this point of view, the level of influence or salience is based on (1) the extent to which potential stakeholders contribute valued resources to the firm, (2) the extent to which they put these resources at risk and would experience costs if the firm fails or their relationship with the firm terminates, and (3) the power they have in or over an organization. These three features are considered as the basic tools to measure the level of influence, hence to determine who or what a stakeholder is to a firm. Contributing valued resources to the firm creates incentives for others to identify a potential stakeholder; putting resources at risk shows that the firm holds the principle of moral towards all parties while having power determines whether or not a constituency is a part of a firm's stakeholder. The first two features allow the legitimacy to potential stakeholder claims, while the third measure provides the means to state the

interest. This shows the interrelation between all elements. However, an influential stakeholder must be high on all dimensions of measurement (Kochan & Rubinstein, 2012).

What are the main features of internal governance and operational processes or tasks are most crucial for determining the success of a firm that adopts stakeholder theory? A stakeholder firm consists of legitimates that allow all interested parties, each of which has a goal to be achieved. There is a high potential for conflict (Schmidt & Kochan, 1972; Jehn, 1995) and for improving performance through coordination within and across the participating stakeholder due to the high interdependence of activities, as well as the wide dispersion of power among them (Aoki, 1988; 1990; Cohen & Bailey, 1996). Therefore, to answer the question of the most crucial or critical tasks to determine the success of a stakeholder firm lie in (1) mobilizing the stakeholders to commit their assets in ways that contribute to performance, and (2) synchronizing efforts and resolving conflicts that arise when multiple interests share power. A stakeholder firm must show its capability to attain the numerous objectives of the dissimilar parties and to dispense the value created in ways that maintain their commitment in order to be feasible over time (Kochan & Rubinstein, 2012).

7.0 VALUE CREATION IN UIC

One of the main characteristics of Stakeholder Theory is value creation. Through UIC concept, it offers values to both parties; university and industry. As stated in the literature before, UIC provides many advantages to the industry. Among them is the ability to access highly skilled graduates, faculty facilities and laboratory equipment in the research, apart from a reputation for your company and products for cooperating with prominent research institutes or university (Fombrun, 1996). UIC is also very helpful to the industry in order to acquire knowledge and the latest technology as well as innovation in a field, particularly related to science and technology such as biotechnology field (Pisano, 1990), pharmaceuticals (van Rossum & Cabo, 1995) and manufacturing (Frye, 1993) in (Santoro & Chakrabarti, 2002). There are industries that have developed their core competencies and managed to create their own competitive advantage in respected areas because of their active relationship with universities (G. Hamel & C. K. Prahalad, 1994; W. W. Powell, K. W. Koput, & L. Smith-Doerr, 1996). Starting from product life cycle is getting shorter and the rate of technological change is so fast, making the effective transfer of technology and knowledge transfer beyond the boundaries of the organization something really required (Gopalakrishnan & Santoro, 2004)**.**

In other words, UIC offers savings to the industry from producing cost to acquire the machines and also the cost of in-house research with the cost of sharing concepts offered by UIC. As a result, UIC leads to increase innovation, competitiveness and better performance to the firm (Schofield & Marketer, n.d.). While the university, typically the UIC offers fund to conduct research. In addition, students and faculty will have an exposure in facing and solving real practical problems, the opportunity to get a job after graduation as well as the opportunity to access the latest technology used in the industry (Santoro & Chakrabarti, 2002).

8.0 CONCLUSION

In conclusion, the industry should work together with the university since there are so many advantages for the university and there are advantages that will raise the industry to a higher level. This is due to the advantages in the university that industry can exploit and benefit such as being able to recruit highly skilled human resources and providing knowledge on multi-tasking, the latest knowledge transfer to industry. Advanced technology transfer as well as the cost of innovation can be cheaper. When collaboration is realized, it will ensure the survival of a business and businesses can thrive in a competitive market environment and in turn can be the driver of economic growth of a country (Siegel, Waldman, Atwater & Link, 2004).

Stakeholder Theory is best suited to UIC concept where it recognizes university as one of the stakeholders to the firm since university can affect firm's performance through KT and TT. This theory highlights the value creation concept in UIC by portraying the benefits that both parties can enjoy as mentioned earlier. It also underlines the responsibilities of each party towards their stakeholder. For example, firms should contribute to the graduate education programme by participating in the syllabus, curriculum and programme revision, offering places for student internship and academic staff attachment, inviting researchers to participate in their projects and research, and offering grants for research etc.

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