

# **The Influence of Inward Technology Transfers and International Entrepreneurial Orientation on the Export Performance of Egyptian SMEs**

by  
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## **AUTHOR'S DECLARATION**

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## **Abstract**

This study examines the influence of inward technology transfers and international entrepreneurial orientation (IEO) on the export performance of small and medium-sized firms (SMEs). IEO and innovation are frequently cited as critical antecedents of export activities. Highly entrepreneurial and innovative firms seek to capitalize on their unique intellectual property by penetrating a niche global market quickly. Extant research primarily focuses on technology innovators, in countries well known for their technological advances and support of technology based start-ups. However, SMEs that do not have a technological niche also internationalize. This phenomenon is particularly prevalent in developing economies like Egypt, where horizontal flows of technology (the transfer of technology from one organization to another), especially from overseas companies, are more common than vertical transfers of technology (i.e., from researchers directly to organizations).

The literature suggests that many SMEs, especially those in developing economies, rely on the horizontal inflow of technology to enhance their export potential. The hypothesis is that by importing technology, firms also develop an outward internationalization capability (OIC). A second hypothesis is that IEO contributes to creating such capability. The literature postulates that IEO is a dynamic capability that helps firms exploit and reconfigure their resources to pursue international opportunities. Thus, firms with a higher IEO are more likely to develop OIC than are their less entrepreneurially oriented counterparts. Also, firms with a higher IEO are more likely to be involved in inflow of technology processes than are their counterparts.

Despite evidence of a link between innovation and export performance, there is a dearth of research examining how inward transfers of technology from other countries influence the development of capabilities and outward internationalization of firms. This research addresses this gap by using resource-based view of the firm, dynamic capabilities view, network theory, and the concept of entrepreneurial orientation, to develop an explanation of how inward transfers of foreign technology may influence the internationalization capability and export performance of firms. Hypotheses are tested in the context of horizontal transfers of foreign technology to SMEs located in Egypt.

The research progressed in two stages. In the first stage, interviews with managers of firms having experience importing technology and with substantial export activity helped to identify and confirm relevant factors that comprise OIC. During the second stage, data on inflows of technology (IFT), IEO, OIC, and exports were collected from a sample of 214 SMEs by a survey.

Research results identified capabilities that underlie the outward internationalization of SMEs, by developing an OIC scale. There are no measures for OIC in extant literature. Thus, this research contributes to the development of a valid and reliable measure of this construct. Findings support the hypothesis that IEO has a direct positive effect on export performance. The relationships between IEO and export performance is partially mediated by OIC. On the other hand, the relationship between inflows of technology and export performance is fully mediated by OIC, where this research found that IFT does not have a direct effect on export performance. The research results further suggest that the level of OIC development is mainly explained by IEO, but with some contribution from IFT.

The research contributes to streams of literature in international business, international entrepreneurship and management of technology. In particular, it expands the understanding of linkages between inward internationalization (inward flow of technology) and outward internationalization (export activities). The linkage between inward and outward internationalization processes received limited attention in the literature, and such research is rarer still in the context of SMEs in developing economies. The research additionally investigates the influence of a 'firm's strategic orientation (IEO) on export performance. While IEO is suggested to have a direct effect on export performance, IEO is also suggested to be an antecedent of OIC, which in turn affects export performance. Studying the mediating effect of OIC contributes to clarifying the conflicting findings of previous studies that examined the impact of entrepreneurial behaviour on international performance.

The results provide owners/managers of SMEs with guidance on how to lever technology transfers by building related capabilities. The research also provides SMEs with guidance on how to measure and assess their OIC, and understand how such capability can be built or enhanced. The results additionally clarify the role of a firm's strategic orientation (IEO) in the configuration of resources and the creation of capabilities. Finally, the research helps policy-makers structure export-support polices that explicitly take advantage of opportunities presented by technology imports.

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## **1.0 Introduction**

Small and medium-sized enterprises (SMEs) contribute significantly to economic growth and job creation, providing an explanation for why policy makers frequently focus on increasing the competitiveness of such firms (Beck et al., 2005). The topic of SMEs' internationalization has gained importance in various disciplines such as strategic management, entrepreneurship and international business. Empirical findings suggest that resource scarcities may prevent small firms from internationalizing (e.g. Westhead et al., 2002). Thus, given their size and limited resources, the internationalization of SMEs is characterized by a proactive and risk-taking posture that reflects the entrepreneurial nature of their strategies (Knight, 2000; Lu and Beamish, 2001).

Internationally, some entrepreneurial firms are perceived to be technologically innovative. They actively seek deviation from existing technologies as a basis for their competitive advantage (Lumpkin and Dess, 1996; Zahra et al., 2000). However, many SMEs that initiate and succeed in export activities are not technology innovators. These firms rely on inflows of technologies to enhance their technological capabilities as well as to build other capacities necessary for their export activities. Research suggests that even small, resource-constrained firms can succeed in international markets and are able to make up for their lack of resources through engagement in cross border activities (Kuemmerle, 2002; Oviatt and McDougall, 1994). In fact, some studies show that the

majority of SMEs began their international operations on the inward side rather than the outward side (e.g., Korhonen et al., 1996; Welch, and Luostarinen, 1993). This research investigates how SMEs that import technology can build capabilities that improve their ability to successfully export. However, firms that import technology might not all succeed in building such skills. The development of these capabilities might also require some entrepreneurial alertness. Thus, this research also investigates the impact of a firm's international entrepreneurial orientation (IEO) on inflows of technology as well as building capabilities that affect export initiation and success.

International entrepreneurship research has mainly focused on technology-based companies, where internationalization initiatives are based on possessing an innovation advantage. In particular, technologically-innovative products and knowledge-based capabilities create a competitive advantage that allows SMEs to internationalize (Campbell-Hunt, 2004; Knight and Cavusgil, 2004). However, SMEs that lack such resources or capabilities might still succeed in their internationalization initiatives, if they rely on inflows of technologies to build these capabilities. Horizontal transfers refer to the movement of an established technology from one entity to another, whereas vertical transfers encompass transferring technology from researchers directly to organizations (Ockwell et al., 2008). The literature suggests that firms, particularly in developing countries, rely on cross border inflows of technology to enhance their export potential (e.g. Bhaduri and Ray, 2004; Rasiah, 2003; Wignaraja 2002). These firms are typically involved in horizontal technology transfers, where imported technology such as

equipment, material, skills, services and know-how is an input in their production processes (Kauda, 2008).

Some studies of firms in developing economies found a positive correlation between inward flow of technology and export performance (e.g. Mody and Yilmaz, 2001; Navaretti et al., 2004). However, there is a paucity of empirical research that explains the nature of capabilities that firms build through inflow of technology. This study investigates these dynamics of SMEs internationalization, and tests the hypothesis that through the activity of importing technology, firms develop an outward internationalization capability (OIC). This capability is needed to initiate and successfully export. This research argues that the relationship between inward flows of technology and international performance is mediated by a set of internal capabilities that are either created or enhanced when firms are engaged in an inflow of technology process. Technological capability is generally perceived to be the outcome of inflows of technology. However, inward flow of technology is a type of inward internationalization that also provides opportunities to build relations with foreign actors, and learn about foreign markets. Building on such opportunities, companies should be in a better position to start or extend their outward foreign operations.

Manufacturing SMEs in Egypt are highly involved in horizontal inflows of technology. Thus, this research investigates the proposition that Egyptian SMEs that import technology are significantly more likely to engage in export activities.

Internationalization of SMEs has also been explained by their entrepreneurial strategy. The interaction between resources and strategies influences firms' competitiveness. Resources and capabilities determine the strategic process of the firm (Barney 1995). However, a firm's strategic orientations also influence the management of its resources and capabilities (Conant et al., 1990, Slater and Narver, 1993). Eisenhardt and Martin (2000), drawing on the concept of dynamic capabilities, argue that the organizational and strategic processes of firms are important because they facilitate the manipulation of resources into value-creating strategies. Entrepreneurial orientation (EO) refers to a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices (Lumpkin and Dess, 1996). EO reflects a firm's strategic behaviour in terms of taking calculated risks, innovativeness and proactiveness (Morris and Paul, 1987).

Frishammar and Andersson (2009) suggest that entrepreneurial orientation might be incapable of explaining a significant proportion of the variance in international performance due to the exclusion of international aspects in the EO construct. In the context of internationalization, the term international entrepreneurial orientation (IEO) stems from extending the conceptual domain to the processes and activities across national borders (Knight and Cavusgil, 2004; Knight and Cavusgil, 2005). International entrepreneurial orientation (IEO) "reflects the firm's overall innovativeness, proactiveness and risk-taking in the pursuit of international markets" (Knight and Cavusgil, 2004, p. 120). Thus, it focuses on exploiting cross border opportunities. This study focuses on the

international entrepreneurial orientation of a firm, which reflects a firm's innovative, proactive and risk-taking behaviour in an international context.

An entrepreneurial strategy may affect international performance as it allows firms to benefit from their resources by focusing attention on the utilization of these resources to discover and exploit opportunities in foreign markets. However, extant research has not provided a comprehensive explanation of how a firm's entrepreneurial strategy functions in terms of exploiting resources and creating capabilities. There is controversy in the literature reviewed with regards to the impact of entrepreneurial behaviour, such as proactiveness, risk-taking, or innovativeness, on international performance (e.g., Dimitratos et al. 2004; Frishammar and Anderson, 2009; Jantunen et al.; 2005; Wang, 2008; Zahra and Garvis 2000). Conflicting findings might have resulted from the different operational definitions of entrepreneurial orientation (EO), where some studies used the original Covin and Slevin (1989) scale while others used different adaptations of it (e.g. Kreiser et al., 2002; Zahra, 1993).

Frishammar and Andersson (2009) investigated how entrepreneurial behaviour affects international performance in small firms in Sweden. They found that only proactiveness showed positive association with international performance, while innovativeness and risk taking did not show such an association. Their findings indicate that entrepreneurial behaviour is incapable of explaining a significant proportion of the variance in international performance. They suggest that this might be due to factors not included in

their study, such as a firm's capabilities. Contradictory findings with regards to the relationship between entrepreneurial behaviour and international performance might be due to the fact that it is not a firm's entrepreneurial behaviour that is important, but rather how such behaviour - innovation, proactiveness and risk taking - is employed to utilize resources and create capabilities. Entrepreneurial influence on international performance might be mediated or moderated by a set of capabilities, where mediators, such as access to resources, dynamic capabilities, and moderators such as organization learning have been studied in a fragmented manner (e.g. Gassmann and Keupp, 2007; Hui Li et al., 2009; Knight and Cavusgil, 2004; Wang, 2008). Lumpkin and Dess (1996) pointed out the need for research that investigates how characteristics internal to the firm moderate and mediate the EO-performance relationship; however, such research is still limited. Additionally, very limited research investigates how capabilities are developed, especially in small and medium firms that have limited resources, knowledge bases and expertise in building and integrating diverse capabilities (Zahra et al., 2006).

Aiming to contribute to the understanding of the dynamics of the relationship between entrepreneurial behaviour and international performance, this study investigates the impact of IEO on the export performance of SMEs in Egypt. This research builds its theoretical foundation on the resource-based view, dynamic capabilities view, network approach, and international entrepreneurship theory. IEO allows exploitation and reconfiguration of a firm's resources in order to pursue cross border opportunities. This research argues that firms with higher IEO are more likely to develop export-related dynamic capabilities than less entrepreneurially oriented firms. The research examines



the influence of IEO on the export performance of SMEs in Egypt. IEO - as an outward oriented entrepreneurial strategy - is hypothesized to influence a firm's involvement in inflow of technology operations. Inflow of technology is regarded as an inward form of cross border activities, thus, it is very likely to be influenced by a firm's overall strategy towards internationalization. The relationship between inward flow of technology and export performance as well as the relationship between IEO and export performance are suggested to be mediated by a set of dynamic capabilities that together reflect the firm's overall outward internationalization capability (OIC). This research additionally, elicits measures and validates the sets of capabilities that underlie OIC, as well as develops an empirical scale that measures the firm's outward internationalization capability.

## **1.1 Research Questions**

This research develops and empirically tests a model that answers these questions:

- What capabilities underlie the outward internationalization of SMEs?
- What is the effect of inward flow of technology on building outward internationalization capabilities in SMEs?
- What is the effect of international entrepreneurial orientation on building outward internationalization capabilities in SMEs?
- What is the relationship between international entrepreneurial orientation and inflow of technology?

## **1.2 Research Setting**

In the 1980s, Egypt attempted to integrate into the global economy and embrace market openness. However, it was not until the early 2000s that there was a significant shift in the government's policy towards export promotion. Egypt carried out many reforms of its trade regime in 2004. According to the World Trade Organization (WTO) economic indicators report (2009), the changes Egypt implemented led to it being ranked the ninth top reformer for 2008/09. Having announced export promotion as a top national priority, the government of Egypt passed a law in 2002 that provides the institutional framework for supporting the exporting community and enhancing exports. Moreover, Egypt has different systems that allow exporters to be exempted from duties on imported inputs in the manufacturing of final products. The tax rates also vary according to the nature of the activity where the tax rate for service firms is 40% whereas, the rate for manufacturing and exporting firms is 32%.

The private sector has expanded since 1996, and its contribution has increased dramatically because of economic liberalization. The manufacturing sector is an important and growing contributor to the Egyptian economy. The sector has witnessed tremendous growth rates since the fundamental economic reforms that took place in 2004. Between 2004 and 2009, some manufacturing sectors experienced annual growth rates that reached more than 40% such as food, chemicals and fertilizers (Central Bank of Egypt, 2009).

According to the central bank of Egypt annual report (2011/2012), after the 25<sup>th</sup> of January revolution that took place in Egypt in 2011, sectors that primarily underperformed were the manufacturing, construction and building, finance, and communications and information. This is traced to the events of the January 25<sup>th</sup> Revolution, and the resultant disruption and instability of most economic sectors. The underperformance was clearly seen in manufacturing, nevertheless, exports of finished goods rose by 7.7 percent, where the central bank report also indicated that the private sector's trade volume grew by 6.2 percent to US\$ 50.1 billion; exports made up 25.0 percent and imports 75.0 percent. The key exports of manufacturing were fertilizers, ready-made garments, cotton textiles, iron and steel products, pharmaceuticals, miscellaneous edible preparations, soap, detergents and artificial waxes, aluminum articles, paper, cardboard paper. Finally, the report revealed that the private manufacturing sector remained active in foreign operations after the revolution, and was one of the few sectors to recover the economic situation the country. The sector is active in both imports and exports; however imports outweigh exports by three times. Thus, it is worthwhile to examine the relationship between imports and exports in this sector. It is necessary to investigate whether imports enable exports, and if so, then how?

SMEs in Egypt are currently not significant contributors to national exports. Most developing countries, including Arab countries, lack a robust and dynamic medium enterprise sector similar to the one that emerged in East Asia, and the majority of SMEs aim to fulfil the survival needs of their owners using simple outdated technologies (Alasrag, 2010). The government is trying to address SME development, where it aims at

increasing and enhancing their competitiveness in global markets. Thus, entrepreneurs and small business owners have been receiving more recognition as an important sector of the Egyptian economy. In 2004, the Egyptian Ministry of Finance prepared a report addressing the competitiveness of SMEs. The report concluded that Egyptian SMEs were characterized with low levels of technology, skills and knowledge. The Ministry's report acknowledged fundamental issues like the lack of innovation and inadequate research and development as major constraints to enhancing SMEs competitiveness. Inflow of technology has been identified as one of the main tools through which SMEs' competitiveness can be enhanced. Aiming to address this constraint, in 2005, Egypt established a series of technology and innovation centres, which are now part of the Enterprise Europe Network, the largest European network offering high quality services in support of business and innovation. The centres use contacts with partner organizations in over 40 countries to help Egyptian firms find and benefit from the technologies offered by companies in developed economies.

As far as technology transfer issues are concerned, the current Egyptian Industrial Development Strategy states that one of its main objectives is to fulfill the technological needs of Egyptian industry, in particular those of exporters in order to drive competition. An innovation assessment survey conducted in Egypt (MHSR, 2010) revealed that the country is a net importer of advanced technologies evolved in developed countries. The assessment revealed that the industry in Egypt is not yet in a position to develop new major technologies according to its specific needs by itself. Some exceptions exist, but in most cases technologies and innovative products have to be imported from abroad. The

assessment also revealed that supplies of formal and informal cross border technological support for manufacturers are the common normal mechanism of technology transfer among Egyptian firms. The suppliers are usually the main source of knowledge that accompanies the purchase of technological equipment or machines. To a lesser extent, knowledge is transferred through informal meetings with consultants, suppliers, or even competitors at conferences, meetings and exhibitions. Findings of the assessment also included the fact that there is potential for technological upgrading at manufacturing firms in Egypt.

In general, technology transfer through the public sector is less important than that transferred through the private sector. The bulk of international technology transfer to Egypt takes place in the private sector, meaning from private firms of advanced countries to private Egyptian firms (MHSR, 2010). Many manufacturing firms are already involved in export operations, being encouraged by the government through several channels, despite their low level of technological capacity. The private manufacturing sector contributes to about 20% of the total GDP. According to the central bank of Egypt's annual report (2011), export earnings of the private sector registered US\$ 8.4 billion or 43.6 percent of the total earnings. The private sector in Egypt consists largely of small and medium-sized enterprises. The Egyptian Ministry of Industry and Trade database includes around 28,000 private small and medium manufacturing firms (fewer than 100 employees). According to the UNDP's Egypt Human Development Record for 2008, SMEs contribute 80% of GDP, 99% of the non-agricultural private sector and 75% of the

total labor force in the private sector. A combined 78% of the country's SMEs are in the trade and manufacturing sectors.

Egypt's proximity to international markets and the rapidly growing demand for certain industries play a vital role in encouraging exports and improving productivity. On the other hand, new investment laws and government regulations have recently eased international trade barriers and therefore foreign investment flows into Egypt. Due to the increasing competitiveness, Egyptian businesses are forced to meet international standards in order to compete in the global markets. As a result of international trade agreements, Egypt enjoys a wide range of market access to North America, China, Europe, North Africa and the Middle East, with its central location bridging the three continents, Europe, Asia, and Africa. Meeting international standards requires advanced technologies that allow firms to be competitive in international markets. In view of the economic importance of imported technologies, it is important to identify their embedded potential in terms of the value that they can bring to a firm.

This research investigates the impact of inflow of technology and international entrepreneurial orientation on export performance of manufacturing SMEs in Egypt. The sample of firms was drawn from the Egyptian Industry Development Authority database, which includes 28, 000 manufacturing SMEs.

## **1.3 Research Contribution**

### **1.3.1 Theoretical Contribution**

International business research as well as IE research have addressed central elements of internationalization process - such as knowledge and networks - in a fragmented manner. Research addressed specific issues such as the impacts of entrepreneurial orientation on international performance (Frishammar and Andersson, 2009; Jantunen et al.; 2005; Zahra and Garvis, 2000), knowledge accumulation on international performance (Casillas et al., 2009), entrepreneurial orientation on knowledge creation and firm performance (Hui Li et al., 2009), networks on knowledge creation (Lou and Hassan, 2009), networks on international performance (Kenny and Fahy, 2006), and international entrepreneurial orientation on international performance (Hartsfield et al., 2008). This research contributes to this body of literature by developing and testing a theoretical model that describes how central elements of an internationalization process function together to impact export performance.

This research suggests that a firm's strategic orientation (IEO) together with external resources (inflow of technology) affects its OIC development, and subsequently its export performance. Particularly, it investigates the impact of IEO on the inward flow of technology (IFT), as well as the impact of both on OIC and the export performance of SMEs in Egypt.

There is a gap in the literature with regards to identifying the comprehensive nature of OIC as well as how it is built at firms which do not possess a technological innovation advantage. Additionally, studies that examined the integrated contribution of organizational factors and strategic orientation on building such capability are limited. This study fills this gap in literature, by eliciting and measuring the set of capabilities that underlie the outward internationalization capability of SMEs, as well as how far do external resources and a firm's strategic orientation influence the development of these capabilities.

The study not only examines the relationship between inward flow of technology and export performance, but also studies its underlying dynamics. This study elicits and validates the set of capabilities that mediate the relationship, as well as develops a scale that measures outward internationalization capability. It thus produced a new empirical scale that measures OIC. Although various studies have suggested different capabilities that contribute to a firm's internationalization (such as technological innovation or networking), no known research has developed a measurement scale that can be used to measure the overall OIC. Such a scale can be used to predict export initiation and success at SMEs. The domain of the scale was identified based on the literature review and interviews with industry experts. This research then validates the scale through a quantitative research approach.



Despite the large and growing number of studies investigating the internationalization process of firms, the majority of studies addressed outward operations, such as exports, whereas the reverse side of these activities has received considerably less attention. In general, inward operations allow firms to access a pool of resources through which they can build capabilities. The inward-outward linkage of the internationalization process has received very limited attention in literature. This study contributes to filling this additional gap in literature, where it contributes to enriching the limited empirical research examining inward-outward linkages.

The research also contributes to management of technology literature. It departs from the existing argument that technological innovation is an inherent capability of the internationalization of SMEs. The study examines how firms that do not possess such technological competency might still succeed in their export initiatives through exploiting external resources. Examining such linkages offers a major contribution to the understanding of the dynamics of the internationalization of these firms.

### **1.3.2 Practical Implications**

Many countries and firms invest heavily in research and development aiming to enhance innovation capability. However, the findings of this research suggest that many firms that possess some degree of entrepreneurial orientation achieve competitiveness through imported technologies rather than through innovation. Some countries have witnessed growth in exports from small firms in recent years while others are still

struggling with their export - support policies and programs. This research could help policy makers to structure their export support polices, by clarifying the linkages between imported technology and export performance.

At a firm level, the research contributes to firms' understanding of the potential involved in the process of importing technology. It clarifies how resources embedded in inflows of technology influence internal capabilities that subsequently affect export performance. It identifies the nature of capabilities influencing export performance, and thus, allows managers and founders of SMEs to focus on developing such capabilities through exploiting opportunities and potentials involved in inflows of technology. The research findings also highlight the notion that a firm's strategic orientation plays a critical role in exploiting and configuring resources. Therefore, this study could assist firms that aim to enhance their export potential. Previous research suggested that inflows of technology and/or EO have a direct positive impact on export performance. However, this study draws firms' attentions to the necessity of assessing their resources, internal capabilities and strategic orientation in a holistic approach.

## **1.4 Study Outline**

This study consists of five chapters. Chapter Two presents the literature review relevant to this research. The research addresses the impact of resources (inflow of technology) and strategic orientation (IEO) on building capabilities, which subsequently have an effect on the outward internationalization of SMEs. Thus, Chapter Two reviews

literature pertaining to outward internationalization and inflow of technology and its linkages with outward operations. The chapter also reviews theoretical foundations as well as organizational views in IE research. Reviewing these streams of literature provides an understanding of how strategic orientations and resources impact the process of capabilities development in an organization. The chapter finally, presents the conceptual framework of the study and proposes a model that describes how central elements pertaining to a firm's resources, capabilities and strategic orientation function together to impact export performance. The proposed approach and methodology for testing the model and associated hypotheses are described in Chapter Three. Chapter Four presents the data analysis and main results. Finally, Chapter Five concludes the study presents the research limitations as well as suggestions for future research.

## **2.0 Extant Literature**

This study develops and empirically tests a model that links international entrepreneurial orientation and inflow of technology to the export performance of firms in developing countries. The study additionally, develops an empirical scale that measures a firm's outward internationalization capability. This chapter presents a review of extant literature that builds the conceptual framework for this research. First, internationalization theories related to the internationalization process of SMEs were reviewed. Second, literature pertaining to resources acquisition and capabilities development in order to clarify the role and nature of resources and capabilities that contribute to creating a competitive advantage in foreign markets was reviewed. Also, literature addressing the firm's strategic orientation in order to develop an understating of how it affects the processes of resources acquisition and development of dynamic capabilities was examined. Further, in order to examine the linkages between inward and outward internationalization activities, literature addressing antecedents and outputs/outcomes of both types of activities was reviewed. This allowed establishing a link between inflow of technology, as an inward internationalization process as well as a process of acquisition of resources, and export performance. This also allowed for examining the role of a firms' strategic orientation (IEO) as an antecedent of both inward (inflow of technology) and outward internationalization activities (export performance).

## 2.1 Internationalization Theories

Internationalization is the increasing involvement of the firm in the international activities whether inward or outward (Weltch and Luostarinen, 1988). One stream of internationalization research investigates the processes that relate to a firm's initial entry into foreign markets, including motives of internationalization and choice of entry modes (e.g. Cavusgil, 1980; Cavusgil and Nevin, 1981; Chetty and Hunt, 2003; Johanson and Vahlne, 1977). Additionally, it focuses on later stages in the internationalization process, where some firms locate a number of their activities in different countries or outsource some of their value creation activities (Kuada, 2008). Such activities are labelled downstream or outward internationalization (Kuada and Sorensen, 1999).

A different stream of research is concerned with studying inward internationalization activities. Such activities involve the internationalization of the input side of production. This includes inward flow of material, equipment, skills and services to local companies. My research focuses on inward internationalization (inflow of technology as an under studied behaviour). Inward processes relating to internationalization have received relatively limited attention, despite the belief that many firms begin their first international activity on the inward side (Korhonen et al., 1996). Thus, given the importance of further understanding the influences of inward operation on a firm, this study mainly focuses on the inward-outward linkages relating to the internationalization of SMEs. Outward internationalization encompasses exporting as well as establishing cross border facilities. However, resource-constrained firms tend to favour exporting as their primary entry mode (Knight and Cavusgil, 2004). Thus, this

research focuses on exporting as an outward internationalization entry mode adopted by SMEs.

There is a diversity of theories suggested by the earlier researchers to explain the internationalization process of firms. During the last decades, SMEs have been the subject of increasing research interest in international business, strategic management, organizational research as the number of SMEs operating on international markets has grown and the process of their internationalization has accelerated (McDougall and Oviatt, 2000; Fillis, 2001; Ruzzier et al., 2006). Whilst there is a considerable pool of knowledge relating to the internationalization of large firms until recently there has been comparatively limited information relating to the internationalization of SMEs.

International business research studies motivations of internationalization, selection of foreign markets, entry models, as well as internationalization strategies and success factors. Anderson (2002) explains how internationalization literature encompasses two main streams of theoretical foundations: the economic approach and the behavioural or process approach. He highlights that the economic approach has its base in mainstream economics. The approach assumes that the decision-maker has access to perfect information, and will choose the optimal rational solution. Anderson emphasizes the fact that various decision makers can make different strategic decisions in the same situation is not acknowledged in this approach. Thus, this approach is rarely adopted in IE research, which mainly interprets internationalization of firms in terms of their entrepreneurial resources (such as innovation) as well as entrepreneurial behaviour (such

as proactiveness). These issues have been clear in literature studying the internationalization behaviour of new ventures and born-globals which defies the predictions of many economic theories. For example, the oligopolistic reaction theory suggests that firms internationalize in response to international moves of their competitors (Knickerbocker, 1973), and the product life cycle theory depicts that firms adopt high-involvement entry modes only when their products reach maturity (Vernon, 1966). International new ventures and born-globals do not internationalize in response to competitors' moves, neither do they wait until their products reach maturity. Rather, born-globals are suggested to differentiate themselves through product innovation, and niche products (Knight et al., 2004).

The traditional internationalization theories, such as stage theory (Johanson and Vahlne, 1977) have focused on the factors enabling internationalization, especially in larger firms. These traditional internationalization approaches have been the subject of considerable criticism (Anderson, 1993; Oviatt and McDougall, 1994; O'Farrell et al., 1998; Peng, 2001; Jones and Coviello, 2005), because they fail to explain early internationalization of small firms. While such theories are unable to explain why some SMEs, new ventures and born-globals internationalize from the outset, the network approach and the emerging international entrepreneurship theory attempted to explain this issue (McDougall and Oviatt, 2000; Oviatt and McDougall, 2005; Zahra, 2005; Zahra and George, 2002). Nevertheless, several studies have begun to explore the complex array of factors associated with the reasons "why" and "how" SMEs internationalize (Hollenstein, 2005). The current understanding of internationalization is informed by

integrating multiple theoretical perspectives, where there is a need to incorporate entrepreneurial behaviour into models of internationalization (Jones and Coviello, 2005).

There are many theoretical perspectives that are used to explain various aspects of the SME internationalization phenomenon. Each makes a singular contribution to our understanding, yet a generally accepted and unifying theory is still largely absent. Thus, a review and comparison of the most common theoretical frameworks may illustrate this issue. There is a growing importance of the need for conceptual models to be sufficiently flexible to accommodate a range of conditions that might explain a firm's internationalization decision, its actions and its dynamic processes. Jones and Coviello (2005) suggest that broader perspectives, which account for firms' resources, capabilities and strategic orientation is needed. Table 1 summarizes the conceptual insights from the key theoretical perspectives associated with SME internationalization. This framework is used to guide the conceptual model developed in this study. Generally, analysis of the literature on SMEs' internationalization theories enables identifying four dominant theoretical views: the resources-based view, the stage approach, the network approach and the international entrepreneurship approach.



**Table 1: Theoretical Frameworks in SMEs Internationalization Research**

<b>Theory</b>	<b>Concept</b>	<b>Relevance to SMEs Internationalization</b>	<b>Representative Articles</b>
Resource - based View	A firm can be seen as a bundle of collected tangible and intangible resource stocks that are exclusive to it.	SMEs need valuable tangible and intangible resources in order to create a competitive advantage in foreign markets, where the role of resources is acknowledged as basis of creating dynamic capabilities.	Barney, 1991
Dynamic Capabilities View	A firm's abilities to integrate, build, and reconfigure internal and external resources are the sources of competitive advantage.		Teece et al., 1997
Stage Model	Internationalization is a time-dependent dynamic, gradual and stage by stage process, where accumulation of knowledge and learning are critical factors.	Some SMEs develop very gradually abroad, while many others challenge the stage theory. This approach has been criticized for its incapacity to explain certain international behaviours of SMEs. That opened the way to other approaches, in particular the International Entrepreneurship theory and the network approach.	Johanson and Vahlne, 1997

**Table 1: Theoretical Frameworks in SMEs Internationalization Research, Cont.,**

Theory	Concept	Relevance to SMEs Internationalization	Representative Articles
Network Approach	The network approach views market exchange as the result of interaction among market actors. Markets are regarded as systems of social and business relationships, which are established among customers, suppliers and/or competitors.	SMEs can access valuable resources not under their control and make up for their lack of resources by means of networking activities.	Bloodgood et al., 1996; McDougall et al., 1994; Westhead et al., 2001
International Entrepreneurship Theory	Internationalization is the combination of innovative behaviour, risk taking and being proactive in international markets.	SMEs internationalization is regarded as an act of entrepreneurship.	Autio et al., 2000; McDougall and Oviatt, 2000; McDougall, 2005; Oviatt et al., 2002; Zahra, 2005

### **2.1.1 Stage Approach**

The behavioural or process approach of internationalization has its base in organizational theory. Behavioural models describe internationalization as a time-dependent dynamic process, where accumulation of knowledge and learning are critical factors. Particularly, organizational knowledge and networking are critical elements in this approach to studying the internationalization process (Anderson, 2000; Clercq et al., 2005). A knowledge of foreign markets and how fast it is accumulated, as well as how it is transferred into beliefs and perceptions, is believed to impact decision makers' willingness to enter foreign markets (Erramilli and Rao, 1990).

The Uppsala model developed by Johanson and Vahlne (1977) suggests that internationalization is a function of the relationship between market knowledge, commitment decisions and current activities. This time-dependent model assumes that as firms gain knowledge, experience and resources, their commitment to entering foreign markets increases. According to this model, a firm starts to export to countries that are closer in terms of physical distance. After acquiring some experience, it targets countries that are distant from its domestic market. The model indicates that internationalization is realized by small incremental steps. Four steps are identified by the Uppsala school as key components in the sequential process of internationalization: irregular export activities; export through independent agents; the establishment of an overseas sales subsidiary; overseas production or manufacturing units.

Many researchers believed that the stage approach can be widely applied in explaining SMEs' internationalization process, however, more and more researchers began to question the generality of the stage approach to SMEs (e.g. Axinn and Metthyssens, 2002; Gankema et al., 2000). Gankema et al. (2000) suggest that the degree of SMEs' international commitment will increase in time but the differences vary significantly from case to case. Some SMEs might skip steps immediately and others may stop the internationalization process before arriving at the final step in order not to be too dependent on the international market. These researchers argue that the stage models of export, particularly the U-Model, need to be adapted to explain the internationalization process of SMEs.

Many authors consider that this traditional theoretical framework fails to explain the internationalization process of small firms that lack the time for gradual and stage progression (e.g., Wright and Dana, 2003). In the early 1990s, the stage model was challenged by scholars who argued that the model fails to explain a growing phenomenon of international new ventures (e.g. Bell, 1995; Coviello and Munro, 1997; Oviatt and McDougall, 1994). In spite of the fact that the process approach accounts for the possibility of individuals making strategic choices (Reid, 1983), the approach found little acceptance in IE research. IE scholars found that many firms do not exhibit the incremental sequential developmental process suggested by the stage model. Young small firms lack the resources of larger established firms as well as the period involved in a gradual internationalization model, yet they internationalize. IE research has provided considerable empirical evidence that young small firms build their internationalization initiatives on factors such as superior

technological capability rather than gradual accumulation of resources and experience (e.g. Chetty and Campbell-Hunt, 2004; Knight and Cavusgil, 2004).

Firms' ages and sizes have been regarded as proxies for experience, knowledge and resources. However, research has failed to establish a clear relationship between a firm's size and age and its export performance (Madsen, 1987; Moen, 1999; Calof, 1994). Firms of all sizes and ages demonstrate all types of behaviours, including restricting their activities to domestic markets or adopting different modes of market entries. Thus, the phenomenon of IE suggests the significance of organizational factors other than age and size. Thus, researchers studied the impact of factors such as valuable resources and capabilities as determinants of internationalization. The increased drawbacks of the stage approach in explaining certain international behaviours of SMEs require the introduction of other internationalization approaches, particularly the network approach and the international entrepreneurship approach.

### **2.1.2 International Entrepreneurship**

The IE field emerged in the 1990s drawing on theories and perspectives from international business, strategic management, and entrepreneurship. In the 1990s, IE research was generally limited to new venture and relatively young small firms. However, over time, the definition and scope of IE research has become broader. Oviatt and McDougall (1994) argued that international business research ignored the phenomenon of the internationalization of young small entrepreneurial firms, thus initiating interest in the

field. Wright and Ricks (1994) highlighted that the study of international entrepreneurship comprises two main areas: (1) comparisons of entrepreneurial behaviour in multiple countries and cultures and (2) organization behaviour that extends across national borders and is entrepreneurial. International entrepreneurship has been defined as the process of creatively discovering and exploiting opportunities that lie outside a firm's domestic market in the pursuit of competitive advantage (Zahra and George, 2002). One of the recently definitions of IE is "the discovery, enactment, evaluation, and exploitation of opportunities across national borders to create future goods and services" (Oviatt and McDougall, 2005, p.540).

Oviatt and McDougall (1994) developed the elements of the theory of international new ventures. The theory suggests that international new ventures own certain valuable assets, yet they use alternative governance structures - particularly networks and alliances - to control a relatively large percentage of critical assets and access unique resources. This approach creates a competitive advantage that is transferable to a foreign location. However, McDougall and Oviatt (2003) later criticized their own theory suggesting that it presents only static elements and no description of the dynamic process by which international new ventures are formed.

Definitions and scope of IE stem from both international business and entrepreneurship research. Entrepreneurship has been associated with individual behaviour in terms of opportunity exploitation and risk-taking. However, entrepreneurial behaviour of firms has been particularly synonymous with the acts of new entry and launching a new

venture (Lumpkin and Dess, 1996). However, Shane and Venkataraman (2000) argue that the creation of new organizations is not a mandatory condition that characterizes entrepreneurial behaviour. They define the study of entrepreneurship as the, "examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited" (Shane and Venkataraman, 2000, p. 218). The broad scope of the IE definition allows for employing different methodologies, theoretical perspectives and levels of analysis in IE research.

Different typologies and terminologies are used in literature to characterize firms that are internationally entrepreneurial. Many studies define internationally entrepreneurial firms based on the duration between inception and export initiation. In that context, IE is perceived as the behaviour of "early internationalization". Young firms that internationalize are regarded as internationally entrepreneurial given that they lack experience and knowledge of foreign markets (Lu and Beamish, 2001). In this respect, internationalization became an entrepreneurial decision. However, entrepreneurial firms are suggested to be proactive in their knowledge assimilation process, which is critical to the process of identifying and exploiting opportunities (Zahra, 2005; Zahra, et al., 2000).

The idea that SMEs' internationalization is an entrepreneurial act stems from the notion that expanding into new markets is a proactive strategy that involves search for opportunities (Lumpkin and Dess, 1996; Zahra, et al., 1999). Further, it is a strategy that requires a fundamental departure from existing practices (Birkinshaw, 1997) as well as an

act that entails high levels of risk (Miller, 1983). This is particularly the case for SMEs, which are characterized by limited resources.

Oviatt and McDougall (1994) coined the term "International New Ventures" defined as business organizations that, from inception, seek to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries. Similarly, "Born-Globals" are small, technology-oriented companies that operate in international markets from the earliest days of their establishment (Knight and Cavusgil, 1996). Some scholars suggest two to six years to be the cut-off age for early internationalization (Knight and Cavusgil, 1996; Zahra et al., 2000). Other studies suggest ten years to be the upper limit of IE research (Covin and Slevin, 1990). In addition to firms' age, the field of IE focuses on SMEs. The size of the firm is regarded as a proxy for lack of resources. Thus, finding alternatives and unique ways to overcome resource constraints is suggested to reflect the international entrepreneurial nature of the firm (Coviello and McAuley, 1999). However, currently acknowledged definitions of IE allow encompassing the study of firms of different ages and sizes in IE research. This research agrees with the notion that SMEs internationalization is an act of IE. The fact that such firms seek cross border opportunities and find ways to overcome their lack of resources - and sometimes experience - suggest the international entrepreneurial nature of their strategy

Many authors consider that IE lies at the intersection path between the fields of entrepreneurship and international business (e.g. Dimitratos and Jones, 2005). However, the majority of studies in IE research use frameworks from classical internationalization theories



and organizational perspectives (Keupp and Gassmann, 2009). Several studies suggest that a firm's or individual's entrepreneurial orientation is a driver or enabler behind early internationalization (e.g., Jantunen et al., 2005; Osarenkhoe, 2009; Zahra and Garvis, 2000). This approach is different from the stage model of internationalization in that it sees internationalization mainly as the result of firms' innovative, proactive and risk-taking posture, whereas in the stage model, internationalization is a reactive time-dependent process that takes place after firms acquire a strong-market knowledge base. Thus, SMEs internationalization is an act of IE, where such firms seek cross border opportunities and find ways to overcome their lack of resources - and sometimes experience - suggesting the international entrepreneurial nature of their strategy.

Internationalization of young small ventures has been heavily associated with technological innovation and aggressive differentiation strategies (Bloodgood et al., 1996; Chetty and Campbell-Hunt, 2004; McDougall et al., 2003). Knight and Cavusgil (2005) identified different strategies that many born-globals follow, namely, IEO, technological leadership, and the generic strategies of differentiation and focus. McDougall et al. (2003) suggest that international new ventures adopt aggressive functional strategies based on product innovation; high levels of product service, quality, and development of distribution channels. IE research primarily focused on technological innovators or technical entrepreneurs. However, innovation can be in product changes, process changes, new approaches to marketing, new forms of distribution, and new conceptions of scope (O'Cass and Weerawardena, 2005, p.1330). For example, Knight (2000) found that born global firms use innovative marketing strategies to achieve superior international market performance.

Additionally, the Oviatt and McDougall (1994) theory of international new venture suggests that international new ventures adopt a strategy that relies on alternative governance structures as a compensation for lack of resources. They also, suggest that entrepreneurial strategies consider the accumulation of intangible resources to be essential for growth. Zahra et al. (2003) argue that entrepreneurial firms leverage their resources by building distinctive capabilities that allow them to gain competitive advantages.

### **2.1.3 The Network Approach**

In line with the theory of international new ventures, IE scholars suggested that the behaviour of small firms can be explained by the network approach. The network approach views market exchange as the result of interaction among market actors. Markets are regarded as systems of social and business relationships, which are established among customers, suppliers and/or competitors (Coviello and Munro, 1997). Coviello and Munro (1997) point out that SMEs show a pattern of externalizing their activities during the internationalization process by relying on network relations to select the market and the mode of entry. They propose that the rapid process of internationalization can be launched by relations in existing networks, particularly by international networks which initiate the internationalization.

Johanson and Vahlne (2009) recently revised the Uppsala model to account for the importance of networks. They emphasized that networks assist firms to overcome the disadvantages of knowledge and experience in foreign markets. However, they argue that

current market conditions account for the liability of outsidership as opposed to the liability of foreignness. Lack of information about foreign markets does not represent as much of an entry barrier as being an outsider. They suggest that foreign market entry should not be studied as a decision about entry modes, but rather as a position-building process in a foreign market network. They suggest that networks minimize liabilities of outsidership where relationships built through networks offer potentials for learning and for building trust and commitment where both are predictors of internationalization. Nevertheless, they argue that insidership is not sufficient for internationalization where knowledge is still considered critical of an internationalization process.

The IE approach studies the role of the entrepreneur in the dynamic process of resources and competences construction to enter foreign markets. The entrepreneur will bring to the new company two principal assets: their experience and networks (Birley and Westhead, 1993). The process of mobilizing resources and capabilities that enable internationalization is largely mobilized by networks which act as sources of knowledge that allow identification of opportunities and the triggering of innovation (Julien et al., 2004). Entrepreneurs can gain access to valuable resources not under their control in a cost effective way by means of networking activities (Gabrielsson and Kirpalani, 2004). A firm's network is suggested to have great value as a source of market information and knowledge that firms otherwise would exhaust time and resources in order to assimilate (Chetty and Campbell-Hunt, 2004). Thus, networks are regarded as a knowledge source.

The network approach offers a model that reasonably summarizes the relationships between networks and the internationalization of SMEs. Empirical studies demonstrated that SMEs follow their domestic clients into the international market regardless of the "psychic distance" following the same behaviour of larger firms (Knight and Cavusgil, 1996; McDougall and Oviatt, 1994). This type of internationalization behaviour observed within SMEs, combined with the entrepreneurial perspective of the network approach, suggests studying SMEs internationalization from different theoretical perspectives.

## **2.2 Resource-based View and its Evolution**

The resource-based view (RBV) is one of the dominant theoretical frameworks in internationalization research. It postulates that firms with valuable, rare, and inimitable resources have the potential to create a competitive advantage (Barney, 1991). Historically, the resources construct encompassed all inputs into a firm's production process (Barney, 1991). They were classified into tangible inputs, such as, capital, material and equipment, and intangible inputs, such as, knowledge, skills and expertise. The resource-based view of the firm has been an important influence in IE theory wherein the capabilities of a firm leverage its resources to in order to expand internationally (Oviatt and McDougall, 1994). Literature on international entrepreneurship posits that firms internationalize so as to exploit their capabilities and resources abroad (Oviatt and McDougall, 2005).

More recently, researchers adopt Amit and Schoemaker's (1993) suggestion that the "resources construct" could be split into resources and capabilities. Resources refer to the

tangible inputs where capabilities are those intangible resources specific to the firm. The existence of resources is, however, insufficient to obtain a sustained competitive advantage (Barney, 1991; Grant, 1991). A competitive advantage is created when firms are able to transform resources into capabilities, and consequently into a positive performance". Day (1994, p. 39) defines capabilities as "complex bundles of skills and collective learning, exercised through organizational processes that ensure superior coordination of functional activities". Several attempts have been made in order to distinguish capabilities from resources (Newbert, 2007; Winter, 2003; Zahra et al., 2006). A capability is the capacity for a team of resources to perform some task or activity (Hitt et al., 2003). While various firms might have similar resources or access to similar resources, a firm's capabilities determine how they will utilize their resources to create a competitive advantage.

Recently, capabilities have been viewed as the source of firms' competitive advantage as opposed to tangible resources that are less likely to meet the conditions of being valuable, rare, and inimitable (Newbert, 2007). Teece et al. (1997, p. 516) expanded on the resource-based view of the firm to explore the possibility of a theory of dynamic capabilities, which they define it as "the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments". Dynamic capabilities in particular have been suggested to facilitate internationalization. Eisenhardt and Martin (2000) define dynamic capabilities as the ability to integrate and reconfigure resources in order to match or even create market change.

This shift of focus from resources to capabilities has been reflected in international business (IB) research, which has mainly focussed on firms' distinctive capabilities. Research on SMEs primarily investigated how small firms that lack the tangible resources develop a competitive advantage. In spite of the assumption that such firms do not build their competitive advantage on possessing tangible resources, the role of resources is still acknowledged where they are basis of creating capabilities. Zahra and George (2002) suggest that a coherent theoretical framework that explains the impact of specific resources on IE performance is missing. Based on the resource-based theory, the relationship between resources and a firm's performance is a function of a firm's resources as well as the way that a firm is organized (Barney, 1996). This research studies the impact of imported technology - a pool of tangible and intangible resources at firms - on creating internal capabilities.

With knowledge being viewed as an intangible resource, it could be regarded as a subset of the resource-based view. Firms could be understood as a community specializing in the creation, sharing, and transfer of knowledge of the individuals and groups within an organization (Kogut and Zander, 1992, p. 383). Knowledge is considered to be one the critical intangible resources on which firms can build their competitive advantage particularly because it is embedded in organizational routines and thus, difficult to imitate (McEvily and Chakravarthy, 2002). The importance of knowledge in firms' internationalization has been acknowledged in both IB research and IE research. IB researchers suggest that firms' internationalization is a knowledge-driven time-dependent process, where firms internationalize after accumulating enough knowledge about foreign

markets and foreign operations. On the other hand, entrepreneurial firms are suggested to be proactive in their knowledge accumulation process (Zahra, 2005; Zahra, et al., 2000). Proactiveness in pursuing opportunities supports experiential learning which in turn supports knowledge accumulation.

Different typologies have been proposed with regard to knowledge classification. For example, knowledge can be classified based on tacitness and complexity or based on route of acquisition (experiential versus objective knowledge). In addition to such typologies, with regard to firms' internationalization, knowledge has been classified based on timing of acquisition and accumulation. Traditional IB scholars highlight the impact of knowledge acquired and accumulated *prior* to entering new markets or *during* operating in foreign markets (Johanson and Vahlne, 1977). Scholars have studied the impact of such knowledge based on increasing commitment in foreign markets as well as market selection. In the sequential approach to internationalization, choice of entry mode, timing of entry and level of commitment is thus a function in such accumulated knowledge.

Faced by diverse theoretical approaches explaining SMEs' internationalization behaviour and process, this research reviews multiple perspectives of the organization in order to develop an integrated framework combining the contributions of different approaches by taking into account the nature of SMEs in terms of their resources, capabilities and strategic orientation. These are the resource-based and knowledge-based views, as well as dynamic capabilities view. Reviewing these perspectives develops an understanding of how firms use resources and build capabilities in order to create a competitive advantage. The

following section reviews literature pertaining to a firm's strategic orientation, and how that contributes to creating a competitive advantage in foreign markets.

## **2.3 International Entrepreneurial Orientation (IEO)**

### **2.3.1 International Entrepreneurial Orientation as a Firm's Strategic Intent**

A firm's strategy refers to a "deliberate search for a plan of actions that will develop a firm's competitive advantage and compound it" (Henderson, 1989, p.3). The concept of strategic orientation has been associated with a firm's strategy, however, it has been perceived in different ways in research. Generally, strategic orientations stem from beliefs and attitudes of senior executives (Hitt et al., 1997). There is a controversy in literature with regard to how strategic orientations relate to a firm's strategy. Prahalad and Hamel (1990) argue that these orientations guide the development of a firm's strategy. On the other hand, Morgan and Strong (2003) perceive them as an outcome of strategic decisions. While a strategy describes "what actions should be taken", a strategic orientation is a process construct concerned with "How actions should be undertaken" (Lumpkin and Dess, 1996).

The term "strategic orientation" is used synonymously with the term competitive strategy. Manu and Sriram (1996, p. 81) describe a competitive strategy as "how an organization uses strategy to adapt and/or change aspects of its environment for more favorable alignment". Such synonymy in terms resulted in synergies between literature pertaining to classification of a firm's competitive strategy and that addressing firms' strategic orientations. There are several approaches to classifying firms' competitive



strategies, namely, narrative, classificatory and comparative (Morgan and Strong, 1998). Strategic management research mainly adopts the latter two approaches where the former is criticized for failing to support theory testing. Based on the classificatory approach, firms' competitive strategies have been classified into generic typologies based on their approach to addressing competitiveness and changing environment. Such typologies are inductively derived and are based on a set of observed dimensions. For example, Miles and Snow (1978) propose a typology based on a firm's competitive strategy, namely: prospectors, defenders, analyzers and reactors. Prospector firms are aggressive competitors that tend to be innovative in terms of new product development as well as new entries. Defenders tend to maintain a narrow steady market position, where their strategy advocates maintaining price and quality. Analyzers maintain current market position, while attempting to be innovative in some new areas. Finally, reactors lack a comprehensive competitive strategy.

In addition Miles and Snow' typologies, Porter (1980, 1985) identifies three types of generic strategies. These are cost leadership, differentiation, and focus strategies. A cost leadership strategy allows firms to compete through reduced costs of production and lower product prices. A differentiation strategy relies on products and services innovation, which builds a differentiated company image and maintains customers' loyalty. Finally, a focus strategy is based on focusing resources on entering or expanding in a narrow market. Such typologies are acknowledged for the ability to reflect the overall dominant attitude of a firm's decision-makers in terms of approaching competitiveness as well as the overall nature of a firm's strategy. However, they fail to capture differences - along underlying dimensions- between firms within a typology (Venkatraman, 1989).

Rather than generic typologies, the comparative approach classifies a firm's strategy in terms of identifying and measuring key dimensions that seem to characterize its nature and approach (Morgan and Strong, 1998). Venkatraman (1989) proposed six traits of competitive strategy: aggressiveness, analysis, defensiveness, futurity, proactiveness and riskiness. Such approach allows for further understanding of the strategic orientation concept. Research has articulated strategic orientation concept as a multidimensional latent construct that encompasses measuring a firm's strategy along various dimensions that seem to reflect a certain orientation (e.g. marketing orientation, learning orientation and entrepreneurial orientation). Such an approach allows for comparison between the strategic orientations of firms. For example, in general, prospectors might have higher EO than defenders and analyzers. However, the comparative approach allows for comparing firms' within the prospectors group in terms of their EO. Mintzberg (1973) categorized firms' strategies into entrepreneurial, planning and adaptive strategic approaches. IE research attempts to articulate the nature of an entrepreneurial strategy, how it evolves and how it is translated into organizational activities.

Literature suggests that there are several orientations that explain the internationalisation of firms. The orientations include network orientation, learning orientation, entrepreneurial orientation and market orientation. Entrepreneurial orientation (EO) has been prominently employed in IE research, where IE scholars tried to explain how small firms that do not enjoy financial and tangible resources could expand internationally within a limited timeframe (e.g. Oviatt and McDougall, 1994; Peng, 2001, Westhead et al.,

2001). Morris and Paul (1987) defined EO as the inclination of top management to take calculated risks, to be innovative and to demonstrate proactiveness. However, Lumpkin and Dess (1996) distinguished EO from entrepreneurship. They associate entrepreneurship with acts of new entry and creation of new ventures, whereas EO reflects the process by which an entrepreneurial initiative is executed. Thus, EO guides and articulates a firm's entrepreneurial strategy. EO is closely related to strategic management and the strategic decision-making process (Lumpkin and Dess, 1996). EO explains how a firm is strategically organized in order to discover and exploit opportunities.

The construct EO was previously examined at the individual level of analysis, however, it is recently investigated at the firm level, where it is regarded as a firm's strategic orientation rather than individual traits of the founder. Thus, EO is conceptualized as entrepreneurship at the organizational level (Lee et al., 2001). It is inherent to the firm's culture, decision-making style and attitudes. Studies have shown that on the basis of the three-dimensional construct of entrepreneurial orientation, a firm's strategic position can be established along a continuum ranging from conservative to entrepreneurial (Covin and Slevin, 1989). Conservative firms tend to be risk averse, non-innovative, and reactive, whereas entrepreneurial firms lie at the other end of the continuum. The conservative-entrepreneurial dichotomy shares similarities with some of the classifications developed in the internationalization literature, such as active versus reactive and active versus passive (Piercy, 1981). In the context of internationalization, firms' internationalization strategies can be differentiated in terms of their strategic entrepreneurial position. While the

internationalization of SMEs is regarded as an entrepreneurial act, the opposite is not true. Entrepreneurial firms do not necessarily internationalize where there are domestic-oriented entrepreneurs, who only focus on local markets. Those might consider foreign markets to be problematic because of rate of market growth, patent and other determinants of success.

The term international entrepreneurial orientation (IEO) describes a specific domain of EO that focuses on cross border processes and activities (Knight and Cavusgil, 2004). IEO is directly drawn from EO. International entrepreneurship has been defined as the process of creatively discovering and exploiting opportunities that lie outside a firm's domestic market in the pursuit of competitive advantage (Zahra and George, 2002). In that context, IEO is defined as "inclination of top management to take calculated risks, to be innovative and to demonstrate proactiveness in exploiting opportunities that lie outside a firm's domestic market". An international entrepreneurial orientation has been associated with the pursuit of new and different opportunities in foreign markets (e.g., Autio et al., 2000; Hartsfield et al., 2008, Knight and Cavusgil, 2004; McDougall et al., 1994).

Covin and Slevin (1989) conceptualized EO as a latent multidimensional construct involving proactiveness, innovation and risk taking dimensions. Innovativeness pertains to developing new ideas and experimentation; proactiveness is mainly concerned with searching and exploiting new opportunities, and risk-taking involves managers' willing to make commitments to risky operations (Covin and Slevin, 1989; Lumpkin and Dess, 1996). Lumpkin and Dess (1996) added autonomy and competitive aggressiveness to EO

dimensions. The cross-cultural validity of Covin and Slevin's scale was verified in various studies such as (e.g., Hansen et al., 2011, Kreiser et al., 2002). In this study, the term IEO is employed to describe the equivalent generalized concept of EO for firms when they pursue the international markets. IEO was previously used in the context of emerging economies to reflect the firm's overall proactiveness and aggressiveness in its pursuit of international markets (e.g. Okpara et al., 2008, Ibeh, 2003). It is associated with managerial vision, innovativeness and proactive competitive posture overseas. Generally, organizational determinants of IE fall into two groups. The first group focuses on traits of the founder of the top management team. The second group focuses on characteristics of the firm in terms of size, age, culture, resources and capabilities. The founder and management team's international experience, knowledge of foreign languages, education, marketing and technical background have been suggested to play an important role in firms' internationalization strategy and success (Hambrick and Mason, 1984; Hermann and Datta, 2002; McDougall et al., 2003). Such traits are regarded as proxies for attitudes and knowledge-base. This study investigates IEO at the firm-level recognizing that firm's strategic orientation of SMEs stems from its founder's or top management team's traits.

### **2.3.2 International Entrepreneurial Orientation as a Higher Order Dynamic Capability**

Capabilities have been differentiated from "dynamic capabilities" where the latter are defined as the firm's ability to integrate, build, and reconfigure internal and external resources to address rapidly changing environments (Teece et al., 1997). This definition of

dynamic capabilities has been widely accepted in literature where the adjective "dynamic" has been associated with capabilities that allow firms to deal with a changing environment. However, a more recent classification suggests that organizational capabilities broadly fall into three categories based on the value of these capabilities to the organization (Winter, 2003; Zahra et al., 2006). The first category of organizational capabilities concerns the most basic and generic of organizational processes and or "zero level capabilities". Zero-level capabilities support regular routines that maintain operation in their current state. They are still important for creating a competitive advantage and accounted for in strategic decisions. The second category -first order capability- focuses on those capabilities that might add "dynamic improvement" to existing activities, which in turn might lead to growth of better performance. Such capabilities pertain to improved products, processes, new products development or new market entries. The third category is the higher order dynamic capabilities. Those are capabilities that allow the creation, operation and development of lower order capabilities. Zahra et al. (2006) suggest that lower order capabilities (also termed ordinary capabilities) are distinguished from dynamic capabilities where the latter can change or reconfigure existing ordinary capabilities. For example, a new routine for product development is a new ordinary capability but the ability to reform the way a firm develops new products is a dynamic capability.

Zahra et al. (2006) also suggest that the earlier classification associating dynamic capabilities with ability to cope with change in environmental conditions does not represent the true nature of dynamic capabilities. They suggest that the reconfiguration of organizational activities may be a consequence of changes in internal factors (e.g. change in

resources) rather than in the external environment. Thus, a firm's strategic entrepreneurial orientation is suggested to guide a firm's internationalization strategy in terms of exploiting and reconfiguring resources in pursuit of cross border opportunities. EO is suggested to be a main determinant that affects international performance of entrepreneurial firms, where studies found a positive relationship between EO and international performance (e.g. Jantunen et al., 2005; Zahra and Garvis, 2000). However, others studies suggest that EO itself is leveraged through other factors. The relationship between EO and IE performance is suggested to be mediated by aspects, such as access to resources, knowledge and information, firms' capabilities, and innovatory advantages (Gassmann and Keupp, 2007; Knight and Cavusgil, 2004; Liu et al., 2002; Lumpkin and Dess, 1996).

This research focuses on IEO, which has been found to have a positive effect on international performance (e.g. Kropp et al., 2006; Zhang et al., 2009; Zhou, 2007; Zhou et al., 2009). This research views IEO as a higher order dynamic capability that affects the creation of lower order internationalization capabilities through integrating, reconfiguring resources. This view conforms with Zahra et al. (2006) suggestion that the entrepreneurial processes shape the recombination of lower order capabilities in response to external and internal changes. Thus, the research investigates how far IEO affects the process of exploiting resources in order to create internal capabilities that support export performance. Exploited resources include internal entrepreneurial resources (such as proactiveness and risk taking capabilities) as well as cross border resources (inflows of technology).

## 2.4 Inflows of Technology: Inward - Outward Linkages

Technology can be defined as the means by which we apply our understanding of the natural world to the solution of practical problems (Miles, 1995, p.3). Saad (2002) classifies inflows of technology into three broad categories: hardware, software and capital / investment. The hardware category is concerned with purchasing products, equipment and machinery. The software category includes the transfer and the acquisition of technological information, knowledge, expertise and skills. Capital inflows of technology are mainly foreign direct investments, and partially international joint ventures. This research focuses only on locally owned firms. SMEs established through FDI or involved in joint ventures might have different enablers of their export activities as a result of their foreign market connections. Thus, this study excludes the capital model.

Technologies are transferred through various modes, such as direct foreign investment, joint ventures<sup>1</sup>, licensing, turnkey projects, purchase of capital goods and equipment, and technical agreements and cooperation. Within these broad modes of transfer, several transfer mechanisms can be identified, for example, expert services, information services, training of personnel, and import of equipment. Such transfer could be a formal transfer process including a codified technology or informal in the form of trade in products.

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<sup>1</sup> Foreign Direct Investment (FDIs) and Joint Ventures are wholly- and partially -owned subsidiaries located in the host economy. They are argued to enhance the technological capability of the host country, however, they are not relevant to the study of small and medium locally-owned entrepreneurial firms which are the focus this study. FDIs and JVs come with experiences, expertise and connections of home countries. Thus, their inclusion in the study might conceal the influences of IEO and inflows of technology on export performance.



In spite the fact that hardware inflows focus on inflow of machinery and equipment, all types of imports carry some potential for the transmission of technological information and knowledge, where imports can be imitated or even studied in terms of design characteristics and reverse engineering (Maskus, 2004).

Technology transfer has been studied in different disciplines of research, such as, marketing, economics, organization behaviour, and international business. In general, internationalization has been defined as "the process of increasing involvement in international operations" (Welch and Luostarinen, 1988, p.36). The definition involves a broad range of inward and outward activities across borders. The study of firms' internationalization encompasses several streams of research. The stream of research concerned with studying inward internationalization activities has received limited attention in international business research. Such activities involve the internationalization of the input side of production. This includes inward flow of material, equipment, skills and services to local companies. This study conceptualizes technology inflows as inward internationalization operations. Based on definitions of technology and technology transfer, this study defines inward flow of technology as the inflow of tangible and intangible technological resources to a firm. The degree of inflow of technology refers in this study to the extent (in terms of quantity) of flow of these tangible and intangible resources to a firm.

Since the focus of existing research is outward internationalization, limited research has focused on inward-outward connections. However, research addressing this particular notion has found evidence that inward internationalization activities provide good

opportunities to learn about foreign trade techniques, foreign operation characteristics and different operation modes (Korhonen et al., 1996). Additionally, they allow companies to build their technological capability; accumulate knowledge, and create networks (Guan et al., 2006; Korhonen et al.; 1996; Korhonen, 1999; Kumar et al., 1999; Luostarinen and Welch, 1990; Welch and Luostarinen, 1993; Young et al., 1996). Therefore, inflows of technologies allow firms to undertake outward operations. Table 2 summarizes the outputs of an inward flow of technology process.

Luostarinen and Welch (1990) suggest that inward international operations may be a prerequisite for the establishment of a firm. They argue that inward internationalization helps firms fulfil their technical and managerial needs, especially when such needs are not available in their home country. Korhonen et al. (1996) found that a majority of Finnish companies began international activities on the inward side rather than on the outward side, thus pointing to the potential importance of inward activities as a facilitator of outward activities.

**Table 2: Outputs of Inward Flows of Technology**

	<b>Process Outputs</b>	<b>References</b>
<b>Inflows of Software and Hardware Technologies</b>	Building Technological Capability	Guan et al., 2006; Kumar et al., 1999; Wong et al., 1999; Young et al., 1996
	Accumulation of Knowledge	Korhonen et al., 1996; Wong et al., 1999
	Creation of Networks	Korhonen, 1999; Korhonen et al., 1996; Welch and Luostarinen, 1993

Consistent with the nature of technology transfer definitions, inward operations in their study were imports of physical products like raw materials, machinery, and components, as well as imported services, like installation, testing, servicing, and maintenance. They found that imports of machinery, technological knowledge, as well as raw materials and components took place in order to start production and international outward operations.

In the context of internationalization in developing countries, Sturgeon (2002) found that firms engage in outward internationalization without any prior or significant inward activities given three conditions. The first condition is being included in the value chain of much bigger firms. Second, firms specialized in ethnic products, such as handicrafts, may have a competitive advantage associated with unique designs of niche products. Third, firms that are supported by their country's export-growth strategies, where they are given incentives and special locations in export zones.

The technology transfer and knowledge transfer literatures have strongly acknowledged that a transfer of technology, regardless whether tacit or explicit technology, will positively lead to a higher innovation capabilities and enhance organizational learning effectiveness (Guan et al., 2006; Inkpen, 2000). A number of studies focused on identifying factors that affect export performance in developing countries. They found strong evidence supporting the idea that inflows of technology positively affect firms' growth (e.g. Batiz and Romer, 1991; Coe et al., 1997). Foreign ownership, technological capability and firm size were the three main determinants that were suggested to have a positive impact on export

performance (Bhaduri and Ray, 2004; Rasiah, 2003; Wignaraja, 2002). Export performance is positively associated with bigger firms' size, higher technological capability as well as foreign ownerships.

Given that small locally-owned local firms also engage in export or outward internationalization operations, some studies looked at other factors that might affect export performance of firms. Romijn (1999) examined engineering firms in Pakistan and found that search for information, external technical assistance, and improvements made to products all significant and positively affect export performance. Mody and Yilmaz (2001) also found evidence that imported production equipment boosts aggregate export competitiveness of export-oriented industries in developing countries. Generally, as firm valuable resources, technology and knowledge are viewed as the most strategically important resource of the firm (Grant, 1996). Based on the KBV, Inkpen (2000) argues that firms can develop a competitive advantage they are able to acquire and transfer new knowledge from outside their boundaries. However, knowledge transfer is deemed to have been successful when the transferred technology/knowledge is translated and incorporated into the overall capability of the recipient firm.

In spite of the fact that the limited research studying linkages between inward internationalization and outward internationalization found positive relationships, Korhonen et al. (1996) identified several constraints on the creation of inward–outward connections: increasing size of the organization; hierarchical organization structures; and increasing formality of communication between actors. Such constraints are likely to affect the

exploitation of resources embedded in inflows of technology in order to create the capabilities that enable outward internationalization. Kauda (2008) presents a conceptual comprehensive analysis of internationalization pathways of firms in developing countries. Firms in general may adopt one or a combination of four routes of internationalization: inward only, outward only, sequential inward outward internationalization, and or concurrent inward-outward routes. However, firms in developing countries may find that inward internationalization is critical for their outward activities. Kauda suggests that sequential inward - outward internationalization to be the dominant path of internationalization of firms in developing countries, where firms use inward operations to strengthen their outward potentials. He clarifies that inward internationalization may either deliberately be planned to precede the outward internationalization process or it may be unintended, but seen as a logical consequence of successful inward activities. Kauda concludes his analysis recommending that some kind of empirical research should address the proposition that: "It is strategically advisable for manufacturing firms of a developing country with low technological capabilities to initiate their internationalization process with an upstream approach, in order to raise their export performance on the global market", (Kauda, 2008, p.16).

SMEs in Egypt face a number of internal challenges including centralisation of management and lack of corporate governance limited management competencies and practices that lack strategic vision. Egyptian SMEs also often face other problems related to the lack of skilled labour, outdated practices, poor low productivity, lack of innovation and technology transfer, limited openness to using management consultancy (EBRD, 2012).

While in developed economies such as the EU and Israel, innovation and technological leadership in products and services are key to success in international markets, such factors are little developed in most southern Mediterranean developing countries (European Commission, 2012). These countries rely on inflow of technology to build their capacity and enhance their competitiveness in foreign markets. This research investigates the impact of inflows of technology on export performance of manufacturing SMEs in Egypt. The research studies the nature of capabilities that firms can develop through the involvement in inward operations in order to initiate their outward operations.

## **2.5 Outward Internationalization Capability as Dynamic Capabilities**

Internationalization is a process that requires the mobilization of an overall collection of resources and capabilities of a firm. Research which examines SMEs has provided an array of findings regarding the drivers of internationalization and the factors that contribute to the success and performance of firms in international markets. The resources and capabilities approach together with the network approach and IE theory constitute a framework to compensate the insufficiencies of the stage approach by explaining how and why SMEs can pass certain steps in their internationalization. Internationalization behaviour of small firms is generally explained in light of technological capability, knowledge accumulation and networks as compensation for lack of resources. Although the stage model of internationalization was criticized by IE scholars, IE research acknowledged two key aspects - suggested in the stage models - to still apply to internationalization of SMEs,

namely, knowledge assimilation (Johanson and Vahlne, 2009) and international networking (Mattsson and Johanson, 2006; Mort and Weerawardena, 2006).

Drawing on the resource-based and knowledge-based views of the firm, the possession of some unique resources, such as innovativeness and unique products, has been suggested to impact international performance of young small firms. For example, McNaughton (2003) found a significant positive relationship between proprietary, knowledge-intensive products and the scope of internationalization. Chetty and Campbell-Hunt (2004) found that the possession of technologically unique products is associated with international expansion. Very similarly, drawing on dynamic capabilities and knowledge base view, Knight and Cavusgil (2004) examined the capabilities that bornglobal firms employ in order to create a competitive advantage in international markets. They suggest that born-globals leverage a bundle of knowledge-based capabilities that create technological competence, innovative products and quality, which in turn lead to international competitiveness. However Autio et al. (2000) found a negative relationship between the inimitability of a firm's technologies and its international growth. Additionally, Bloodgood et al. (1996) found a significant negative relationship between innovation and the extent of internationalization.

These conflicting results suggest that a firm's capabilities underlying its internationalization need to be studied in a more holistic manner. Research examining internationalization of SMEs need to draw a distinction between resources, strategic orientation and capabilities. Firms which have a unique set of resources or a combination of

reserved resources have more proclivities to be international (Bloodgood et al., 1996). However, dynamic capabilities are what leverage such resources (Wu, 2007). Dynamic capabilities are firm-specific in terms of their nature as well as how they are built (Peteraf, 1993). However, it is possible to identify fundamental capability patterns across a range of firms which allows for drawing general conclusions (Eisenhardt and Martin, 2000). In spite of significant number of theoretical and conceptual contributions, empirical evidence of the nature of dynamic capabilities and their influence on firms' international performance is still relatively inadequate due to lack of consensus on a common definition and difficulty to measure.

Research has attempted to reveal the nature of capabilities that underlie the internationalization of SMEs. The nature of such capabilities lends itself to multiple streams of theoretical frameworks. SMEs have been suggested to internationalize if they possess capabilities that allow them to overcome their resource scarcity as well as lack of experience. This study investigates the nature of a firm's OIC as well as develops a measurement scale for that dynamic capability that can predict export initiation and success at SMEs. This research focuses on the main capabilities that could reflect the overall outward internationalization capability (OIC) of a firm. Based on reviewing the theoretical frameworks as well as empirical evidence of SME internationalization, these are mainly networking capability foreign market knowledge and technological capability. Such capabilities are suggested to contribute to leveraging organizational resources and exploring cross border opportunities.



In general, existing studies have focused on two critical enablers of internationalization, namely "knowledge" (Knight et al., 2004; Kogut and Zander, 1992; Oviatt and McDougall, 2005; Zahra, 2005; Zahra, et al., 2000) and "networks" (Havila et al., 2004; Mattsson and Johanson, 2006; Osarenkhoe, 2009; Oviatt and McDougall, 2005). Additionally, in the context of developing countries, evidence suggests that inflows of technology build the technological capability that is likely to have a positive impact on export performance (Bhaduri and Ray, 2004; Rasiah, 2003; Wignaraja, 2002). Table 3 summarizes the theoretical foundation on which these capabilities are regarded as enablers of SMEs internationalization in this study. The table also summarizes empirical evidence supporting proposition of these capabilities as constituents of the preliminary domain of OIC.

**Table 3: Capabilities Enabling Internationalization of SMEs**

<b>Theory</b>	<b>Capability Enabling Internationalization of SMEs</b>	<b>Reference Studies</b>
Network Approach International Entrepreneurship theory	Networking Capability	Havila et al., 2004; Mattsson and Johanson, 2006; Oviatt and McDougall, 2005; Osarenkhoe, 2009
Resource - based View Dynamic Capabilities View	Technological Capability	Guan et al., 2006; Kumar et al., 1999; Mody and Yilmaz, 2001; Romijn, 1999; Young et al., 1996
Stage Model Resource - based view Dynamic Capabilities View	Foreign Market Knowledge	Coviello and McAuley, 1999; Gemser et al., 2004; Knight et al., 2004; Kogut and Zander; 1992; Li et al., 2004; Oviatt and McDougall, 2005; Zahra, et al., 2000; Zahra, 2005

### **2.5.1 Networking Capability**

Networks refer to organizational ties with customers, suppliers, service providers, or government (Zhou et al., 2007). However in order to establish and use these networks, SME's have to have interior relevant capability. This capability is called networking capability. Walter et al. (2005) define networking capability as "a firm's ability to develop and utilize inter-organizational relationships". Further, "an internal resource of the firm" is defined as the ability of the firm to develop and exploit intra and inter-organizational relationships to increase access to the resources of other actors in the network (Walter et al., 2006). This capability is the critical and rare resource which is hardly imitable and therefore, it can be accounted as a source of the firm's competitive advantage (Lages and Styles, 2009).

A firm's networking capability affects its performance directly since it generates information on technologies and markets (Etemad and Lee, 2003; Zhou et al., 2007). Network relations have the vital role in the learning, new opportunities recognizing and exploiting, gathering information and formulation of knowledge from international markets (Johnson and Vahlne, 1990; Lee et al., 2001; Hit et al., 2000). Traditional firms - that follow a sequential path to internationalization - create a strong knowledge base as well as expand their networks prior to internationalization. On the other hand, SMEs leverage their resources and knowledge-base through their networks. For example, Zahra et al. (2003) examined the impact of leveraging specific tangible and intangible technological resources on internationalization performance among US software new ventures. They found that

technological networks and technological reputation impact the degree and speed of foreign sales.

The network approach suggests that entrepreneurs can gain access to valuable resources not under their control in a cost effective way by means of networking activities (Gabrielsson and Kirpalani, 2004; Knight and Cavusgil, 1996; Oviatt and McDougall, 2005; Welch and Welch, 2004; Zahra et al., 2003). Through interactions, firms learn about each other's products, needs, capabilities, potentials and strategies. The result of such interactions is increased trust; knowledge as well as increased commitment of resources to the relationship (Johanson and Vahlne, 1977).

### **2.5.2 Foreign Market Knowledge**

Two main questions are addressed in terms of the role of knowledge in the internationalization of firms: (1) what type of knowledge do firms need in order to internationalize; and (2) how is that knowledge created? Foreign market knowledge is particularly important in firms' internationalization. It is classified into objective and experiential knowledge. Objective knowledge about foreign markets is explicit readily available knowledge such as demographics and market trends. This knowledge is easily transferable; and thus, has minimal impact on internationalization decisions (Johansson and Vahlne, 1977). Experiential knowledge - that arises from experience with similar situations - is suggested to be a critical enabler of an internationalization process. Experiential internationalization knowledge reflects a firm's experience resources and abilities to work in

foreign markets (Johansen and Vahlne, 2009). Such type of knowledge is hard to transfer and imitate, and thus, provides firms with competitive advantage in terms of operating in foreign markets.

Eriksson et al. (1997) argue that the lack of experiential foreign market knowledge is a significant obstacle to a firm's internationalization. They categorize experiential foreign market knowledge into internationalization knowledge, foreign institutional knowledge and foreign business knowledge. Institutional knowledge is knowledge of foreign culture, institutions, rules and regulations. Business knowledge is knowledge of customers, competitors and market conditions. Internationalization knowledge is based on the experience of the company's resources and abilities to work in foreign markets. Thus, foreign market knowledge is defined in this research as "a firm's accumulated foreign institutional, business and internationalization knowledge".

Typical resource obstacles that small firms face when trying to expand abroad include the lack of the information about foreign market opportunities. Previous studies suggest that foreign market knowledge is particularly a critical enabler of the internationalization of small resources-constrained firms (Knight et al., 2004; Oviatt and McDougall, 2005; Zahra, 2005; Zahra, et al., 2000; Zhou, 2007). Kuemmerle (2002) argued that while large firms enter foreign markets to exploit their home-base knowledge, entrepreneurial firms engage in international activities to expand their knowledge base. SMEs differ from traditional exporters in the notion that entrepreneurial firms acquire foreign market early on in the life of the firm (Autio et al., 2000). Another difference is that

entrepreneurial firms rather than focusing on a time-based accumulation of market knowledge, focus on timely employment of their knowledge in the process of opportunity identification (Chetty and Campbell, 2004). Yaprak (1985) found that exporting SMEs possess more knowledge about operations in foreign markets than non-exporting firms do. Yli-Renko et al. (2002) additionally, found that knowledge intensity and foreign market knowledge positively impacts international sales growth

### **2.5.3 Technological Capability**

Technological Capability (TC) has been defined as the skills and information required establishing and operating modern machinery, the learning ability to upgrade these skills, and the ability to make effective use of technological knowledge (Biggs et al., 1988). Very similarly, it has also been referred to as the stock of technological knowledge that an organization accumulates over time (Raghavendra and Subrahmanya, 2006). Bell and Pavitt (1993) distinguish production capacity from technological capability. They suggest that the former includes the combination of input resources that maintain production efficiency (such as equipment, embodied technology, labor skills, managerial expertise), whereas technological capability incorporates the additional resources needed to generate and manage technical change. However, the overwhelming majority of literature accounts for both aspects when addressing a firm's technological capability.

The most widely used and accepted classification of technological capability is the taxonomy developed by Lall (1987) who classified it into investment, production and

linkage capabilities. Investment capabilities are the skills and information needed to identify locate and purchase suitable technologies, design and engineer the plant, and manage the construction. Production capabilities are the skills and knowledge needed for the operation and improvement of a plant. Production capabilities include both process capabilities as well as product capabilities, such as product redesign, product quality improvement and introduction of new products. Linkages capabilities are the skills needed to transmit and receive technical information, skills, and knowledge from component or raw material suppliers, consultants and technology institutions. Based on these definitions, this research defines TC as the "firm's ability to accumulate and make use of technological knowledge in enhancing products, product development and production processes".

Technological capability might be as basic as operating an imported technology or go as far as duplication or innovating beyond the imported technology. Desai (1985) explains that technological capability could be in purchase of technology, plant operation, duplication and expansion, and innovation. Desai's classification of the level of TC is sort of a continuum that starts with the basic level of purchasing a technology and ends with the very advanced level of TC where firms are innovators. While IE research has mainly focused on technology innovators, firms in developing countries are also engaged in an IE initiatives in spite of the fact that many of them are located elsewhere on the TC continuum. Such firms rely on inflow of technology to move ahead on the TC continuum, and thus, enhance their internationalization potentials.

The combination of specific resources could enhance technological capability of firms and make up for lack of resources or innovatory disadvantages of some SMEs in developing countries. In the context of manufacturing SMEs, the role of technological capability in creating a competitive advantage that allows and foreign market entry is very much emphasised. For example, examining a sample of Thai firms, Pananond (2007) found that in spite of the fact networking capabilities were critical for the early phases of outward internationalization, technological capabilities became more important on the longer run. Lages et al. (2009) revealed that the high quality of product is one of the main determinative factors in the export performance, where SMEs that have higher quality of product and process can attract more international customers than their counterparts. The technological knowledge and production skills which are valuable and hard to imitate can be accounted as the roots of competitive advantage (Lee et al., 2001).

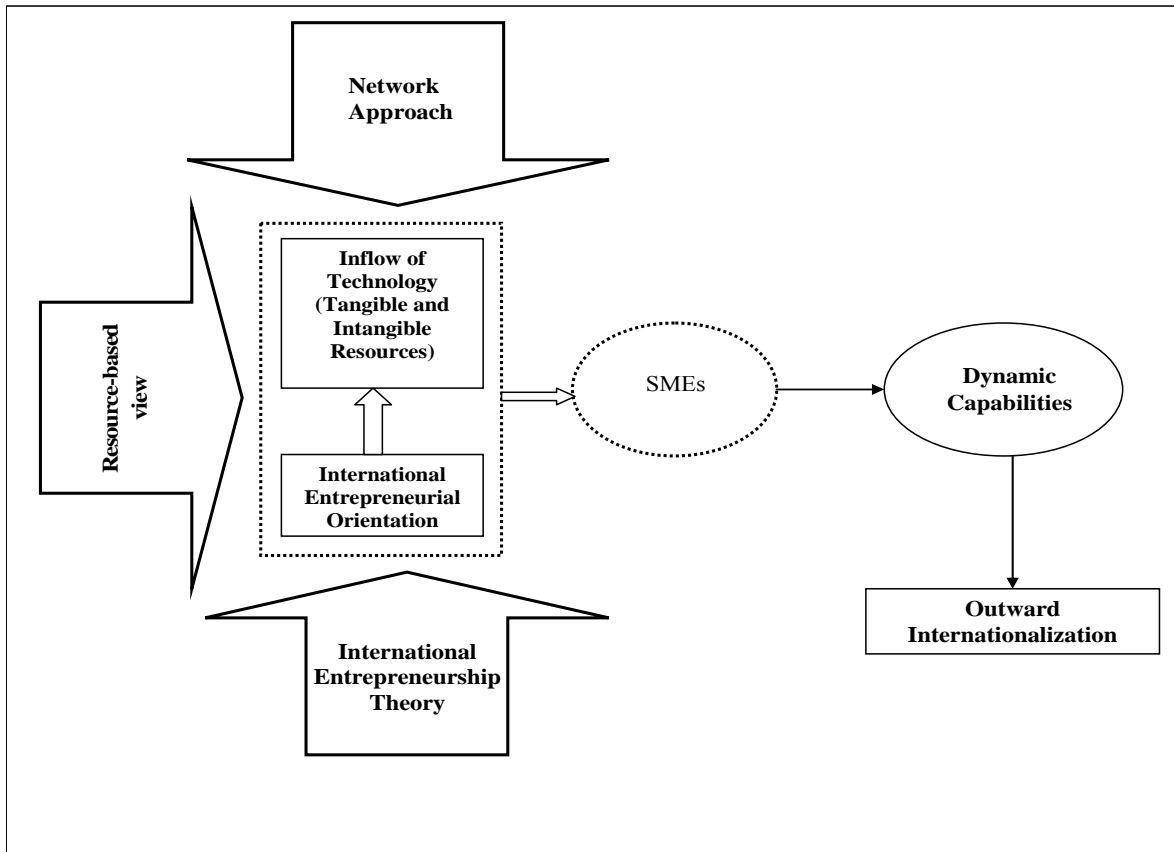
This research investigates the internationalization of manufacturing SMEs in a single country. Such approach allows for some normalization of environmental factors; thus, enables a focused investigation of organizational and strategic factors. The research investigates the impact of a firm's resources and strategic orientation on capabilities development and subsequently, on export performance. The following section develops an integrated conceptual framework that addresses organizational strategic orientation, organizational perspectives and factors pertaining to resources and capabilities development in SMEs.

## 2.6 Conceptual Framework

SMEs internationalization research lends itself to multiple theoretical frameworks. It is, however, suggested that the comprehensive understanding of the phenomenon is more likely to emerge through the integration of multiple theoretical frameworks (Rialp et al., 2005). Zahra and George (2002) suggested that a coherent theoretical framework that explains the impact of specific resources on IE performance is missing. Internationalization is a complex process brought by a team of capabilities that construct this strategic process, where it requires the mobilization of an overall collection of resources and capabilities in enterprise (Pantin, 2005; Ruzzier et al., 2006).

The resource-based view emphasizes the importance of unique resources or capabilities (such as patents, market knowledge, technologies, brands, or processes), which when leveraged, can provide firms with a sustainable competitive advantage. This research suggests that SMEs can access such resources and build such capabilities through inflow of technology. Resources, capabilities and strategies have been regarded as the latent dimensions of a firm's competitiveness. Resources and capabilities affect the nature of a firm's strategy (Barney, 1995), and at the same time, strategic orientations influence the exploitation and the management of resources and capabilities (Conant et al., 1990; Slater and Narver, 1993). The conceptual approach adopted in this study is based on the concepts of resource, capabilities and strategic orientation (Figure1). It provides an integrative vision on internationalization by taking into account the most critical factors in different theoretical foundations.





**Figure 1: Conceptual Framework**

The stage model emphasizes the role of experiential knowledge international operations initiation and performance, but it does not adequately address the process from the context of a developing economy, where the lack of resources and capabilities of SMEs might hinder their internationalization. On the other hand, while IE research advocated the importance of technological innovation (a firm's resource or capability) as a determinant of SMEs internationalization, research has also provided evidence that a firm's strategic orientation as well as other organizational factors play a significant role in the process. The approach adopted in this study compensates the insufficiencies of the stage approach by explaining how SMEs can pass certain steps in their internationalization. Building on multiple theoretical foundations - resource-based view, network approach and international

entrepreneurship theory - this research adopts a conceptual framework that investigates the overall dynamics of SMEs internationalization.

Egypt's R&D capabilities and infrastructures are not fully developed; firms' contribution to R and D is negligible; the relative number of patents is very low; and firms tend to innovate only by adapting imported technologies and absorbing foreign knowledge through international collaboration (OCED, 2012). The current Egyptian industrial development strategy states the support of technology transfer is essential to fulfil the technological needs of the Egyptian industry and in particular of the exporters to become constantly competitive. There are some initiatives to encourage transferring technologies among private companies and SMEs. However, these are not enough to support the research and industrial communities in Egypt (STDF, 2012). Most manufacturers in Egypt are not innovative, and they do not possess entrepreneurial skills, and the comprehension of innovation at Egyptian SMEs often is restricted to a matter of investment in technology upgrading only (Hahn and Kocker, 2008).

This research studies the effect of a firm's international entrepreneurial orientation as well as imported technology - a pool of tangible and intangible resources at firms - on creating an outward internationalization capability at Egyptian SMEs. There is a rationale for analyzing IEO together with the inflow of technology, where they both have the same level of analysis, the resource. Entrepreneurship is an opportunity seeking behaviour that is linked

to entrepreneurial resources is recognized as a resource that leads to competitive advantage (Alvarez and Busenitz, 2001).

The international entrepreneurship approach explains the internationalization of the SMEs from the perspective of the entrepreneur resources that create the required capabilities for internationalization. However, the resource-based view emphasizes the need to attaining other valuable tangible and intangible resources that again contributes to creating the required capabilities. A key source of such resources has been emphasised in the technology transfer literature in the context of SMEs in developing countries, where inflow of technology is key for accessing valuable resources. Although RBV research has not initially shown much interest in the field of entrepreneurship, there is now recognition that entrepreneurial actions combine resources that create new resources or capabilities. In fact, firms with higher IEO are more likely than others to search for opportunities and resources outside the domain of their current activities as well as outside their national borders (Lumpkin and Dess, 1996; McDougall et al., 1994).

The conceptual framework presented in this section presents the basis for the conceptual model development in this study. The model presented in the next section aims to further articulate the conceptual framework presented in this sections as well as develop the hypotheses to be tested in this study.

## 2.7 Model Development

Extant literature emphasizes the roles of strategic orientation, resources, and capabilities in SMEs internationalization. This section presents a model that suggests how these central elements of SMEs internationalization function together. The model describes how inflows of technology, international entrepreneurial orientation and outward internationalization capability function together to influence export performance of SMEs. The majority of studies investigating the relationship between inflows of technology and export performance, as well as between IEO and export performance did not account for mediating variables. Additionally, such studies did not investigate the underlying dynamics of the processes. How does imported technology and IEO impact export performance? What capabilities does each contribute to creating? Do they contribute to creating the same capabilities? Do they equally contribute to capabilities development? Is there an association between inflows of technology and IEO?

Internationalization of SMEs is regarded as an entrepreneurial act given their limited resources and experience, and thus literature focusing on these factors influencing firms was examined in this chapter. Three main factors were found to influence IE performance: (1) environmental, (2) organizational, and (3) strategic (Zahra and George, 2002). IE research primarily studies determinants and contextual factors pertaining to entrepreneurial internationalization. Focusing on cross-border entrepreneurial activity of established corporations, Zahra and George (2002) proposed a dynamic model that describes the forces that influence the degree, speed, and scope of corporate international entrepreneurship. They

suggest that external business environment and an organization's strategy moderate the effect of organizational factors on corporate IE and competitive advantage. McDougall and Oviatt (2003) criticized the model for not being comprehensive in terms of covering all possible forces that might impact IE performance as well as overlooking a variety of potential moderating and mediating variables. Addressing these criticisms and developing a comprehensive framework that analyzes the determinants of IE, Oviatt and McDougall (2005) categorized the determinants of the extent and speed of internationalization: (1) Enabling factors: such as technological intensiveness, and communication technologies; (2) Motivating factors: such as regulation and institutional features; (3) Mediating factors: such as an entrepreneur's characteristics, perceptions, entrepreneurial orientation.; and 4) Moderating factors: such as networks and learning.

More recently, Osarenkhoe (2009) studied the driving forces behind early internationalization of small firms. He argues that the main drivers of their non-sequential internationalization model are firm specific; executive management-specific; globalization-specific factors. Firm-specific factors might be related to highly innovative firms or those specialized in tailored or niche products (Moen, 2002). Management specific, on the other hand are very much related to entrepreneurial traits of the founder, his previous international experience or networking capability. Finally, globalization forces include falling barriers to trade and advancement in ICT, which made it easier, faster, and less costly to move data, goods, people and equipment.

This research does not address environmental factors related to SMEs internationalization. Studying a specific sector in a single country allows for normalizing external factors and focusing on firm - specific organizational and strategic factors. For example, the advancement of ICT infrastructure is also very likely to affect IE initiatives. Advanced ICT supports IE where it provides a path to gaining access to information and correspondence with potential partners. It additionally allows firms to contact foreign customers and suppliers inexpensively and quickly; as well as to market their products through websites. Thus, ICT is suggested in IE research to be an enabler of the IE process (Hashai and Almor, 2004; Oviatt and McDougall, 2005; Quinn, 1992). However, ICT is readily and possibly equally available to all firms in a particular country, yet not all firm internationalize. Additionally, institutional factors, such as export policies and property rights laws as well as and market size in a particular country may hinder internationalization initiatives or in some cases expedite them, yet again firms in the same country demonstrate varying degrees of different international performance (Dimitratos et al., 2004; Klapper et al., 2006).

This research examines the influence of international entrepreneurial orientation on external resources acquisition, as well as on outward internationalization capability development. As a strategic orientation, whereby firms take calculated risks, to be innovative and to demonstrate proactiveness in exploiting opportunities that lie outside a firm's domestic market, and as a higher order dynamic capability that affects the creation of lower order capabilities through integrating, reconfiguring resources, IEO is anticipated to directly affect the firm's internal organization towards building an outward

internationalization capability. Additionally, it affects the firm's behaviour in terms of exploiting cross border resources that are perceived to create value. Thus, IEO affects a firm's inward internationalization operations including inflows of technology. Thus, the research investigates how IEO affects the process of creating internal capabilities that support export performance.

Aligned with the resource-based view, the potential of creating OIC is assumed to increase with the inflow of resources to a firm, as a larger amount of resources is likely to contribute to building more capabilities, and consequently better performance in foreign markets. Research findings have indeed shown that organizational resources and capabilities are significantly related to each other (Ainuddin et al., 2007; Grant, 1996; Morgan et al., 2004; Prahalad and Hamel, 1990). In further contributions to the RBV, various scholars have stressed the need for dynamic capabilities in exploiting firm resources (e.g. Eisenhardt and Martin, 2000; Teece et al., 1997). These capabilities are the means by which the value of resources is leveraged. The value of resources can be made available if the firm possesses the right capabilities (Newbert, 2007; Teece et al., 1997). In this regard, the inflow of technology to a firm can be seen as source of dynamic capabilities if resources embedded in the process are leveraged to create OIC.

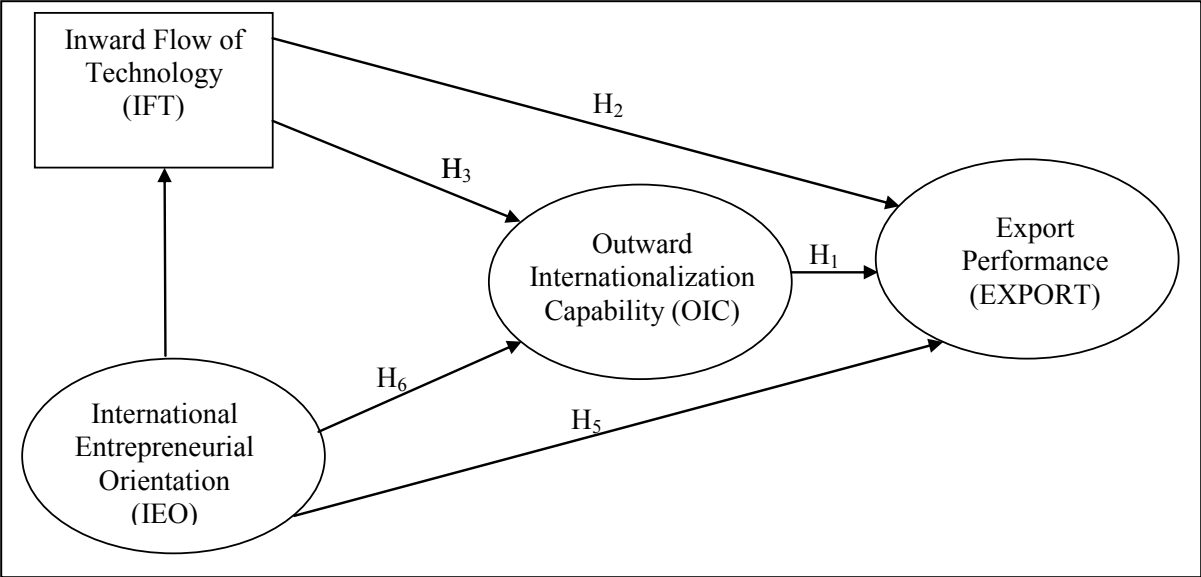
The conceptual model in this study examines the underlying dynamics of export performance of a sample of 214 manufacturing SMEs located in the greater Cairo area in Egypt. The presented model suggests that inflows of technology have a positive effect on export performance. The model also suggests that both inward and outward international

operations have the same pre-determinants, whereby both are affected by a firm's international entrepreneurial orientation. It is also suggested that the study of inward-outward operations in such a holistic approach provides an understanding of internationalization dynamics, where the output of inward operations provide inputs to the outward internationalization process. Few studies have examined this relationship empirically (e.g. Holmlund et al., 2007; Karlsen et al., 2003; Korhonen et al., 1996; Welch and Lusterinen, 1993). The originality of the model in this study is that, first, that it directly tests the relationship between inward operations (inflow of technology) and outward operations (export performance). Second, it examines the notion that inward and outward operations have the same determinants. While IE research primarily focuses on outward operations of firms, this research examines the influence of IEO on inward operations. Third, it examines the determinants of building an outward internationalization capability at the firm. Development of this capability is affected by inward operations as well as firm's strategic orientation.

In the context of SMEs, imports are often the very first occurrence of the firms' internationalisation process, sometimes taking place well before any outward activities (Forsman et al., 2006; Holmlund et al., 2007; Korhonen et al., 1996). When SMEs internationalization behaviour is not in line with the proposition of the stage approach, a firm's foreign market penetration might appear as being a "case of leapfrogging in its internationalisation process" (Karlsen et al., 2003). However, the reality might be that the firm started its internationalization process early on, but rather on the inward side. Although



sequence is not studied in this research, it is suggested in this research that inward operations contribute to the creation of an outward internationalization capability at the firm.



**Figure 2: Underlying Dynamics of SMEs Export Performance**

**2.7.1 Outward Internationalization Capability and Export Performance**

Limited research comprehensively specified and collectively studied Outward Internationalization Capability (OIC). This research suggests that export performance is impacted by a dynamic capability (OIC) that facilitates outward internationalization initiation. As presented in details in Section 2.5, based on literature review, technological capability, networking capability and foreign market knowledge construct the preliminary domain of OIC scale. However, during the course of the study, the OIC scale was further developed.

***H<sub>1</sub>: OIC is positively related to export performance***

The research conceptualizes OIC as second order latent variable comprising multi-dimensions. Hair et al. (2006) define a "construct" to be an "unobservable or latent concept when the researcher can define in conceptual terms but cannot be directly measured". OIC is a construct that is not directly observable; a so-called latent variable. It is, also suggested that is not necessary for the whole set of dimensions of OIC to be present in a firm which is engaged in an outward internationalization process. However, all these dimensions are critical to the understanding determinants underlying outward internationalization, where they may occur in different combinations and with different degrees. In other words, dimensions in the construct might be regarded as substitutes rather than complements, although they were found to be highly correlated.

Carneiro et al. (2007) clarify that performance indicators collected can be arranged in different combinations. A researcher may use directly observed variables, either just one single indicator or multiple independent indicators. Also, indicators can be combined to form composite scales or latent variables, which could be reflective or formative in nature. Coltman et al. (2008) explain three important theoretical considerations when deciding on the nature of the variable: (1) Nature of construct, where latent construct exists independent of the measures used in the reflective model whereas, a latent construct is determined as a combination of its indicators in the formative model; (2) Direction of causality from construct to items, where in a reflective model, the latent construct exists and causality goes from the construct to the items. In a formative model, the opposite occurs: causality goes

from the items to the construct so that the construct is formed; and (3) Characteristics of items used to measure the construct, where in a reflective model, items share a common theme, are interchangeable and adding or dropping an item does not change the conceptual domain of the construct, whereas in the formative model, items need not share a common theme, are not interchangeable, and adding or dropping an item may change the conceptual domain of the construct.

The OIC construct, as hypothesized, exists independent of the measures. Causality flows from the construct to the items. Thus higher OIC in an organization should reveal itself with higher networking capability, as well as higher technological and foreign market knowledge capabilities. Finally, items share a common theme, but adding or dropping them does not alter the conceptual domain of the construct. Thus, it is conceptually hypothesized as a latent reflective variable. Additionally, Coltamn et al. (2008) postulate that items should have high positive inter-correlations in reflective latent variables. This hypothesis is also empirically tested in this research study.

### **2.7.2 Inflow of Technology and Export**

Inflow of technology is very commonly suggested to positively affect export performance (Korhonen et al., 1996; Korhonen, 1999; Luostarinen and Welch, 1990; Mody and Yilmaz, 2001; Romijn, 1999, Welch and Luostarinen, 1993). Inflow of technology should be viewed as a key part of the internationalization process in the context of SMEs in developing countries. International experience and contacts that firms develop through

operations in foreign markets -through import operations- are likely to be key to the initiation and development of outward operations.

Additionally, the access to better quality and competitively priced technology has a positive effect on the firm's efficiency and effectiveness. In order to compete in foreign markets, firms must have high quality products, as well as design a differentiated product and/or set a competitive price according to the markets (Laurin, 2010). This is achieved through acquiring high quality adequately priced inputs, which in many cases can only be supplied from foreign suppliers. Therefore, a greater access to foreign goods and services is likely to increase the competitiveness of firms (Amiti and Konings, 2005), which will subsequently enhance their capacity to penetrate foreign markets.

In summary, greater access to foreign valuable technologies contributes to firm productivity (Amiti and Konings, 2005). Higher productivity allows firms to enter foreign markets (e.g. Bernard and Jensen, 1999; Bernard et al., 2003; Clerides et al., 1998; Melitz, 2003). Thus, this research argues that there is a positive relationship between inflows of technology and export performance.

***H<sub>2</sub>: Inflow of technology (IFT) is positively related to export performance***

This research additionally suggests that inflows of technology positively affect a firm's outward internationalization capability. Inflows of technology also provide one means of learning about foreign market conditions. By importing technology for its production, a

firm can take advantage of knowledge created elsewhere and bring it into the firm's own products or services. Additionally, such inflows might allow firms to gain experience in foreign markets operations as well as establish international networks. The firm can establish relationships with firms overseas that subsequently can become continuing clients or channels of distribution into foreign markets. Imports thus provide a relatively low-cost means of learning about business opportunities abroad. Foreign market knowledge is generated and accumulated through ongoing interaction with actors in foreign markets.

Johanson and Vahlne (2009) emphasize the role of interaction in the process of knowledge accumulation. They suggest that relationship-specific knowledge, which is knowledge, developed through interaction between two partners and includes knowledge about each other's heterogeneous resources and capabilities, is important in the internationalization process. Firms' business relations provide them with an extended knowledge base. Johanson and Vahlne (2009) highlight the notion that knowledge is created through the interaction between the knowledge producer and the knowledge user. Therefore, the process of creating knowledge is embedded in a firm's own business activities as well as those of its partners. Active behaviour on international markets generates experiential knowledge (Eriksson et al., 1997), which is the basis or prior knowledge that allow firms to identify new international opportunities (Casillas et al., 2009).

Inward flow of technology allows a firm to gain experience with operations in the international market. Such experiences contribute to accumulating experiential foreign market knowledge (Korhonen et al., 1996; Korhonen, 1999; Luostarinen and Welch, 1990;

Welch and Luostarinen, 1993). Firms might be able to obtain detailed market specific knowledge, customers' preferences, and institutional features markets, through its dealing with cross border market actors. Thus, this research argues that inward internationalization activities influence the acquisition and accumulation of foreign market knowledge, and consequently export performance. Thus, involvement in inflows of technology processes is likely to affect a firm's knowledge about foreign markets.

Research addressing the impact of the inward flow of technology on technological capabilities suggests that firms enhance their technological capability through inward flow of technology (Guan et al., 2006; Kumar et al., 1999; Young et al., 1996). A firm's capacity to explore and acquire new knowledge is also influenced by exposure to diverse, external knowledge sources (Zahra and George, 2002). Inward flow of technology, as mentioned earlier, encompasses importing material, equipment, skills, and expertise; and thus, it exposes a firm to external sources through which they can acquire technical knowledge. For example, the purchase of equipment may require technical training provided by the technology supplier. This allows for knowledge transfers between the supplier and the firm. Firms also gain technological knowledge by studying how imported goods are designed. Firms' with higher stock of technological knowledge/capability are more likely to export, thus, this research hypothesizes that an inward flow of technology positively affects firms' technological capability, and thus, export performance.

The network approach provides a useful framework for understanding the way in which inward - outward connections emerge and develop. Korhonen et al. (1996) argue that

inward operations contribute to creating networks. Explaining how such connections are established, they give an example of how a company may use a foreign supplier to help develop exporting operations. A supplier may act as a distributor or possibly allow the firm to exploit his network (customers, banks, government agencies). Inward flow of technology involves interaction with foreign suppliers, experts, consultants, manufactures. In summary, by engaging in import activities, the firm extends its network to foreign markets. Foreign suppliers can provide valuable information on new technologies, needs, trends, and local competitors in foreign markets. Thus, this research argues that inflows of technology positively affect a firm's networking capability.

*H<sub>3</sub>: Inward flow of technology has a positive effect OIC*

*H<sub>4</sub>: Inward flow of technology has an indirect positive effect on export performance mediated by OIC*

### **2.7.3 International Entrepreneurial Orientation and Export**

The notion of international entrepreneurship suggests that some firms - more than others - have the tendency to search for opportunities and resources outside the domain of their current activities as well as outside their national borders (McDougall et al., 1994; Lumpkin and Dess, 1996). Extant research has provided some empirical evidence that EO impacts international performance (e.g. Jantunen et al., 2005; Zahra and Covin, 1995; Zahra and Garvis, 2000). The EO-performance link holds across different operational definitions of a firm's performance (e.g. perceived financial performance, growth, profitability), as well as different operationalization of the EO construct. Rauch et al. (2009) undertook a meta-

analysis exploring the magnitude of the EO-performance relationship, where they analysed 53 samples from 51 studies. They concluded that the correlation of EO with performance is moderately large and that this relationship is robust to different operationalizations of key constructs (EO and performance) as well as cultural contexts (e.g. Europe and Asia). In fact, 16 out of 53 samples used instruments other than Covin and Selvin scale to measure EO, suggesting that different variables have been measured under the notion of entrepreneurial orientation.

EO is a set of decision making styles, processes, practices, rules, and norms according to which a firm makes decisions to enhance its innovativeness, proactiveness, and risk taking propensity (Lumpkin and Dess, 1996). IEO portrays the firm's EO in an international context, and thus is expected to be associated with better export performance. This research conceptualizes IEO as a firm's organization toward outward operations. The hypothesis is that IEO affects export performance of SMEs.

***H<sub>5</sub>: International entrepreneurial orientation (IEO) is positively related to export performance***

This research additionally suggests that IEO positively affects three main capabilities that comprise the domain preliminary domain of OIC, where such capabilities in turn positively affect export performance. IEO is suggested to impact foreign knowledge accumulation and exploitation. Foreign market knowledge is likely to spur emerging opportunities if a firm or multiple firms in a network possess some entrepreneurial alertness (Agndal and Chetty, 2007). Lumpkin and Dess (1996) explain how innovation promotes the



acquisition and accumulation of knowledge through market scanning and information utilization. The risk-taking dimension of IEO allows for accumulating experiential knowledge through trial and error; whereas, proactiveness supports knowledge accumulation through pursuing opportunities. Matsuno et al. (2002) additionally, found that innovation, proactiveness and risk taking work together to enhance firms' willingness as well as ability to accumulate international market knowledge. Thus, IEO is as a strategic approach that supports learning within organizations, where learning is defined as the assimilation of new knowledge into the organization's knowledge base (Autio et al., 2000).

One of the major differences between born globals and traditional firms - that follow a traditional model of internationalization - is the former's ability to gather and effectively use knowledge of foreign markets (Rialp et al., 2005). Thus, this research argues that IEO influences the acquisition and accumulation of foreign market knowledge, and consequently export performance.

In addition to foreign market knowledge, enhancing technological capabilities is also influenced by a firm's absorptive capacity. Several studies suggested that firms' absorptive capacity is very much related to their innovation capability and their willingness and ability to learn, and thus imbedded in their EO. For example, Burpitt (2004) examined linkages between absorptive capacity and entrepreneurial behaviour. He found that firms that embrace effective communication and experiential learning enhance their level of absorptive capacity, defined as the ability of a firm to perceive, acquire, and utilize new information and new learning. Thus, a firms' absorptive capacity is reflected in their degree of EO. Liu

et al. (2002) consider that EO promotes values like teamwork, openness, innovation. Such values facilitate enhancing TC since they create an informal organizational structure that facilitates communication, creativity, collaboration and flexibility (Wang, 2008). Thus, this research argues that IEO positively affects a firm's technological capability, and consequently, export performance.

Finally, the network approach to internationalization has been strongly adopted in IE research. Oviatt and McDougall (2005) highlighted the critical importance of the entrepreneur's international network as a factor that affects internationalization. EO also facilitates organizational networking, where entrepreneurs are proactively creating networks as well as utilizing their networks in order to gather scarce resources and build capabilities (Wu, 2007). Thus, this research further suggests the following relationships:

*H<sub>6</sub>: International entrepreneurial orientation has a positive effect on OIC*

*H<sub>7</sub>: International entrepreneurial orientation has an indirect positive effect on export performance mediated by OIC*

#### **2.7.4 International Entrepreneurial Orientation and Inflow of Technology**

Entrepreneurial firms are suggested to be proactive, in terms of creating and exploiting their networks, leveraging their knowledge base as well as acquiring new knowledge. The definition of IE as the discovery, enactment, evaluation, and exploitation of opportunities across national borders to create future goods and services by Oviatt and

McDougall (2005) opens the door for IE research to consider inward internationalization as well as outward internationalization activities. Exploitation of opportunities across national borders involves opportunities for inflow of technology, knowledge and other resources as well as opportunities for export operations. Thus, it could be argued that firms with higher international entrepreneurial orientation are more likely to be involved importing technology. Firms fail to translate entrepreneurial orientation into better performance when they lack the resources to do so (Hitt et al., 2001). Thus, entrepreneurial firms seek to acquire the resources needed to leverage their entrepreneurial orientation. In fact, the relationship between imports and exports suggest that models explaining the antecedents to exports may be applicable to imports.

Imports determinants may be borrowed from export literature. For example, many SMEs initiate exports in a reactive manner in response to unsolicited orders from foreign customers, for example, after participating at a trade fair or proactive manner depending on a manager's special interest in international business (Leonidou et al., 2007). This also applies to import operations. This approach to analysing determinants of import operations justifies proposed model where, IEO is suggested to affect both a firm's import and export operations. The involvement of inflows of technology could be considered a proactive strategy by which a firm searches for new inputs across borders in order to further strengthen its comparative advantage.

Thus, this research suggests a positive relationship between IEO and inflows of technology.

***H<sub>8</sub>: International entrepreneurial orientation has a positive effect on inflow of technology***

In summary, market and technological knowledge as well as networks have been emphasised as specifically important for creating competitive advantage and for discovering and exploiting new opportunities (Guan et al., 2006; Korhonen et al., 1996; Korhonen, 1999; Kumar et al., 1999; Wong et al., 1999; Young et al., 1996). SMEs possessing sufficient knowledge of the international market or having efficient capability of knowledge assimilation could pass through some intermediate steps (Gankema et al., 2000).

The relationships established in networks could facilitate SMEs' acquisition of information and useful resources in international markets. However, a firm's entrepreneurial orientation - as a higher order dynamic capability and strategic orientation - is important for SMEs to build capabilities allowing them to seize the opportunities in foreign markets. Hence, attaining resources as well as building capabilities are affected by a firm's strategic orientation. Resources offer the basis for the translation of innovative and proactive initiatives into enhanced performance which is only attained when firms create the adequate capabilities (Autio et al., 2000; Yli-Renko et al., 2001). Thus, the roles of a firm's resources and strategic orientation in creating the capabilities necessary for internationalization or export activities were investigated in this study.

This chapter reviewed literature pertaining to internationalization of SMEs as well as inflows of technology and inward-outward linkages. Based on the literature, this chapter presented the conceptual framework on which the empirical model in this study was built. The model and hypotheses that are tested in subsequent chapter were also presented in this chapter. The following chapter presents the research design, approach and methodology. It describes the sampling process, as well as data collection and analysis techniques that were employed to test the model and hypotheses presented in this chapter.

### **3.0 Approach and Methodology**

This study aims to further the research linking international entrepreneurial orientation (IEO), inflow of technology (IFT), outward internationalization capability (OIC) and export performance (EXPORT). There is still a lack of empirical evidence in the literature to explain the basic relationships between these constructs. In-depth analysis at the firm level might reveal more details of the unique capabilities - in terms of their nature as well as how they are built - that enable SMEs to engage in export operations. This research suggests that these set of capabilities underlie an overall unmeasured capability which is OIC. Thus, this research employed a mixed qualitative-quantitative approach that allows in-depth investigation of the nature of OIC as well as testing of the proposed model. This chapter details the methods used to develop the OIC scale as well as address the hypotheses posed in Chapter 2. The following sections describe the sampling process, as well as qualitative (exploratory study) and quantitative (confirmatory) research phases of this study.

### **3.1 Sample**

Root (1994) classified internationalization strategies into export entry modes, contractual entry modes and investment entry modes. Exporting is the most commonly used entry mode by small firms; and thus, it is the focus of this study. Exported products include raw material, semi-finished products and finished products (Egyptian Ministry of Industry and Trade classification of exported products). This research focuses on firms exporting

finished products in order to ensure that export is not a result of inclusion in the supply chain of another company. This research also focuses on locally owned firms in order to ensure that export activities are not related to the presence of a cross border partner. Firms are selected to meet the following criteria:

- Small and medium firms (fewer than 100 employees based on Egyptian Ministry of Finance classification)
- Locally and privately owned (not a subsidiary of a foreign multinational, joint venture, foreign direct investment or a state owned firm).
- Belong to the manufacturing sector
- Involved in export activities

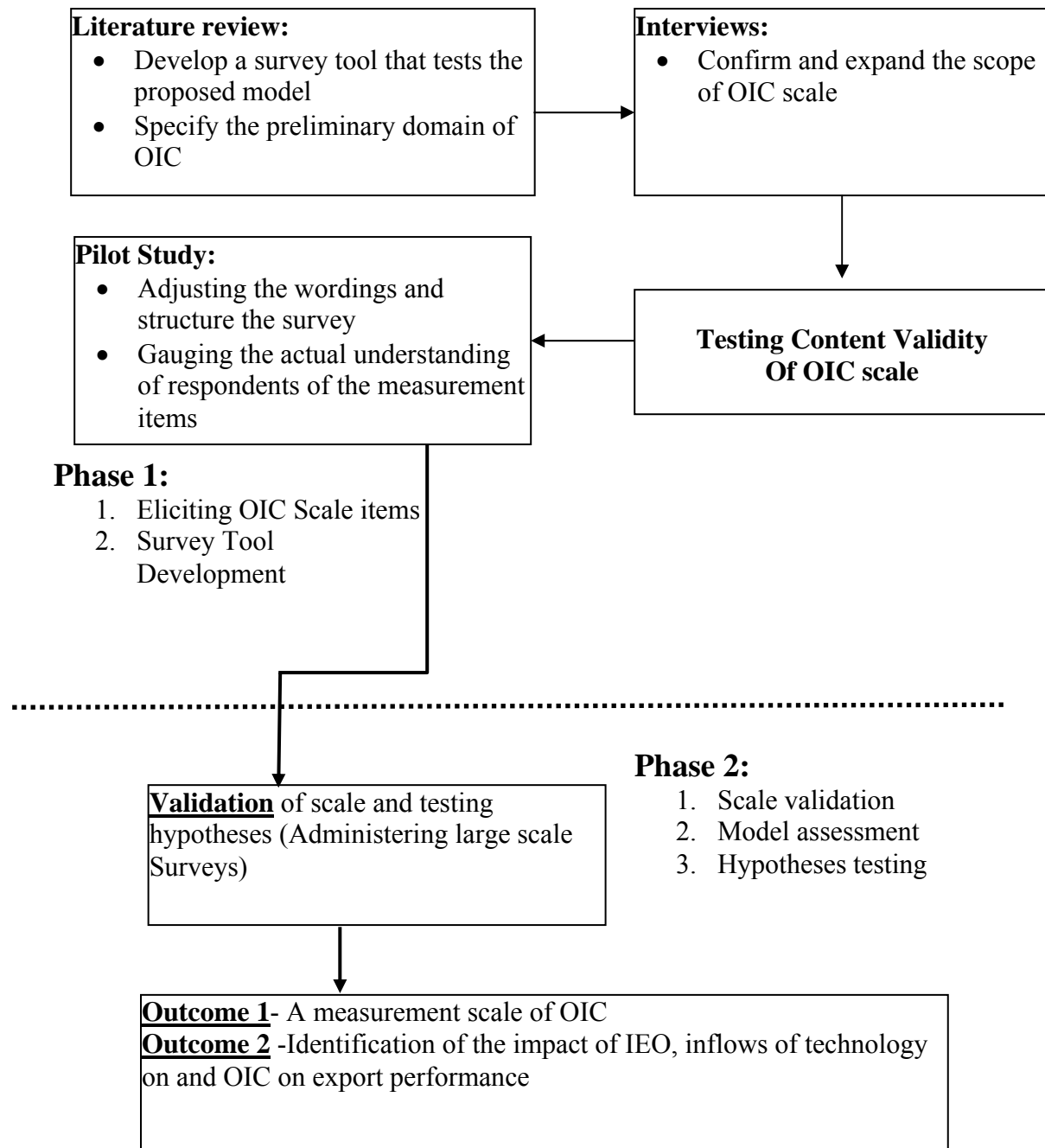
Firms meeting the above criteria were selected from the Egyptian Ministry of Industry and Trade database, published through the Industry Development Authority (IDA) which includes around 28,000 small and medium sized manufacturing firms. The database includes traditional exporters, international new ventures, and born-again globals. Firms are selected from the same country in order to control for external factors such as government assistance, taxes, labour cost and transportation cost. Selecting a sample of firms from the manufacturing industry is driven by the notion that it is a technology-based sector; that is expected to be heavily involved in importing tangible and intangible technologies. It is also one of the important and fastest growing sectors in Egypt. Additionally, limiting research to the manufacturing sector reduces possible cross-sector issues such as technological intensiveness.

## 3.2 Research Design

This study adopts a two-phase mixed qualitative-quantitative research approach (Figure 3). *Phase one* is an exploratory study which is qualitative in nature, where a number of interviews were conducted with the founders or executive managers of firms in the sample. Qualitative research is appropriate when the researcher is aiming at identifying variables that will later be tested quantitatively (Hoepfl, 1997) or gain more in-depth information that cannot be collected through quantitative research tools (Strauss and Corbin, 1990). Interviews can be used to develop new ideas and hypotheses, discover new dimensions of a problem to be studied as well as to develop items for quantitative research tool such as a survey (Miller and Brewer, 2003).

Interviews were used to confirm and expand the domain of OIC, where it is necessary to explore the existence of additional capabilities that underlie outward internationalization. The exact number of interviews was not defined at the design phase of the research. However, it is suggested that interviews should continue until the interviewer gets no new information, similar themes keep emerging, and the interviewer learns all there is to be learned (Gubrium and Holstein, 2002). In total, fifteen interviews were conducted. These interviews further specified the domain and measures of OIC. Based on findings of these interviews, a refined initial survey was developed.





**Figure 3: Research Design**

One of the main contributions of this study is developing an OIC scale, where OIC is defined as the capability that underlies the initiation and success of export performance. Therefore, the research design accounts for the steps involved in scale development models. There is little variation between scale development models proposed by different authors. For example, DeVellis (2003) recommends the following steps in constructing new scales: (1) determine clearly what you want to measure, (2) generate an item pool, (3) determine the format of the measure, (4) have experts review the initial item pool, (5) consider inclusion of validation items, (6) administer items to a development sample, (7) evaluate the items, and (8) optimize scale length. Churchill (1979) suggests the following steps: (1) identifying the domain of the scale, (2) developing and defining measures through interviews and focus groups, (3) initial validation of measures through eliciting experts feedback, (4) validation of measures through pre-testing the scale, (5) administer items to a larger sample, and (6) validation of the scale through statistical analysis. Churchill's approach is widely used to develop and validate scales in management sciences research; and thus, will be used in this study.

Accordingly, following Churchill's (1979) approach, *phase one* involved a literature review and interviews with managers and founders of firms in order to develop the preliminary domain of the scale. A pre-test evaluated the content validity of the scale. A pilot study was then conducted before the survey was administered to the larger sample of top managers. A pretest was undertaken with ten managers to adjust the wordings and structure and gauging the actual understanding of respondents of the measurement items.

Finally, the measure was validated through testing the set of hypothesis that examine relationship between OIC and export performance.

*Phase two* employed a quantitative research approach which involved seeking response to the survey from firms in the sample. The survey collected data that served the purpose of testing and validating the model and hypotheses presented in this study, as well as the validating the OIC scale.

### **3.3 Measures of Variables**

The measurement of the variables was based on measures developed in previous research. For the purposes of this study, all the multi-item scales used were validated using confirmatory factor analysis and reliability was assessed using Cronbach's alpha. Organizational capabilities, namely, networking, foreign market knowledge accumulation and technological capability are the major most commonly cited enablers that underlie outward internationalization of SMEs. Thus, they constituted the preliminary domain of OIC in this research. Items measuring these three capabilities were adapted from previous literature and were used to compose the preliminary domain of the OIC scale.

### **3.3.1 International Entrepreneurial Orientation**

Previously validated scales for measuring EO are primarily based on measuring proactiveness, innovativeness, and risk-taking (Covin and Slevin, 1989; Lumpkin and Dess, 1996). More recently, scholars developed scales that measure IEO (e.g. Knight and Cavusgil, 2004; Zhou, 2007). Since this study is measuring a firm's international entrepreneurial orientation and a measure for this construct already exists in literature, the IEO scale developed by Zhou (2007) was used in this study. The scale has been used in several studies (e.g Zhou, 2007; Zhou et al., 2009), where its reliability and validity have been tested.

### **3.3.2 Export Performance**

One of the major criticisms of the export performance literature has been the lack of a uniform and widely accepted measure of this variable. Export performance has been operationalized in various ways. Some authors suggest using a single variable as a measure of foreign activities, such as percentage of foreign sales or number of countries in which foreign sales are generated (e.g., Bloodgood et al., 1996; Knight et al., 2004; Zhou et al., 2007). However, multidimensional nature of the export performance phenomenon has been acknowledged along the years. Cavusgil and Zou (1994) identified one performance factor composed of four indicators measuring perception of the extent to which strategic goals are achieved; perceived success of the venture; average sales growth over the first five years; and average profitability over the first five years.

Some studies use subjective measures - such as managers' satisfaction - in measuring export performance. Advocates of such an approach suggest that firms might be reluctant to reveal objective figures (e.g. Leonidou et al., 2002). Zahra and George (2002) conceptualize IE as a multidimensional construct that measures the scope and extent of export activities in addition to speed of internationalization. Scope of export refers to the number of countries in which a firm generates sales; the extent refers to the portion of a firm's sales generated in foreign markets; and speed refers to the rate of entering new markets. Speed of internationalization is also measured by the elapsed time from the venture's founding until its first international sales (Zahra, et al., 2003). Such static measures are good to compare among firms at a given point in time, but provide no information as to how performance has evolved or is expected to evolve (Carneiro et al., 2007).

Carneiro et al. (2007) conducted a critical assessment of some of the most frequently cited measurement frameworks of export performance. They suggest that an attempt to elicit a wide range of objective information about export performance may diminish the response rate, where it might be better to use subjective measures. They also found that studies examining various export performance measures suggest that data availability and/or confidentiality might impact response rate or accuracy of data. Finally, they found that most measures of export performance are perceptual and self-reported because secondary information on the export activities of individual firms is not often publicly available. Data for this research was collected only three months after a revolution took place in the country, and there was high scepticism with regards to any form of data collection especially that the researcher is not affiliated to any Egyptian entity. Thus, collecting data pertaining to

objective measures (such as percentage of export sales) was not possible and was likely to significantly influence the response rate.

Subjective data have also been shown to be highly correlated with objective data (Dess and Robinson, 1984) and respondents may in fact provide perceptual subjective information even if asked about an absolute measure. Additionally, managerial decisions are likely to be driven by perceptions rather than figures (Matthyssens and Pauwels, 1996). Therefore, the choice of subjective self-evaluation measures is a reasonable measure of the export performance given that respondents of this study are managers and owners of SMEs. Carneiro et al. (2007) reviewed 37 studies employing an export performance measure. They found that most reviewed studies employed multiple independent indicators and two thirds of the studies used a reflective latent construct representation for export performance. Export performance in this research is operationalized in terms of the level of executive satisfaction with export performance regarding market share in foreign markets, contribution to sales growth, contribution to profitability, and contribution to company's growth (adapted from Filatotchev et al., 2009)

### **3.3.3 Inward flows of Technology**

Previous researchers have not specifically dealt with the degree of inflow of technology as a directly measured variable. The majority of studies have directly operationalized the degree (amount) of technology transferred to the recipient firm in terms

of the extent of type of technological knowledge that are transferred or acquired. In such cases, the outcome of inflow of technology is measured as proxy for the degree of inflow of technology. Mainly, transferred knowledge has been suggested to include explicit knowledge (machines, licences, product process design, working instruction, working standard, blueprints) and tacit knowledge (e.g. engineering skills, technological skills, production and management systems, management knowledge, market knowledge, organizational knowledge). For example, the extent of technological knowledge that is transferred or acquired included knowledge on product development and foreign cultures managerial knowledge, technology or manufacturing know-how (Lam, 1997; Lyles and Salk, 1996; Tsang, 2001). Only Pak and Park (2004) have directly studied the degree of knowledge transfer - although as an outcome - with respect to the transfer of new product development and manufacturing skills/techniques. Korhonen et al. (1995) studied the impact of inward operations on outward operations of SMEs. However, in their study they assessed engagement in outward operations as a binary variable where firms indicated involvement/non-involvement in different modes of imports (physical products, services operations, know-how operations and licensing). Thus, there is no reliable measure that exists for measuring the degree of inflow of technology.

This study perceives the process of importing technologies as an inward internationalization process that involves importing both hardware and software components of technology. Literature measuring a firm's degree of internationalization mainly focuses on quantifying the scope and extent of outward international activities. Building on outward internationalization literature, inflows of technology could be perceived as a reversed

(opposite of outward internationalization) multidimensional construct. Thus, the degree of inflow of technology could be measured in terms of: (1) the percentage of foreign production inputs (such as material, licences, blueprints, software), out of total inputs, (2) percentage of foreign production equipment and machinery of total production inputs (3) frequency of hiring foreign experts and consultants (such as know-how, training and management contracts). Such indicators measure to a great extent the degree of flow of both hardware and software components of technology, and thus were used in this research. A composite index was developed to capture the overall degree of inflow of technology to the firm based on these indicators. Given that indicators are regarded as complements rather than substitutes, variables were standardized (Z scores) and then summed up to create the composite index.

#### **3.3.4 Foreign Market Knowledge**

Following the conceptualization of the foreign market knowledge by (Eriksson et al., 1997), this research used the multidimensional measurement scale validated by Zhou (2007) to measure foreign market knowledge accumulation at the firm level. The scale is consistent with the conceptualization of the construct in previous work (Autio et al., 2000; Hadley and Wilson, 2003). It measures three types of foreign knowledge: foreign institutional knowledge, foreign business knowledge, and internationalization knowledge.

#### **3.3.5 Technological Capability**

Research on technological capability has been hindered by the lack of proper measurement (Raghavendra and Subrahmanya, 2006). It is very complicated to measure the



technological capability of a firm directly. Most studies in developed and developing economies use proxies such as technical workers, patents, publications, innovations and research and development (R&D) expenditure for measuring technological capability. However, such measures are suggested to be an outcome of an advanced technological capability rather than assessing true technological strength (Acha, 2000). Additionally, research addressing the impact of the inflow of technology on enhancing technological capabilities of firms in developing countries should assess the relative strength of firms' technological capability rather than assessing technological innovation outcomes.

Based on Lall's taxonomy (1987), several attempts had been made to develop an objective measure of technological capability that could be used in quantitative research. For example, Romijn (1997) focused only on production capabilities and developed a production capability indicator. Later, Wignaraja (2002) developed an enterprise score as a summary measure of capabilities. Also based on Lall's taxonomy, he focused on investments; production and linkages activities performed by firms and assigned a given score for each function. These scores were gathered in an overall capability score called "Technology Index" (TI). While Lall's taxonomy was mostly employed in case study research in developing countries, the TI approach has been more used in empirical research. Departing from Lall's taxonomy, Raghavendra and Subrahmanya (2006), realizing the lack of a reliable measure of technological capability, developed a proxy called 'technology level' to measure the technological capability. They measured "technology level" in terms of technological expertise of employees to perform some functions and processes in manufacturing. This study builds on the technology index and Romijn (1997) production capability indicator in

order to develop a measure of TC. Thus, TC in this research is assessed in terms of process and production engineering; product development and; employees' technical knowledge.

### **3.3.6 International Networking Capability**

The majority IE research studying the importance of networks adopts a case study approach, whereas the limited empirical studies use a simple count of the number of partners or a dichotomy measure indicating the presence or absence of cross border networks. Walter et al. (2005) conceptualized network capability as a composite construct involving four latent dimensions: coordination, relational skills, partner knowledge and internal communication. They regard networking capability as a dynamic capability that affects the firm's ability to carry out activities encompassed in the four dimensions. Coordination refers to effective management of interactions between the focal firms and other firms in their network. Relational skills are suggested to be those related to inter-personal skills such as conflict management skills and cooperativeness. Partner knowledge refers to knowledge about partners' resources, capabilities, culture and thus is regarded as a pre-requisite for effective coordination and communication. Internal communication refers to accumulating information on partners and their resources as well as undertaking initiatives that allow avoiding redundant processes, miscommunication, and improving the detection of synergies.

Other studies adopted more qualitative indicators. For example, measuring business ties accounts for international network size, measured as the number of the international contacts (Batjargal, 2003); international network diversity, measured as the number of

distinct countries in which a firm has contacts (Koka and Prescott, 2002), and tie strength, measured as the average frequency of interaction between network actors (Levin and Cross, 2004). Zhang et al. (2009) specifically measure international networking capability. They suggest focusing on the information technology capability and relationship capability for measuring international networking capability. This research measures international networking capability using a multidimensional scale. The scale encompasses two dimensions, namely, international communication capability (adapted from Zhang et al., 2009) and international business relational ties (based on Batjargal, 2003; Koka and Prescott, 2002; Levin and Cross, 2004).

Table 4 summarizes these key constructs in the structural model. Measures involved in this study, except for inflow of technology, are primarily latent constructs. The table describes measures of IEO, IFT as well as FMK, TC and NC.

### **3.4 Exploratory Study - OIC Scale Development**

#### **3.4.1 Item Generation**

Networking capability, foreign market knowledge and technological capability, as indicated in section 3.3, constituted the preliminary domain of OIC in this research. Table 5 lists the items measuring these three capabilities.

**Table 4: Summary of Constructs**

<b>Construct</b>	<b>Description</b>	<b>Reference</b>
International Entrepreneurial Orientation	A scale with three dimensions: proactiveness, innovativeness and risk-taking	Zhou , 2007
Inflows of Technology	A composite index	Measures are adapted measures of outward internationalization (e.g Sullivan,1994)
Export Performance	A scale comprising four indicators	Adapted from Filatotchev et al., 2009
Foreign Market Knowledge	A scale with three dimensions: Foreign institutional knowledge, Foreign business knowledge, internationalization knowledge	Zhou, 2007
Technological Capability	A scale developed to include three dimensions: Process and production engineering Product development Employees' technical knowledge	Based on Gary and Cavusgi, 2004; Lall, 1992; Romijn, 1997
Networking Capability	A scale with two dimensions: international: Communication capability and Business relational ties	Adapted from Batjargal, 2003; Koka and Prescott, 2002; Levin and Cross, 2004; Zhang et al., 2009

### 3.4.2 Refining the Scale Items

Steps 1 and 2 serve to identify the pool of items that have good face and content validity. As mentioned previously, a literature review supported the generation of a pool of items that provided definition and content of the OIC construct. The second step is to evaluate the appropriateness of items and possibly expand the domain of OIC using a pool of experts. The experts can be scholars, researchers, and practitioners familiar with the target construct (Hinkin, 1995; Netemeyer et al., 2003). However, no adequate consensus was

reached in literature on the issue of how to use experts to determine how items should be retained, dropped or added (Hardesty and Bearden, 2004).

The most common approach for item generation and validation after specifying the domain of a construct is the approach of giving a list of items to experts and asking them to assign items to construct dimensions of a category based on an agreed definition. Then, items are retained depending on a cut-off that is determined based on the extent of agreement among experts for item retention (Hardesty and Bearden, 2004). However, this research follows an exploratory approach, where experts were asked specific open-ended questions that allowed for generating the items that comprise the OIC construct. Semi-structured open-ended questions in the interview format allowed for more detailed discovery of potential items to include in OIC scale. Richins and Dawson (1992) suggest that interviews could be used in an exploratory manner in scale development. Data were analyzed in an exploratory approach and results were mapped to the items generated through literature review. The following sections describe the interviewing process in terms of selecting interviewees, interview aids and data analysis.

### **3.4.3 Selecting Interviewees**

There are various approaches to selecting interviewees such as snowballing, convenience and purposeful sampling. A purposeful sampling approach is used when the

**Table 5: Items Comprising the Preliminary Domain of OIC Scale**

Capability	Measurement Source
<p><b><i>Foreign Market Knowledge (FMK)</i></b></p> <p><b><i>Foreign institutional knowledge</i></b></p> <ul style="list-style-type: none"> <li>• Knowledge about foreign norms.</li> <li>• Knowledge about foreign business laws and regulations.</li> <li>• Knowledge about host government agencies.</li> </ul> <p><b><i>Foreign Business Knowledge</i></b></p> <ul style="list-style-type: none"> <li>• Knowledge about foreign competitors.</li> <li>• Knowledge about the needs of foreign clients/customers.</li> <li>• Knowledge about foreign distribution channels.</li> <li>• Knowledge about effective marketing in foreign markets.</li> </ul> <p><b><i>Internationalization Knowledge</i></b></p> <ul style="list-style-type: none"> <li>• International business experience.</li> <li>• Ability in determining foreign business opportunities.</li> <li>• Capability for managing international operations</li> </ul>	<p>Scale, based on Zhou, 2007 (<math>\alpha = 0.947</math>)</p>
<p><b><i>Technological Capability(TC)</i></b></p> <p><b><i>Process and Production Engineering</i></b></p> <ul style="list-style-type: none"> <li>• Process technological advancement</li> <li>• Process External accreditation</li> <li>• Introducing modification to production or operation processes</li> </ul> <p><b><i>Product Development</i></b></p> <ul style="list-style-type: none"> <li>• Improving/ adapt existing products</li> <li>• Product quality</li> <li>• External product accreditation</li> <li>• Introducing new products</li> <li>• Managing the design of development of new products</li> </ul> <p><b><i>Employees' Technical Knowledge</i></b></p> <ul style="list-style-type: none"> <li>• Ability to deal with technical challenges in-house</li> <li>• Ability to operate advanced machinery and equipment in-house</li> <li>• Initiatives to improve product and production efficiency</li> <li>• Managing the design and development of new products</li> </ul>	<p>Adapted from Gary and Cavusgil, 2004; Lall, 1992; Romijn,1997</p>

**Table 5: Items Comprising the Preliminary Domain of OIC Scale, cont.,**

Capability	Measurement Source
<p><i>Networking Capability(NC)</i></p> <p><b><i>International Communication Capabilities:</i></b></p> <ul style="list-style-type: none"> <li>• Ability to use the internet to identify potential suppliers and/partners</li> <li>• Ability to use email to communicate with cross border suppliers/partners</li> <li>• Ability to write and internet correspondence in foreign languages</li> </ul> <p><b><i>Business Relational Ties</i></b></p> <ul style="list-style-type: none"> <li>• Number of the international contacts</li> <li>• Number of distinct countries in which a firm has contacts,</li> <li>• Average frequency of interaction with foreign contacts</li> </ul>	<p>Based on Batjargal, 2003; Koka and Prescott, 2002; Levin and Cross, 2004; Zhang et al., 2009</p>

researcher actively selects the most productive sample to answer the research question (Perry, 1998). This sampling approach is particularly useful when the available literature suggests a particular population that is knowledgeable about the issues being investigated. Managers and founders of sample firms were the target interviewees of this study. They are expected to be knowledgeable about both antecedents, and outcomes of inward and outward international operations, as well as the firm's strategy. They are also best placed to clarify the nature and importance of internal capabilities that underlie their export activities. A random sample of interviewees including managers of manufacturing SMEs and agents in the Egyptian technology and innovation centres was selected.

Interview results provided valuable support for the development of OIC scale. Voluntary participants were requested to participate in a 60 minute-long interview, where they were guaranteed confidentiality and anonymity (Participants recruitment material,

Appendix 1). Participants were not compensated although a summary of findings will be shared with them. The interview guide employed was open-ended and designed to encourage discussion on key issues before the large scale sample survey is used. A convenience sample of 15 industry experts and firms' managers were interviewed to confirm and expand the domain of OIC. Interviewees represent a wide range of manufacturing sectors, as well as industry experts with work experience covering the manufacturing sector in general.

#### **3.4.4 Interview Structure**

In depth interviews range between highly structured to open-ended (Thomas, et al., 2005). In a structured interview, the interviewer asks all the respondents the same questions with a limited set of response categories. Such types of interviews are a type of quantitative research. An unstructured interview is a spontaneous conversation that has no predetermined questions. Accordingly, many studies employ a combination of these two types resulting in a semi-structured interview. The semi-structured interview is the most common form of interviewing, and will be used in this study. The interviewer prepares the set of questions before the interview, but he/she intends the interview to be conversational. The interviewer can change the order of the questions, wording, and ask for further explanations. In semi-structured interviews, the interviewer usually uses open-ended questions to generate information. Semi-structured interviews are appropriate when the interviewer have a framework that he/she aims to explore; and thus, new questions and clarifications can develop during the course of the interview.



These interviews validated the OIC scale items that were generated from extant literature. A consistent set of questions was asked to each participant and comments were documented using audio recordings or via hand-written notes. Interviews were conducted and recorded in the Arabic language. The interviews were both in person and over the phone and averaged between 45 and 90 minutes in length. Interviews resulted in 40 pages of single-spaced interview transcripts. Interviewees were asked three main open-ended questions:

1. How was your first export initiated? And what factors do you think enabled it?
2. How do such factors differ now?
3. What capabilities do you think your company needed to build in order to enhance its export performance?

### **3.4.5 Interviewees Recruitment Process**

Founders and managers were contacted by phone, and requested to participate in the interviewing process and to allow time for a 60-minute interview. An e-mail containing a full description of the study, consent form, and UW's office of research ethics approval was then sent to them (Interviews recruitment material and are presented in Appendix 1). A follow-up phone call, if required after sending the email, reminded them to respond to the email and check if they were interested in participating.

### **3.4.6 Interview Aids**

Scholars suggest that tape recording interviews is essential in interviewing as they capture what was said and how it was said (e.g., Patton, 2002). Note taking is suggested to distract the interviewer as well as contribute loss of data. Patton (2002) suggests that a tape recorder is an indispensable aid as it allows the interviewer to focus on the interview instead of taking notes. The major drawback of tape recording is equipment malfunctioning and the notion that interviewees might feel uncomfortable that they are being recorded. However, Thomas et al. (2005) suggest that, unless issues being investigated are highly sensitive, respondents usually feel comfortable after a short while. Thus, this research primarily aimed at tape recording the interviews. Nevertheless, if it turned out that tape recording made interviewees hesitant to participate, a note-taking technique was adopted. Note taking is still appropriate since a clear conceptual framework of the research is developed prior to interviews and the questions are semi-structured.

### **3.4.7 Interview Data Analysis**

The lists of items to be pre-tested for the OIC during the second phase of research were generated based on extant literature. However, the analysis of the exploratory in-depth interviews conducted during this stage of the research led to the incorporation of an inductive approach to item generation as well. Content analysis was applied to the analysis of interview transcripts. This type of analysis refers to establishing the existence as well as the frequency of occurrence of a certain construct or category. Content analysis is an

objective, systematic, and quantitative description of the manifest content of communication (Berelson, 1952, p.18). *Objective* refers to using precise definitions of the categories identified in the analysis. *Systematic* refers to maintaining the same procedure of categorization throughout the analysis. *Quantitative* refers to recording the frequencies with which different categories emerge.

Manual content analysis was applied in this research. Manual analysis was appropriate since the number of questions were limited to three semi-structured questions aiming particularly at eliciting OIC items in order to confirm the literature review findings. Overall, the interview findings provided support for the items proposed and suggested, in extant literature to comprise the OIC construct. In general, the factors identified fell into categories of capabilities that are line with those identified earlier in the literature review. This might be due to the solid theoretical foundation of the factors used to develop the scale, and the focused limited number of questions asked in the interviewees. Findings also suggest strong support for the previous theoretical proposition that OIC is a single latent construct with multiple dimensions.

Each interview was recorded and transcribed to enable detailed content analysis. The transcriptions were analyzed manually by categorizing them according to emerging themes. The coded groups were then analyzed multiple times with the goal of revising, refining and confirming the existing categories and looking for possible new ones. Each interview transcript was carefully analyzed and responses were coded and grouped by construct. A

primary focus of the managers' interviews was to uncover additional variables that may influence export performance beyond the factors already identified in reviewed literature. The results of this analysis provided valuable insight into the accuracy and completeness of the proposed scale items.

Most interviewees felt comfortable sharing their experiences. In fact many of the firm's owners or managers were proud to share memories of their first export sales and how it was initiated. The atmosphere of the interviews was open and friendly. Using manual content analysis five main themes were extracted. (Sample coding of transcripts is shown in Appendix 2). Table 6 presents these themes and the frequency of their occurrence as well as incidence of occurrence (in response to which question). The table additionally, shows the frequency of occurrence of each theme as a percentage of total mentions/occurrences. Following is a discussion of the extracted themes:

***Technological Capability:*** Each of the top managers interviewed repeatedly referred to the technological capability as the key factors influencing the extent to which they are engaged in export activities. This theme has many definitions which were presented earlier, however in the context of the interview analysis, it refers to skills and information required to operate/modify imported technology as well as the learning ability make effective use of technological knowledge in terms of upgrading existing products as well as developing new ones.

**Table 6: Summary of Results of the Interviews**

Theme	Sub-Theme	Item	Frequency of Occurrence	Question No.
<b>Technological Capability (28% of total occurrences)</b>	Product	Products quality	11	1
			3	2
			9	3
		Product price	2	2
			4	3
		Egyptian products (in particular sectors, such as textiles, canned fruits) are globally known for their excellent quality)	4	1
		Products are externally accredited	6	1
			4	2
			7	3
		Introduction of new products to the local and regional market	6	1
	2		3	
	Improve existing products	5		
	Process	Employing leading edge technology	8	1
			2	2
			6	3
		Make in-house modifications to imported technologies	8	2
			2	3
		Process is operated by in-house employees	3	3
		Process externally accredited	5	1
			2	2
4			3	

**Table 6: Summary of Results of the Interviews, cont.,**

<b>Theme</b>	<b>Sub-Theme</b>	<b>Item</b>	<b>Frequency of Occurrence</b>	<b>Question No.</b>
	Employees	Employees technical competency	6	2
			7	3
		Employees introduce new product/service or packaging ideas	4	1
			6	2
			8	3
<b>Foreign Market Knowledge (20% of total occurrences)</b>		Good knowledge about foreign trade practices such as customs, shipping, payments	13	2
			10	3
		Good knowledge about competition in foreign markets (through consultant, supplier, internet, trade magazines, trade fair, etc.,)	8	1
			7	2
			7	3
		Follow-up of foreign market needs	8	1
			6	3
		Good knowledge about distribution channels in foreign makers (through consultant, supplier, internet, trade magazines, trade fair, etc.,)	7	1
			3	2
			10	3
International business experience	9	1		
	8	2		
<b>Networking capability (27% of total occurrences)</b>	Business Relational Ties	Established relationships with foreign partners	11	1
			7	2
			8	3
		Marinating relationships with foreign partners	10	1
			6	2
			3	3
		Ability to create and expand network of potential partners in foreign countries	7	1
			5	2
			7	3

**Table 6: Summary of Results of the Interviews, cont.,**

<b>Theme</b>	<b>Sub-Theme</b>	<b>Item</b>	<b>Frequency of Occurrence</b>	<b>Question No.</b>	
		Regular communication with foreign potential partners through frequent visits	4	1	
			8	2	
			7	3	
	International Communication	Identification of possible partners/clients through the internet	9	1	
			8	2	
			6	3	
		Ability to communicate and interpret documents in English	8	1	
				8	2
		Regular communication with foreign potential partners through emails	5	3	
	<b>IEO (14 % of total occurrences)</b>		Vision extends beyond Egyptian market	9	1
Risk-taking			11	1	
			7	2	
			9	3	
Top management encourage and push for new products services, and designs			7	1	
			12	2	
				2	3
Proactiveness in initiating and export sales			5	1	
			4	2	
<b>Country related enablers (10% of total occurrences)</b>				Location in free zones	5
	1	2			
	Export tax exemptions	3		1	
		4		2	
		10		3	
	Tax breaks on production inputs	2		1	
		3		2	
		11		3	
		Transportation and shipping cost		8	3

When pressed for specific types technological competence, all of the types referred to in interviews could generally be classified into process, product and employees' related capabilities. Examples of the technological capability they described included process efficiency, up to date production lines (process), product meeting international export standards, innovative product design, packaging, and competitive product cost.

Three sub-themes were generated under this theme, namely product, process and employees. Product subtheme aggregated coded text that referred to a product technological competency/sophistication/quality/innovativeness and cost. Product aggregated coded theme related to production technology. Employees subtheme aggregated coded text that referred to technological and innovation capacity/skill related to employees' performance in terms of product or process interventions and improvements. This theme had the highest frequency of occurrence as a percentage of total occurrences among the five generated themes.

***Foreign market knowledge:*** Foreign market knowledge (FMK) was also repeatedly mentioned as an export enabling capability, but more as the capability that was built overtime, where its highest occurrences (in response to Questions 2 and 3). Foreign market knowledge items were very much in line with previously validated scales measuring FMK.

***Networking capability:*** Networking capability was also one of major categories repeatedly mentioned as an export enabling capability. Sub-categories are very much in line with those suggested by the literature review, where foreign communication capability and



business relational ties were the two subcategories identified. This capability was perceived as an important initiator of an export activity, but again as a capability that was built further over time once the company was engaged in export activities.

***International Entrepreneurial Orientation:*** A fourth category was identified in addition to the three categories proposed based on the literature review. This category is adhered to IEO, where interviewees repeatedly referred to proactive, extended market vision, risk taking and pushing for innovativeness as export enabling capabilities. Interviews results suggest IEO as an additional export enabling capability that could be added to the OIC dimensions. However, this research views IEO as a higher order dynamic capability that affects the creation of lower order OICs through integrating, reconfiguring resources. It is hypothesized, based on the literature review, that IEO has a positive impact on TC, NC and FMK. Thus, it was decided not to add IEO to the scale items, but rather keep it as an independent variable that is hypothesized to have an impact on the scale items.

***Country-specific:*** A final theme emerged during the analysis of interviews, which relates to country-specific export enablers such as tax and customs breaks and exemptions, as well as transportation costs. However, these were dropped from inclusion in further analysis. This is due to the fact that OIC scale developed in this research is firm-specific, where the firm is the unit of analysis.

It was decided that since the three main factors extracted through interviews match those identified in literature review to use the previously validated scales which measure those factors with minor adjustment of wording, based on the interviews as well as the pre-testing of the survey tool, as the preliminary domain of OIC scale. Appendix 3 shows modifications made to the items and wording of some items. Such an approach ensured content validity of the scale items, and eliminated the need for a large scale pre-test. Major changes that took place were related to networking capability, measures pertaining to business relational ties. Those were changed to subjective measures, whereas those suggested in previously validated measures were observed values. This alteration was necessary due to the fact that almost all interviewees found it hard to specify exact figures, such as "number of contacts in different countries" or "frequency of interaction with contacts".

### **3.4.8 Assessment of Content Validity of OIC**

A measurement instrument has content validity if its items represent the domain of the concept it is intended to measure. Comprehensive analysis of extant literature could ensure content validity is achieved. However, extra measures are usually adopted in scale development practices. This research attempted to regenerate the items of the OIC through interviews in order to ensure that adequate dimensions were selected as well as guaranteeing a comprehensive coverage of possible dimensions.

The set of items derived from the literature review and modified based on interview results, together with a definition of the OIC construct were sent back to a pool of ten industry experts for assessment of face/content validity. However, how to use experts to determine whether an item should be retained has received inadequate consensus in the literature (Hardesty and Bearden, 2004). Therefore, a simple method was adopted to assess the inter-rater agreement on content validity quantitatively. Experts were asked to assign the items to one of the OIC dimensions according to the definitions provided or denote the item as "No Fit (NF)". The percentage of experts assigning the item to the desired category was calculated. Researchers such as Hardesty and Bearden (2004) have proposed a cut-off ranging from 60% to 75% as a minimum extent of consensus among experts for item retention.

Content validity is supported by the fact that all measures, except OIC are well established scales. As mentioned earlier, the set of items derived from literature review and modified based on interview results, together with a definition of the OIC construct were sent to a pool of ten industry experts for assessment of content validity. Experts were asked to assign the each item to one of the OIC dimensions according to the definitions provided, or denote the item as a "No Fit (NF)" item. All items scored between 80 and 100% assignment to the right category except for FM9 "*Ability in determining foreign business opportunities*" which scored only 65% assignment to foreign market knowledge, where some experts assigned it to networking capability. Thus, it was decided retain all items given that percentage of experts assigning the item to the desired category was above

the cut-off range of 60-75 % (Hardesty and Bearden, 2004). Table 7 presents the results of experts' assessment, and OIC scale items as proposed in the survey.

### **3.5 Survey Instrument Development**

In order to test the model in this research, a survey was developed to collect data for key variables, namely IEO, OIC, IFT and Export performance. The design of the survey should for format issues including the use of negative wordings, number of items per measure, order of items and the selection of Likert scale (Hinkin, 1995). The survey items used were largely based on validated measures found in the literature and were adapted when necessary. Afterwards, the translation and backward translation of survey to the appropriate language for target respondents was conducted (Brislin, 1980).

The survey was translated to Arabic and respondents were sent Arabic as well as an English version of the survey. This ensured the questions were well understood by respondents. A professional translator carried out a blind back-translation in order to ensure accuracy.

**Table 7: Experts' Assignment of Items to OIC Factors**

Item	Item code	% Correct Assignment
Knowledge about foreign business laws and regulations	FM1	100
Knowledge about foreign business practices/ traditions (such as terms of payment, shipping, etc.)	FM2	100
Knowledge about host government agencies	FM3	100
Knowledge about foreign competitors	FM4	100
Knowledge about the needs of foreign clients/customers	FM5	100
Knowledge about foreign distribution channels.	FM6	100
Knowledge about effective marketing in foreign markets	FM7	100
International business experience	FM8	80
Ability in determining foreign business opportunities	FM9	65
Capability for managing international operations (such shipping, customs, money transfer)	FM10	80
Our production process is fully operated by in house employees	TC1	90
Our products are at the leading quality of our industry in Egypt	TC2	90
Our products are at the leading quality of our industry worldwide	TC3	90
We made in-house modifications to the production equipment/process	TC4	80
Compared with our competitors, we're often the first to introduce new products/ designs or services to the market	TC5	90
We introduced new or significantly improved logistics, delivery or distribution method	TC6	80
We introduced new or significantly improved methods of manufacturing or new operating approaches	TC7	90
Our firm is highly regarded for its technical expertise in the local market	TC8	100
Our employees regularly propose new products/services/product designs	TC9	90
Our employees regularly come up with ideas to improve the quality of existing products	TC10	90
We are able to solve most of our technical problems in-house	TC11	100
Our employees are capable of managing the design and development of new products	TC12	90
We employ the cutting edge production technology that exists in our sector in Egypt	TC13	100
We employ the cutting edge production technology that exists in our sector worldwide	TC14	100
When confronted with decisions regarding purchasing a new production equipment/technology, we can typically make the	TC15	80

**Table 7: Experts' Assignment of Items to OIC Factors, Cont.,**

<b>Item</b>	<b>Item code</b>	<b>% Correct Assignment</b>
decision without resorting to external technical assistant		
Our process or products received external international accreditation	TC16	90
We are recognized in the market for products that are technologically superior	TC17	100
we use the internet in order to identify potential foreign suppliers	NC1	80
We use emails in our communications	NC2	80
We can easily communicate in foreign languages	NC3	80
We continuously identify potential partners (suppliers, clients, distributors) in foreign countries	NC4	90
We have multiple business contacts in multiple foreign countries	NC5	100
We actively use our existing contacts to expand our business networks	NC6	90
After attending a trade fair or a business association meeting overseas, we establish individual contacts with potential foreign partners we met during such events	NC7	100
After attending a trade fair or a business association meeting overseas, we maintain relationships (e.g. invite them to events in Egypt or go to visit them) or contacts with potential foreign partners we met during such events	NC8	100

To provide additional assurance of the reliability and validity of the measures, a pilot study was conducted before the survey was administered to the larger sample of top managers. Upon the completion of survey design and its translation, pre-test was undertaken by 10 randomly-chosen firms' managers for adjusting the wordings and structure and gauging the actual understanding of respondents of the measurement items. Pilot respondents were asked to provide feedback based on their experience and to offer suggestions for improvement. In general, the feedback indicated that the top managers found the survey instructions and items straightforward and unambiguous. None of the participants had participated in the interviews. This is to ensure that their extent of understanding of the

questionnaire items and their suggestions for modification is not affected by their participation in the exploratory interviews.

Overall, the results of the pilot study confirmed that the survey instrument was ready to be administered to the larger sample of top managers. Minor changes were made to the wording of the Arabic version to ensure the meaning in English is not altered. The final survey is presented in Appendix 4. The survey collected baseline data about the firm as well as data regarding the key variables the model. It also collected some additional data for future research.

### **3.6 Data Collection**

This research targeted founders or managing directors of firms as primary informants for both the qualitative phase as well as the quantitative phase. The use of a single respondent approach is appropriate as long as they are knowledgeable about organizational issues that are being researched and are in a position to reflect other decision makers' perceptions (Philips, 1981).

Prior to contacting respondents, UW Office of Research Ethics' approval was sought. Target respondents were high-level managers who have been directly involved in import and export activities. Therefore, their answers pertaining to variables in this study would be very reliable. Contact information of manufacturing SMEs were obtained from the Industry

Development Authority database (IDA). The database was bought on a CD through IDA itself. The database could be searched both geographically and by sector. The research focused on firms in the Greater Cairo Area industrial zones. There are approximately 6,000 privately owned manufacturing SMEs in that region.

Low response rates are because either surveys fail to reach the target population (e.g., wrong address) or people are reluctant to respond (Baruch, 1999). Obtaining agreement to participate in advance -particularly when targeting executives- might enhance response rates (Cycyota and Harrison, 2006). Two research assistants were hired to assist the principal researcher in contacting these firms by telephone to get the contacts of the manager/ director, export manager or another senior manager in the company in order to get his initial consent to participate before sending him/her the survey.

The assistants and the principal researcher employed a telephone script in order to introduce the research, its objectives and get initial consent to participate. During this call, the researcher presented a brief description of the research and respondents were ensured that their data will be confidential. Respondents were asked to participate in the study and offered to be sent a summary of the research findings once the research is completed.

Prior research in emerging economies suggests that the use of mail survey research methods is difficult due to the absence of reliable postal systems (Li and Atuahene-Gima, 2001). However, the initial phone call confirmed the mailing address of the firm.



Participants were given the choice between participating electronically (email) or through a hardcopy format (mail or fax). If they chose to participate through mail or fax, they were sent the Arabic hardcopy of survey, a letter summarizing the objectives of the research and ensuring the researcher's commitment to data confidentiality, personnel contacts of the researcher (email and phone numbers) in case they had questions or needed clarifications, and a stamped-self-addressed envelope to be used for mailing the completed questionnaire. Those who chose to respond via email were asked for their email address, and they were sent an email that had the same information sent with the hardcopies, however with the additional attachment of an electronically fillable Portable Document Format version of the survey.

The original plan was to use SurveyMonkey, online survey software. However, given that this approach required informing participants that their information might be accessed by the US based server, the researcher requested UW Office of Research Ethics to allow for this option to be modified to so that participants could complete an electronically fillable version of the survey instead. This modification was necessary due to the fact that data were being collected just four months after a revolution took place in Egypt, where skepticism was very high regarding any data collection activities, particularly when the researcher was not affiliated with any Egyptian entity.

More than 1,500 firms were contacted by phone between May and July 2011. In many cases, the phone number listed in the database was invalid; the researcher was not able to get past the person responding to the phone call. In several cases, the manager was too

busy to take the call or the manager's assistant would ask the researcher to send the information to her/him, prior to contacting the manager. In total, 658 consents to participate were achieved by the telephone calls. Only ten respondents asked to receive the survey by fax, 180 asked to receive it by regular mail and 478 asked to receive it by email. After two weeks, non-respondents were contacted two to three times, one week apart, to remind them to participate. In many cases, late respondents mentioned that they did not receive the email; the survey was too long, they were skeptical about the nature of the research given that the researcher is not affiliated with an Egyptian entity, or were concerned that their anonymity would not be preserved. An email or letter was sent to all managers who completed the survey thanking them for their participation.

Only thirty surveys were received as the first wave of responses. In total, ninety-four surveys were returned of which four were unusable due to completely missing data. In the four cases of completely missing data, respondents were contacted in order to complete the missing data, but all of them were not willing to reveal the data, which they regarded as confidential. Additionally, they did not perceive the responses as anonymous given that their identity is revealed to the researcher. In total, seventy surveys (15% response rate of emailed surveys) were received by email and eighteen (10% response rate of mailed surveys) by mail and two by fax (20%), which is an overall response rate of 15%. This response was only achieved because of establishing phone contact and getting prior consent to participate. This rate is relatively low, but consistent arising the problem of low response rate (Cobanoglu et al., 2001).

Ninety surveys were not enough to fulfil the study objectives. In order to get more responses, it was not possible to contact more participants due to the outdated information in the database. Two options were considered, 1) to extend the geographic scope of recruiting respondents beyond greater Cairo area, and 2) to move to another mode of data collection which is door-door surveys. Given that the time and effort invested in contacting respondents by telephone in the in the first round of surveys outweighed the outcomes, it was decided to proceed with the second option. The second option was also thought to ensure the quality of surveys in terms of minimizing the incidents of missing data specially those of key variables.

One more research assistant was hired, where the principal researcher and the research assistants conducted door-to-door surveys in the three main industrial zones in greater Cairo area. The response rate highly increased where the snowballing technique was used. Once the researchers managed to get one firm to participate, it was easy to develop a certain level of confidence and interest in the study, that the manger or owner would refer the researchers to a neighbouring facility. A total of 124 surveys were completed through door-to-door surveys between August and September 2011.

In cases where a reasonable a response rate and randomly distributed non-respondents are anticipated, simple random sampling would be appropriate. However, as this situation is rare, stratified sampling is common to ensure representation by criteria of significance (typically demographic variables such as industry, age, location and/or size of

firm). With stratified sampling, the researcher could randomly sample within sub-populations defined by the criteria to ensure overall representation in the sample. The sampling process in this research began as simple random sample, but then evolved into stratified and snowball sampling. These are non-random sampling methods, but given the circumstances under which the data were collected as well as the contextual factors in Egypt, this approach was the only adequate option in order to ensure data collection. From among the 28, 000 manufacturing SMEs, this research focused on only 6000 firms located in greater Cairo area. This was necessary given many limitations including cost of mailing the surveys, cost of transportation to conduct door to door surveys as well as road safety issues associated with travelling to other governorates.

Focusing on greater Cairo area also ensured additional harmonisation of external environment factor, such as proximity to harbours, ICT infrastructure, labour cost, and location in industrial zones. Those 6000 firms were all exporting firms of the same size in the manufacturing sector. It was attempted to contact all 6000 firms to get consent to participate, but reliability of the contact information in the database did not allow for accomplishing this task, where only 1500 owner/manager were contacted . Additionally, in many cases the researchers were not successful in getting beyond the “gate keeper”. That is the person answering the phone and who would not transfer the call to the concerned person either due to lack of interest or scepticism. This behaviour could also be interpreted by the fact that survey data collection is not common or familiar to the Egyptian firms as opposed to firms in other countries. Very few researchers attempted to approach the companies in

Egypt for quantitative data collection. This has resulted in absence or very limited published research addressing manufacturing SMEs in Egypt.

Secondary data about the sectors distribution of manufacturing SMEs firms in Egypt was used to compare the demographic characteristics of the responding firms with the target population. The relative percentages (Table 8) of firms in various sectors did not show any significant differences between the distribution of firms in the target population and the sample in this research confirming its representativeness of the target population.

### **3.7 Reliability and Validity Issues**

Several measures were taken to ensure the reliability and validity of the data used in the study. First, measures of key variables used in this research are based on those used and validated in prior research (when existent). This approach is possible in measuring IEO, and export performance. Measures for the degree of inward flow of technology are borrowed from measures of "inward internationalization" where the degree of inward flow of technology is suggested to be a form of inward internationalization. As for international OIC, this study developed a scale where the domain of the scale is primarily built on previously validated measures, namely technological capability, foreign market knowledge, and networking capability.

### **3.8 Statistical Data Analysis**

The objective of the study is to (1) examine the reliability and validity of the OIC scale, and (2) examine the impact of inward flow of technology and IEO on export performance, where the relationships are suggested to be mediated by OIC. These objectives were fulfilled through statistical analysis of data collected through the process described in the above section. Data were first screened for accuracy and completeness, where problems such as missing data, incomplete surveys and invalid surveys were addressed.

Next, to ensure that measures in this study have the requisite psychometric properties, several tests were conducted to assess the validity and reliability of multi-item key measures. The discriminant and convergent validity of multi-item measures were assessed. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted in order to identify items with common variance (Rossiter, 2002). In general, EFA should precede CFA because it is important to have an idea about the expected relationships prior to conducting CFA. EFA examines the underlying dimensionality of items in; and thus, allows for grouping large item set into meaningful subsets that measure different factors (Worthington and Whittaker, 2006). CFA evaluates or confirms the extent to which the measurement model is replicated in the sample data. Therefore, it used as a final confirmation of the validity of constructs (Bagozzi et al., 1991). EFA of the OIC scale was carried out by splitting the sample randomly into two datasets. One dataset is utilized for an EFA and the second dataset is used for a CFA to validate the findings from the EFA

Structural equation modelling (SEM) is a powerful technique that is well suited for the testing of causal models such as the one hypothesized in this study. SEM can validate measurement scales, test hypothesized relationships in a model and propose new relationships between constructs based on modifications of indexes (Cheng, 2001). It can also correct for measurement errors and be used to modify scales for better psychometric properties (Chau, 1997). Thus, it was applied to validate the OIC measurement scale. Chronbach's Alpha is used to establish the internal consistency between the items of OIC scale (Cortina, 1993). Churchill (1979) emphasizes that all items belonging to a concept should be highly inter-correlated. Therefore, items that do not have a high item-to-total correlation should be dropped from the scale. Finally, the scale length was optimized (assess the trade-off between length and reliability). Generally, when a scale contains more than the desired number of items, the researcher has the option of deleting items that: a) have the lowest factor loadings, b) have the highest cross-loadings, c) contribute the least to the internal consistency of the scale scores, and d) have low conceptual consistency with other items on the factor (Worthington and Whittaker, 2006, p.824)

The predictive validity of OIC scale was evaluated through assessing the impact of the scale measures on export performance. Next, the research tested the relationships between IEO, inflows of technology and export performance. Finally, the research investigated the mediating effect of OIC on the relationships between inflows of technology and IEO and export performance. SEM using Amos software was used to test hypotheses as well as propose potential relationships in a model and at the same time fit the data (Cheng,

2001). SEM is additionally, powerful in terms of examining a series of dependence relationships among several variables and latent constructs including mediating effects.

### **3.9 Sample Description and Descriptive Statistics**

Data screening and analysis was conducted in order to ensure that the sample met the selection criteria, where three main criteria were examined. A total of 214 usable surveys were collected, where the first 90 surveys were collected by mail (email and regular mail), and the remaining 124 were collected through the door-to-door approach. First, all companies in the sample belong to the manufacturing sector, where the sample covered all identified sectors (Table 8). Second, all companies except for five companies, employed fewer than 100 employees verifying that they are classified as SMEs. Third, the elapsed time between inception and first export sales was less than ten years except for eighteen companies, which were not disregarded due to the small sample size.

Two companies reported a year of first export sales prior to the year of inception, so this variable was not accounted for in these two cases, and finally ten companies were not able to specify the exact year of first export. These were contacted in order to complete this missing variable, and eight of them confirmed that it was sometime within ten years of inception, but they could not specify the exact year.



Finally, to ensure the accuracy of data, the dataset was screened through an examination of descriptive statistics. Mean, standard deviation, skewness and kurtosis were calculated for items of IEO, OIC, IFT and Export performance. Based on the values of Skewness and Kurtosis, examination of the data revealed a generally normal appearing distribution. Also, the representativeness of the sample in this research was confirmed, where the relative percentages of firms in various sectors showed no significant differences between the distribution of firms in the target population and the sample in this research (Kolmogorov-Smirnov TEST).

**Table 8: Distribution of Sectors in the Sample**

Sector	Frequency in Sample	% In Sample	% of Sector in Target Population
Food	41	19.2	21.6
Textiles and clothing	30	14.0	21.43
Furniture	16	7.5	9.28
Chemicals and Pharmaceuticals	36	16.8	18.12
Engineering Industries	53	24.8	20.63
Electronics	8	3.7	1.43
Other	30	14.0	7.50
Total	214	100.0	100.0

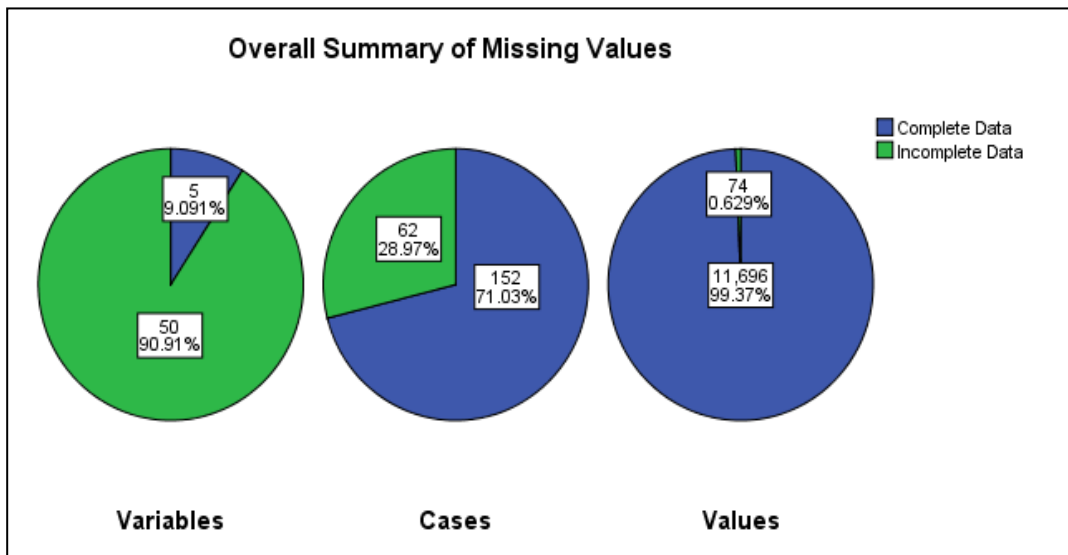
### **3.10 Missing Data**

Missing data are a common problem in this kind of research. Four responses were completely unusable due to incomplete data, so they were disregarded from the analysis. Fourteen surveys had few missing values (between 5 and 15 %) pertaining to measuring the

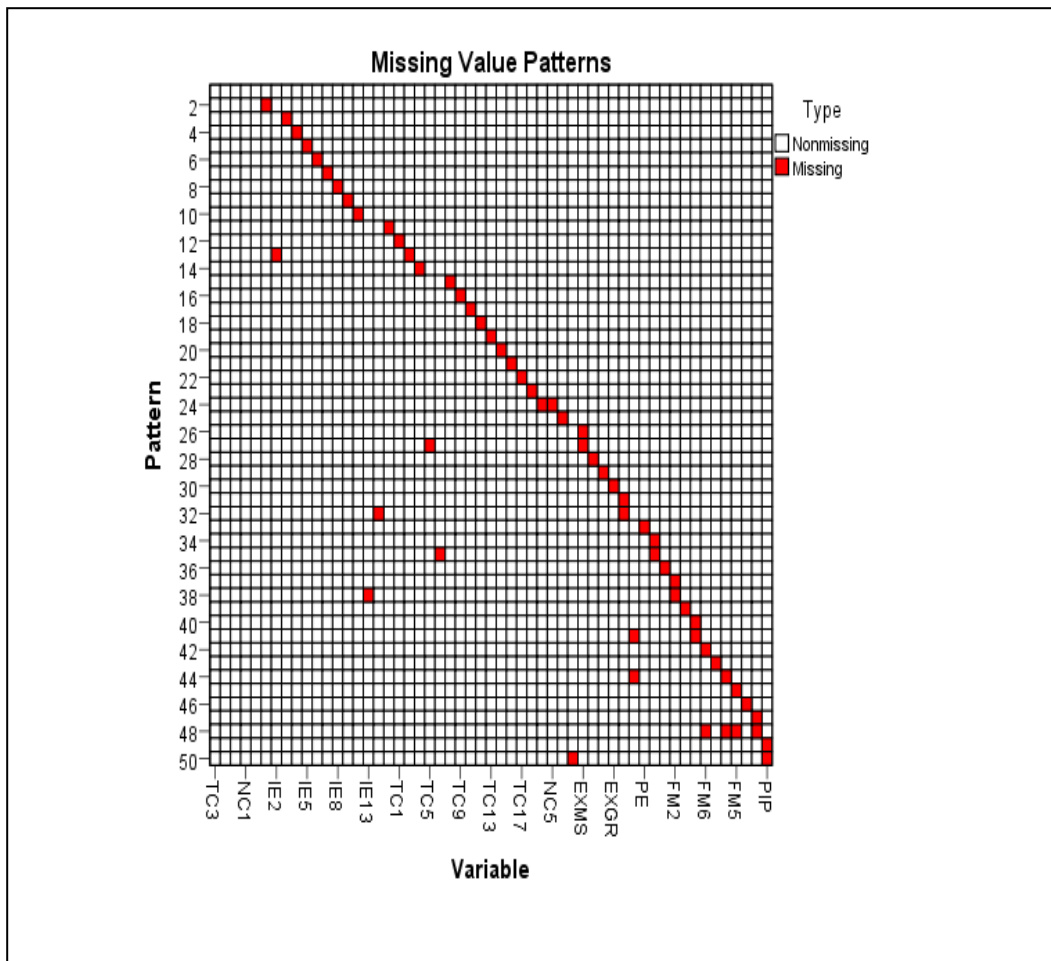
four main variables (OIC, IEO, IFT and EXPORT). These fourteen surveys were among the surveys received by email, so the respondents were contacted by telephone or by email to complete the missing. After completion of the missing data, only 5% of the data were missing in the responses received by mail. The data that was collected through door-to door surveys had less than 1% missing values. Rates of less than 1 % missing data are generally considered trivial, 1-5% manageable. However, 5-15% requires sophisticated methods to handle, and more than 15% can severely impact interpretation (Little and Rubin, 1987).

All cases having more than 14 variables with missing values were deleted, a threshold of 25% of the total 55 variables as suggested by Hair et al. (2010). Figure 4 illustrates a summary of the missing data, while Figure 5 illustrates the missing value patterns. In spite of the very small percentage of missing data in the sample, data imputation was applied to all missing variables for the 152 cases using the Expectation Maximization (EM) imputation method, which maintains best representation of the original distribution of values with the least bias and prevents the loss of valuable data (e.g. Hair et al., 2010).

To impute missing data correctly, it is important to assess if the data are "missing completely at random" (MCAR) or "missing at random" (MAR). MCAR is a requisite for consistent and unbiased imputed data.



**Figure 4: Summary of Missing Data**



**Figure 5: Missing Value Patterns**

Little's MCAR test was applied to the 214 cases, with a level of no more than 25% of missing values. The result showed that the data have a p-value of 0.876  $df = 2634$  and Chi-square = 2550.279, indicating no statistically significant difference between the observed missing data pattern in the reduced sample and a random pattern. The data were missing completely at random; therefore, it is safe to either delete cases or singly impute missing values.

### **3.11 Comparisons of Different Demographics in the Sample**

The representativeness of the sample to its target population was assessed by examining the responding and non-responding firms in terms of their size (number of employees), age and export performance. T-tests examining potential differences between "early" and "late" respondents (respondent after reminder) were carried out. Late respondents are representatives of non-respondents given that they would not have responded in case the second reminder had not taken place (Armstrong and Overton, 1987).

Typically, values of some variables of all potential participants (e.g. size, age) can be compared to the values that prevail in the subgroup of those who answered. If there is no significant difference, this is an indicator that there might be no non-response bias. In order to evaluate possible non-response bias, a wave analysis was performed (Rogelberg and Stanton, 2007) comparing early responders to late responders. For the mail respondents, the first 30 questionnaires, which were returned before follow-up calls, and the last 30

questionnaires returned before the due date were compared. Those were compared with respect to, size, and export performance.

Second, simple telephone interviews with 15 randomly selected non-respondents to examine why they chose not to participate in the survey (non-response follow-up) were conducted. Non-response reasons ranged between "have no time", "could not fill out the fillable file", "not willing to participate unless the researcher is affiliated to an Egyptian entity", "some of requested data are not readily available" and "not interested in the survey". No other specific reasons that might explain the difference between respondents and non-respondents were identified.

An additional analysis was conducted to examine the differences between mail respondents and door-to-door respondents. Using the snowballing techniques in door-to door surveys might have had an impact on the sample, where managers might have referred the researchers to firms that have certain characteristics based on their assessment of the survey questions. Avoiding such issues was clearly communicated to the managers that referred the researchers to potential participants. Generally, managers referred the researchers to neighbouring facilities that they had connections with, rather than any other criteria.

With regards to export performance, T test values revealed no significant difference between the first wave and final wave of email respondents (Appendix 5). The test additionally suggests no differences between email respondents and door-to-door respondents with regards to this variable. With regards to firms size, Chi-Square was used to

examine differences in the first wave and final wave of mail respondents, as well as differences between mail respondents and door-to-door respondents with regards to number of employees and sector of respondent companies. This test is appropriate when examining differences in multiple categorical variables between two populations. Again, the test revealed no significant differences (Appendix 5).

## **4.0 Analysis**

This section presents the findings of both the statistical analysis of the OIC scale as well as the assessment of the structural model. The chapter starts with the EFA and CFA of the OIC scale. Assessment of validity and reliability of constructs is also presented in this chapter. The chapter then presents assessments of both the measurement and structural models and ends with a discussion of the hypotheses including testing for the mediation effect.

### **4.1 Exploratory Factor Analysis of OIC Scale**

Dimensionality of factors of OIC construct was assessed first by using exploratory factor analysis, and later by using confirmatory factor analysis. As mentioned earlier, the purpose of factor analysis is closely related to the development of new scale since it helps researchers to "understand the latent factors or constructs that account for the shared variance among items" (Worthington and Whittaker, 2006, p.818). Exploratory factor analysis (EFA) is a technique for data exploration that determines the structure of factors to be analyzed. EFA of the OIC scale was carried out by splitting the sample randomly into two sets of 107 samples. One dataset is utilized for an Exploratory Factor Analysis (EFA) to establish a parsimonious set of factors. The second dataset is used for a Confirmatory Factor Analysis (CFA) to validate the findings from the EFA.

Using SPSS software, Exploratory Factor Analysis reduced the OIC construct into a clearer factor structure (Hair et al., 1998) and identified items with common variance (Rossiter, 2002). There are two general criteria in terms of determining the minimum sample size in factor analysis. One recommendation suggests that the absolute number of cases is important, while another suggest that the subject-to-variable ratio is important. There is little consensus in the literature about the accepted values of these criteria. The sample size is suggested to range between a minimum of 100 and a maximum of 500 (MacCallum. et al., 1999). Additionally, a ratio between 2:1 and 20:1 of subject to variable ratio is suggested to be acceptable. Arrindell and van der Ende (1985) suggest that a subject to variable ratio required to produce clear, recognizable factor solution was 1.3 given that the corresponding sample size is 100 subjects, which is the case in this study. The sample size of 107 was sufficient to pursue Exploratory Factor Analysis as it exceeds the 100 observations recommended by Hair et al. (1998), and has more than three times as many cases/subjects as the 35 items analyzed in the measure of OIC. Additionally, the inter-item correlation values were not too high. These findings indicated that further exploration with the factor analysis was acceptable.

Finally, prior to conducting EFA, the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett test of sphericity were performed. For the factor analysis of OIC related items, the Kaiser-Meyer-Olkin measure value fell in the acceptable range (above 0.50) with a value of 0.936. The observed significance level of Bartlett's test result was



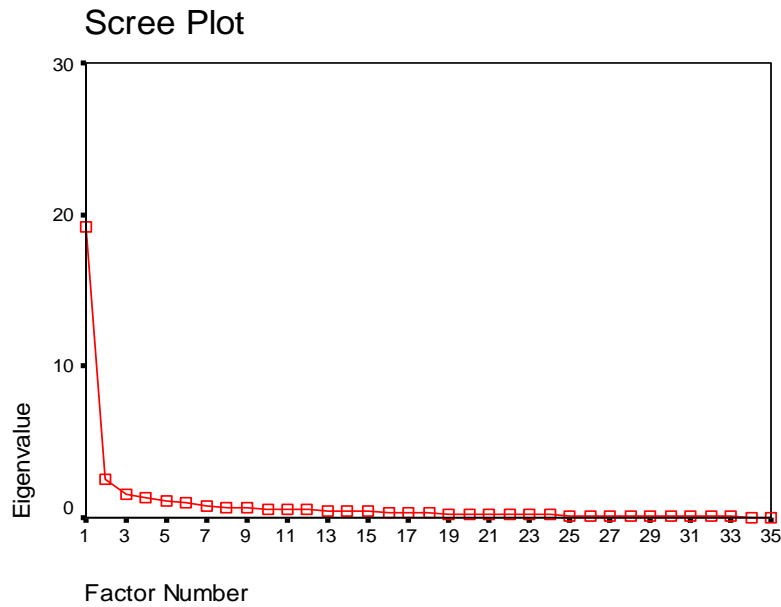
0.000. Following Bearden et al. (2001) suggestion, the statistical criterion that were taken into consideration for item retention in this stage was corrected item-to-total correlations above 0.35.

Based on the above criteria, all of the 35 items were retained for EFA together using the common factor analysis followed by oblique rotation method. A multidimensional construct with inter-correlated factors is typically extracted using Principal Axis Factoring and an oblique rotation. Common factor analysis is preferable to principal components since it utilizes only the shared variance amongst the items. Each indicator is typically linked to only one factor, since cross-loadings suggest poorer construct validity according to (Costello and Osborne, 2005). The idea of rotation is to redefine the factor loadings to obtain simple structure, where each factor should have indicators with strong loadings and each indicator should load strongly on only one factor. Oblique rotation is used when factors are assumed to be or known to be correlated (Gorsuch, 1983; Thompson, 2004). For the OIC scale, the underlying factors are expected to be correlated to some extent, and hence, oblique rotation is preferred. Worthington and Whittaker (2006) further suggest that even if a theoretical understanding might indicate an uncorrelated factor set, data might exhibit correlation, suggesting the use of oblique rotation.

Five factors were extracted (Appendix 6). After extraction, a decision had to be made with regards to how many factors to retain for rotation. There are a number of techniques

used to determine which factors to retain: Kaiser's criterion, scree test, and parallel analysis. Retaining all factors with Eigen values greater than 1.0 (known as K1 method) is thought to be one of the least accurate methods for selecting the number of factors to retain (Velicer and Jackson, 1990). In addition to the interpretability of the factor solution, two techniques were used to determine the number of factors to rotate: parallel analysis and scree test. Scree test, is acknowledged as a reliable and easy to use method. The test involves examining the graph of the Eigen values and looking for the break point in the data where the curve flattens out. The number of data points above the "break" is usually the number of factors to retain (Costello and Osborne, 2005). Although the scree test may work well with strong factors, it suffers from subjectivity and ambiguity, especially when there are no clear breaks or more than one apparent break. Definite breaks are less likely with smaller sample sizes (Cliff and Hamburger, 1967).

The resulting scree plot indicates that the first factor captures by far the most variance, and the next three factors contribute much less to the variance. In general, all items loaded on the factors on which they were theorized to load on. The first factor captures the items of FMK and is the only factor that has an Eigen value above 1.



**Figure 6: Scree Plot of OIC /Promax EFA Factors**

The second factor captures technological capabilities of employees or soft technological capability (TCS), the third captures the process technological capability or hard technological capability (TCH), whereas, items pertaining to networking capability (NC) loaded on the fourth factor. Thus, combining interpretability of the factor solution and the scree plot analysis suggests retaining four factors for rotation.

Another technique that is widely used to determine the number of factors to be retained for rotation is parallel analysis (PA). PA involves comparing the size of the eigenvalues with those obtained from a randomly generated data set of the same size. Only those factors with eigenvalues that exceed the corresponding values from the random data

set are retained. PA is one of the, most accurate methods for determining the number of factors to retain, however, it is not widely used. Hayton et al. (2004) suggest that this might be due to the fact that researchers are unfamiliar with PA or perceive it as difficult to implement (Hayton et al., 2004). They also suggest that majority of studies in organizational research use some combination of the K1 rule, the scree test, and prior theory to determine the number of factors to retain. Parallel analysis of OIC suggests retaining five factors. However, factor five was dropped after examining its theoretical interpretability as well as items' loadings of the rotated solution.

Factor loadings of 0.50 or less require a sample size of 120 for significance, hence measurement items which loaded between less than 0.50 were dropped (Hair et al., 2006.). Items that have factor loading of greater than 0.32 on more than one factor -crossloading- were also dropped (Costello and Osborne, 2005). This supports the decision to drop factor 5, where it had only two items after applying item retention criteria in addition to lacking theoretical interpretability. Thus, eleven items from the original thirty five scale items were dropped resulting in a 24-items scale loading on four factors.

As the OIC scale is multidimensional, Cronbach's Alpha was assessed for each dimension (Hair et al., 1998). The corresponding Cronbach's Alpha of these factors are all at an acceptable level of ranging between 0.89 and 0.96, whereas Cronbach's Alpha of the OIC scale is 0.95 indicating high reliability. Table 9 shows the detailed grouping of the items,

corresponding loadings on OIC scale, Cronbach's Alpha of each factor, percentage variance explained by each factors.

### **Factor1: Foreign Market Knowledge (FMK)**

Nine items load on this factor. They correlate strongly, and they have a Cronbach's Alpha of 0.969. This 9-item factor explains 54.95% of the variance, and is the strongest of the three factors in terms of contribution to the formation of the of OIC scale. These items have a common conceptual thread among them, which relates to foreign market knowledge. This finding is expected since these items are originally drawn from a previously validated scale that measures FMK capability along three dimensions. However, one item of the original scale was dropped in the EFA, and all nine items loaded on one factor rather than three as suggested by extant literature.

### **Factor2: Hard Technological Capability (TCH)**

Six items are included in this factor. They correlate strongly, and they have a Cronbach's Alpha of 0.915. This 6-item factor explains 7.15 % of the variance. These items have a common conceptual thread among them, which relates to the firm's product and process competency.

**Table 9: Final Scale Items**

Item	Item Loadings/ Factor				Crorbach Alpha of factors
	F 1	2	F3	F4	
Knowledge about foreign distribution channels	.994				0.969
Knowledge about host government agencies	.945				
Knowledge about effective marketing in foreign markets	.901				
International business experience	.892				
Knowledge about foreign competitors	.805				
Ability in determining foreign business opportunities.	.773				
Knowledge about foreign business laws and regulations	.765				
Knowledge about foreign business practices/ traditions (such as terms of payment, shipping, etc.)	.765				
Knowledge about the needs of foreign clients/customers.	.741				
Our products are at the leading quality of our industry in Egypt		.781			0.915
Our products are at the leading quality of our industry worldwide		.753			
Our production process is fully operated by in house employees		.702			
Compared with our competitors, we're often the first to introduce new products/ designs or services to the market		.566			
Our process or products received external international accreditation		.561			
We are recognized in the market for products that are technologically superior		.527			
We are able to solve most of our technical problems in-house			.787		0.897
Our employees regularly come up with ideas to improve the quality of existing products			.751		
Our employees regularly propose new products/services/product designs			.715		
Our employees are capable of managing the design and development of new products			.707		
Our firm is highly regarded for its technical expertise in the local market			.554		
After attending a trade fair or a business association meeting overseas, we establish individual contacts with potential foreign partners we met during such events				.768	0.903
After attending a trade fair or a business association meeting overseas, we maintain relationships (e.g. invite them to events in Egypt or go to visit them) and contacts with potential foreign partners we met during such events				.734	

**Table 9: Final Scale Items, Cont.,**

Item	Item Loadings/ Factor				Cronbach Alpha of factors
	F 1	2	F3	F4	
We have multiple business contacts in multiple foreign countries				.639	
We continuously identify potential partners (suppliers, clients, distributors) in foreign countries				.567	

**Factor3: Soft Technological Capability (TCS)**

Five items are included in this factor. They correlate strongly, and they have a Cronbach's Alpha of 0.987. This 5-item factor explains 4.27 % of the variance. These items have a common conceptual thread among them, which relates to employees technical and innovation capability.

**Factor 4: Networking Capability (NC)**

Four items are included in this factor. They correlate strongly, and they have a Cronbach's Alpha of 0.903. This 4-item factor explains 3.77 % of the variance. These items have a common conceptual thread among them, which relates networking capability.

Thus, as opposed to the three proposed OIC factors, the EFA identified five factors of which one was dropped based on statistical elimination measures as well as theoretical interpretability. The four remaining factors overlapped with the factors proposed through literature review and exploratory study, where both suggested a three factors scale including Technological capability, Foreign market knowledge and Networking capability. The

technological capability factor was split into two factors, one pertains to employees technological and innovation competency, and the second pertains to the firm's process product competency. This is consistent with the interviews' findings, except that both product and process capabilities loaded one rather than two factors. Additionally, foreign market knowledge was the factor capturing by far the highest variance.

Further, the correlation between the four resulting factors was examined, where Table 10 shows the results of the assessment showing significant correlation between the three factors. Extremely high correlations among two factors suggest that these two factors may be combined into a single factor, which is not the case in this research. In fact, inter-factor correlations and item-to-total correlations confirm that OIC factors correlate on one measure suggesting good convergent validity of OIC construct.

**Table 10: Factor Correlation Matrix**

<b>Correlations</b>				
	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1	.739**	.629**	.774**
Factor 2	.739**	1	.727**	.662**
Factor 3	.629**	.727**	1	.589**
Factor 4	.774**	.662**	.589**	1



## **4.2 Reliability and Validity Tests**

The proposed structural model encompasses three latent constructs, which are examined for reliability and validity. As Hinkin (1995) noted, reliability is a pre-condition for validity. For reliability, the internal consistency of these constructs was established through its Cronbach's alpha. Cronbach's alpha measures the degree in which the responses are consistent across items within a single measure. A guideline of what is acceptable is: reliability coefficients around .90 are "excellent", values around .80 are "very good", and values around .70 are "adequate" (Kline, 2005). Reliability of each scale was estimated by calculating Cronbach's alpha value and composite reliability value. The Cronbach's alpha values for all scales ranged from 0.72 to 0.95. Cronbach's alpha of the OIC scale is shown to be 0.9532, which shows high reliability. Composite reliabilities for each of these constructs ranged from 0.76 and 0.87. These values also indicated the reliability of the constructs.

## **4.3 Assessment of the Measurement Model**

All of the scales, with the exception of OIC, were adapted from prior studies. Therefore a confirmatory rather than exploratory approach is appropriate when determining validity and reliability. Confirmatory factor analysis (CFA) is used to study the relationships between observed values and latent constructs and comprises the measurement model portion of a structural equation model (Bollen, 2002). CFA additionally, examine the

**Table 11: Summary of Latent Constructs in the Model**

Construct	Code	Item
<b>International Entrepreneurial Orientation (IEO)</b> Cronbach's alpha 0.95		
Proactiveness (PRO)	IE1	Top management tends to see the world instead of just Egypt as our firm's marketplace
	IE2	The prevailing organizational culture at our firm (management's collective value system) is conducive to active exploration of new business opportunities abroad.
	IE3	Management continuously communicates its mission to succeed in international markets to employees
	IE4	Management develops human and other resources for achieving our goals in international markets.
	IE5	Our top management is experienced in international business
Risk Taking (RT)	IE6	Our top managers have a proclivity for high-risk projects (with chances for high returns).
	IE7	When confronted with international decision-making situations, we typically adopt a cautious, 'wait-and-see' posture in order to minimize the chance of making costly mistakes.
	IE8	Management communicates information throughout the firm with respect to our successful and unsuccessful customer experiences abroad.
	IE9	Management believes that, owing to the nature of the international business environment, it is best to explore it gradually by conservative, incremental steps.
Innovation (INNOV)	IE10	Top management is willing to go to great lengths to make our products succeed in foreign markets.
	IE11	Vision and drive of top management are important in our decision to enter foreign markets
	IE12	Our top management always encourages new product ideas for international markets
	IE13	Our top management is very receptive to innovative ways of exploiting international market opportunities.
<b>Outward Internationalization Capability</b> Cronbach's alpha 0.95		
Foreign Market Knowledge (FMK)	FM1	Knowledge about foreign business laws and regulations
	FM2	Knowledge about foreign business practices/ traditions (such as terms of payment, shipping, etc.)
	FM3	Knowledge about host government agencies.
	FM4	Knowledge about foreign competitors
	FM5	Knowledge about the needs of foreign clients/customers.
	FM6	Knowledge about foreign distribution channels.

**Table 11: Summary of Latent Constructs in the Model, cont.,**

<b>Construct</b>	<b>Code</b>	<b>Item</b>
	FM7	Knowledge about effective marketing in foreign markets
	FM8	International business experience
	FM9	Ability in determining foreign business opportunities.
Hard Technological Capability (TCH)	TC1	Our production process is fully operated by in house employees
	TC2	Our products are at the leading quality of our industry in Egypt
	TC3	Our products are at the leading quality of our industry worldwide
	TC5	Compared with our competitors, we're often the first to introduce new products/ designs or services to the market
	TC16	Our process or products received external international accreditation
	TC17	We are recognized in the market for products that are technologically superior
Soft Technological Capability (TCS)	TC8	Our firm is highly regarded for its technical expertise in the local market
	TC9	Our employees regularly propose new products/services/product designs
	TC10	Our employees regularly come up with ideas to improve the quality of existing products
	TC11	We are able to solve most of our technical problems in-house
	TC12	Our employees are capable of managing the design and development of new products
Networking Capability	NC4	We continuously identify potential partners (suppliers, clients, distributors) in foreign countries
	NC5	We have multiple business contacts in multiple foreign countries
	NC7	After attending a trade fair or a business association meeting overseas, we establish individual contacts with potential foreign partners we met during such events
	NC8	After attending a trade fair or a business association meeting overseas, we maintain relationships (e.g. invite them to events in Egypt or go to visit them) contacts with potential foreign partners we met during such events
Export Performance (EXPORT)	Cronbach's alpha 0.94	
	EXMS	Exports performance regarding market share in foreign markets
	EXSG	Contribution to your sales growth
	EXPR	Contribution to your profitability
	EXGR	Contribution to your company's growth

stability of the theorized factor structure, to provide information for measure refinement (Hinkin, 1995) and to establish the uni-dimensionality of the construct (Hair et al., 1998).

Confirmatory factor analysis was conducted in order to further evaluate the items and their structure. The confirmatory factor analysis was done using AMOS software. Four constructs comprise the final model in this study and include IEO, OIC, IFT and EXPORT. First, the measurement model for constructs in the structural model was examined. For approximate fit indexes, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed fit index (NFI), Relative Fit Index (RFI), Incremental Fit Index (IFI), Tucker-Lewis fit index (TFI) and Comparative Fit Index (CFI) of above 0.9 would indicate model fit. More specifically, for Chi-square/df, a value close to 1 is ideal; however values below 5 are considered acceptable (Bollen 1989). For RMSEA (Root Mean Square Error Approximation), its value should be less than 0.05 although less than 0.1 is suggested to indicate good fit. (Browne and Cudeck, 1993; Hair et al., 2006), for NFI, RFI, IFI, TLI and CFI, their values range between 0 and 1, where values above 0.9 typically correspond to good fit (Byrne 1998).

It is recommended to use multiple and different fit indices where at least three indexes should be used to assess the model fit (Jaccard and Wan, 1996). It is suggested to involve at least one absolute fit index and one incremental fit index in addition to ratio of chi-square to degrees of freedom (normed chi-square) to define the fit of the model. In this

research, RMSEA was used as the absolute fit index as it is one of the most informative criteria as to an absolute fit (Byrne 1998), CFI (Comparative Fit Index) was used as the incremental fit index as it has the ability to adjust for model complexity, in addition to NFI and RFI.

#### **4.3.1 Confirmatory Factor Analysis of OIC Construct**

Given that it is a newly developed scale it is suggested to compare competing theoretically plausible models and evaluate which model best fits the data (Worthington, 2006). As mentioned earlier, the sample was randomly split and half of it was used in EFA, and the other half was used in CFA of OIC. Confirmatory Factor Analysis was used to confirm the three-factor solution identified in the exploratory phase. The hypothesized model should fit the data better than alternative model in order to confirm the measurement model. To analyse OIC model fit using CFA, the expected three-dimensional model was compared to a single-factor model. Table 12 shows the detailed of comparison (one-factor model versus four-factor model).

Confirmatory analyses for both the models were performed using AMOS. Comparing indices in Table 12, it is clear that the data better fits the four-factor model. A chi-square difference test, with  $\chi^2$  diff = 437.827 and df diff = 6, reveals a significant difference where the four-factor model fits the data better. Values of this ratio for the one-

**Table 12: Model Fit of OIC (One-Factor Model versus Four-Factor Model)**

	Stats	One-Factor Model	Four-Factor Model	Diff.
	Chi-square	1062.773	624.946	437.827
	Probability level	0.000	0.000	0
<b>Model Fit Summary (CMIN)</b>	NPAR	48	54	6
	CMIN	1062.773	624.946	437.827
	DF	252	246	6
	CMIN/DF	4.217	2.540	1.677
<b>Baseline Comparisons</b>	NFI	0.57	0.747	0.177
	RFI	0.529	0.716	0.187
	IFI	0.635	0.83	0.195
	TLI	0.596	0.806	0.21
	CFI	0.631	0.827	0.196
<b>RMSEA</b>	RMSEA	.174	0.121	-0.053
	PCLOSE	0.000	0.000	-

factor model and three-factor model are found to be 4.217 and 2.54, respectively. The RFI values for one-factor model and three-factor model are 0.529 and 0.716, and they change in favour of the four-factor model. Values of IFI (0.635 and 0.83) as well as TLI (0.596 and 0.806) for one-factor and four-factor models are found to be in favour of the four-factor model.

The CFA model should be purified by dropping items with low factor loadings, where Hair et al. (1998) considered loadings above .6 to be "high" and loadings below 0.4 "low". All of the path coefficients were statistically significant, and all items loaded well above 0.4, where standardized 0 loading factor estimates signify that the indicator variables are significant and representative of their latent variable (Appendix 7).

### **4.3.2 Confirmatory Factor Analysis of IEO**

IEO measure is adopted from existing literature; however CFA ensures that the existing measure is appropriate for this study. For confirmatory analysis, two separate IEO models were also examined, one with a single factor and the other with three factors (Table 13). A chi-square difference test, with  $\chi^2$  diff = 111.83 and df diff = 3, reveals that the three-factor model fits the data better. Further, Chi-Square/Degrees of freedom ( $\chi^2 / df$ ) Values of this ratio for the one-factor model and three-factor model are found to be 4.54 and 2.95, respectively. Relative fit index (RFI) for one-factor model and three-factor model are 0.86 and 0.91, IFI for one-factor and three-factor models are 0.90 and 0.95, Tucker-Lewis (TLI) coefficient TLI for one-factor and three-factor models were found to be 0.88 and 0.93, respectively. Such indices suggest a better fit for the three-factor model. All the path coefficients were statistically significant, and all items loaded well above 0.4 (Appendix 7)

### **4.3.3 Overall Measurement Model Fit**

The next step was to examine the overall measurement model. The measurement model of SEM is the CFA and depicts the pattern of observed variables for those latent constructs in the hypothesized model.

**Table 13: Model Fit of IEO (One- Factor model versus Three-Factor model)**

	<b>Stats</b>	<b>One-Factor Model</b>	<b>Three-Factor Model</b>	<b>Diff.</b>
	Chi-square	295.01	183.18	111.83
	Probability level	0.000	0.000	-
<b>Model Fit Summary (CMIN)</b>	NPAR	65	62	3
	CMIN	295.01	183.18	111.83
	CMIN/DF	4.54	2.95	1.59
<b>Baseline Comparisons</b>	NFI	0.88	0.92	0.04
	RFI	0.86	0.91	0.05
	IFI	0.90	0.95	0.05
	TLI	0.88	0.93	0.05
	CFI	0.90	0.95	0.05
<b>RMSEA</b>	RMSEA	0.129	0.09	0.039
	PCLOSE	0.000	0.000	-

The measurement model is used to examine the extent of interrelationships and covariation among the latent constructs. As part of the process, factor loadings, and modification indexes are estimated in order to derive the best indicators of latent variables prior to testing a structural model.

First, the measurement model showed an excellent fit to the data with CMIN/DF of 2.542, CFI of .980, NFI of .968, RFI of .957, IFI of .981, TLI of 0.974 and RMSEA of 0.085. Second, all factor loadings of the measurement model were examined. They all were above 0.4 and statistically significant ( $p < 0.05$ ), which represents an acceptable convergent validity, where convergent validity is further tested in the next section (Table 14). This evidence supports content validity for constructs since multiple items can address multiple dimensions of each construct. OIC explains a large amount of the variation in its four factors; FMK ( $r^2 = 0.73$ ), TCH ( $r^2 = 0.85$ ) and TCS ( $r^2 = 0.73$ ), NC ( $r^2 = 0.81$ ). Additionally,



IEO again explains a large amount of the variation in its three factors, PRO ( $r^2 = 0.98$ ), RT ( $r^2 = 1.00$ ), an INNOV ( $r^2 = 0.90$ ). Finally, the covariance matrix indicates moderate correlation between latent constructs in the measurement model.

**Table 14: Standardized Measurement Model Output**

		<b>Construct</b>	<b>Estimate</b>
Risk-Taking (RT)	<---	IEO	.999
Proactivness (PRO)	<---	IEO	.991
Innovation (INNOV)	<---	IEO	.948
Hard technological capability (TCH)	<---	OIC	.922
Soft technological capability (TCS)	<---	OIC	.853
Foreign market knowledge (FMK)	<---	OIC	.852
Networking capability (NC)	<---	OIC	.898
Market Share (EXMS)	<---	EXPORT	.864
Sales Growth (EXSG)	<---	EXPORT	.930
Profitability (EXPR)	<---	EXPORT	.907
Company Growth (EXGR)	<---	EXPORT	.905

#### 4.4 Constructs Reliability and Validity

After conducting confirmatory factor analysis for all constructs, reliability of each construct was estimated one more time by calculating Cronbach's alpha value. The Cronbach's alpha value for each scale were all above 0.9 (Table16), the sufficient reliability level for used scales (Hair et al., 2006).

Convergent validity refers to a level of coherency across the items within each construct. It is a measure of the extent to which indicators of the same construct are related (Hair et al., 2006). In order for factors to be considered as having convergent validity and reliability, both of Cronbach's alpha or construct (composite) reliability scores have to be 0.7

or greater. Fornell and Larcker (1981) further provide guidelines by specifying an AVE value of greater than 0.5 in order for the measurement error associated with the construct to be outweighed by the variance extracted through its indicators. Finally, convergent validity should be reflected from the high significant factor loadings of measures to the same construct when using CFA with 0.5 as the threshold; however 0.4 is acceptable (Devellis, 2003). CR and AVE values of all scales are above 0.7 indicating convergent validity (Table 15). The table shows Cronbach's alpha composite reliability, and average variance extracted of outward internationalization capability, export performance and international entrepreneurial orientation scales.

**Table 15: Constructs Reliability and Validity**

<b>Construct</b>	<b>Factor Loading</b>	<b>Order of the Construct and Alpha of Components, if 2nd Order</b>	<b>Cronbach's Alpha of The construct</b>	<b>AVE</b>	<b>Composite Reliability</b>
<b>IEO</b>		<b>2nd Order</b>	0.9565	0.959	0.98
RT	.999	0.8322			
PRO	.991	0.94			
INNOV	.948	0.91			
<b>OIC</b>		<b>2nd Order</b>	0.97	0.77	0.965
TCS	.853	0.897			
FMK	.852	0.969			
TCH	.942	0.915			
NC	.898	0.903			
<b>EXPORT</b>		<b>1st Order</b>	0.945	0.81	0.94
EXMS	.864				
EXSG	.930				
EXPR	.907				
EXGR	.905				

Based on the final model, Composite Reliability (CR) and Average Variance Extracted (AVE) were calculated manually by computing formulas given by Fornell and Larckers (1981). The CR and AVE values of more than 0.6 and 0.5 respectively indicating good construct reliability and adequate convergent validity.

#### 4.5 Discriminant Validity

The extent to which a concept differs from other concepts is a discriminant validity issue. In other words, discriminant validity refers to the extent to which the measures of different constructs are discrete. Testing for discriminant validity was done by comparing the square root AVE for any two constructs with the correlations estimates between these two constructs (Table 16). The former should be greater than the latter to provide good evidence of discriminant validity (Hair et al., 2006).

**Table 16: Discriminant Validity of Constructs**

	<b>IEO</b>	<b>OIC</b>	<b>EXPORT</b>
<b>IEO</b>	<b>0.98</b>		
<b>OIC</b>	0.772	<b>0.88</b>	
<b>EXPORT</b>	0.685	0.732	<b>0.902</b>

Furthermore, in order for the items and the constructs to be internally reliable and to have discriminant validity, construct-level and item-level cross-loadings for each item

should load more highly on its assigned construct than on the other constructs. Table 17 show the results, which are satisfactory.

**Table 17: Indicators Cross Loadings**

	<b>EXPORT</b>	<b>OIC</b>	<b>IEO</b>
EXGR	0.191	0.007	0
EXPR	0.2	0.007	0
EXSG	0.262	0.009	0
EXMS	0.142	0.005	0
NC	0.024	0.235	0.001
TCS	0.017	0.16	0.001
FMK	0.012	0.113	0
TCH	0.033	0.312	0.001
INNOV	0.001	0.001	0.017
RT	0.081	0.101	1.566
PRO	0.005	0.007	0.102

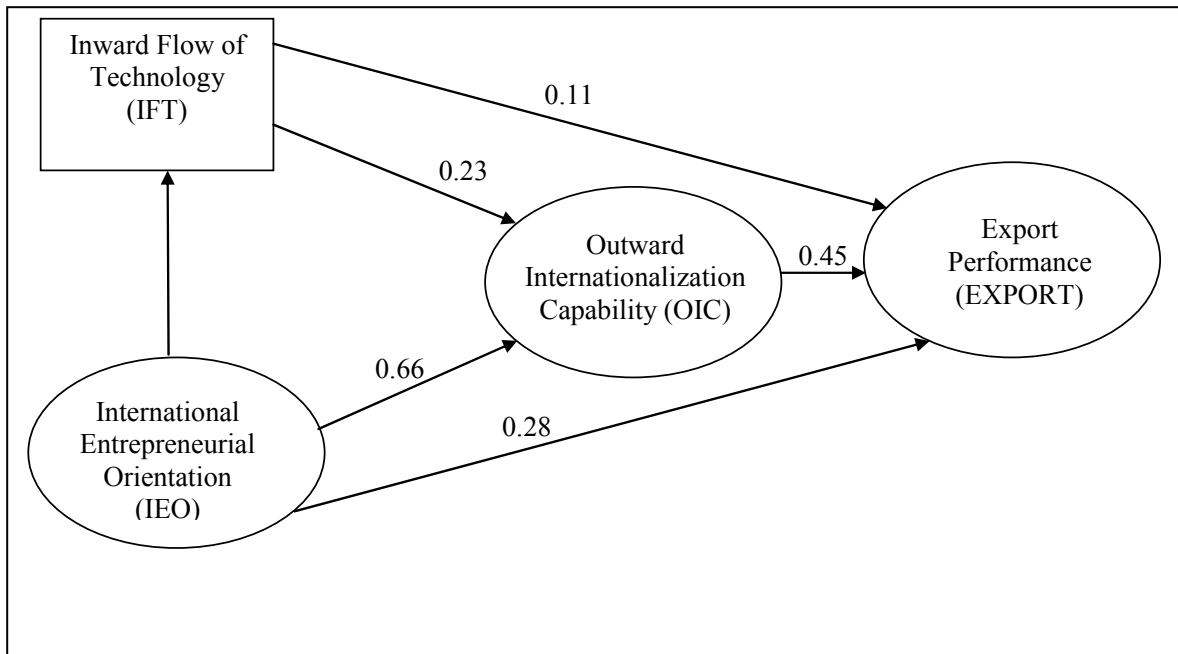
#### **4.6 Criterion validity of OIC scale**

Criterion validity refers to whether the measure behaves as expected (Churchill, 1979). It is related to the extent to which a measuring instrument is related to an independent measure of the relevant criterion. In this study, criterion-related validity is a measure of how well OIC scale representing the various export enabling capabilities is related to measures of export performance. Testing criterion validity of OIC showed that OIC was predictive of export performance (significant standardized regression weight of 0.73) and 54% of the variance in export is explained by OIC.

## **4.7 Structural Equation Model (SEM) Analysis**

Following the assessment and confirmation of the reliability and validity of the measurement model, the structural model is assessed. This analysis was done using a series of competing nested models, followed by separate tests of the mediating relationship. The path coefficients in the full model were examined in order to validate the hypotheses. Three nested models were examined; the first model (Model One) presents the direct effect of OIC on export performance in presence of two independent variables, IEO and IFT. The second model introduces the direct effect of IEO and IFT on export performance to the structural model (Model Two). The third model is the full model proposed in this study (Figure 7). The chi-square difference test was examined to determine if the suggested nested models displayed an improvement in fit. For each index, quality of fit is given for the model being tested, for the saturated model (the just-identified model) and the independence model/null model (all correlations among variables are zero).

In other words, a comparative interpretation is carried out in order to evaluate the default's model fit compared to those two extremes. It is well understood that the model fit statistics provided are not absolute measures of fit, but can be used to compare fit between nested models only. The results of these tests determined that each successive alternate model was an improvement in fit over the model to which it was being compared as shown in Tables 19 and 20.



**Figure 7: Structural Model**

All fit indices are good for Model One and Model Two as shown in Table 18. A chi-square difference test is significant, with  $\chi^2$  diff = 15.96 and df diff = 2, ( $\chi^2 = 5.99$  at 0.05 level) which suggests that Model Two fits the data better.

A third model (full model) is compared to Model Two in order to check the significance of difference in fit. All fit indices are good for Model Two and Model Three as shown in Table 19. A chi-square difference test, with  $\chi^2$  diff = 59.023 and df diff = 1, ( $\chi^2 = 3.84$  at 0.05 level) is significant which reveals that the Model Three fits the data better.

**Table 18: Model Fit Comparison (Model One and Model Two)**

	<b>Stats</b>	<b>Model One</b>	<b>Model Two</b>	<b>Diff.</b>
<b>Notes for model</b>	Degrees of freedom	52	50	2
	Chi-square	187.666	171.704	15.962
	Probability level	0.00	0.00	-
<b>Model Fit Summary</b>	CMIN	187.666	171.704	15.962
	CMIN/DF	3.609	3.434	0.175
<b>Baseline Comparisons</b>	NFI (Delta1)	0.944	0.949	0.005
	RFI (rho1)	0.93	0.933	0.003
	IFI (Delta2)	0.959	0.963	0.004
	TLI (rho2)	0.948	0.952	0.004
	CFI	0.959	0.963	0.004
<b>RMSEA</b>	RMSEA	.111	0.107	0.004
	PCLOSE	.000	0.000	-

**Table 19: Model Fit Comparison (Model Two and Model Three)**

	<b>Stats</b>	<b>Model Two</b>	<b>Model Three</b>	<b>Diff</b>
<b>Notes for model</b>	Degrees of freedom	50	49	1
	Chi-square	171.704	112.681	59.023
	Probability level	0.00	0.00	0
<b>Model Fit Summary</b>	CMIN	171.704	112.681	59.023
	CMIN/DF	3.434	2.3	1.134
<b>Baseline Comparisons</b>	NFI (Delta1)	0.949	0.967	0.018
	RFI (rho1)	0.933	0.955	0.022
	IFI (Delta2)	0.963	0.981	0.018
	TLI (rho2)	0.952	0.974	0.022
	CFI	0.963	0.981	0.018
<b>RMSEA</b>	RMSEA	0.107	0.078	0.009
	PCLOSE	0.000	0.009	-

Path coefficients in the structural model were significant except for the effect of inflow of technology on export (Table 20).

**Table 20: Structural Model Output (unstandardized)**

			Estimate	S.E.	C.R.	P
Inflow of Technology (IFT)	<---	IEO	.581	.071	8.226	***
Outward Internationalization Capability (OIC)	<---	IEO	.479	.040	12.069	***
Outward Internationalization Capability (OIC)	<---	IFT	.144	.032	4.478	***
EXPORT	<---	OIC	.835	.164	5.078	***
EXPORT	<---	IFT	.130	.067	1.939	.052
EXPORT	<---	IEO	.377	.108	3.501	***
Risk-taking (RT)	<---	IEO	.560	.006	97.626	***
Innovation (INNOV)	<---	IEO	.964	.024	40.334	***
Proactiveness (PRO)	<---	IEO	1.000			
Hard Technological Capability(TCH)	<---	OIC	1.000			
Hard Technological Capability (TCS)	<---	OIC	.919	.049	18.701	***
Foreign Market Knowledge (FMK)	<---	OIC	1.303	.069	18.782	***
Networking Capability (NC)	<---	OIC	.973	.046	21.122	***
Market Share (EXMS)	<---	EXPORT	1.000			
Sales Growth (EXSG)	<---	EXPORT	1.177	.059	19.830	***
Profitability (EXPR)	<---	EXPORT	1.112	.059	18.853	***
Company Growth (EXGR)	<---	EXPORT	1.144	.061	18.743	***

The explanatory power (R-square) of equations in the structural model are very satisfactory for explaining OIC (0.63) and for explaining export performance (0.59), but less satisfactory in terms of explaining IFT (0.24). Also, indicators loaded well on their relevant factors (Appendix 7 shows standardized regression weights).

#### 4.8 Control Variable

Control variables for obvious endogenous effects were included in the SEM model in order to examine the existence of sub-industry effects (e.g., chemicals versus textiles



manufacturing). These might affect export performance given variation in local and foreign market conditions as well as possible technological intensiveness, and thus, a series of binary variables representing the sub-industries were included as control variables in the model. The model including the sub-sector control variables showed a good fit to the data with CMIN/DF of 2.064, CFI of .981, NFI of .964, RFI of .953, IFI of .981, TLI of 0.975 and RMSEA of .071.

Adding the control variables did not change the significance of relationships in the structural model. The relationship between IFT and Export performance remained to be the only insignificant relationship in the model. The standardized regression weights in the structural model (Table 29) did not show any significant changes. The regression coefficients for sector variables are insignificant, indicating that sectoral variations do not affect export performance of the sample firms.

## **4.9 Hypotheses Testing**

The structural model has been suggested to have a good fit as presented in the previous section, thus, the full model was analyzed at the path level in order to test individual hypothesis. Table 21 shows the SEM structural model unstandardized parameter estimates. Parameters regarding relationships suggested in H<sub>1</sub>, H<sub>3</sub>, H<sub>5</sub>, H<sub>6</sub> and H<sub>8</sub> are

statistically significant at the one percent level and thus, these hypotheses are supported. However, H<sub>2</sub> is not supported where the path in this relationship is insignificant.

OIC is mainly explained by IEO, but with some contribution from IFT. Export performance is mainly explained by OIC, but with very strong contribution from IEO. Additionally, there is a considerable significant correlation (0.49) between IEO and IFT at the 0.01 level.

**Table 21: Hypotheses Testing**

Hypothesized link			Estimates	S.E.	P*	Hypotheses
EXPORT	<---	OIC	.835	.164	***	<i>H<sub>1</sub>: Outward internationalization capability is positively related to export performance</i>
EXPORT	<---	IFT	.130	.067	.052	<i>H<sub>2</sub>: Inflow of technology is positively related to export performance (Not supported).</i>
OIC	<---	IFT	.144	.032	***	<i>H<sub>3</sub>: Inflow of technology has a positive effect OIC</i>
EXPORT	<---	IEO	.377	.108	***	<i>H<sub>5</sub>: International entrepreneurial orientation is positively related to export performance</i>
OIC	<---	IEO	.479	.040	***	<i>H<sub>6</sub>: International entrepreneurial orientation has a positive effect on OIC</i>
IFT	<---	IEO	.581	.071	***	<i>H<sub>8</sub>: International entrepreneurial orientation has a positive effect on inflow of technology</i>

#### **4.10 Testing for Effects of Components of Inflow of Technology**

Inflows of technology is represented as a composite variable comprising three indicators; 1) the percentage of foreign production inputs out of total inputs, (2) percentage of foreign production equipment and machinery of total production inputs (3) frequency of

hiring foreign experts and consultants. A composite index was developed and used in the SEM to capture the overall degree of inflow of technology to the firm based on these indicators. Indicators in this variable are regarded as complements rather than substitutes, and all three component of the index are treated as being equally important in the model. However, the model was additionally run with each component of the index separately in order to weight the effects of the variables that make up this index and further examine the underlying dynamics of the following hypotheses:

*H<sub>2</sub>: Inflow of technology is positively related to export performance*

*H<sub>3</sub>: Inflow of technology has a positive effect OIC*

*H<sub>8</sub>: International entrepreneurial orientation has a positive effect on inflow of technology*

The path from each of the three indicators to export performance was not significant as was the case of the path from IFT (composite index) to export performance. The percentage of foreign production inputs out of total inputs did not have a significant direct effect on OIC. The standardised path coefficients showed that that the percentage of foreign production equipment and machinery of total production inputs and the frequency of hiring foreign experts and consultants have a similar effect on OIC, where they both have a value of 0.17. These findings further support the fact that H<sub>2</sub> was not supported. It however, sheds further light on H<sub>3</sub> indicating that foreign production inputs are less important in terms of

affecting the development of OIC than the foreign production equipment and machinery and the frequency of hiring foreign experts and consultants

IEO was found to have a significant positive effect on all three indicators. The path analysis showed that IEO had very similar effect on the three indicators where the path coefficients ranged between 0.27 and 0.30. This finding further explains H<sub>8</sub> indicating that IEO similarly affects all components of inflow of technology.

#### **4.11 Testing the Mediation Effect of OIC**

Although the phases in the structural model are theoretically derived, mediation tests were run to confirm the sequence of effects. In examining the mediation effect with SEM, testing the significance of two direct effects separately (the significance of the direct effect from the independent variable to the mediator and significance of the direct effect from the mediator to the dependent variable) does not provide support for a significant mediation effect from the independent to the dependent variable through the mediator (Cheung and Lau, 2007). In order to test the mediating effect of OIC in this study (H<sub>4</sub> and H<sub>7</sub>), indirect effect of IEO and IFT on export performance were tested by using the bootstrap method. The bootstrap method can determine the type of mediation, where there are two types of mediation: complete mediation and partial mediation (Shrout and Bolger, 2002). Partial mediation means that the path from the independent variable to the dependent variable is

reduced in size but still significant in the presence of the mediator, whereas complete mediation occurs when the path from independent to dependent variable is insignificant when the mediator is introduced to the relationship.

To test for the mediating effect of OIC, first the direct of IEO on EXPORT in the absence of OIC were examined. The path coefficient was statistically significance at 0.01 level with a value of 0.69. Second, the effect of OIC on export performance was tested for significance, and was found to be significant at 0.01 level with a value of 0.49. Third, the direct effects of IFT on export as well as IEO on IFT were examined. The path coefficient was statistically significance at 0.01 level with values of 0.21 and 0.49 respectively. The final step is testing the effect of mediation in the full model that is testing direct, indirect and total effect in the model. Table 22 presents estimations of indirect effect, direct effects, and total effects on export performance with the significance of parameter scores. The estimations of significance for direct effects resulted and indirect effects resulted from bootstrap analysis.

The Table presents estimations of indirect effect, direct effects, and total effects of the effect of IEO and IFT variables through OIC on EXPORT with the significance of parameter scores. In terms of the structural coefficients, findings showed significant Indirect effects from IFT to EXPORT across OIC, and significant Indirect effects from IEO to

EXPORT across OIC, and insignificant direct effects from IFT to EXPORT, and significant direct effects from IEO to EXPORT.

**Table 22: Estimations of Indirect Effect, Direct Effects, and Total Effects**

	<b>Indirect Effect</b>	<b>Direct Effect</b>	<b>Total Effect</b>
IEO → IFT	0.000	.492 (**)	.492 (**)
IEO → OIC	0.000	.657 (**)	.657 (**)
IFT → OIC	0.000	.233 (**)	.233 (**)
OIC → EXPORT	0.000	.492 (**)	.492 (**)
IEO → IFT → OIC	.115 (**)	.657 (**)	.771 (**)
IFT → OIC → EXPORT	0.105(**)	.114	.219(**)
IEO → OIC → EXPORT	0.388(**)	.297 (**)	.685(**)
IEO → IFT → OIC → EXPORT	0.405(**)	.280 (**)	.685(**)

The direct effects' coefficients (not shown in table) dropped from 0.21 to 0.11 in case of IFT – EXPORT relationship. The fact that the direct path coefficient became insignificant at the introduction of the mediator to the relationship, suggests that OIC fully mediates the hypothesized relationships. Thus, H<sub>4</sub> is supported.

The direct effects' coefficients dropped from 0.69 to 0.29 in case of IEO – EXPORT relationship when OIC is introduced to the relationship. The facts that the direct path coefficients remained significant at the introduction of the mediator to the relationship,

however the path coefficients dropped in value, suggest that OIC partially mediates the hypothesized relationship. Thus, H<sub>7</sub> is supported.

*H<sub>4</sub>: Inward flow of technology has an indirect positive effect on export performance mediated by OIC*

*H<sub>7</sub>: International Entrepreneurial Orientation has an indirect positive effect on export performance mediated by OIC*

#### **4.12 Common Method Bias**

One potential limitation of the study was common method bias. Research has shown that common method bias is often caused by consistency motif and social desirability (Podsakoff and Organ, 1986), and various procedural remedies for minimizing such influences are offered by Podsakoff et al. (2003). Common method variance can exist when a single respondent provides information on both the predictor as well as dependent variables. Self-reported responses by the same respondent could create the problem of common method bias which is attributed to the measurement method rather than the constructs of interest. Such bias may cause systematic measurement error and would further bias the estimates of the true relationship among constructs. If such bias exists, either a single factor will emerge from the factor analysis, or one factor will account for the majority of the covariance among the variables (Podsakoff and Organ, 1986; Podsakoff et al., 2003).

Several measures were taken to mitigate the problem of the common method bias where several remedies were incorporated into the survey design. All constructs were measured through a survey instrument, thus, several steps were taken to design the survey in such a way as to minimize such bias. First, the survey collected information for possible future research in addition to the core variables presented in the model tested in this study. Some questions, not core to the model, proposed in this study were added to the survey for the purpose of both future research as well as creating a barrier between predictor and dependent variables. All variables were mixed in an approach that prevented respondents from identifying the constructs and from anticipating the hypotheses of the study.

The survey also counterbalanced the order of the measurements of the predictor and criterion variables (Podsakoff et al., 2003). Questions in the complete surveys began with export performance measures and ended with predictor variables. Finally, to further minimize the influence of social desirability, respondents were guaranteed that all survey responses would remain confidential and that the results of the study would only be reported in an aggregate format.

Statistical tests were also used to test for common method bias. Harman's one-factor test was conducted to test the presence of common method effect. The Harmon single factor post-hoc test suggests that no same-source factor exists if different factors were extracted (Podsakoff and Organ, 1986). Using the unrotated factor solution of including all of the



items together, seven factors with Eigenvalue greater than one were extracted, not one factor as per the Harmon test. Further, although there is always a strongest factor, it is not overly dominant in the current study, where the first extracted factor explains only 49% of the total variance extracted.

Additionally, the procedure for the potential effects of an unmeasured latent method factor (Podsakoff et al., 2003) was applied. The common method factor contained all the indicators and latent constructs of the hypothesized model, where all the indicator variables were double loaded onto this method factor. Table 23 indicates that the inclusion of a common method factor did not enhance the model fit. Comparing indices in the table, all fit indices are good for the models. Chi-Square/Degrees of freedom ( $\chi^2 / df$ ) ratio as a measure of fit for the two models are found to be very similar.

The next step in the common method factor approach for testing for common method bias is to examine the estimate and significance of each of the paths involved in the hypotheses in the original model in this study.

**Table 23: Comparison of Model Fit: Common Method Factor**

	Stats	With Common Factor	Without Common Factor	Diff.
	Chi-square	112.565	112.681	0.116
	Probability level	0.00	0.00	-
<b>Model Fit Summary (CMIN)</b>	NPAR	30	29	1
	CMIN	112.565	112.681	0.116
	DF	48	49	1
	CMIN/DF	2.345	2.3	-0.045
<b>Baseline Comparisons</b>	NFI	0.967	0.967	0
	RFI	0.954	0.955	0.001
	IFI	0.981	0.981	0
	TLI	0.973	0.974	0.001
	CFI	0.981	0.981	0
<b>RMSEA</b>	RMSEA	.079	0.078	-0.001
	PCLOSE	0.007	0.009	-

All paths that were significant in the original model remained significant, with similar estimated weights and directions. Results of these tests indicate the common method bias did not affect any of the hypotheses being tested. Overall, results indicate that inclusion of the method factor did not impact explanatory power; therefore common method bias does not seem to have had an impact in this study.

## **5.0 Discussion and Conclusions**

The primary objective of this dissertation was to develop and empirically test a conceptual framework that links international entrepreneurial orientation and inflow of technology to the export performance of firms in developing countries. Another objective was to develop an empirical scale that measures a firm's outward internationalization capability. This study was motivated by the desire to contribute to the growing body of international entrepreneurship research by addressing two important, but unanswered, questions. First, what is the capability that underlies internationalization of SMEs in developing countries? Second, how is that capability created? The following sections discuss the important findings that emerge from this study.

This final chapter discusses the results of the study then reviews the research questions in light of these findings. It addresses limitations associated with the research and suggests possible directions of future investigation before drawing final conclusions. The study results managed to answer the proposed research questions. The research identified the set of capabilities that that underlie OIC of SMEs, as well as identified the impact of inward flow of technology, and international entrepreneurial orientation on building outward internationalization capability in SMEs.

## 5.1 Discussion of Results

This section discusses the results of the study in detail within the theoretical context of the strategy and entrepreneurship literature. To summarize, the results indicate that (1) Outward internationalization capability is positively related to export performance; (2) Inward flow of technology is not directly related to export performance (3) Inward flow of technology has a positive effect OIC; (4) Inward flow of technology has an indirect positive affect on export performance fully mediated by OIC; (5) International entrepreneurial orientation is positively related to export performance; (6) International entrepreneurial orientation has a positive effect on OIC; (7) International entrepreneurial orientation has an indirect positive affect on export performance mediated by OIC; (8) International entrepreneurial orientation has a positive effect on inflow of technology. Table 24 presents a summary of the hypotheses and findings. This table indicates, for each hypothesis, if a statistically significant effect was found in the predicted direction (supported) or if there was no significant effect (not supported).

**Table 24: Summary of Hypotheses Testing**

Hypotheses	Findings
H <sub>1</sub> : Outward internationalization capability is positively related to export performance	Supported
H <sub>2</sub> : Inflow of technology is positively related to export performance	Not Supported
H <sub>3</sub> : Inward flow of technology has a positive effect OIC	Supported
H <sub>4</sub> : Inward flow of technology has an indirect positive effect on export performance mediated by OIC	Supported
H <sub>5</sub> : International entrepreneurial orientation is positively related to export performance	Supported
H <sub>6</sub> : International entrepreneurial orientation has a positive effect on OIC	Supported
H <sub>7</sub> : International entrepreneurial orientation has an indirect positive effect on export performance mediated by OIC	Supported
H <sub>8</sub> : International entrepreneurial orientation has a positive effect on inflow of technology	Supported

Both IEO and IFT were found to have an effect on building a firm's OIC. Focusing on international entrepreneurial orientation and export performance relationship, this study found that OIC only partially mediates the IEO-EXPORT relationship. Path analysis suggests that IEO has a strong influence on developing OIC at firms; nevertheless IEO still has direct influence on export performance. IFT-EXPORT relationship on the other hand, was found to be totally mediated by OIC. Testing the path coefficients suggested that the direct influence of IFT on export performance is insignificant and mediation effect of OIC in the relationship is very strong. The overall model explains 58% of the variance in export performance. When comparing the influence of IFT and IEO on OIC and export performance, it was found that IEO has a stronger effect on OIC development as well as supports a better export performance. An explanation for this result may reside in the fact that IEO allows the firm to explore resources through other channels and not only through inflows of technology.

### **5.1.1 Dynamics of International Entrepreneurial Orientation - Export Performance Relationship**

This research found that the strategic orientation of manufacturing SMEs affects the acquisition of cross border resources through inflow of technology as well as the development of strategic capabilities. IE research has addressed several elements of the internationalization process. These included a firm's strategic orientation; knowledge and network resources as well as resources and capabilities. This research develops and tests a model that describes how these elements function together to impact export performance.

This research found that a firm's strategic orientation affects the acquisition of external resources as well as the development of internal capabilities, which subsequently affect export performance.

Entrepreneurial firms are suggested to be proactive, in terms of creating and exploiting their networks, leveraging their knowledge base as well as acquiring new knowledge. This research examined the effect of international entrepreneurial orientation on inward flow of technology, as well as on export performance of SMEs. The research found that international entrepreneurial orientation has a direct positive effect on export performance. However, the relationships between IEO and export performance is partially mediated by a dynamic capability that this study measured and validated. The evidence from this research reveals that IEO is important to enhancing the export performance of SMEs. Given the competitive intensity within the global markets and the challenges faced by most SMEs in developing countries like Egypt, the need to develop entrepreneurial orientation for effective performance in foreign markets is important. Results indicate that IEO affects the level of foreign market knowledge, technological soft technological capability (employees' technical capability), hard technological capability (product and process capability) as well as networking capability of SMEs. These capabilities were found to reflect the overall OIC of the firm.

The Model results clearly indicate that export performance within a firm cannot only be explained by IEO, where IFT and OIC also explain variance in export performance

among SMEs. In spite of the fact that the main focus of IE research has been on outward internationalization, this study found that IEO affects both inward and outward internationalization. In fact, the direct relationship between IEO and inflow of technology has been found to be stronger than that between IEO and export performance. Thus, firms with higher international entrepreneurial orientation are more likely to be involved in importing technology. This research draws the attention to the important fact that an entrepreneurial orientation could be considered as a proactive strategy by which a firm searches for resources across borders in order to further strengthen its comparative advantage.

### **5.1.2 Dynamics of Outward Internationalization Capability Development at SMEs**

Many SMEs face the challenge of the need to internationalize their activities (Knight and Kim, 2009; Hollenstein, 2005). In order to enter foreign markets, SMEs must develop the distinctive strategic capabilities that enable them to internationalize (Knight and Kim, 2009; Sapienza et al., 2006). There is a clear link between dynamic capabilities and international entrepreneurship because, for example, opportunity search processes are essential for both approaches. While search for opportunity is an entrepreneurial behaviour, seizing opportunities requires resources acquisition and reconfiguration, which is a process of dynamic capabilities development. The entrepreneurship approach and the dynamic capabilities approach share the common issue of resource mobilisation and reconfiguration as basis for building competitive advantage. Several different theories aim to explain the

internationalisation process of firms. However, in this study, the resource-based approach and the international entrepreneurial approach to internationalisation have been employed because of their integrated role in building dynamic capabilities SMEs. Peng (2001) suggests that the most essential contribution of international business studies to the resource-based view has been the identification of international knowledge and experience as a valuable resource that differentiates firms in global competition. The international entrepreneurship research focuses on the other hand on networks of the entrepreneur and technological innovation as enablers of SMEs internationalization. Consequently, the resource-based view, in particular its dynamic capability-oriented streams (e.g. Eisenhardt and Martin, 2000; Teece et al., 1997), together with the theory of international entrepreneurship represent an adequate theoretical framework to study international performance of SMEs.

SMEs possess fewer tangible assets as well as less financial and human resources than larger firms. Thus, they must develop strategic capabilities in order to develop a capability configuration that is aligned with their strategic intent (Hamel and Prahalad, 1993). The outward internationalization capability including soft technological capability, hard technological capability, networking capability and foreign market knowledge, constitute a set of distinctive strategic capabilities relative to the internationalization of the firm. These four factors are considered as attributes that must attain a certain degree of internal coherence to be considered as a capability configuration (Venkatraman, 1989). This research found that the OIC construct is a multi-dimensional second-order reflective latent variable. The outcome of OIC was a positive increase in export performance. The research further broadens the understanding of how OIC capability is developed, where it is mainly



explained by IEO, but with some contribution from IFT. This confirms the assumptions made earlier in this study, where it is suggested that IEO could be regarded as higher order dynamic capability that contributes to the development of lower order capabilities.

### **5.1.3 The Role of Inflow of Technology in the Export Performance of SMEs: Is it Overestimated?**

As in most of the Arab countries, levels of investment in Rand D are very low, at less than 1 per cent (OCED, 2010). In most cases, technologies and innovative products have to be transferred from abroad to firms in Egypt (Hahn and Kocker, 2008). There are several reasons behind this condition. The poor quality of the state education system in Egypt contributes to skills shortages as well as the existing mismatch between the outputs of the education system and the needs of the job market (Loveluck, 2012). Additionally, Egypt is suffering from brain drain, which is even rising nowadays, due to better opportunities provided in other countries, where Egypt has about 45,000 scientists in a variety of fields, including 600 in rare specializations, who have emigrated over the last five decades (STDF, 2012). Thus, inflow of technology has a major role to play in building technological capability of firms and enhancing their competitiveness in foreign markets. An important implication of this study relates to the role of inflow of technology building OIC of SMEs in Egypt. While most international business research has focused on experiential knowledge that firms develop after they enter foreign markets (Johansson and Vahlne, 1977; Eriksson et al., 1997), findings of this study provides evidence that knowledge about foreign markets,

along with other capabilities, are acquired via inward internationalization or acquisition of cross border resources.

Inflow of technology could be regarded as acquisition of tangible and intangible resources which have to be leveraged to develop capabilities. However, outcomes of this research emphasize the notion that resources themselves are not as strategically important as what the firm does with these resources. Hamel and Prahalad (2004) explain that leveraging means that a firm has to link, bundle, and blend its resources in effective ways in order to create new combinations that create a competitive advantage. The dynamic capabilities view additionally, postulates that capabilities are the source of competitive advantage in foreign markets, but not the resources themselves. These views conform to the findings of this research. Previous research suggests a positive relationship between inflow of technology and export performance (e.g. Korhonen et al., 1996; Korhonen, 1999; Luostarinen and Welch, 1990; Welch and Luostarinen, 1993). Particularly, inflow of technology is regarded as an enabler of export activities of SMEs in developing countries (e.g. Mody and Yilmaz, 2001; Romijn, 1997). However, this research did not find a direct relationship between inflows of technology and export performance. It found, rather, that inflows of technology positively affect a firm's outward internationalization capability, which in turn affects export performance.

Findings of this research, in terms of the type of capabilities developed through inflow of technology, are in line with previous research. Inward flow of technology allows to accumulate experiential foreign market knowledge (Korhonen et al., 1996; Korhonen,

1999; Luostarinen and Welch, 1990; Welch and Luostarinen, 1993), enhance technological capability (Guan et al., 2006; Kumar et al., 1999; Young et al., 1996), and networking capability (Havila et al., 2004; Mattsson and Johanson, 2006; Osarenkhoe, 2009).

In addition to technological tangible and intangible inputs acquired through inflow of technology, overseas suppliers of technology can provide a wealth of information, from knowledge about processes and product, foreign market operations, competition in foreign markets, market trends, and customers' needs. Suppliers who do not compete directly with the importer in final product markets could also be a source of foreign market contacts that position the importer in a network that facilitates market entry and allow firms to overcome the liability of foreignness. Thus, knowledge available through interaction with overseas supplier might be more useful than information obtained through remote search for knowledge or the firm's own independent efforts to network in foreign markets.

## **5.2 Theoretical Contributions**

Findings of this research have theoretical contributions and practical implications for firms as well as policy makers. The research contributes to literature in the areas of international business, IE and strategic management in several ways. The primary objective of this dissertation was to contribute to the internationalization literature by providing insights into one of the mechanisms that underlie the internationalization of SMEs in developing countries.

First, drawing on the network theory and the resources-based view as well as the theory of international entrepreneurship, this study investigated the role that inflow of technology and international entrepreneurial orientation play in the acquisition of foreign market knowledge, development of networks and technological capabilities of SMEs in Egypt. Such capabilities were found to underlie a multi-dimensional latent construct which reflect the firm's capability to export, where it was found to have an effect on export performance of manufacturing SMEs in Egypt. By empirically examining a theoretical framework linking the resources embedded in inflows of technology and a firm's strategic orientation to export performance, this study makes some important contributions to the literatures in international entrepreneurship, and strategic management. By investigating the dynamics of how international entrepreneurial orientation helps SMEs in their quest for internationalization, this research contributed to the clarifying the uncertainty in literature with regards to the impact of entrepreneurial strategies on international performance.

Second, this research filled a gap in literature, making a significant theoretical, contribution, where it elicited items, measured, and validated the overall outward internationalization capability at SMEs. This is an unmeasured capability in literature, where a new scale measuring outward internationalization capability (OIC) was developed in this research and was tested for validity and reliability. The research used multiple theoretical frameworks to empirically examine the type of capabilities that a firm develops through their strategic orientation that is perceived as higher order dynamic capability that contributes to creating an OIC that underlie their export performance. In doing so, it added to existing

international entrepreneurship through presenting a quantitative analysis of data from more than two hundred of firms.

Third, this study also contributes to research on the resource-based view in terms of examining the internationalization behaviour of SMEs, where lack of resources has been suggested to be a barrier to internationalization. Research has suggested that SMEs internationalize by making up for the lack of tangible and intangible resources (such as knowledge) through various means. The network theory has been primarily used to explain how these firms make-up of the lack of resources through exploiting resources existing in their networks. However, this research expands this line of inquiry by examining inflows of technology especially in the context of SMEs in developing countries that also provide a viable alternative for acquiring these resources through imports.

Departing from the focus on the impact of inflow of technology on building technological capabilities, this study builds on multiple theoretical frameworks to explore the wide array of capabilities that firms can develop through their engagement in inflows of technology. The empirical evidence presented in this research not only provides support for fact that inflows of technology affect the development of OIC, which a multi-dimensional construct of which technological capability of the firm is one of multiple dimensions. The OIC construct also includes networking capability and foreign market knowledge. Thus, this suggests a wider view of the value that inflows of technology bring to the firm.

Fourth, the research findings enriched the empirical research addressing the understudied linkages between inward and outward internationalization. This linkage has been rarely studied in IE research. IE research has mainly focused on outward operations, their enablers and how much they are impacted by the entrepreneurial orientation or behaviour of the firm. This research adds to this body of literature by examining how the international entrepreneurial orientation of a firm affects its inward operations as well as its outward operations. The path between IEO and IFT suggest that firms that have a high entrepreneurial orientation are more likely to be highly involved in inward flow of technology activities.

Additionally, in spite of the fact the inflow of technology to manufacturing firms in developing countries has been suggested to contribute to developing firms' technological capabilities, this study extends this view by suggesting that some capabilities that are important to the internationalization process are additionally developed in a firm as a result of inflows of technology. This is an under-researched area, where only very few studies examined the inward-outward linkages. This research contributes to management of technology literature, where it clarifies how firms that do not possess a technological advantage might still succeed in their outward internationalization initiatives through inflows of technologies. It is clear from the findings of this research that while inflows of technology do not have a direct effect on export performance, they contribute to creating the capabilities that reflect the overall OIC of a firm.

## **5.3 Practical Implications**

### **5.3.1 Implications for Firms**

This study has found that the inflow of technology affects the firms' export performance in manufacturing SMEs in Egypt, where the relationship is fully mediated by OIC. Hence, devoting resources to inflow of technology contributes to building internal capabilities as well as to better international performance. Investment in machinery, knowledge acquisition, and production inputs also contribute to building OIC. However, the direct effect of inflow of technology on export performance is insignificant. This could be interpreted by the fact that many firms engage in inflow of technology as a production necessity. Yet only firms that leverage the potentials and resources embedded in inflows of technology succeed in building OIC that affect the initiation and success of their export operations. Thus, investing in inflow of technology may not be sufficient in itself to enhance a firm's export performance. Inflow of technology has the potential not only to generate technological capability (employees, product and process related), but also creating foreign market knowledge and networking capabilities at the firm. Thus, firms need to focus on the leveraging the resources embedded in these inflows to build the dynamic capabilities that create a competitive advantage that allows the success of export operations.

On the other hand, it is the firm's IEO that has the higher influence on building OIC and export performance. IEO helps a firm acquire and reconfigure resources and build capabilities. Thus, firms might need to work on enhancing their IEO in order to exploit

foreign markets. Firms need to be more proactive in identifying and exploiting foreign market opportunities. They also need to be more open to risk-taking as well as open to innovative ideas that allow for foreign markets exploitation. Thus, the model in this study can provide a guideline for managers of exporting firms, especially in developing countries.

There is a lack of formal education and training courses in entrepreneurship, and innovation management in Egypt. The German University in Cairo is the only entity that offers an innovation management major under its business school. Science and engineering students can not join these courses because it is only for business students. Additionally, there is a mismatch between the outputs of the education system and market needs, as well as concerns regarding the quality of state education in Egypt. Thus, firms will have to build the technological capability as well as the entrepreneurial orientation of their employees through internal resources as well as interaction with technology and knowledge suppliers. Building such capacities will allow for an efficient inflow of technology process as well as IEO at firms. Firms will also have to seek participation in technology transfer support programmes. These could be the governmental programmes or other initiatives undertaken by chambers of commerce or industry associations.

### **5.3.2 Implications for Policy Makers**

Policy is increasingly aimed at encouraging more new and established private SMEs to internationalize. Many young and small private SMEs need to address liabilities relating to lack of resources and inexperience. This research suggests that firms need to develop



some level of technological capability, accumulate foreign market knowledge and create networks in order to succeed in international markets. Policy-makers should acknowledge that these barriers might vary depending on the international experience of the firm, where such resources and capabilities may be acquired through import operations. Experienced importers may have higher levels of OIC, or may face different barriers from those faced by those have no/less expertise in foreign markets. This suggests a need to develop different internationalization initiatives to include those firms that have some international experience but which face problems in exploiting opportunities to initiate or further increase their exports, as well as those firms that do not have any foreign market experience.

Similar to other Arab southern Mediterranean countries and some African countries, neither the Egyptian science and technology community nor industry is as yet in the position to develop new major technologies or products. Policy should proactively encourage SMEs to tap into external pools of resources and opportunities, through the development of networks and co-operative arrangements between courtiers exporting technologies. Rather than regarding imports as a threat to national industries, the import of technologies should be regarded in a different way by policy makers. In addition to custom breaks on production inputs, other initiatives should be encouraged to facilitate the inflow of technology to manufacturing SMEs, where such inflows should not be regarded as only production necessities, but rather as an enabler for foreign markets entry.

The review of the evidence base identified a need for policy to focus on the entrepreneur with regard to the design of policies to support internationalization.

Entrepreneurial behaviour in the context of SMEs is not very much different that the entrepreneurial traits of the firm's owner or manager (Hambrick and Mason, 1984; Hermann and Datta, 2002; McDougall et al., 2003). Thus, policymakers in developing economies should target groups of entrepreneurs that offer greater internationalization potential. These entrepreneurs may be those most able develop OIC and policy assistance might usefully be targeted toward them. This can be used as a guide for public policy makers to develop training and education centres to encourage specific entrepreneurial behaviours germane to export market entry. Policy makers should approach the targeted SMEs community with marketing for innovation and capacity-building activities such as entrepreneurship training. The importance of IEO mandates the need for appropriate awareness or training measures in order to remove the potentially existing mental barriers regarding risks of foreign market entry, new product development and proactive search for foreign partners. Training may focus on shaping an international entrepreneurial orientation such as risk-taking, proactiveness and innovativeness.

Policy makers in developing countries can also benefit from outcomes of this research in designing appropriate policies to provide support in the form of external resources (e.g. technology platforms), to satisfy the needs of SMEs to access complementary resources that are otherwise too expensive or hard to attain. This could build the necessary experience toward achieving the national objectives of overall economic growth through the process of internationalization. Also, experience from far east countries has shown that returnee entrepreneurs contribute to the establishment of born globals, and thus programmes should be put in place to reverse the brain drain issue that is currently facing Egypt.

Filatotchev et al. (2009) found that both export orientation and performance of SMEs in China are positively associated with the presence of a “returnee” entrepreneur.

Finally, aiming to advance the capacity of human resources in the area of technology and innovation the government’s efforts in Egypt have focused on improving the quality of the education system. The Egyptian government also took various measures to stimulate industrial modernisation, SMEs development and entrepreneurship. Various long-term innovation policies were instituted by the Egyptian authorities and diverse government-controlled innovation programmes carried out, funded mainly by third country donors. However, there should be greater emphasis on innovation and technology management and entrepreneurship training and education in order to enhance the rate, efficiency and effectiveness of inflow of technology.

#### **5.4 Limitations and Future Research**

Research relating to SME internationalization is associated with several methodological problems. There are some concerns surrounding the size and representativeness of samples, the techniques used, and the validity and reliability of measures operationalized in SME studies, where they basically borrow from those used to study larger firms. This suggests a need for deeper understanding of the determinants of internationalization of SMEs as well as further validation of the measures used in that context.

This study has some limitations that can be addressed in future research. First, the study examined a sample of manufacturing firms in Egypt; thus, generalization of the results to other types of firms in other countries might need further investigation. It is not clear that the results can be generalized to apply to firms in other countries or to most firms in Egypt. However, it is expected that firms in developing economies face similar constraints and contextual factors and thus, generalization of the findings is still relatively acceptable especially in southern Mediterranean Arab countries. Other researchers can benefit from this study by replicating the model in the same setting to check for validation and reliability. Also, this research model can be applied to different settings indicating a potential to generalize the model beyond its applicability to manufacturing sector in Egypt.

Some difficult complexities were encountered in the information that was collected. For example, it is difficult to separate out unsolicited exports from purposefully-targeted exports, so that it was not possible to really judge if the firms strategically pursued exports first, or imports first in their internationalization. Also, it is difficult to differentiate between locally acquired imported technology and directly imported technology; where the later have higher international exposure.

Future research can deal with the issues raised above by pursuing more finely-detailed information about the sequence of import-export activities. Future research should also examine whether imports are obtained for their use in the home country or other countries. Also differences between different types of firms could be, especially manufacturing vs. services, as well as high- and low-tech manufacturers. This suggests a

need for research that either uses specifically designed questionnaires administered over time (Autio et al., 2000) or the combination of these instruments with archival data (Zahra et al., 2000). It would be good to be able to draw some conclusions about the importance of technology imports to a firm's performance, and to answer questions such as whether the use of imports makes internationalization proceed more (or less) rapidly. These questions were, however, beyond the scope of this study.

Additionally, measures of variables of the OIC scale can be validated, and additional items might be elicited in future studies. In this research, the construct of OIC was found to be reliable and valid multi-dimensional latent reflective construct. The EFA approach suggests that the OIC actually has four dimensions. However, researchers are encouraged to further develop the scale and test it in other contexts, for example, a larger sample, or by using different statistical tools to investigate the complete dimensionality of the construct.

Case study research might also provide a more in-depth analysis of the impact of inward flow of technology IEO on export performance. Case study research might provide more insight into critical organization issues such as the impact of internal communication between procurement, operations and marketing departments in terms of leveraging opportunities embedded in an inflow of technology process.

Although IEO and IFT constructs have significant theoretical relationships and acceptable empirical effect on OIC, the IFT construct is not a predictor of export performance, as the path coefficient produced by this study is considered relatively low and

insignificant. Although this finding has a theoretical justification, it might be related to measurement method. Since there is no existing reliable measure for the degree of inflow of technology, this study operationalizes the degree of inward flow technology borrowing from internationalization literature. The study additionally, excludes foreign direct investment and joint ventures from its analysis, where it focused on wholly owned local firms. It might be useful if future research investigates the impact of the nature of technology - as opposed to degree of inflow - and mode of transfer on creating capabilities.

Also, this study used a single key informant to collect data about independent and dependent variables. Using a single informant to gather data for both dependent and independent constructs is a source of bias. This issue was tested statistically and found to be insignificant. This finding does not eliminate the fact that the study might be somehow biased, however. Thus, replicating this research with multiple informants would be a recommended extension of the research. However, the use of multiple informants has the risk of lowering the response rate, which could result in an insufficient number of cases. The research already exhibited a very low response rate that led to employing different data collection techniques. Also, responses obtained through different techniques were tested for bias, and no method bias was found and, yet this issue should also be considered for future research.

As a final point, this research raises some additional questions that future research might address. For example, what is influence of various environmental factors on building OIC? Does the model apply to bigger firms? What other strategic and organizational factors

(such as learning and absorptive capacity) might moderate the relationships suggested in this research?

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## **Appendix 1: Participants' Recruitment Material**

### **Interviewees' Recruitment Telephone call script**

P = Potential Participant; I = Researcher

I - May I please speak to [name of potential participant]?

P - Hello, [name of potential participant] speaking. How may I help you?

I - My name is Heba Gaber and I am a PhD student in the management sciences department at the University of Waterloo, Canada. I am currently conducting research on the influence of technology transfers on export performance of manufacturing firms in Egypt. As part of my thesis research, I am conducting interviews with managers and owners of small and medium manufacturing firms having experiences with importing technology and with export activity in order to identify the nature of export capabilities at SMEs as well as how such capabilities are built. I randomly selected few companies that are listed in the Egyptian Ministry of Industry and trade database, and got your contact information from "Egypt Yellow Pages". Being the manager/owner of this firm, I would like to speak with you about your perspectives on this issue. Is this a convenient time to give you further information about the interviews?

P - No, could you call back later (agree on a more convenient time to call person back).

OR

P - Yes, could you provide me with some more information regarding the interviews you will be conducting?

I - Background Information:

- The interview would last about one hour, and would be arranged for a time convenient to your schedule.

- Involvement in this interview is entirely voluntary and there are no known or anticipated risks to participation in this study.
- The questions pertain to importing technology and export activity of your firm (for example, what factors contributed to initiating your export activities?).
- You may decline to answer any of the interview questions you do not wish to answer and may terminate the interview at any time.
- With your permission, the interview will be tape-recorded to facilitate collection of information, and later transcribed for analysis.
- All information you provide will be considered confidential. Your firm will not be identified in the thesis or publications.
- The data collected will be kept in a secure location and disposed of in one year after the research completion.
- If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please feel free to contact Dr. Rod McNaughton at (001) 519-888-4567, Ext. **36203**
- I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. Should you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes in the Office of Research Ethics at (001) 519-888-4567, Ext. 36005 or [ssykes@uwaterloo.ca](mailto:ssykes@uwaterloo.ca).
- After all of the data have been analyzed, you will receive an executive summary of the research results.

With your permission, I would like to mail/fax you an information letter which has all of these details along with contact names and numbers on it to help assist you in making a decision about your participation in this study.

P - No thank you.

OR

P - Sure (get contact information from potential participant i.e., mailing address/fax number).

I - Thank you very much for your time. May I call you in 2 or 3 days to see if you are interested in being interviewed? Once again, if you have any questions or concerns please do not hesitate to contact me on my cell phone number 002 01227371401.

P - Good-bye.

I - Good-bye.

## **Surveys' Respondents Telephone Call Script**

P = Potential Participant; I = Researcher

I - May I please speak to [name of potential participant]?

P - Hello, [name of potential participant] speaking. How may I help you?

I - My name is Heba Gaber and I am a PhD student in the management sciences department at the University of Waterloo, Canada. I am currently conducting research on the influence of technology transfers on performance of manufacturing firms in Egypt. As part of my thesis research, I am seeking responses of managers and owners of small and medium manufacturing firms to a structured questionnaire. I randomly selected companies that are listed in the Egyptian Ministry of Industry and trade database, and got your contact information from "Egypt Yellow Pages". Being the manager/owner of this firms, I would really appreciate your participation in this study. Is this a convenient time to give you further information about the study?

Note: In case one of the research assistants is calling: My name is XXX, I am calling on behalf of Heba Gaber.

P - No, could you call back later (agree on a more convenient time to call person back).

OR

P - Yes, could you provide me with some more information regarding the questionnaire?

I - Background Information:

- The questionnaire will take approximately 20 minutes of your time to complete.
- The questions pertain to importing technology and enablers of/or barriers to export activity of your firm.
- Should you prefer to receive the questionnaire through mail, you will receive the questionnaire, a letter summarizing the objectives of the research and ensuring the researcher's commitment to data confidentiality, personnel contacts of the researcher



(email and phone numbers) in case you have questions or needed clarifications, and a stamped –self-addressed envelope to be used for mailing the completed questionnaire.

- In case you prefer to respond via email, please give me your email address, and I will send you a link that will give you the same information that will be sent with the paper version that I just mentioned, but with the facility of completing the questionnaire online.
- After all of the data have been analyzed, you will be offered to receive a copy of the research results. The results may help you identify the capabilities you need to build in order to enhance your export performance.
- I would like to assure you that the project was reviewed and received ethics clearance through the University of Waterloo's Office of Research Ethics.

P - No thank you.

OR

P - Sure (get contact information from potential participant i.e., mailing address/fax number).

I - Thank you very much for your time. Once again, if you have any questions or concerns please do not hesitate to contact me on my cell phone number 002 01227371401.

P - Good-bye. I - Good-bye.

## **Information Letter – Mail**

University of Waterloo

Dear Sir/Madam

Date

This letter is an invitation to consider participating in a study I am conducting as part of my Doctoral degree in the Department of Management Sciences at the University of Waterloo, Canada. I would like to provide you with more information about this project and what your involvement would entail if you decide to take part.

The proposed research will examine the factors that enable small and medium sized manufacturing firms (SMEs) in Egypt to become exporting firms. The study outcomes will provide owners/managers of SMEs with guidance on how to build export related capabilities. As part of this study, I will be contacting about 4000 firms, where I am seeking responses of owners and managers of manufacturing SMEs (a minimum of 250 responses) to the attached questionnaire. I would like to include your organization as one of the firms to be involved in my study. I believe that as the manager of your company, you are knowledgeable about organizational issues that are being researched and are in a position to reflect on other decision makers' perceptions. Thus, you are best suited to complete the attached questionnaire. After all of the data have been analyzed, you may wish to request a copy of the research results. The results will help you identify the capabilities you need to build in order to enhance your export performance.

Participation in this study is voluntary. You may decline to respond to any question. It will take approximately 20 minutes of time to complete the questionnaire. All information you provide is considered completely confidential. On receipt of a completed questionnaire, any identifying information is removed. De-identified electronic data will be kept for five years and then confidentially destroyed. Questionnaires will be shredded within one year. There are no known or anticipated risks to you as a participant in this study.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me at **002 0127371401** or by email at [hgaber@engmail.uwaterloo.ca](mailto:hgaber@engmail.uwaterloo.ca). You can also contact my supervisor, Professor **Rod McNaughton** at (001) 519-888-4567 ext. **36203** or email [rmcnaughton@uwaterloo.ca](mailto:rmcnaughton@uwaterloo.ca). I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (001) 519-888-4567 Ext. 36005 or [ssykes@uwaterloo.ca](mailto:ssykes@uwaterloo.ca).

I very much look forward to receiving your responses and thank you in advance for your assistance in this project

Yours Sincerely,

Heba Gaber                      Student Investigator

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## **Feedback letter**

Date

Dear ( *Name of Participant* ),

I would like to thank you for your participation in this study. Your responses to the questionnaire were of great help. As a reminder, the purpose of this study is to examine the influence of inward technology transfers and international entrepreneurial orientation on the export performance of small and medium sized manufacturing firms (SMEs) in Egypt. The data collected through the questionnaire will contribute to a better understanding of the nature of outward internationalization capabilities at Egyptian SMEs, as well as how such capabilities are built.

Please remember that any data pertaining to you as an individual participant will be kept confidential. Once all the data are collected and analyzed for this project, I plan on sharing this information with the research community through seminars, conferences, presentations, and journal articles. If you are interested in receiving more information regarding the results of this study, or if you have any questions or concerns, please contact me at either the phone number or email address listed at the bottom of the page. If you would like a copy of the research results, please let me know now. The study is expected to be completed by April 2012.

As with all University of Waterloo projects involving human participants, this project was reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo, Canada. Should you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes in the Office of Research Ethics at (001) 519-888-4567, Ext., 36005 or [ssykes@uwaterloo.ca](mailto:ssykes@uwaterloo.ca).

Heba Gaber

University of Waterloo, MSci Dept.

Contact Telephone Number  
002 0127371401

UW Email Address

[hgaber@engmail.uwaterloo.ca](mailto:hgaber@engmail.uwaterloo.ca)

### **Email - Participant Survey Invitation**

The purpose of this e-mail is to get those managers to respond to the invitation to participate in the online survey.

E-mail Subject Line: Technology transfer survey — University of Waterloo  
TO: Manager Name, Company  
FROM: Heba Gaber, UW PhD Student Researcher  
RE: Research Survey Invitation

Manager Name:

Reference to our phone call during which you kindly agreed to participate in the study examining the influence of technology transfer to manufacturing SMEs in Egypt, I invite you to click on:  
link

The proposed research will examine the factors that enable small and medium sized manufacturing firms (SMEs) in Egypt to become exporting firms. The study outcomes will provide owners/managers of SMEs with guidance on how to build export related capabilities. As part of this study, I will be contacting about 4000 firms, where I am seeking responses of owners and managers of manufacturing SMEs ( a minimum of 250 responses) to the attached questionnaire. I would like to include your organization as one of the firms to be involved in my study. I believe that as the manager of your company, you are knowledgeable about organizational issues that are being researched and are in a position to reflect on other decision makers' perceptions. Thus, you are best suited to complete the attached questionnaire. After all of the data have been analyzed, you may wish to request a copy of the research results. The results will help you identify the capabilities you need to build in order to enhance your export performance.

Participation in this study is voluntary. You may decline to respond to any question or withdraw from the questionnaire by not submitting your responses. However, any saved

responses cannot be withdrawn. You may wish to review the attached fillable version of the questionnaire before starting to complete it online. It will take approximately 20 minutes of time to complete the questionnaire. All information you provide is considered completely confidential. On receipt of a completed questionnaire, any identifying information is removed. De-identified electronic data will be kept for five years and then confidentially destroyed. Questionnaires will be shredded within one year. There are no known or anticipated risks to you as a participant in this study.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me at **002 0127371401** or by email at [hgaber@engmail.uwaterloo.ca](mailto:hgaber@engmail.uwaterloo.ca). You can also contact my supervisor, Professor **Rod McNaughton** at (001) 519-888-4567 ext. **36203** or email [rmcnaughton@uwaterloo.ca](mailto:rmcnaughton@uwaterloo.ca). I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (001) 519-888-4567 Ext. 36005 or [ssykes@uwaterloo.ca](mailto:ssykes@uwaterloo.ca).

Thanks for your time,  
Heba Gaber  
PhD Candidate  
University of Waterloo, Management Sciences  
T: 002 0127371401/ E: [hgaber@engmail.uwaterloo.ca](mailto:hgaber@engmail.uwaterloo.ca)

### **Two Week Reminder**

After two weeks, the following reminder e-mail will be sent out to those who have not yet taken the survey:

E-mail Subject Line: Follow-up: Technology transfer Survey

TO: Manager Name, Company

FROM: Heba Gaber, UW PhD Student Researcher

Manager Name:

A couple weeks ago, I invited you to complete a short online technology transfer survey at:  
<http://www.link>

If you have already completed the survey and this e-mail reached you in error, please accept my apologies. If you have not taken the survey, please consider doing so. As mentioned before, the survey will take about 20 minutes to complete. Once you complete the survey, if

you choose, your email will be included in a mailing list that encompasses companies that will receive a copy of the study results once it is finalized. The study is expected to be completed by April 2012.

Thanks for your time, and I look forward to your input and insight.  
Heba Gaber

## **Feedback email**

Manager Name:

I would like to thank you for your participation in this study. Your responses to the questionnaire were of great help. As a reminder, the purpose of this study is to study influences of technology transfers on performance of small and medium sized manufacturing firms (SMEs) in Egypt. The data collected through the surveys will contribute to a better understanding of the nature of export capabilities at Egyptian SMEs, as well as how such capabilities are built.

Please remember that any data pertaining to you as an individual participant will be kept confidential. Once all the data are collected and analyzed for this project, I plan on sharing this information with the research community through seminars, conferences, presentations, and journal articles. Since you completed the questionnaire, you may request a copy of the study results by just sending me an email. The study is expected to be completed by April 2012.

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (001) 519-888-4567 Ext. 36005 or [ssykes@uwaterloo.ca](mailto:ssykes@uwaterloo.ca).

Heba Gaber  
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## Appendix 2: Sample Manual Coding of Interviews Transcripts

Transcript	Theme	Sub-theme
Our (wholesalers) in foreign markets do not directly help us create more sales because they do not want competition, but some <i>new clients approach us when they are acquainted with our products in their markets<sup>TC</sup></i> .	Technological Capability	Product Quality
<i>We went to a trade fair organized in Kenya<sup>IEO</sup>. We learnt about through the chamber of commerce</i> . But when we arrived there, we discovered that the fair was cancelled and we were not informed. Of course this was shock since already our merchandise were shipped to Kenya. We decided to minimize the loss, <i>so we sent to the local market selling our products, and checked out the merchandise they are selling there<sup>IEO</sup></i> . We found out that the market has products that are imported from India. <i>Our products were of better quality and Cheaper<sup>TC</sup></i> . We asked the outlets where do they get their merchandise from, they led us to a wholesales guys who led us to the importing companies. We contacted them and offered our products, and invited them to visit our manufacturing facility in Egypt. <i>They were impressed with quality and price<sup>TC</sup></i> and this is how our first export sale was initiated.	IEO  Technological Capability	Proactiveness  Risk taking  Product Quality
We learnt a lot <i>about foreign market operations through our import activities<sup>FMK</sup></i> , but export operations are different in many ways. <i>We asked our suppliers in some foreign markets to provide us with some information about possible opportunities for our product<sup>NC</sup></i> . They usually provide useful data if we do not present a threat to them.	Foreign Market knowledge	
<i>. We are selective with regard who we network with.....we usually target distributors. In fact, we sometimes follow up with them by visiting them abroad or inviting them to visit us<sup>NC</sup>. We also ship samples of our products. These activities are costly, but we see them as investment<sup>IEO</sup>.</i>	Networking Capability Networking Capability	
<i>Our products are accredited<sup>TC</sup>..... price is not longer a competitive advantage if we compare ourselves to China, product quality is essential<sup>PTC</sup>.</i>	IEO Technological Capability	Risk Taking Product Quality

Transcript	Theme	Sub-theme
<p>We <i>are targeting ISO certification as it is a requirement in some European markets</i><sup>TC</sup>.</p>	Technological Capability	Process
<p>We initially contracted a professional exporting company to <i>handle our export operations</i>, but then we learnt how the process is managed... <i>and now we handle our operations internally</i><sup>FMK</sup>....except for shipping which we still outsource of course.</p>	Foreign Market Knowledge	
<p>We found out that <i>one of our competitors entered markets</i><sup>FMK</sup> that e though are beyond our reach. Initially we focused on African markets, but then we approached distributors in the gulf area through <i>personal networking</i><sup>NC</sup>, and we managed to enter few of those markets. We found out that <i>our perception of competition in these markets was exaggerated</i><sup>FMK</sup>, and in fact we have the competency to enter those markets if we establish the right contact.</p>	Foreign Market Knowledge  Networking Capability	
<p>A very important issue is <b>packaging of our products</b>... it takes the <i>products to another level</i><sup>TC</sup>. We <i>hire professional designers to design our Packaging</i><sup>IEO</sup></p>	Technological Capability	Product Quality Process
<p><i>We modify the technology we import</i><sup>(TC)</sup>... we can afford to the operation cost as it is designed to be. <i>We introduce some modifications so that we can use more local inputs</i><sup>TC</sup>. This enhances our process efficiency an allow us to compete more efficiently. We imported a very expensive mixer from Germany<sup>TC</sup>, <i>but we were able to manufacture an almost an exact same mixer using local supplies</i><sup>TC</sup>.</p>	IEO Technological Capability	Proactiveness Process  Employees

### Appendix 3: Modifications in Preliminary OIC Scale Items

Original Proposed Item (Based on Existing Literature)	Final Item Used in the Survey	Modifications (Based pre-testing the survey tool and/or or Interviews)
<b>Foreign Market knowledge</b>		
Knowledge about foreign business laws and regulations.	knowledge about foreign business laws and regulations	No Changes
Knowledge about foreign norms	Knowledge about foreign business practices/traditions (such as terms of payment, shipping, etc.)	Changes were made since the item needed clarification
Knowledge about host government agencies	Knowledge about host government agencies	No Changes
Knowledge about foreign competitors	Knowledge about foreign competitors	No Changes
Knowledge about the needs of foreign clients/customers	Knowledge about the needs of foreign clients/customers.	No Changes
Knowledge about foreign distribution channels	Knowledge about foreign distribution channels.	No Changes
Knowledge about effective marketing in foreign markets	Knowledge about effective marketing in foreign markets	No Changes
International business experience	International business experience	No Changes
Ability in determining foreign business opportunities	Ability in determining foreign business opportunities	No Changes
Capability for managing international operations	Capability for managing international operations (such shipping, customs, money transfer)	Changes were made since the item needed clarification
<b>Technological Capability</b>		
Product quality	Our products are at the leading quality of our industry worldwide	Adapted to clarify meaning

<b>Original Proposed Item (Based on Existing Literature)</b>	<b>Final Item Used in the Survey</b>	<b>Modifications (Based pre-testing the survey tool and/or or Interviews)</b>
	Our products are at the leading quality of our industry in Egypt	Adapted to clarify meaning
	We are recognized in the market for products that are technologically superior	Adapted to clarify meaning
Introducing modification to production or operation process	We made in-house modifications to the production equipment/process	Adapted to clarify meaning
	We introduced new or significantly improved logistics, delivery or distribution methods	Adapted to clarify meaning
Introducing new products	Our employees regularly propose new products/services/product designs	Adapted to clarify meaning
	Compared with our competitors, we're often the first to introduce new products/ designs or services to the market	Adapted to clarify meaning
Improve/ adapt existing products	Our employees regularly come up with ideas to improve the quality of existing products	Adapted to clarify meaning
Introducing modification to production or operation process	We introduced new or significantly improved methods of manufacturing or new operating approaches	Adapted to clarify meaning
Managing the design and development of new products	Our employees are capable of managing the design and development of new products	Adapted to clarify meaning
Ability to operate advanced machinery and equipment in house	Our production process is fully operated by in house employees	Adapted to clarify meaning
Ability to deal with technical challenges in-house	We are able to solve most of our technical problems in-house	Adapted to clarify meaning
	When confronted with decisions regarding purchasing a new production equipment/technology, we can typically make the decision without resorting to external technical assistant	Adapted to clarify meaning
Process technological advancement	We employ the cutting edge production technology that exists in our sector in Egypt	Adapted to clarify meaning

<b>Original Proposed Item (Based on Existing Literature)</b>	<b>Final Item Used in the Survey</b>	<b>Modifications (Based pre-testing the survey tool and/or Interviews)</b>
	We employ the cutting edge production technology that exists in our sector worldwide	Item adapted to clarify meaning
	Our process or products received external international accreditation	Item adapted to clarify meaning
<b>Networking Capability</b>		
Identifying foreign partners in multiple countries	We continuously identify potential partners (suppliers, clients, distributors) in foreign countries	Changes were made for clarification
Ability to use the internet to identify potential suppliers and/partners	we use the internet in order to identify potential foreign suppliers	No Changes
Ability to use email to communicate with cross border suppliers/partners	: We use emails in our communications	No Changes
Ability to write and internet correspondents in foreign	We can easily communicate in foreign languages	No Changes
Establishing connections with different foreign partners	We have multiple business contacts in multiple foreign countries	Changes were made for clarification
Exploiting foreign partners' networks	We actively use our existing contacts to expand our business networks	Changes were made since the item needed clarification
Maintaining relationships with many foreign partners	After attending a trade fair or a business association meeting overseas, etc, we establish individual contacts with potential foreign partners we met during such events	Changes were made for clarification
	After attending a trade fair or a business association meeting overseas, etc, we maintain relationships (e.g. invite them to events in Egypt or go visit them) contacts with potential foreign partners we met during such events	Item was added since interviews emphasized the importance of follow up on established contacts in terms of networking potentials.

## Appendix 4: English Version Survey

# Survey of Manufacturing SMEs in Egypt

### General Instructions and Comments

---

1. If the requested information is not easily available, please feel free to approximate. An estimate reflecting your experience is more valuable to me than an incomplete answer.
2. Please return the survey by (date) in the stamped envelope provided or you may wish to request to electronically complete a fillable form and return it to my email address (hgaber@engmail.uwaterloo.ca).
3. Where the word "foreign" has been used, it refers to any organization/individual which is non-Egyptian.
4. The questionnaire has been designed for ease of completion. It will take approximately 20 minutes of your time. In most cases alternative answers have been provided and you are required only to tick the appropriate answer, or enter estimates.
5. Not all sections of the questionnaire will be applicable to your firm. Please indicate where a section or question is not applicable and move on as appropriate.

### **Confidentiality**

Individual firm responses will be treated with strictest confidentiality. Any result published will be aggregated across the sample of firms, and will make no mention of individuals or individual firms.

**1 Background Questions**

#	Question Title
---	----------------

1. What is the primary industry/sector of your company?
  - Food
  - Textiles and clothing
  - Furniture
  - Chemicals and pharmaceuticals
  - Engineering Industries
  - Electronics
  - Other (specify)
  
2. What is your exact product/s? (E.g. canned food, appliances, textiles, etc. )

3. What is your position in the company (e.g., manager, CEO, etc.)?
  - CEO/Owner/Founder
  - Line / Division Manager (e.g. sales manager)
  - Other (please specify) .....

4. Approximately how many people does your company employ in all its locations?

Full-time

- less than 50
- 50 - 100
- More than 100

Part- time

- less than 50
- 50 - 100
- More than 100

5. In what year was your company founded?

**2 Export Activities (Part 1 of 2)**

#	Question Title	Answer
---	----------------	--------

- |   |  |  |
|---|--|--|
| 6 | Approximately what is the percentage of export sales to total sales in 2010? |  |
|---|--|--|

- |   |   |  |
|---|---|--|
| 7 | In which years (as applicable) did your export sales surpass .... (0 /25/50/75% of total sales) |  |
|---|---|--|

8 Which country was your first export market?

In what year did you start exporting to that country?

How did you start exporting to that country?

- Distributor / agent in Egypt
- Distributor / agent abroad
- Retailer abroad
- Your own foreign presence
- Direct export to end user
- Other .....

9 Approximately how many employees did you have the year you started exporting?

- less than 50
- 50 - 100
- More than 100

10 What export markets does your company currently serve? (Please list the top five in terms of % of total sales).

Country	Year Entered	% of Total Sales in 2010
1		
2		
3		
4		
5		

Number of other countries you export to: ..... % of sales in these countries to your total sales in 2010: .....

11 Are there any foreign markets that your company used to serve, but no longer serves?

Country

Year of Market Exit



12 Relative to prior expectations, how satisfied have you been over the past 3 years with your exports performance regarding: (1=not at all satisfied, 7=very satisfied):

	1	2	3	4	5	6	7
Market share in foreign markets							
Contribution to your sales growth							
Contribution to your profitability							
Contribution to your company's growth							

13 How would you characterize the impact of the following attributes on initiating your first export activities (1=very low, 7=very high):

	1	2	3	4	5	6	7
Attending trade fairs							
Local Customers who expanded in foreign markets							
Hiring international marketing consultants							
Personal networks							
Trade magazines or websites							
Local clients that have international activities							
Foreign suppliers							
In-house sales personnel							
Membership /involvement in export support associations or programs							
Other.....							

- 14 How would you characterize the impact of the following attributes on the growth of your export activities (1=very low, 7=very high):

Attending trade fairs

Customers in foreign markets

Hiring international marketing consultants

Personal networks

Trade magazines or websites

Local clients that have international activities

Foreign suppliers

### 3 Export Activities (Part 2 of 2)

#	Question Title	Answer
---	----------------	--------

- 15 In case you do not have export activities, how would you categorize the following elements in terms of being an obstacle to initiating your foreign market entry (1 = not an obstacle at all, 7 = a very strong obstacle)

1 2 3 4 5 6 7

Technological capability of your employees

Technology employed in your production process

Development of new products or adaptation of existing products

Connections in foreign markets

Knowledge about customers and competitors in foreign markets

Knowledge about export laws and regulations

Willingness to take risks

Top management's international experience

16 What other obstacles are hindering your company from entering foreign markets? Please list them in order of importance, most important = 1 and least important = 5)

- 1.
- 2.
- 3.
- 4.

17 Do you engage in any of the following activities (1=never, 7=very frequently):

Attending trade fairs	1	2	3	4	5	6	7
Hiring international marketing consultants							
Initiating personal international contacts							
Reviewing international trade magazines or websites							
Exploiting possible international alliances with your foreign suppliers (e.g. act as your distributor)							
Approaching local export support associations or programs							

<b>4.</b>	<b>International Exposure</b>
<b>#</b>	<b>Question Title</b>

18 To what extent do the following statements describe your management team's behaviour (1 = not at all, 7 = to a great extent).

Top management tends to see the world, instead of just Egypt, as our firm's marketplace.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

The prevailing organizational culture at our firm (management's collective value system) is conducive to active exploration of new business opportunities abroad.

Management continuously communicates its mission to succeed in international markets to employees.

Management develops human and other resources for achieving our goals in international markets.

Our top management is experienced in international business.

Our top managers have a proclivity for high-risk projects (with chances for high returns).

When confronted with international decision-making situations, we typically adopt a cautious, 'wait-and-see' posture in order to minimize the chance of making costly mistakes.

Management communicates information throughout the firm with respect to our successful and unsuccessful customer experiences abroad.

Management believes that, owing to the nature of the international business environment, it is best to explore it gradually by conservative, incremental steps.

Top management is willing to go to great lengths to make our products succeed in foreign markets.

Vision and drive of top management are important in our decision to enter foreign markets.

Our top management always encourages new product ideas for international markets.

Our top management is very receptive to innovative ways of exploiting international market opportunities.

- 19 Please estimate the percentage of imported inputs out of total production inputs (excluding water and energy) of the following:

Operations/ process inputs (e.g. raw material , packaging, soft wares, blueprints):

Production equipment/ machinery:

Labour:

- 20 Of all the suppliers you have approximately, what percentage of them is located outside Egypt?

21 Please list the countries in which your foreign suppliers are located

**6 Technology**

**# Question Title**

22 Does your company contract foreign experts and consultants? (e.g. training and management contracts)?

- Yes
- NO

If yes, how frequent foreign experts or consultants?

- Once/ year
- Twice/ year
- More than twice a year

23 Does your company send employees for overseas training?

- Yes
- NO

If yes:

How frequently do you send employees for overseas training?

- Once/ year
- Twice/ year
- More than twice a year

Approximately what percentage of your employees receives overseas training?

24 Have you or any of the top management team:

- Been educated overseas
- Worked overseas

**7. Foreign Markets**  
**# Question Title**

25 Please assess your company's capability in the following elements (1= lacking competency, and 7= very highly competent):

1 2 3 4 5 6 7

Knowledge about foreign business laws and regulations

Knowledge about foreign business practices/ traditions  
(Such as terms of payment, shipping, etc.)

Knowledge about host government agencies.

Knowledge about foreign competitors.

Knowledge about the needs of foreign clients/customers.

Knowledge about foreign distribution channels.

Knowledge about effective marketing in foreign markets.

International business experience

Ability in determining foreign business opportunities.

Capability for managing international operations  
(such shipping, customs, money transfer)

## 8 Operations

### # Question Title

26 Please indicate how well the following statements describe your company (1= not at all, and 7= to a great extent)

1 2 3 4 5 6 7

Our production process is fully operated by in-house employees

Our products are at the leading quality of our industry in Egypt

Our products are at the leading quality of our industry worldwide

We made in-house modifications to the production equipment/process

Compared with our competitors, we're often the first to introduce new products/ designs or services to the market

We introduced new or significantly improved logistics, delivery or distribution methods.

We introduced new or significantly improved methods of manufacturing or new operating approaches

Our firm is highly regarded for its technical expertise in the local market

Our employees regularly propose new products/services/product designs

Our employees regularly come up with ideas to improve the quality of existing products

We are able to solve most of our technical problems in-house

Our employees are capable of managing the design and development of new products

We employ the cutting edge production technology that exists in our sector in Egypt

We employ the cutting edge production technology that exists in our sector worldwide

When confronted with decisions regarding purchasing a new production equipment/technology, we can typically make the decision without resorting to external technical assistant.

Our process or products received external international accreditation

We are recognized in the market for products that are technologically superior

9	Networks
Question Title	
27	<p>Please indicate how well the following statements describe your company (1= not at all, and 7= to a great extent)</p> <p style="text-align: center;">1      2      3      4      5      6      7</p> <p>We use the internet in order to identify potential foreign suppliers and/partners</p> <p>We use emails in our communications</p> <p>We can easily communicate in foreign languages</p> <p>We continuously identify potential partners (suppliers, clients, distributors) in foreign countries</p> <p>We have multiple business contacts in multiple foreign countries</p> <p>We actively use our existing contacts to expand our business networks</p> <p>After attending a trade fair or a business association meeting overseas, we establish individual contacts with potential foreign partners we met during such events</p> <p>After attending a trade fair or a business association meeting overseas, we maintain relationships (e.g. invite them to events in Egypt or go visit them) contacts with potential foreign partners we met during such events</p>

**Thank you very much for your cooperation.**

*If you would like a copy of the research results, please let me know now.*

*Contact Information: email: hgaber@engmail.uwaterloo.ca*



## Appendix 5: Testing for Differences between Different Demographics

### Testing for Differences between Different Demographics of Respondents (T-tests)

**Table 25: Testing for Differences between Different Demographics of Respondents with regards to Export Performance**

Export Performance	Group	N	Mean	Std. Deviation	T Value ( DF )	Sig. (2-tailed)
<b>Group 1</b>	(1-30)	30	12.8333	8.42444	.714 ( 58 )	.478
	(61-90)	30	11.0667	10.61857		
<b>Group 2</b>	(1-90)	90	11.0556	9.83043	.141 (1212 )	.886
	(91-214)	124	10.8710	8.83725		

*\*1-30: First wave of mail and email respondents*

*\*61-90: Last wave of mail and email respondents*

*\*1-90: All mail respondents*

*\*91-214: door-to-door respondents*

**Table 26: Testing for Differences between Different Demographics**

		Approximately how many people does your company employ in all its locations? full time			Total	Chi-Square ( DF )	Asymp. Sig. (2-sided)
		less than 50	50 - 100	More than 100			
Group1	(1-30)	19	11	0	30	0.278 ( 1 )	.598
	(61-90)	17	13	0	30		
Total		36	19	0	60		
Group2	(1-90)	37	53	0	90	4.96 ( 2 )	.084
	(91-214)	40	79	5	124		
Total		77	77	132	214		

*\*1-30: First wave of mail and email respondents*

*\*61-90: Last wave of mail and email respondents*

*\*1-90: All mail respondents*

*\*91-214: door-to-door respondents*

## Appendix 6: OIC Exploratory Factor Analysis

**Table 27: OIC Exploratory Factor Analysis - Component Matrix**

	Factor				
	1	2	3	4	5
FM6	.994				
FM3	.945				
FM7	.901				
FM8	.892				
FM4	.805				
FM9	.773				
FM1	.765				
FM2	.765				
FM5	.741				
TC2		.781			
TC3		.753			
TC1	.312	.702			
NC2	-.385	.610			.316
TC5		.566			
TC16		.561			
TC17		.527			
NC3		.519		.434	
FM10	.420	.506			
TC4		.495			.397
TC11			.787		
TC10			.751		
TC9			.715		
TC12			.707		
TC8			.554		
TC14		.399	.467		
TC13		.440	.443		
NC7				.768	
NC8				.734	
NC5				.639	
NC4				.567	
TC6					.656
NC1					.589
TC7			.408		.471
NC6				.381	.439
TC15					.315

Extraction Method: Principal Axis Factoring.  
 Rotation Method: Promax with Kaiser Normalization.

## Appendix 7: Summary of Regression Weights

**Table 28: Regression Weights in the Structural Model**

			Estimate	S.E.	C.R.	P
IFT	<---	IEO	.581	.071	8.226	***
OIC	<---	IEO	.479	.040	12.069	***
OIC	<---	IFT	.144	.032	4.478	***
EXPORT	<---	OIC	.835	.164	5.078	***
EXPORT	<---	IFT	.130	.067	1.939	.052
EXPORT	<---	IEO	.377	.108	3.501	***
RT	<---	IEO	.560	.006	97.626	***
PRO	<---	IEO	1.000			
INNOV	<---	IEO	.964	.024	40.334	***
TCH	<---	OIC	1.000			
TCS	<---	OIC	.919	.049	18.701	***
FMK	<---	OIC	1.303	.069	18.782	***
NC	<---	OIC	.973	.046	21.122	***
EXMS	<---	EXPORT	1.000			
EXSG	<---	EXPORT	1.177	.059	19.830	***
EXPR	<---	EXPORT	1.112	.059	18.853	***
EXGR	<---	EXPORT	1.144	.061	18.743	***

**Table 29: Standardized Regression Weights in the Structural Model**

			Estimate	Estimate After Adding Control Variable
IFT	<---	IEO	.492	.492
OIC	<---	IEO	.657	.657
OIC	<---	IFT	.233	.233
EXPORT	<---	OIC	.452	.450
EXPORT	<---	IFT	.114	.113
EXPORT	<---	IEO	.280	.279
RT	<---	IEO	.999	.999
PRO	<---	IEO	.991	.991
INNOV	<---	IEO	.948	.948
TCH	<---	OIC	.922	.922
TCS	<---	OIC	.853	.853
NC	<---	OIC	.896	.896
FMK	<---	OIC	.854	.855
EXMS	<---	EXPORT	.864	.864
EXSG	<---	EXPORT	.930	.930
EXPR	<---	EXPORT	.907	.907
EXGR	<---	EXPORT	.905	.905

**Table 30: Regression Weights: CFA of OIC**

			Estimate	S.E.	C.R.	P
NC8	<---	NC	1.000			
NC7	<---	NC	1.093	.177	6.161	***
NC5	<---	NC	1.202	.181	6.636	***
NC4	<---	NC	1.066	.166	6.417	***
FM1	<---	FMK	.972	.090	10.847	***
FM2	<---	FMK	.782	.085	9.212	***
FM3	<---	FMK	.946	.089	10.655	***
FM4	<---	FMK	.872	.081	10.779	***
FM5	<---	FMK	1.037	.092	11.312	***
FM6	<---	FMK	1.023	.088	11.640	***
FM7	<---	FMK	.992	.079	12.622	***
FM8	<---	FMK	.994	.088	11.250	***
FM9	<---	FMK	1.000			
TC1	<---	TCH	1.002	.145	6.905	***
TC2	<---	TCH	1.068	.136	7.877	***
TC3	<---	TCH	1.040	.133	7.829	***
TC5	<---	TCH	1.004	.144	6.983	***
TC16	<---	TCH	1.313	.184	7.146	***
TC17	<---	TCH	1.000			
TC8	<---	TCS	1.040	.129	8.066	***
TC9	<---	TCS	1.133	.129	8.779	***
TC10	<---	TCS	1.089	.120	9.089	***
TC11	<---	TCS	.835	.116	7.203	***
TC12	<---	TCS	1.000			

**Table 31: Standardized Regression Weights: CFA of OIC**

			Estimate
NC8	<---	NC	.615
NC7	<---	NC	.751
NC5	<---	NC	.842
NC4	<---	NC	.798
FM1	<---	FMK	.823
FM2	<---	FMK	.744
FM3	<---	FMK	.815
FM4	<---	FMK	.820
FM5	<---	FMK	.844
FM6	<---	FMK	.857
FM7	<---	FMK	.895
FM8	<---	FMK	.841
FM9	<---	FMK	.852
TC1	<---	TCH	.732
TC2	<---	TCH	.850
TC3	<---	TCH	.844
TC5	<---	TCH	.742
TC16	<---	TCH	.761
TC17	<---	TCH	.680
TC8	<---	TCS	.781
TC9	<---	TCS	.845
TC10	<---	TCS	.873
TC11	<---	TCS	.703
TC12	<---	TCS	.742

**Table 32: Regression Weights – CFA of IEO**

			Estimate	S.E.	C.R.	P
IE13	<---	ieo3	1.000			
IE12	<---	ieo3	.934	.064	14.665	***
IE11	<---	ieo3	.939	.061	15.310	***
IE10	<---	ieo3	.983	.063	15.595	***
IE9	<---	ieo2	1.000			
IE8	<---	ieo2	1.982	.220	9.002	***
IE7	<---	ieo2	1.261	.170	7.425	***
IE6	<---	ieo2	1.637	.192	8.522	***
IE5	<---	ieo1	1.000			
IE4	<---	ieo1	1.142	.074	15.427	***
IE3	<---	ieo1	1.181	.077	15.410	***
IE2	<---	ieo1	1.181	.077	15.373	***
IE1	<---	ieo1	1.223	.079	15.394	***

**Table 33: Standardized Regression Weights: CFA of IEO**

			Estimate
IE13	<---	ieo3	.830
IE12	<---	ieo3	.834
IE11	<---	ieo3	.857
IE10	<---	ieo3	.867
IE9	<---	ieo2	.563
IE8	<---	ieo2	.890
IE7	<---	ieo2	.642
IE6	<---	ieo2	.802
IE5	<---	ieo1	.792
IE4	<---	ieo1	.894
IE3	<---	ieo1	.893
IE2	<---	ieo1	.891
IE1	<---	ieo1	.892

**Table 34: Regression Weights: CFA of Export Preference**

			Estimate	S.E.	C.R.	P
EXSG	<---	EXPORT	1.029	.046	22.419	***
EXMS	<---	EXPORT	.876	.047	18.807	***
EXPR	<---	EXPORT	.968	.046	20.866	***
EXGR	<---	EXPORT	1.000			

**Table 35: Standardized Regression Weights: CFA of Export Preference**

			Estimate
EXSG	<---	EXPORT	.931
EXMS	<---	EXPORT	.866
EXPR	<---	EXPORT	.904
EXGR	<---	EXPORT	.906