# TECHNOLOGICAL KNOWLEDGE TRANSFER FROM FOREIGN PARTNERS TO UGANDA'S INTERNATIONAL JOINT VENTURES: A CASE OF THE MANUFACTURING INDUSTRIES

By

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# TABLE OF CONTENTS

**CHAPTER 5 DISCUSSION AND CONCLUSIONS**

## List of Tables

## List of Figures

## List of Appendices

## ABSTRACT

### TECHNOLOGICAL KNOWLEDGE TRANSFER FROM FOREIGN PARTNERS TO UGANDA'S INTERNATIONAL JOINT VENTURES: A CASE OF THE MANUFACTURING INDUSTRIES

The study investigates the extent of and factors that affect technological knowledge transfer from foreign partners to IJV in Uganda's manufacturing sector. It also examines whether the effect of these factors is contingent on IJV manufacturing experience. The focus on IJV is crucial given that the Government encourages local firms to form joint partnerships with foreign firms as a way of taping into external technological bases. The goal is to acquire and adopt new knowledge to foster industrialization upon which the country will depend for its economic growth and for survival in the global village. The study; cross sectional in nature conducted a census using a self-administered questionnaire in addition to key informant interviews. Each IJV was represented by a CEO as respondent giving a total of 103 respondents. Factor and reliability analysis, multiple and hierarchical regression were the various statistical analysis carried out using SPSS. The findings of this study confirm a fairly low incidence of transfer of technological knowledge from foreign partners to IJV and also indicate that learning and development and structural attachment have a positive significant effect on the extent of transfer of technological knowledge. The study also revealed that the effect of communication behavior, structural attachment and creativity and flexibility on transfer extent is contingent on IJV manufacturing experience. The findings are in line with Blau's (1964) social exchange theory which recognizes the importance of investing in irrecoverable resources in a relationship to create ties that set an expectation of reciprocity. The findings are also in line with the networks theory which posits that linkages to supplement existing resources are unavoidable in the era of globalization. However the study also revealed that there are a number of areas where interventions can be instituted in order to realize enhanced knowledge transfer. One major implication arising from the findings is that clear and unambiguous provisions defining and regulating relationships at the inception of joint partnerships ought to be adopted. This will provide a framework for nurturing close trusting relationships that facilitate mutual exchange of critical resources. It is also imperative for Uganda Government to review existing knowledge transfer strategies by offering more support to learning and development and building close ties between IJV and foreign partners. Future research could be directed to conducting a longitudinal study to investigate the effects of technical and organizational infrastructure factors on the extent of transfer of knowledge. Other types of knowledge preferably in service industries could also be investigated since this study only investigated technological knowledge in the manufacturing sector.

## ABSTRAK

### PEMINDAHAN PENGETAHUAN TEKNOLOGI DARI RAKAN KONGSI ASING KEPADA SYARIKAT USAHASAMA ANTARABANGSA UGANDA: SATU KES INDUSTRI PEMBUATAN

Kajian ini meninjau tahap serta faktor-faktor yang mempengaruhi pemindahan pengetahuan teknologi daripada rakan kongsi asing kepada syarikat usahasama antarabangsa (International Joint Venture (IJV)) dalam sektor pengilangan di Uganda. Tinjauan samada kesan faktor-faktor ini bergantung kepada pengalaman pengilangan IJV juga termasuk dalam kajian ini. Fokus kepada IJV penting memandangkan kerajaan Uganda menggalakkan firma tempatan membentuk perkongsian dengan firma asing sebagai satu cara untuk memperolehi asas teknologi dari luar. Matlamatnya adalah untuk memperoleh dan menerimapakai kemahiran baru bagi mempergiat proses perindustrian yang membolehkan negara bergantung harap demi kemandiriannya. Kajian ini merupakan kajian rentas yang dilaksanakan secara bancian dengan menggunakan soal-selidik tadbir-sendiri, di samping temubual yang dijalankan ke atas informan utama. Setiap IJV diwakili oleh seorang CEO sebagai responden, dengan bilangan responden seramai 103 orang kesemuanya. Analisis faktor, analisis kebolehpercayaan, regresi berbilang, dan regresi hierarki adalah analisis-analisis statistik yang dilakukan menggunakan SPSS. Dapatan kajian ini mengesahkan bahawa pemindahan pengetahuan teknologi daripada rakan kongsi syarikat asing kepada IJV adalah agak rendah. Ia juga menunjukkan bahawa pembelajaran, pembangunan dan sangkutan struktural mempunyai kesan positif yang signifikan ke atas tahap pemindahan pengetahuan teknologi. Kajian juga menunjukkan bahawa kesan perlakuan komunikasi, sangkutan struktural, kreativiti dan fleksibiliti ke atas tahap pemindahan bergantung kepada pengalaman pengilangan IJV. Dapatan kajian ini menepati teori pertukaran sosial yang diutarakan oleh Blau (1964) yang menyatakan kepentingan untuk melabur dalam sumber-sumber yang tidak mudah diperolehi semula dalam sesebuah hubungan agar dapat membina ikatan di mana timbal balik dapat dijangkakan. Ia juga selari dengan teori jaringan yang mengatakan bahawa ikatan yang menambah sumber-sumber sedia ada tidak dapat dielakkan dalam era globalisasi. Walau bagaimanapun kajian ini juga menunjukkan bahawa terdapat beberapa bidang di mana campur tangan boleh dilaksanakan agar dapat merealisasikan pemindahan pengetahuan yang mantap. Satu implikasi besar yang timbul daripada dapatan kajian ini ialah keperluan yang jelas dan tidak kabur yang menakrif dan mengawal hubungan perlu dilaksanakan pada peringkat awal perkongsian. Ini membekalkan rangka kerja yang dapat membangunkan hubungan rapat serta saling mempercayai, yang memudahkan pertukaran sumber-sumber kritikal. Adalah penting bagi Kerajaan Uganda untuk mengkaji semula strategi pemindahan pengetahuan sedia ada dengan menawarkan sokongan ke atas pembelajaran dan pembangunan serta pembinaan ikatan yang rapat antara IJV dan rakan kongsi asing. Kajian seterusnya boleh mengarah kepada kajian yang dijalankan secara lerentas masa untuk menyiasat kesan faktor-faktor teknikal dan infrastruktur organisasi ke atas tahap pemindahan. Selain itu, kajian juga boleh dilakukan ke atas jenis pengetahuan yang lain khususnya dalam industri perkhidmatan, memandangkan kajian ini hanya mengkaji pengetahuan teknologi dalam sektor pengilangan.

# CHAPTER 1

# INTRODUCTION

This chapter gives a general overview of how the Government of Uganda through its economic reforms seeks to encourage the formation of joint partnerships with foreign investors. The goal is to acquire and adopt new skills and technological knowledge as a way of fostering industrialization upon which the country will hinge for its economic growth. The Chapter further provides the background of the study, problem statement, objectives of the study, research questions, significance of the study and operational definitions.

## 1.1 Background of the Study

The application of knowledge is now recognized to be one of the key sources of growth in the global economy (World Bank, 2006). Countries especially those in the developed world are at the forefront of harnessing employer's knowledge as a strategy to increase competitiveness, growth and wealth and to improve performance. And as global competition that has resulted in an increasingly complex and unpredictable business environment intensifies, access to and application of knowledge become decisive factors in determining economic growth (Dahlan, Ramayah, Karia, Fun & Asaari, 2005; Hoeg & Schulze, 2005; World Bank, 2006). Developing countries in general and Uganda in particular who wish to effectively participate in globalization and benefit from it and yet their

knowledge bases are insufficient must focus on facilitating knowledge worker productivity for survival more than ever before. In response to these challenges, governments around the world are adjusting their development strategies within a new framework in which accumulation of knowledge by way of knowledge transfer is occupying a central place.

The Government of Uganda in its effort to promote high economic growth and compete globally is committed to building local technological capabilities in-order to propel the country towards the status of an industrialized nation (UNCTAD, 2004). This fundamental national economic move is articulated in Uganda's National Vision 2025 emphasizing macro economic stability through an enterprising, innovative and industrious society (Government of Uganda, 2001). Industrial development is consonant with the existing national policies, programs and strategies that regard technology and knowledge among the key factors of production (World Bank, 2006). The expansion or establishment of new industries whose goal is wealth creation and improvement of people's welfare and poverty reduction is expected to increase the value of the county's natural resources, ensure job creation, guarantee enhanced household incomes, raise foreign exchange earnings and facilitate the transfer of technical know-how.

The Government has acknowledged that prospects for endogenous technological development are minimal and is therefore striving to acquire and utilize external sources of knowledge and technology. Partly due to insufficient levels of scientific and technological knowledge, the status of industrial development in Uganda is still very low at present. There are only 11,968

manufacturing businesses contributing to 10.3% of the country's GDP. These are dominated by agro-related industries and production of local goods for home consumption (Uganda Bureau of Statistics, 2005). Capital goods industries that could serve as stimulus for industrial development and export-oriented industries are virtually non- existent (National Council of Science &Technology, 2004). Being in a region where firms are characterized by insignificant indigenous scientific and technological base, it is fundamentally important that Uganda's development approaches be focused on the accumulation of technological capabilities to increase firm productivity which would eventually lead to industrialization and consequently to economic growth.

Studies done by the United Nations Industrial Development Organization (UNIDO, 2001) and United Nations Conference on Trade and Development (UNCTAD, 2004) indicated that knowledge transfer relating to technology is still low in Uganda and is not easily transferable as part of the sale of equipment, patents or blue prints. However one of the ways to obtain such knowledge is through external acquisition of experience, contextual information and techniques that could be used in the development, design, production and application of processes, procedures, systems and services referred to as technological knowledge by way of knowledge transfer. Knowledge transfer in this study refers to the process through which organizations learn from each other's experience and adapt all or some of the knowledge acquired (Darr & Kurtzberg, 2000).

The Uganda Government has encouraged local firms to form joint ventures in business partnerships with foreign investors in the hope that firms in Uganda

could gain knowledge and expertise from such consortia and partnerships and apply it in their own operations. International Joint Ventures (IJV) which are the thrust of this study focus on cooperative arrangements between two or more independent companies one of whom must be a foreigner and together set up a newly created organization distinct from its parents (Johnson & Scholes, 1993; Matthews, 2000). More than half of the registered medium and large manufacturing firms in Uganda are either foreign owned or joint ventures with an excess of 2.5 billion US dollars in actual investment (Uganda Investment Authority, 2005)

Several studies in Uganda provide an insight on the transferability of technological skills. A study by the National Agriculture Research Organization in 1998 and two studies conducted by Uganda National Council of Science and Technology in 2000 and 2001 assessed the impact of foreign direct investment on technology transfer. All these studies revealed that the soft side of technology transfer, absorption of organization and management practices as well as tacit knowledge that refer to the kind of instinct values, personal beliefs, individual actions and experience that resides in people's minds (Nonaka, 1994; Nonaka & Takeuchi, 1995; Polanyi, 1997) was neglected. The studies in Uganda further suggest that technologies that were transferred were embodied in new equipment or in patents, blueprint technical drawings and manuals. It is further reported that such transfers brought direct outcomes of innovation rather than mechanisms, which facilitate learning about the innovation process itself. This contradicts the worldwide view that complementary expertise and knowledge acquired through

Foreign Direct Investment (FDI), strategic alliances and joint ventures can promote learning through transfer.

Amidst all these expectations, an organization's capacity to learn from each other's experience and the eventual utilization of the knowledge acquired on the part of the adopter is one way of bringing technological knowledge to developing countries. Through the establishment of international joint ventures, firms have the opportunity to tap into their partner firms' experience, skills and knowledge. Hence the need to acquire and utilize external technological knowledge becomes imperative with increasing global competition. The decreasing technical complexity and market uncertainties that are characteristic of today's complex intricate and unpredictable business environment render this even more vital.

### 1.2 Problem Statement

Most underdeveloped and developing countries are desirous for technological knowledge transfer from foreign countries. The need for technological knowledge has become greater and greater for these countries in order to catch up with the pace of technology development in developed countries. Aware of its insufficient levels of scientific and technological knowledge (UNCTAD, 2004; World Bank, 1995), the Government of Uganda has embarked on several strategies aimed at acquiring and adopting new scientific and technological knowledge from foreign partners. Through its numerous economic reforms, the government has since 1986 attracted many foreign investors, encouraged local firms to form joint partnerships with foreign investors and enacted the 1991

Investment Code that delineates the policy that promotes the transfer of technological knowledge from foreign partners. But in spite of all these efforts on the part of Government to accumulate technological knowledge from foreign partners, we are not sure of how much the country has accrued. There is thus no indication of the extent of transfer of technological knowledge from foreign partners as a result of joint partnerships. The only existing analysis of what we have so far achieved is in the few conducted studies that are purely descriptive (UNCST, 2000, 2001). There are also a few consultancy donor surveys that have suggested that FDI has contributed to the transfer of skills in Uganda (UNCTAD, 2002; UNIDO, 2000).

Against this background and in light of a dearth of empirical research on knowledge transfer in Uganda, this study investigates the extent to which there has been a transfer of technological knowledge from foreign partners to IJV in the Ugandan manufacturing sector following Governments efforts to tap into foreigner's technological knowledge bases. It seeks to establish the factors under which technological knowledge transfers from foreign partners to IJV and whether the effect of such factors on the extent of transfer is contingent on IJV manufacturing experience.

### 1.3 Objectives of the Study

1. To investigate the extent of technological knowledge transfer in international joint ventures (IJV) in the Ugandan manufacturing sector.

2. To determine the relationship between inter-party attachment, relationship quality and firm-level learning capabilities and the extent of transfer of technological knowledge.
3. To study the moderating effect of IJV manufacturing experience on the relationship between inter-party attachment, relationship quality and firm-level learning capabilities and the extent of transfer of technological knowledge.

## 1.4 Research Questions

1. What is the extent of technological knowledge transfer from the foreign partners to Uganda's IJV?
2. What is the relationship between inter-party attachment, relationship quality and IJV absorptive capacity on the extent of transfer of technological knowledge in IJV in Uganda?
3. Does the Uganda manufacturing experience moderate the relationship between inter-party attachment, relationship quality and IJV absorptive capacity and extent of technological knowledge transfer in Uganda's IJV?

## 1.5 Significance of the Study

Knowledge transfer has become an important phenomenon as organizations realize that it is not possible to solely rely on in-house experience and expertise insight to trigger industrialization. There is little empirical evidence on the extent of technological knowledge transfer and the factors affecting the

transfer in IJV in Uganda. We have come across few studies on indigenous knowledge in the agriculture and health sectors by case study approach but none on technological knowledge. Surveys carried out in 1998 by Uganda National Council for Science and Technology and National Agriculture Research Organization assessed the impact of FDI on technology transfer and technology transfer in firm production respectively. These surveys concentrated on hard technology transfer in form of embodied technologies. The "softer" component of technology that accompanies hard technology and in particular the transfer of technological knowledge was left un-investigated. We are not aware of any empirical studies that have particularly investigated the transfer of technological knowledge from foreign partners to IJV in Uganda and hence our zeal to explore the phenomenon.

Since there is ample literature to show that knowledge transfer in organizations occurs through alliances and other forms of inter-organizational relationships, this study complements literature by investigating technological knowledge transfer from foreign partners to IJV in Uganda's manufacturing sector. The choice for the manufacturing sector cannot be underscored since technological knowledge comprises the knowledge base that manufacturing industries apply in the development, design, production and application of processes, procedures, systems and services.

The findings of this study could also provide insights into factors facilitating or inhibiting inter-firm technological knowledge transfer and the extent of knowledge transfer in developing countries and illustrate to the participating

organizations how to augment knowledge management transfer strategies. The study also attempts to provide a framework for inter-organizational knowledge transfer policies and practices in Uganda. The strategic actions arising out of policy implications in this research could be used by Uganda Government to strengthen local IJV partners so as to benefit from foreign investors' knowledge bases on the premise that knowledge transfer from foreigners will propel Uganda's industrial development.

### 1.6 Scope of the Study

Two key relationships constitute theoretical approach of this study. First is whether IJV relationship quality, inter-party attachment and firm-level learning capabilities influence knowledge transfer; and the second is whether the manufacturing experience possessed by an IJV play a moderating role in the extent of knowledge transfer. This study focuses on the extent of technological knowledge transfer in Uganda's IJV. Factors such as relationship quality, inter-party attachment and firm-level learning capabilities that influence the extent of technological knowledge transfer are identified through factor analysis. The moderating role of the IJV manufacturing experience is also analyzed. The IJV being the key decision making entity among alliance partners and where the technological knowledge outcomes could easily be observable and appraised is the main unit of analysis in this study.

The fieldwork for the thesis was conducted in all the districts of Uganda that had IJV. Little scholarly research concerning knowledge transfer had been done in

Uganda's IJV before the present study. In addition, assessing extent of technological knowledge transfer from foreign partners is more applicable to IJV than local joint ventures. Third, since the Government of Uganda has put much emphasis on partnerships with foreign companies, further research to establish the extent of transfer was deemed reasonable. This further presented an opportunity to uncover 'new ground' and a challenge due to the paucity of comparative evidence. Two hundred and fifty six (256) IJV registered with the Uganda Investment Authority between 1995 and 2003 were purposively selected and their CEO interviewed.

### 1.7 Definition of Key Terms

- **Technology** refers to the hardware or machinery used to develop products and or design works
- **Technological Knowledge** refers to a body of experience, contextual information and techniques that accompanies hard technology used in the development, design, production and application of processes, procedures, systems and services (Shrivastara & Sounder, 1987).
- **Knowledge Transfer** refers to a process through which organizations learn from other organizations' experience and the eventual utilization of all or some of the knowledge that is acquired on the part of the adopter (Darr & Kurtzeberg, 2000).
- **Relationship Quality** refers to the overall assessment of how strong a relationship is as a reciprocal outcome (Crosby,Evans & Cowles,1990).

- **Trust** refers to each party's confidence in the exchange relationship with no exploitations and vulnerabilities (Barney & Hansen, 1994).
- **Communication Behavior** refers to the quality of communication in terms of information quality, information sharing and joint participation (Mohr & Speckman, 1994)
- **Learning and Development** refers to the extent, which an organization is willing to encourage its members to undertake formal training and develop its staff.
- **International Joint Venture (IJV)** refers to a strategic alliance where two or more distinct partners (at least one of whom must be a foreigner) provide complementary resources to establish a separate organization (Inkpen, 1999).
- **Inter- party attachment** refers to ties between exchange partners manifested in both personal relationships and through ties at an organizational level (Luo, 2002).
- **Structural Attachment** refers to ties between exchange partners manifested at an organizational level (Luo, 2002).
- **Creativity and Flexibility:** the ease with which an organization allows its staff to generate new ideas (Rice, 2003).
- **Management Support** refers to both physical and moral facilitation and encouragement accorded to staff by senior management
- **IJV Manufacturing Experience** refers to the years of experience an IJV has in managing manufacturing operations in Uganda (Tsang, 2002).

## 1.8 Organization of the Thesis

This study is presented in five chapters. The first chapter presents the phenomenon to be investigated, the rationale for the study, definition of key terms and the significance of the study.

The second chapter presents the review of literature. It highlights the theories and concepts related to knowledge transfer, factors under which knowledge transfers and the factors affecting technological knowledge transfer. This chapter also expounds on the rationale for the model choice and gaps that the study intends to address.

Chapter three describes the research methodology employed in the study. It includes; research design, data collection methods, questionnaire design and statistical techniques used in the data analysis.

Chapter four discusses the results in the order of the three research questions outlined in chapter one. The empirical findings are also reported in accordance with the three research questions.

Chapter five discusses the major findings and their managerial, academic and policy implications. The chapter also addresses limitations of the study and future research directions.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 Introduction

This chapter is devoted to the review of literature related to the transfer of knowledge and related factors. The issues include framework for knowledge transfer, theories that underpin our conceptualization of the phenomenon, knowledge transfer in International Joint Ventures and factors that influence the transfer of technological knowledge in particular.

## 2.2 An Overview of Knowledge

In the existing literature, the term knowledge has mostly been conceived through its attributes (Hertag & Huizenga, 2001; Roberts 2000). Starting from Polanyi's (1967) assertion that knowledge comprises of tacit and explicit dimensions, which are mutually complementary, several other scholars have also defined knowledge by categorizing it into different forms (Bloodgood & Salisbury, 2001; Edvinson & Sullivan, 1996; Nonaka &Takeuchi, 1995).

A distinction is often made between explicit and tacit knowledge (Inkpen & Dinur, 1998; Nonaka, 1994). Explicit knowledge is that knowledge which is easily communicated and expressed in formal, systematic language and can be stored in specifications, reference manuals, procedures and company handbooks (Nonaka & Takeuchi, 1995). Tacit knowledge on the other hand is non-codified and often referred to as know-how (Roberts 2000). It is not common to find absolute tacit

knowledge or absolute explicit knowledge (Cavusgil, Calantone & Zho, 2003) but the type of knowledge must be classified on a continuum that ranges from explicit to tacit (Inkpen & Dinur, 1998). Nonaka (1994) has also categorized tacit knowledge into two dimensions. The technical dimension encompasses skills, crafts, and the cognitive dimension resides in people's heads in the form of instinct values, experience and personal beliefs that shape the way individuals perceive the world around them. Knowledge in organizations resides in different mediums according to Argote and Ingram (2000). Whereas some knowledge resides in individual members and is especially tacit, a good chunk of knowledge is found in operating procedures and in various networks formed by combining members' tools and tasks. A more recent view of knowledge suggests that knowledge is socially constructed, highly personal and difficult to encode and share (Hoegi& Schutze, 2005)

Other than defining knowledge according to its attributes, other scholars have categorized knowledge in different ways. Edivinson (1996) categorized knowledge into human and organizational or structural capital that interact and reinforce each other. Human capital is possessed by individuals, which generates collective experience and comprises of skills and know how, attitude and the ability to be innovative and entrepreneurial and to act quickly (Rice, 2003). Structural capital is knowledge that is institutionalized within organizations' structure and processes and is the property of an organization. Such knowledge includes relationships with stakeholders like customers, the local government, the community and suppliers or simply put its knowledge about relationships with

organizations' networks. It also includes organizational routines, culture and procedures in addition to research and development, new manufacturing plants and new products (Rice, 2003). There is yet another categorization applied by Hertag and Huizenga (2001) that includes functional knowledge developed within disciplines or subject areas, operational knowledge based on experience in actions and contextual knowledge which is gained by operating in a certain environment. Last but not least is the categorization advanced by Tiemesen, Lane, Crossan & Inkpen (1997). They differentiate between two dimensions of knowledge that are important in the IJV context. They concur with the explicit and tacit dimensions and in addition, they identify a second dimension which they refer to as application of knowledge. Application of knowledge includes four types of knowledge. Firm-specific knowledge, which is about the business, it talks about history of the firm and technology used. Market specific knowledge that is accumulated about the factors affecting firm's activities within a certain location. Some of this could be about laws and regulations governing business activities and political influences. Third, partnering knowledge or know-how required to work with a particular partner and lastly, resource integration knowledge. This category encompasses the technical know how required to transform the available resources so that they can be applied in the IJV context. In essence, resource integration knowledge according to them, is mastering how to combine knowledge that is both firm-specific and market specific into new knowledge.

Though there are various types of knowledge classifications as outlined above, one common factor is that knowledge has peculiar characteristics that cuts

across all dimensions and categorizations. There are six characteristics that distinguish knowledge from other types of resources (Ahmed, Kok & Loh, 2002). The first is that knowledge is sticky as it is usually embedded in people's minds and tends to remain there. The second is its extraordinary leverage and increasing returns because knowledge does not diminish in value. In contrast to value chain, the intangible value is seen as a value network which grows each time a transfer takes place because knowledge does not leave the transferee but doubles effectively as it tends to grow by sharing (Davenport & Prusak, 1998; Inkpen & Beamish, 1997).Third, it needs to be refreshed and rejuvenated because some of it becomes obsolete with time. Fourth, knowledge per say has no tangible value which makes its value difficult to measure; its value derives from the outcomes of its application. Fifth, as knowledge grows it tends to branch and fragment and likely to become less valuable as it is widely shared. Lastly is the realization that most new knowledge is context specific as it is usually created for a particular use.

The essence of the numerous types of classification and the acknowledgement of the various knowledge types give rise to four fundamental issues. First, the discussion reveals how knowledge is a multi-dimensional construct. Second, complementing explicit communicable knowledge is the tacit knowledge that is not easily communicated and articulated (Peridis, 2000; Almeida & Kogut, 1999). Third, different types of organizational knowledge differ in their transferability based on knowledge characteristics such as codifiability, complexity, teachability and system embedness (Kogut & Zander 1995) and could be transferred at different costs. Fourth, the transfer of knowledge that is tacit and

socially embedded is more problematic than less embedded knowledge (Argote & Ingram, 2000; Inkpen, 2001; Kostova, 1999). Fun (2004) posits that the framework is more than a means to visualize the types of knowledge and its storage. The framework however provides a basis to understand that knowledge resides within and is created by individuals (Nonaka, 1994). The knowledge and information gained by individuals over time forms their knowledge bases. Current knowledge bases in turn shape the scope and direction of the search and amplification of new knowledge (Hoegi & Schulze; Nonaka & Takeuchi, 1995; Shyme, 1999).

Arising from the various dimensions of knowledge this study will adapt the knowledge perspective that encompasses technical know-how type of knowledge (Hertag & Huizenga, 2001; Tiemessen,et al. 1997). The importance of technical know- how in Uganda cannot be underscored considering that it is such type of knowledge that is required to transform the available resources and to produce direct outcomes of innovation that spur industrial growth (Fernandize, Montes, Gullermo, Bustamante & Vazquez 1999; Shrivastava & Sounder, 1987). This study refers to such technical know-how as technological knowledge.

### 2.2.1 Definition of Technological Knowledge

Technological knowledge has gained much significance (Hansen& Lovas, 2004; Khin, 2001; Stern& Henderson, 2004) unlike in the past when technology was considered in terms of tangible objects like working machinery and artifacts, giving little significance to knowledge related aspects (Ford & Saren, 1996). Technology is much more than machinery for it involves the practical application of

scientific knowledge that is codified and easily accessible in addition to non-scientific knowledge that may be embedded in the culture of society or company, group, worker or inventor tasks (Fernandize, et al., 1999). For example, Ford and Saren (1996) describe different technologies under three categories; product, process and market technologies. Product technologies that include firm's abilities to design particular types of products or services and embedded in staffs that know how to perform such design works. Process technologies are what a firm uses to manufacture or to produce particular products or services while market technologies enable a firm to relate its products and services to other firms' requirements and to their technologies. Market technologies also include skills needed to manage firms' relationships with other companies. Shrivastava and Souder (1987) also identified three distinct dimensions: hardware or machine technology, work sequencing or workflow dimension sometimes known as procedural technology and knowledge technology. That knowledge technology comprises of the knowledge base used in either inventing or designing technical systems (or new products) or in performing the work itself.

Technological knowledge in our context refers to a body of experience, contextual information and techniques used in the development, design, production and application of processes, procedures, systems and services (Shrivastava & Souder, 1987). According to (Fernandize et al., 1999), technological knowledge nearly always comprises tacit components and may be derived from sciences and practical experience. The tacit dimension forms part of the industrial expertise, is not very context-specific, is an invisible asset and

difficult to understand and can only be assimilated over time. Fernandize et al., (1999) further explain that due to its tacit nature, technological knowledge arises from an intimate working familiarity nurtured by years of effort.

## 2.3 International Joint Ventures

The use of alliances, co-location in technology intense regions, the use of foreign direct investments and licensing agreements constitute several knowledge transfer mechanisms that firms use (Child, 2002; Lyles et al., 2000; Song et al., 2003). Though there are various reasons advanced for the formation of IJV, gaining access to other organizations' embedded knowledge and therefore to new organizational skills and capabilities are cited in the literature (Hamel, 1991; Inkpen, 2000, 2001; Inkpen & Beamish, 1997; Matthews, 1999).

International Joint Ventures are typically recognized as arrangements whereby organizations remain independent but set up a newly created organization owned by the parents (Inkpen & Beamish, 1997; Luo, 1999; Mathews, 2000) one of whom must be a foreigner. Though partners may preserve their identity and autonomy there is need to allocate ownership, operational responsibilities, financial risks and rewards to each member (Inkpen, 2000; Parke, 1996). Though the new entity is organizationally and legally independent, it is still subject to strategic and economic control from the parents(Johnson & Scholes,2002).

### 2.3.1 Motives for Joint Venture Formation

Organizations competing in the global business environment cannot always cope in such unprecedented turmoil fueled by different factors at various levels (Johnson & Scholes, 2002; Luo, 2000). Factors such as converging consumer tastes, escalating fixed costs, shortening product life cycles and changes in technology (Parke, 1996) may force organizations to change strategies. Organizations may see need to obtain materials, skills, know-how, finance or access markets and recognize that these resources may be as readily available through co-operation as through ownership (Inkpen, 2001; Johnson &Scholes, 2002). It is in this context that JV emerges as a mode of organizational structure). A joint venture is considered international if at least one parent is headquartered outside the ventures country of operation or if the JV has a significant level of operation in more than one country (Parke, 1996). This study will stick to defining an IJV as an arrangement where one parent is headquartered outside Uganda.

One major motivational factor for establishing IJV is to achieve synergies and gain a competitive edge through the integration of complementary resources (Child, 2003; Griffith et al., 2001; Inkpen & Beamish, 1997). Once established, each partner stands to gain from the relationship. Foreign partners could quickly and with much ease access new markets by leveraging the local partners' market knowledge and local networks (Inkpen, 2000; Johnson & Scholes, 2002). IJV on the other hand could receive technological and managerial knowledge and capital from foreign counterparts. The results of such invaluable exchange include but not

limited to risk reduction, increased revenue and knowledge (Child, 2002; Lyles et al., 2000; Wong & Ellis, 2002).

### 2.3.2 Previous Research Trends in International Joint Ventures

Earlier research on International joint venture literature dwelt on three interconnected theoretical dimensions of primary emphasis (Luo, 2000; Mcfashion & Sweeney, 2003; Parke, 1996; Wong & Ellis, 2002). The dimensions are antecedents, which include JV formation and partner selection; specific management issues pertaining to control and conflict; outcomes that encompass JV stability and performance. The traditional approaches however omitted the concept of learning, which is now the trend of current research and the focus of this study.

Joint venture formation and partner selection is one of the dimensions of previous research as mentioned above. Several overlapping objectives constitute the rationale for entering into cooperative ventures. Kogut (2004) summarizes the objectives under three theoretical approaches. The transaction cost perspective proposes that firms choose to transact or not to transact basing on the criterion of minimizing the sum of production and transaction costs. Thus under the transaction cost perspective, an alliance could not be established without objectives. Numerous researchers have criticized this approach's singular focus on opportunistic behaviors since new alliances still exist in spite of a lack of specific goals. Its failure to address the issue of exploiting learning opportunities has also been criticized (Bochel et al., 1998; Matthews, 2000). The strategic perspective

focuses on strategic motivations and argues that a firm engages in a joint venture to enhance one's competitive position. The major argument emerging in the strategic management resource-based literature is either that knowledge held individually or at organizational level is a basic source of advantage in competition. The third approach derives from organizational theories and focuses on organizational knowledge and learning. Joint ventures are thus viewed as a conduit through which firms can access and learn each other's critical skills or capabilities (Inkpen, 2000, 2001; Inkpen & Beamish 1997; Mathews, 2000).

Selecting partners that will enhance the chances of venture success is the second aspect under antecedents (Bochel, Prance, Probost & Roling, 1998; Inkpen, 1985; Matthews, 1999; Wong & Ellis, 2002). There are three categories of appropriate criteria for local partner selection as cited by Luo (1999). First, task or operations criteria, which cover aspects related to operational skills and resources, like marketing competence, technological skills, relationship building, market position, industrial experience and corporate image. Secondly, partnership or cooperation related criteria, which reflect organizational attributes such as organizational leadership, previous collaboration, ownership type, learning ability, experience with foreign companies and human resource skills. Last is the financial criterion, which covers aspects of profitability and asset efficiency, and impact the optimization of capital structure and cash flow. Literature has however intimated that the chances of ventures succeeding wholly remain unpredictable however good the criterion for selecting partners may be (Inkpen, 1985; Luo, 1999; 2000; Matthews, 2000). This may be attributable to the different levels of success

management in the JV system as perceived by different players (Parke, 1996). The three perspectives against which joint success is usually measured namely the global, the partner and the management of joint venture perspectives are likely to give conflicting success judgments (Bochel et al., 1998).

Wong and Ellis (2002) consider specific management issues as another dimension in the JV literature covering issues of control and conflict. Parent control may be a result of ownership influence, the amount of bargaining power, the disposition of resources or a combination of some or all of the factors (Lyles, et al. 2000). More control by a partner may be gained through ownership (majority: minority) or through high bargaining power and can overrule other stakeholders. Shared control on the other hand implies that all partners must consent in major decisions whereas weak control indicates that a firm has no particular influence on strategic decisions (Czinkota, Ronkainen & Moffel, 2000; Parke, 1996).

Conflict on the other hand may arise as a result of inter-firm diversity and actual or potential opportunism of joint venture partners (Parke, 1996). Failure to agree on goals breeds conflict and mistrust between partners (Anderson & Narus, 1990). Conflict should not be always viewed as bad because it helps to resolve critical issues if handled properly. Conflict sources like conflict of interest between the JV and the parents, disagreement over how profits are shared, inadequate communication before, during and formation of venture, problems with the disclosure of sensitive information, language barriers, cultural norms and decision making styles are cited in literature (Clifford, 1999; Mcfashion & Sweeney, 2003). Also arising from this stream of research is the realization that the relationship

environment characterized by uncertainty and opportunism (Parke, 1996) will always breed conflict and call for issues of control. The conflict will inhibit the development of norms of fair exchange and reciprocal trust that would otherwise support an enduring relationship (Inkpen & Beamish, 1997; Lyles et al., 2000).

The third dimension emphasized in JV literature deals with venture outcomes (Parke, 1996; Wong &Ellis, 2002). Measuring performance outcomes in ventures is a very complex issue because it is associated with the nature of the ventures (Bochel et al., 1998). Traditional approaches have tried to measure performance basing on three approaches namely input (resource oriented), transformation process (process oriented) and output (result oriented). The result/output approaches, which emphasize financial indicators has highly been criticized. Parke (1996) has advanced four criticisms; first criticism is that one measure is too narrow. Second, the difficulty in comparing JV results against specific targets in the absence of knowledge of the concrete goal and actual motivation of parent firms. Third, the acceptance of poor financial performance in ventures which are not profit centers like in case where learning is seen to contribute towards parent companies overall competitiveness. In view of the limitations of result/ output focus, researchers are now using such measures as fulfillment of major strategic needs, indirect performance indicators like net spillover effects for parent firms and overall performance assessment by responsible parties (Inkpen, 1995).

The concept of learning as a current phenomenon has gained popularity at unprecedented levels in the last century (Bochel et al., 1998; Lyles & Dhanaraj,