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Subsidiary Entrepreneurial Alertness: Antecedents and Outcomes

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SUBSIDIARY ENTREPRENEURIAL ALERTNESS: ANTECEDENTS AND OUTCOMES

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Abstract

This thesis brings together concepts from both international business and entrepreneurship to develop a framework of the facilitators of subsidiary innovation and performance. This study proposes that ***Subsidiary Entrepreneurial Alertness*** (SEA) facilitates the recognition of opportunities (the origin of subsidiary initiatives). First introduced by Kirzner (1979) in the context of the individual, entrepreneurial alertness (EA) is the ability to notice an opportunity without actively searching. Similarly, to entrepreneurial alertness at the individual level, this study argues that SEA enables the subsidiary to best select opportunities based on resources available. The research further develops our conceptualisation of SEA by drawing on work by Tang et al. (2012) identifying three distinct activities of EA: scanning and search (identifying opportunities unseen by others due to their awareness gaps), association and connection of information, and evaluation and judgement to interpret or anticipate future viability of opportunities. This study then hypothesises that SEA leads to opportunity recognition at the subsidiary level and further hypothesises innovation and performance as outcomes of opportunity recognition. This research brings these arguments together to develop and test a comprehensive theoretical model.

The theoretical model is tested through a mail survey of the CEOs/MDs of foreign subsidiaries within the Republic of Ireland (an innovative hub for foreign subsidiaries). This method was selected as the best method to reach the targeted respondent, and due to the depth of knowledge the target respondent holds, the survey can answer the desired question more substantially. The results were examined using partial least squares structural equation modelling (PLS-SEM). The study's findings confirm two critical aspects of subsidiary context, subsidiary brokerage and subsidiary credibility are positively related to SEA. The study establishes a positive link between SEA and both the generation of innovation and the subsidiary's performance. This thesis makes three significant contributions to the subsidiary literature as it 1) introduces and develops the concept of SEA, 2) identifies the antecedents of SEA, and 3) demonstrates the impact of SEA on subsidiary opportunity recognition. Implications for subsidiaries, headquarters and policy makers are discussed along with the limitations of the study.

Declaration

I certify that this thesis which I now submit for examination for the award of Doctor of Philosophy, is entirely my own work and has not been taken from the work of others and to the extent that such work has been cited and acknowledged within the text of my work.

This thesis has been prepared according to the regulations for postgraduate study by research of Technological University of Ireland has not been submitted in whole or in part for an award in any other Institute or University.

The work reported in this thesis conforms to the principles and requirements of the Institute's guidelines for ethics in research.

Signature: _____ Date: _____

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“It always seems impossible until it is done”

Nelson Mandela

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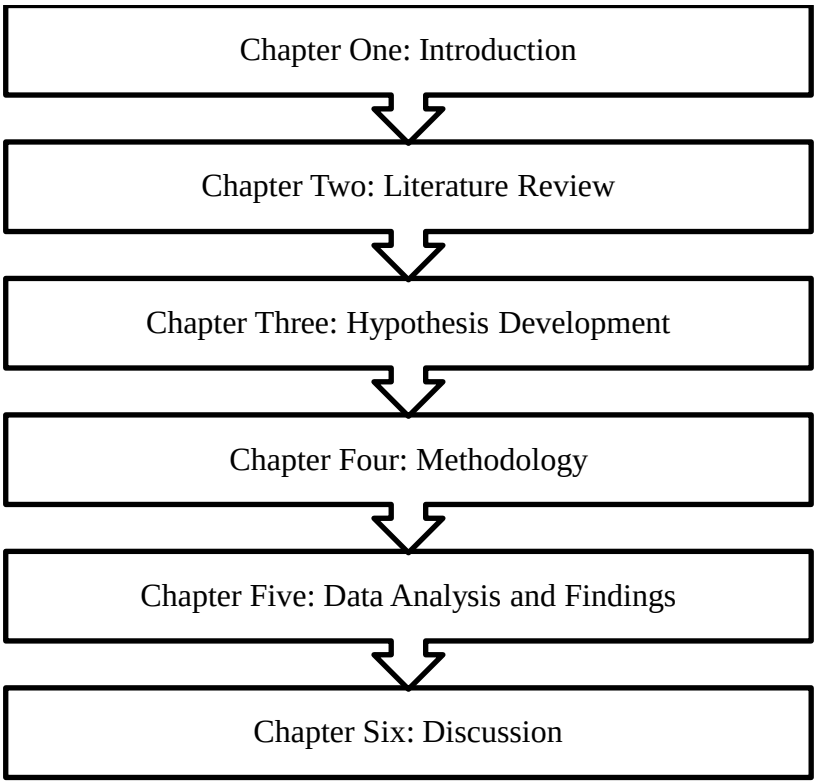
Summary of Thesis Structure

This thesis consists of six chapters that are structured as follows:



Chapter One: ***Introduction:*** describes the background of the research, drawing on the concept of opportunity recognition from the fields of entrepreneurship and international business. The rationale behind the proposed research framework is outlined and the related objectives of the study is defined. This chapter also explains the research context which is under analysis.

Chapter Two: Literature Review: this chapter provides an extensive review of the international business and entrepreneurship literature that relates to entrepreneurial alertness and opportunity recognition. Arguments are developed to demonstrate the value of entrepreneurial alertness in opportunity and the significance of applying it to the subsidiary context. The chapter illustrates the significance of using Tang et al. (2012) multidimensional construct in the subsidiary context by introducing the new concept of subsidiary entrepreneurial alertness (SEA). The chapter concludes by merging theoretical approaches and proposes a framework capturing the proposed antecedents of SEA and the alternative outcomes of subsidiary opportunity recognition, innovation and performance.

Chapter Three: Hypotheses Development: this chapter integrates the selected dimensions of subsidiary structure, relationships and context within a framework for hypothesis testing. Arguments are developed to demonstrate the need to explore the impact of aspects of the subsidiary context which have been largely overlooked. This constitutes an extension of subsidiary literature particularly that of entrepreneurial alertness and opportunity recognition.

Chapter Four: Methodology: addresses the methodological considerations for this research. The rationale behind the research design chosen is presented and the key considerations for adopting the survey method is provided. The chapter illustrates how the research operationalised the variables used and concludes by presenting the data analysis and the requirements needed to successfully utilize partial least squares.

Chapter Five: Data Analysis and Findings: this chapter presents the results of the empirical investigation undertaken. The quantitative analysis was performed using SPSS and SmartPLS. The chapter firstly analyses the antecedents of SEA, and secondly analyses the association between SEA and opportunity recognition. The relationship between opportunity recognition and both innovation and performance is also examined. The chapter concludes with the establishment of a new model of SEA.

Chapter Six: Discussion: explains the findings of the research in relation to the defined research objectives. Theoretical insights from the quantitative analysis provide generalizable conclusions, introducing subsidiary entrepreneurial alertness to the subsidiary literature, illustrating the antecedents of SEA and its relationship with subsidiary opportunity recognition, innovation and performance are identified. This chapter also acknowledges and describes the limitations of the research, illustrating the implications of the research for subsidiaries, headquarters and policy makers. Lastly, this thesis concludes with identifying potential further research in the area of international business and entrepreneurship.

Chapter One: Introduction

Organisations operate in complex and dynamic environments that are increasingly characterised by rapid change (Brown & Eisenhardt, 1997; Grégoire et al., 2010; Hitt & Ireland, 2017; Nair et al., 2022) In order to maintain a competitive advantage, organisations must respond strategically to these changes (Brown & Eisenhardt, 1997; Ireland & Hitt, 1999; Teece, 2007). Undeniably, a major challenge facing multinational corporations (MNCs) is to develop and enhance entrepreneurial capabilities. To address this challenge, literature has identified the notion of opportunity recognition (OR) as the heart of entrepreneurial activity (Shane & Venkataraman, 2000). Substantial gains can therefore be made by organizations skilled at detecting new opportunities in diverse environments (Eisenhardt, 1989; Eisenhardt & Martin, 2000). This suggests that examining the aspects of opportunity recognition warrants greater prominence and research attention of its importance in the MNC. Consequently, this study draws upon both the international business and entrepreneurship literature to deepen our understanding of OR in MNCs.

1.1. Opportunity Recognition in Entrepreneurship

It is generally acknowledged that both large and small organisations must be entrepreneurial in nature to succeed (Barringer & Bluedorn, 1999a; Rauch et al., 2009). The growing acceptance of entrepreneurship within organisations compels both academics and practitioners to ensure that the phenomenon is accurately understood. Entrepreneurship within existing organisations, commonly referred to as corporate entrepreneurship encompasses three dimensions: risk taking, pro-activeness and innovativeness (Covin & Slevin, 1988, 1989; Miles & Arnold, 1991; Rauch et al., 2009; Liu & Xi, 2022). Recently however, this conceptualisation of entrepreneurship has been criticised for failing to capture the entirety of the process (Covin & Lumpkin, 2011; Miller, 2011; Rauch et al., 2009), and of overlooking the seed of entrepreneurship, the initial recognition of an opportunity (Baron, 2006; Baron & Ensley, 2006; Grégoire et al., 2010; Hsieh et al., 2007; Shane, 2000; Shane & Venkataraman, 2000). Defined by Lumpkin and Lichtenstein (2005: 457) as “the ability to identify a good idea and transform it into a business concept that adds value

and generates revenue", opportunity recognition enables organisations to identify commercial potential in new or existing fields and endeavours.

The most dominant organisational structure of our time, the MNC, is particularly cognizant of the contribution of its dispersed subsidiaries to the corporation's entrepreneurship. Entrepreneurship is a vital means of accumulating, adapting, and leveraging resources for competitive purposes such as, developing and utilising innovations to redefine the organisation and its markets/industries (Covin & Miles, 1999; Dess et al., 1999; Floyd & Wooldridge, 1999). The dispersed form of corporate entrepreneurship views the development of an entrepreneurial culture as the key antecedent of innovation (Birkinshaw, 1999; Covin & Slevin, 1991; Ghoshal & Bartlett, 1994; Zahra, 1993); which are proactive entrepreneurial activities that advance approaches for the corporation to expand and utilise its resource (Birkinshaw & Ridderstråle, 1999; Kanter, 1982; Miller, 1983).

Studies to date provide growing support for the contribution of entrepreneurship within the subsidiary units to the success of MNCs (Zahra et al., 2001). In an increasingly competitive business landscape, the ability to recognise opportunities is vital to the economic sustainability of any organisation (Baron, 2006; Shane, 2000; Shane & Venkataraman, 2000; Short et al., 2010), regardless of size or complexity. Therefore, provides an ideal context for exploring the phenomenon of innovation and performance.

Given the importance of entrepreneurship within all organisations (Clark & Ramachandran, 2019), this thesis will explore the factors of subsidiary context which drives SEA. This thesis investigates the relationship between SEA and subsidiary transformation of an opportunity into a new product/ service/ process or improvements in organisational efficiency within the subsidiary itself or/and throughout the entire MNC.

1.2. Opportunity Recognition in Multinational Corporations

From an organisational perspective, subsidiary units allow their organisation to tap into opportunities outside the MNC's country of origin (Ambos et al., 2010; Birkinshaw, 1997; Rugman & Verbeke, 2001; Stallkamp & Schotter, 2021) which can lead to innovations and extensions of the corporation's activities. Such innovations represent the subsidiary's contribution to the renewal of MNC's competitive advantage (Burgelman, 1983a; Verbeke et al., 2007), through the growth of its resource base or the realisation of economic wealth through innovation and performance (Alvarez et al., 2013; Ambos et al., 2010; Birkinshaw et al., 1998a). The value of such contributions to enhancing operational efficiency (Birkinshaw & Fry, 1998; Gorgijevski & Andrews, 2022), local responsiveness, global integration and worldwide learning capabilities (Birkinshaw, 2000) of the overall organisation has stimulated a stream of research on how and why such innovations are generated and the role of subsidiary entrepreneurship in contributing to performance (Almeida & Phene, 2004; Andersson et al., 2002; Frost, 2001; Ghoshal & Bartlett, 1988; Michailova & Zhan, 2015; Phene & Almeida, 2008).

From a subsidiary's perspective, it needs to continuously recognise opportunities if it is to be viable and competitive locally (Lumpkin & Lichtenstein, 2005), and maintain its internal position and bargaining power (Ambos et al., 2010). The ability to recognise opportunities also builds subsidiary reputation and reduces the risk of closure and relocation of their activities (Reilly et al., 2012; Sharkey Scott & Gibbons, 2010).

While the subsidiary's ability to develop and implement initiatives and the value of such initiatives to both the MNC and the subsidiary has already been established (Ambos et al., 2010; Birkinshaw, 1997; Garcia-Pont et al., 2009; Mahnke et al., 2012; Strutzenberger & Ambos, 2014), there is a gap in our knowledge of how initiatives themselves, begin with the recognition of an opportunity. Literature does not aid our understanding of the pre-initiative stage of initiative generation i.e., what aspects of subsidiary context promotes the recognition of opportunities (Strutzenberger & Ambos, 2014).

This thesis proposes that subsidiary initiative begins with subsidiary recognition of opportunities, demanding that a subsidiary is firstly *alert* to these opportunities. Initially developed from the perspective for the individual, entrepreneurial alertness (EA) is the ability to notice an opportunity without searching (Kirzner, 1979). While opportunity recognition is described as an iterative process of compiling and interpreting information (Bergh et al., 2011; Lumpkin & Lichtenstein, 2005), entrepreneurial alertness enables selection of those opportunities with *the most potential* to be pursued with the available resources, driving the entrepreneurial process (Tang et al., 2021; Valliere, 2013). Platforming on Kirzner's original definition, Tang et al. (2012) identify three distinct activities within entrepreneurial alertness: scanning and search (identifying opportunities unseen by other due to their awareness gaps), association and connection of information, and evaluation and judgement to interpret or anticipate future viability of opportunities. The study draws on and extends this approach to propose that similarly to organisations, subsidiary units of MNCs can exhibit entrepreneurial alertness and that such SEA leads to opportunity recognition at the subsidiary level.

Following this argument that SEA leads to opportunity recognition within MNCs, the research builds and tests a comprehensive theoretical model. This model identifies the antecedents of subsidiary EA, and its relationship with opportunity recognition, innovation and subsidiary performance. A major survey of the population Irish subsidiaries will be executed in the Republic of Ireland, one of the world's leading locations for attracting foreign direct investments (I. D. A. Ireland, 2015).

1.3. Originality and Contributions of the Study

Identifying the antecedents of SEA and establishing its role in opportunity recognition, innovation and performance, provides three significant contributions to theory. Firstly, the study introduces the concept of subsidiary entrepreneurial alertness (SEA) to the MNC literature. To date entrepreneurial alertness has been examined in the context of the individual and organisation (Gaglio & Katz, 2001; Kaish & Gilad, 1991; Lanivich et al., 2022; Shepherd & DeTienne, 2001; Tang et al., 2012). However, this study argues that the concept of SEA allows us to theorise the importance of the subsidiary unit in recognising opportunities. Secondly, the study draws from the both the

organisational entrepreneurship and subsidiary literatures to identify a range of antecedents to SEA, and potential subsidiary level contributions from SEA. For practitioners, increased knowledge of the facilitators of SEA will extend the subsidiary's ability to enhances its performance and potentially its position and long-term survival within the MNC. Finally, this research will extend existing entrepreneurship literature by developing our understanding of the initial stage of subsidiary opportunity recognition, the outcomes of subsidiary opportunity recognition, and the need to identify and support initiatives "*before they become successful"* (Mahnke et al., 2007:1293).

To understand the impact of SEA, key organisational outcomes from the subsidiary context are selected to examine entrepreneurial alertness. This approach responds to the specific calls to examine if entrepreneurial alertness leads to more than opportunity recognition, with key organizational outcomes such as the pursuit of new initiatives, performance and follow-on innovations worth pursuing (Tang et al., 2012). This study recognises that subsidiary initiative as the outcome of the process however, it addresses the influence of SEA by selecting two additional possible outcomes that represent exciting and valuable contributions to both the entrepreneurship and MNC literature. Firstly, innovation, within the entrepreneurship context innovation is defined as the process of identifying and exploiting opportunities in order to create new products, service, or work practices (Schumpeter, 1934; Tang et al., 2012; van de Ven, 1986), therefore it is plausible to suggest that alert subsidiaries are more likely to discover new products, process and services and therefore increasing the innovations of their organisation (Gaglio, 2004; Shepherd & DeTienne, 2005). The research consequently expects that SEA to be significantly related to innovation.

Secondly, while entrepreneurship literature has commonly proposed a positive effect of entrepreneurship on organisational performance (Covin & Slevin, 1991; Zahra, 1993; Zahra & Covin, 1995), there is a lack of theorization and consequently limited knowledge on how SEA connects to performance (Gaglio & Katz, 2001; Sarasvathy et al., 2003). A subsidiary develops influential strategies to enhance its competitive position within the MNC, therefore its relative strength is essentially critical in order to raise resources. This study examines the relationship between SEA and the relative

performance of the subsidiary, i.e., the way in which the subsidiary is perceived relative to its peers. Even though subsidiaries seek to achieve superior performance through the ongoing benefits of initiative generation, including the measures of innovation, subsidiary performance provides an interesting and alternative contribution to literature.

1.4. Research Context – Republic of Ireland

Ireland was selected as the research context for the study as it is recognised as a small, highly globalised economy which has attracted high levels of MNCs foreign direct investment (FDI) for a number of decades (Barry, 2007; Collings et al., 2008). This is largely due to its national, industrial, and economic policies (Monaghan et al., 2014) such as its open market economy (Begley et al., 2005), European Union membership, strongly educated workforce and low corporate tax regime.

Ireland offers significant fiscal advantages and is acknowledged as the steppingstone into the EU (Monaghan et al., 2014; Rios-Morales & Brennan, 2009). As Ireland is now recognised as one of the most FDI intensive economies (Barry, 2004; Monaghan, 2012; Monaghan et al., 2014), it provides the study with a substantially opportunity to examine the large complexities associated with MNC dynamics (Monaghan et al., 2014; Ryan & Giblin, 2012).

Chapter Two: Literature Review

The growing acceptance of entrepreneurship (Brown et al., 2001) compels the MNC to recognise the benefits of opportunity recognition in subsidiaries. It contributes to not only the subsidiary's performance but also to the MNC through its knowledge, capabilities and innovations developed through recognising opportunities which are diffused across the organisation (Almeida & Phene, 2004; Bartlett & Ghoshal, 1989; Eisenhardt & Martin, 2000; Frost, 2001; Hedlund, 1986; Kim et al., 2003; Teece, 2014)

The purpose of this chapter is to provide an extensive review of the relevant literature on the theme of opportunity recognition and entrepreneurial alertness. Despite its criticality and possible benefits for the entire MNC, both themes have received inadequate research attention in the context of the organisation. Subsequently, this chapter starts demonstrating how corporate entrepreneurship is vital for inspiring innovation, this study then provides an examination of the value of entrepreneurial alertness for opportunity recognition within the entrepreneurship literature, providing a brief basis of the study's definition of opportunity recognition. It then highlights the importance of understanding of how entrepreneurial alertness facilitates opportunity recognition with introducing the concept of subsidiary entrepreneurial alertness. The study then applies Tang et al. (2012) multidimensional construct of entrepreneurial alertness to the subsidiary perspective which captured critical aspects in the subsidiary context. This concludes by building the argument underpinning subsequent examination of untested and novel antecedents and outcomes of subsidiary entrepreneurial alertness.

2.1. Value of Entrepreneurial Alertness for Opportunity Recognition

2.1.1. Corporate Entrepreneurship

Corporate entrepreneurship is an important source for encouraging innovation, energizing organizations, and enhancing productivity and has received a substantial amount of attention of the last few decades (Kreiser et al., 2021; Kuratko et al., 2009; Mcgrath et al., 1994; Zahra, 2015). It is also seen as an important potential growth

driver and a source of new knowledge that permits companies to generate capabilities to enter new markets (Morris et al., 2008; Soriano & Huarng, 2013; Zahra, 2015). In terms of innovation, it is recognised as a primary component of corporate entrepreneurship (Covin & Miles, 1999; Covin & Slevin, 1991; Lumpkin & Dess, 1996; Zahra & Covin, 1995), as by encouraging competitive advantages through innovations (Ireland et al., 2001) it allows the MNC to gain economies of scope in learning across dispersed operations (Gillmore, 2022; Sharkey-Scott, 2005). As demonstrated by McEvily et al. (2004:713) 'the ability to effectively innovate is a central challenge', therefore corporate entrepreneurship strengthens the demand to innovate within subsidiaries. This demonstrates the expansion of subsidiary role where the MNC entails its subsidiaries to produce innovations to exploit the opportunities in its local environment, which it expects to utilise throughout the organisation (Ghoshal & Bartlett, 1988). Consequently, the subsidiary's strategy needs to be consistent, coherent and embrace innovation (Teece, 2014). Specifically, by applying opportunity recognition and innovation to the subsidiary context may provide interesting results as the various types that fortify the ability of organisations to innovate are cumulative and context dependent (Collinson & Wang, 2012) and therefore specific to particular organisations and their location.

Corporate entrepreneurship as an organisational process also contributes to firm survival and performance (Covin & Slevin, 1989; Dess et al., 1999; Drucker, 1985; Lumpkin & Lichtenstein, 2005; Mahnke et al., 2007; Strutzenberger & Ambos, 2014; Zahra et al., 1999). Literature argues that entrepreneurial attitudes and behaviours are essential for organisations of all sizes to succeed in competitive environments (Barringer & Bluedorn, 1999b). The subsidiary is challenged with a number of factors in their bid to increase their performance including host country conditions, related competitive environments (Gammelgaard et al., 2012), quality of opportunities (Zahra et al., 2005), and ensuring that the subsidiary strives to deliver on performance expectations of headquarters (Mahnke et al., 2012).

However, even though corporate entrepreneurship has been seen as traditionally governing performance, subsidiary literature misses a vital part of the corporate entrepreneurship story which is the relationship between of alertness and opportunity

recognition (Gaglio & Katz, 2001; Simsek et al., 2009). Alertness might help explain why some subsidiaries are more apt than others to engage in corporate entrepreneurship such as advancing new opportunities for the subsidiary and MNC (Zahra, 1996). Because of the advantageous information-seeking nature of alertness, subsidiaries that demonstrate entrepreneurial alertness should be better able to recognise information asymmetries and turn it into greater corporate entrepreneurship (Kirzner, 1997; Simsek et al., 2009).

2.1.2. Opportunity Recognition within Entrepreneurship

A growing body of research highlights the importance of entrepreneurship for the overall success of the MNC (Birkinshaw et al., 1998a; Birkinshaw & Fry, 1998; Birkinshaw & Hood, 1998; Ghoshal & Bartlett, 1990; Zahra & George, 2002). It is generally recognised that entrepreneurship can have a positive influence on the performance of the organisation (Covin & Slevin, 1991) and drive value creation in international and home markets (Zahra, 1993). Entrepreneurship as a field of research seeks to understand how new products and services are identified, recognised and exploited by whom and with what consequence (Ahuja & Morris Lampert, 2001; Venkataraman, 2019). Entrepreneurship is critical for an organisation to survive and grow in the face of increasing competitive pressures in a globalised business environment (Baron, 2006; Burgelman, 1983a; Shane & Venkataraman, 2000; Short et al., 2010). An integral part of entrepreneurship is the discovery, evaluation and exploitation of opportunities (Eckhardt & Shane, 2003; Hansen et al., 2011; Shane & Venkataraman, 2000; Short et al., 2010) which enables the MNC to achieve sustainable business growth. Once an opportunity is recognised by the MNC, it can be developed within headquarters or distributed to a subsidiary as an initiative which in turn leads to innovations. Such opportunity recognition represents a chance for a subsidiary to contribute to the competitive advantage of the MNC (Burgelman, 1983a; Verbeke et al., 2007).

Opportunity recognition has been particularly recognised as critical for building skills for developing new markets and achieving superior performance (Mahnke et al., 2007). Some (Douglas & Shepherd, 2000; Kaish & Gilad, 1991; Kirzner, 1973) argue that opportunity recognition is the cornerstone of entrepreneurship. Mahnke et al.

(2007:1279) explain that recognising entrepreneurial opportunities "comprises all the productive possibilities that entrepreneurs see and can take advantage of including the discovery of arbitrage possibilities, new resource combinations, and novel ways of transacting". Opportunity recognition, in other words, occurs once an idea has been identified as an opportunity. It is the process of recognising an opportunity as a valuable source for adding value and generating revenues for sustainable growth (Anwar et al., 2022; Lumpkin & Lichtenstein, 2005).

Entrepreneurs often see opportunities where others do not, envisioning future possibilities that others fail to recognise (Allinson et al., 2000). Therefore, opportunity recognition in an MNC context involves not only individual and team related activities (Singh, 2000; Singh et al., 1999) but the organisation itself. Within complex, international organisations such as MNCs, which are heavily dependent on subsidiaries for innovations, this research argues that there is a demand for subsidiary units to identify and recognise opportunities. Subsidiaries are the main access point for obtaining knowledge outside of the home country, enhancing local responsiveness, global integration and worldwide learning(Strutzenberger & Ambos, 2014; Young et al., 2003). This imperative suggests that from an MNC perspective, there is a need to understand how to promote and stimulate entrepreneurial activities, formally and informally, throughout their global operations (Mahnke et al., 2007). The subsidiary imperative for innovation lies in the constant need for capability building to avoid closure and relocation of activities (Birkinshaw et al., 1998a; Gillmore, 2022)This suggests a need for a greater understanding of the antecedents that influence SEA for recognising opportunities.

2.1.3. Opportunity Recognition Defined

Opportunities are recognised "as situations in which new goods, services, raw materials, markets and organizing methods can be introduced through the formation of new means, ends, or means to end relationships" (Eckhardt & Shane, 2003). Opportunities have been identified by Sarasvathy et al. (2003:142) as a "set of ideas, beliefs and actions that enable the creation of future goods and services in the absence of current markets for them". Lumpkin and Lichtenstein (2005:457) define the recognition of an opportunity as "the ability to identify a good idea and transform it

into business concepts that add value and generate revenue". In essence, consistent in all definitions of opportunity recognition is the notion of introducing an idea for commercial use.

While the importance of opportunity recognition for entrepreneurship is important Shane and Venkataraman (2000:218) note our limited understanding of "the sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities and the absence of a framework (Companys & McMullen, 2007) that explains the emergence and development of entrepreneurial opportunities within organizations. The growing interest in opportunities has resulted in discussions of opportunity as a concept (Alsos & Kaikkonen, 2002; Gartner et al., 2003), as well as the exploration of opportunity generation (Corbett, 2002, 2005; Shepherd & DeTienne, 2001; Shepherd & Levesque, 2002) and opportunity exploitation processes (Samuelsson, 2001). Further studies examine the value of the opportunity concept to entrepreneurship research (Eckhardt & Shane, 2003; Gartner et al., 2003; Kirzner, 1997). Research has also made progress on a range of topics such as identifying the sources of opportunities (Eckhardt & Shane, 2003; Plummer et al., 2007); categorisation of different types of opportunities (Dahlqvist & Wiklund, 2012; Eckhardt & Shane, 2003; Sarasvathy et al., 2003), and charted the evolving nature of many entrepreneurial processes (Alvarez & Barney, 2007; Ardichvili et al., 2003; Dimov, 2007; Wood & McKinley, 2010).

While research has established that the recognition and exploitation of business opportunities in the market are core functions of entrepreneurship (Casson, 1982; Hills & Shrader, 1998; Kirzner, 1973; Schumpeter, 1934), literature knows little of how organisations achieve these goals (Brown et al., 2001). The literature does however consistently regard opportunity recognition as incorporating: (a) sensing or perceiving market needs and/ or underemployed resources, (b) recognising or discovering a "fit" between particular market needs and specified resources, and (c) creating a new "fit" between heretofore separate needs and resources in the form of a business concept (de Koning, 1999; Hills & Shrader, 1998). De Koning (1999) suggests that information gathering, thinking through talking, and resource assessing carried out through active interaction with an extensive network of people is involved.

Both existing and new ventures can recognise an opportunity for new profit potential (Singh et al., 1999). Opportunity recognition can be perceived to occur both "prior to organisation founding and after organisation founding throughout the life of the organisation" (Singh et al., 1999: G1). The philosophical argument as to whether opportunities are created or discovered is outside the scope of the research as this study is only concerned with the recognition of the opportunity. Consequently, Sarasvathy et al. (2003) definition is adopted, embracing the newness or novelty dimension of an opportunity and the economic value to an organisation.

2.2. Entrepreneurial Alertness as a facilitator of Opportunity Recognition

Opportunities are brought about by the alertness of entrepreneurs, originally defined by Kirzner (1973) as the ability to identify opportunities which are overlooked by others (Ardichvili et al., 2003; Roundy et al., 2018; Valliere, 2013). Kirzner (1973) also initially used the term alertness to explain entrepreneurial recognition of opportunities (Ardichvili et al., 2003) and has since then emerged as a central part of almost all models addressing opportunities (Baron & Ensley, 2006; Gaglio, 2018; Valliere, 2013). Entrepreneurial alertness is also recognized as a critical economic driver of a dynamic and competitive entrepreneurial process (Valliere, 2013).

Based on the individual perspective, it is argued that alert individuals are prompted by schema that allows them to comprehend the changing environmental cues, and that they are able to realise the appropriate behaviour for that particular situation, whereas non alert individuals misread the environmental cues and the kind of behaviour demanded by the moment (Gaglio & Katz, 2001; Kirzner, 1973, 1979, 1997). However, the antecedents that influence the alertness of entrepreneurs remains relatively underexplored (Yu, 2001).

A subsidiary can access its network position within the MNC (Burt, 2003) to proactively obtain and share knowledge and expertise influencing the innovative process of the entire organisation (Burt, 2003; Zaheer & Zaheer, 1997). Alertness is viewed as playing an important role in recognising and evaluating opportunities not only by individuals (Busenitz, 1996) but also organisations (Kirzner, 1997; Simsek et

al., 2009; Zaheer & Zaheer, 1997). An organisation's level of entrepreneurial alertness is considered to be positively related to its propensity to engage in corporate entrepreneurship than others (Sharma, 2018; Simsek et al., 2009) and as this study now argues, to recognise opportunities.

2.2.1. Dimensions of Entrepreneurial Alertness

Alertness to opportunities involves using prior knowledge and experience, pattern recognition, information processing skills and action (Ardichvili et al., 2003; Baron, 2006; Eckhardt & Shane, 2003; Gaglio & Katz, 2001; Shepherd et al., 2007). At an organisational level, Zaheer and Zaheer (1997) argue that the manner in which an organisation maintains and utilises its information networks is a key capability that characterises the organisation's entrepreneurial alertness.

2.2.2. Scanning and Search

Consistent with Kirzner's (1973;1979) early work, when new opportunities are present, scanning and searching means constantly browsing the environment to search for new information, market changes, and shifts that others may have overlooked (McDougall et al., 1994; Tang et al., 2012). When searching for new information, a vast amount of data is available, some of which may indicate an opportunity (Fiet, 2007). A signal is new information that changes our understanding and relates to the creation of new wealth (Baron, 2006; Fiet, 2007). Alert scanning and search allow entrepreneurs to be determined and alternative in their efforts to explore new ideas (Busenitz, 1996) and assists them in establishing a vast collection of domain-relevant information (Tang et al., 2012). Scanning and search can also occur when the entrepreneur begins to seek answers to a specific question and also typically search for multiple possibilities in the relevant places (Kirzner, 1979; Tang et al., 2012).

From a subsidiary perspective, entrepreneurial alertness accesses data from a large range of possibilities from different locations such as internal sources, its headquarters or from the business environment may be available. Both tacit and explicit knowledge may be transferred across the organisation to enhance the subsidiary's development, increase its awareness of business opportunities, and facilitate the integration and accumulation of new knowledge as well as adapting to new situations (Weick, 1979).

Subsidiaries that more extensively engage in scanning and search will have a wider knowledge and experience base relative to other subsidiaries and their headquarters. However, there are a number of factors that demonstrate the extent to which a subsidiary actively scans and searches (See chapter 2.3).

2.2.3. Association and Connection

The second dimension of entrepreneurial alertness, association and connection, involves gathering different pieces of information and building them into coherent alternatives. This integrates well with Kirzner's (1973, 1979) later work on alertness and addresses reactions to and processing of new information clues. This dimension allows the individual entrepreneur to study several options and possibilities and to make connections from their own perceived information base (Lehrer, 2008). The association and connection dimension encourages the entrepreneur's 'propensity to notice and be sensitive to information about objects, incidents, and patterns of behaviour in the environment' (Tang et al., 2012:78). It is also argued that the information associated or connected may change or may produce new information (Baron & Tang, 2011; Ericsson et al., 1993; Tang et al., 2012).

From a subsidiary's point of view, the search for knowledge and expertise should enable new associations and connections to the 'big picture'. This dimension is arguably more proactive than scanning and search (Alvarez & Busenitz, 2001), as organisations are diverse in how they interpret and manipulate information (Tang et al., 2012). For example, if an unusual event or something unexpected is detected, an organisation that is entrepreneurially alert can more readily change its existing schema to accommodate non-matching information (Gaglio & Katz, 2001; Tang et al., 2012). The subsidiary is argued to be characterized by an entrepreneurial dominant logic whereby associating and connecting information for potential opportunities leads to greater levels of profitability (Kuratko et al., 2001). Also, with the continuous flow of information, the subsidiary has the ability to make quicker decisions (Hornsby et al., 2009).

2.2.4. Evaluation and Judgement

The third dimension of entrepreneurial alertness is evaluation and judgement. This dimension involves evaluating and judging whether an opportunity exists from the information that is received and justifying whether there is a fit with the current cognitive framework (Tang et al., 2012). If an opportunity exists the new information is refined, useless information for that opportunity is abandoned (Gielnik et al., 2012; Zahra et al., 2005). Judgement is an important aspect of alertness as it allows entrepreneurs to sense opportunities (Kirzner, 1997; Yu, 2001). Assessing and estimating an opportunity arises the way the entrepreneur exercises judgement and decides whether they will exploit the opportunity by engaging in entrepreneurial action. This stage of evaluation focuses on judging the new changes, shifts or information and deciding if it reflects a business opportunity with profit potential (Tang et al., 2012). Alternatively, an evaluation may require the individual to seek additional information and change related substitutes. Through acquiring more information, the individual can make more accurate evaluations and judgement on the potentiality of the opportunity (Lehrer, 2008; Reed, 2012).

From a subsidiary perspective, judgement is based on pattern recognition by the subsidiary as it assesses whether the opportunity meets unmet market needs. Therefore, the subsidiary is dependent on its cognitive frameworks and the efficiency of the evaluation techniques utilised (Ardichvili et al., 2003; Baron & Ensley, 2006). In addition, as the dimensions of EA are complementary and provide a foundation for identifying new business ideas, information that was conceived but deemed useless for one opportunity may in turn lead another opportunity (Keh et al., 2002; McMullen & Shepherd, 2006). It is notable that this dimension does not include the actual launching and exploiting of the opportunity, it only determines whether a viable opportunity exists (Haynie et al., 2009; Tang et al., 2012).

2.3. Subsidiary Entrepreneurial Alertness

The research proposes that *Subsidiary Entrepreneurial Alertness (SEA) is the subsidiary's ability to be alert to entrepreneurial opportunities*. Understanding the previous sections, we can assimilate the process and benefits for individuals and firms acting entrepreneurially alert. Proceeding to subsidiary context, SEA extends our knowledge on the subsidiaries ability to be entrepreneurial alert. For example, as previously mentioned the subsidiary has access to a vast array of information therefore the scanning and search dimension should increase the level of opportunities identified far more superiorly and speedier than to that of the individual. However, it is worth noting that subsidiaries will vary in the degree it can act entrepreneurially alert, and that not all subsidiaries will engage in each dimension of entrepreneurial alertness to the same level due to constraints or motivation for example.

Therefore, to understand the antecedents that drive entrepreneurial alertness in the subsidiary, analysing the three dimensions of entrepreneurial alertness that Tang et al. (2012) introduces, comprising of complementary non-additive dimensions: scanning and search, association and connection, evaluation and judgement, and this study develops arguments for how these dimensions link to opportunity recognition in a subsidiary context. Figure 1 shows the dimensions of subsidiary entrepreneurial alertness.

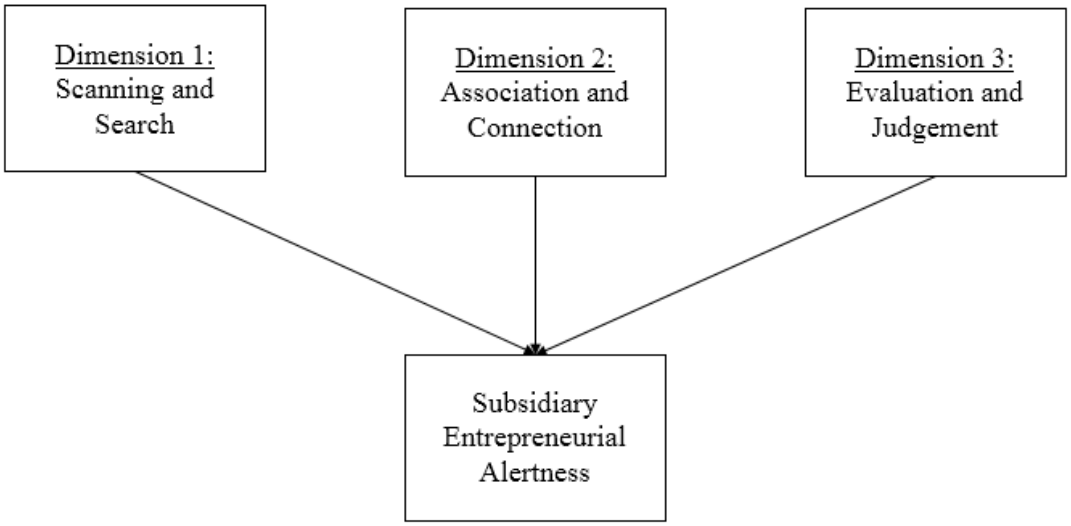


Figure 1: Dimensions of Subsidiary Entrepreneurial Alertness

2.3.1. Antecedents of Subsidiary Entrepreneurial Alertness

When examining the dimensions of entrepreneurial alertness at the subsidiary level, there is a need to be particularly cognisant of the importance of the subsidiary context. As units within complex and often large organisations, subsidiaries cannot be viewed in isolation. Their relationships and interdependencies, not just with headquarters but also with their sister operations, often have a significant impact on their activities (Bartlett & Ghoshal, 1986; Gammelgaard et al., 2012; Ghoshal & Bartlett, 1990). Decisions made by headquarters relating to the subsidiary have profound implications for the strategic direction and context of the subsidiary and its ability to recognise emerging opportunities (Bouquet & Birkinshaw, 2008).

The complex relationship between a subsidiary and its headquarters can be considered in terms of three aspects at subsidiary level (Bouquet & Birkinshaw, 2008): the structural aspects refers to the 'various administrative mechanisms which can manipulate and influence' the subsidiary's strategy (Burgelman, 1983b); relational aspects represents the quality of linkages both internally and externally within which the subsidiaries operates (Figueiredo, 2011; Hansen, 1999); the cognitive aspects captures the cognitive structures that influence the effectiveness of the subsidiary in participating in a particular setting, for example, the cognitive capacity to notice connections between diverse events and trends (Baron, 2006; Busenitz et al., 2003; Hisrich et al., 2007; Powell & DiMaggio, 2012). To appropriately capture these three critical aspects of subsidiary context, the study identifies key variables in the subsidiary literature, theoretically linked to entrepreneurship in subsidiaries. The study then develops arguments for why these variables are related to SEA. See Figure 2 for the structural, relational and cognitive aspects of SEA.

2.3.1.1. Structural Aspects of Subsidiary Entrepreneurial Alertness

Traditional approaches to subsidiary management highlight the importance of structural aspects for the subsidiary, capturing its relationship with the MNC (Birkinshaw et al., 1998a; Bower, 1972; Bresman & Zellmer-Bruhn, 2013; Burgelman, 1983a). This approach suggests that subsidiary control is achieved through applying an appropriate structural context encouraging desirable behaviour (Birkinshaw et al.,

1998a; Jansen et al., 2006; Williams, 2009). Bower (1970) and Prahalad (1976) identify the role of the headquarters management in defining subsidiary structural context (Birkinshaw & Morrison, 1995; Hogenbirk & van Kranenburg, 2006). While headquarters defines the structural context with reference to the organisation as a whole (Reilly & Scott, 2014), other factors including corporate strategy and specific subsidiary's abilities vary (Bartlett & Ghoshal, 1986; Jansen et al., 2006; O'Brien et al., 2018).

Originally conceived by Ghoshal and Bartlett (1990) subsidiary structural context also embraces theories of intra-organisational power: the official authority bestowed in hierarchical positions (Mintzberg, 1983) through the capacity for obtaining resources from the environment and controlling the supply of resources to others (Salancik & Pfeffer, 1978); and the centrality of location within the organisation's network of workflow linkages (Cavanagh et al., 2017; Tichy & Fombrun, 1979). Therefore, it is a subsidiary's structural fit across elements of the organisation that internally differentiates the position it occupies in the corporate system (Astley & Sachdeva, 1984; Bouquet & Birkinshaw, 2008; Gammelgaard et al., 2012) and defines its relationship with headquarters (Jarillo & Martíanez, 1990; Joseph & Ocasio, 2012). The various structural and administrative mechanisms that headquarters puts in place determine a subsidiary's behaviour (Burgelman, 1983b; Marvel et al., 2007). These mechanisms are constantly "regulating the activities within [the] organisation so that they are in line with the MNC's expectations established in polices, plans and targets" (Child, 1973:113).

Given the importance of structural context in directing subsidiary behaviour (Birkinshaw et al., 1998b), particularly subsidiary initiative generation (Birkinshaw et al., 1998b), research suggests that specific aspects of structure will affect a unit's ability to engage in recognising opportunities (Baron, 2006; Birkinshaw & Morrison, 1995). Blending insights from the extensive subsidiary initiative literature, with established theories of corporate structural context and emerging theory on opportunity recognition, the study identifies a range of variables expected to impact the subsidiary's capacity "to identify a good idea and transform it into a business concept" (Lumpkin and Lichtenstein, 2005:457) are identified. Balancing parsimony with

comprehensiveness (Barringer & Bluedorn, 1999b), the structural variables selected of subsidiary autonomy and value chain scope capture the subsidiary's freedom and motivation to engage in opportunity recognition.

2.3.1.1.1. Subsidiary Autonomy – Structural Aspect

Subsidiary autonomy is defined as the strategic and operational decision-making rights which are granted by the headquarters to the subsidiary (Gammelgaard et al., 2012; O'Brien et al., 2013; O'Donnell, 2000). Autonomy is the hierarchical authority within the organisation which may be a result of internal subsidiary efforts (O'Donnell, 2000) or strategic flexibility reasons (Bartlett & Ghoshal, 1989; Gates & Egelhoff, 1986). Autonomy at the subsidiary level is important in determining subsidiary entrepreneurial behaviour (Ambos et al., 2011; Gammelgaard et al., 2012). Subsidiaries that engage in autonomous entrepreneurial behaviour can provide value to the MNC through accessing knowledge and ideas from their host country (Ambos et al., 2011; Galunic & Eisenhardt, 1996).

However, attitudes towards autonomy vary over time (Young & Tavares, 2004). It is argued that autonomy can both be a prerequisite and desired outcome for subsidiary performance (Beugelsdijk & Jindra, 2018; Birkinshaw & Morrison, 1995; Forsgren et al., 1992; Paterson & Brock, 2002; Rabbiosi & Santangelo, 2019). For example, increased autonomy may come at the expense of information connectivity (Asakawa, 2001), or be seen as an even more complex resource whereby high levels of autonomy can bring increasing coordination complexity, increasing interdependence with HQ and as a consequence of this entanglement, the subsidiary's autonomy is diminished (Johnston & Menguc, 2007). Yet, headquarters need to provide the subsidiary with greater autonomy to pursue entrepreneurial opportunities in their host country where the headquarters does not possess knowledge (Phan et al., 2009).

This, therefore, demonstrates the appropriateness of including this structural aspect and investigating the effect that the level of autonomy has on SEA to recognise opportunities.

2.3.1.1.2. Value Chain Scope – Structural Aspect

A further structural aspect that warrants attention is the number of value-adding activities (R&D, raw materials procurement, etc.) the subsidiary conducts in the host economy or its value chain scope (Buckley, 2014; Ryan et al., 2020) and relates to the locus of an opportunity (local, regional or global). A subsidiary may operate with a narrowed set of value activities (Dörrenbächer & Geppert, 2009; Roth & Morrison, 1992). This is especially relevant as some headquarters increasingly segment their activities, seeking optimal locations for increasingly specialised activity (Buckley & Ghauri, 2004; O'Brien et al., 2011) also known as 'fine-slicing' (Mudambi, 2008). This structural shift is a result of the MNC's desire to reduce cost (Reilly & Scott, 2014). There is a significant danger though that narrower subsidiary roles impact the subsidiary's ability to expand their knowledge and innovative capabilities and their contribution to organisational innovations (Buckley, 2014; Hedlund, 1986; Ryan et al., 2020).

In contrast, subsidiaries that are exposed to a breath of value chain activities will have less of a restricted view of the organisational activities, and therefore a greater ability to recognise new opportunities, developments and absorb new knowledge effectively (Cohen & Levinthal, 1990; Lane & Lubatkin, 1998). A richer understanding of the activities of subsidiaries should support headquarters' efforts to maximise the potential benefits from resource allocation, managerial attention, and organisational commitment to its foreign operations (Figueiredo, 2011; Sharkey-Scott, 2005). Consequently, by developing a mandate the subsidiary is able to capture a broader role within the MNC network.

Therefore, this study proposes that the experience and knowledge of each activity promotes the unit to engage in the activities of SEA more successfully. This proposed antecedent of subsidiary opportunity recognition is seen as critical to the subsidiary as it may potentially influence each stage of SEA; the unit's ability to scan, associate and evaluate and ultimately recognise opportunities which may lead to an innovation or increase in subsidiary performance and underpin its contributory role to the whole organisation. Greater value chain scope brings greater potential for the subsidiary to be exposed to opportunities and to be able to connect ideas to its activities. Therefore,

greater research attention is required to understand influence of value chain scope on subsidiary entrepreneurial alertness.

2.3.1.2. Relational Aspect of Subsidiary Entrepreneurial Alertness

The relational aspect of SEA captures the frequency and quality of linkages developed by the subsidiary with headquarters and sister subsidiaries and its external partners, including local organisations, suppliers, clients and universities (Figueiredo, 2011). By developing these internal and external relationships, the subsidiary is able to establish knowledge intensive ties enabling recognition of opportunities (Figueiredo, 2011; Granovetter, 1985; Hansen, 1999; Xiang et al., 2022). The relational aspect emphasises the importance of maintaining close linkages with key people within headquarters as it allows the subsidiary to sell its ideas, gain visibility and support for implementing its projects (Dimitratos et al., 2014). Such relationships are based on the reasoning of trustful cooperative behaviour that can potentially create a basis for knowledge transfer and learning across the boundaries of the organisation (Figueiredo, 2011; Uzzi, 1996). Specifically, the social or relational embeddedness approach emphasizes that organisations can acquire strategic assets such as superior knowledge through inter organisational linkages embedded in social relations and networks in order to achieve competitive advantage (Andersson et al., 2002; Garcia-Pont et al., 2009; Uzzi & Gillespie, 2002).

However, these linkages require different types of distinctive knowledge and skills (Uzzi & Gillespie, 2002). Different degrees of linkages or ties define the extent to which organisations are embedded in their environment (Figueiredo & Brito, 2011). Such ties allow the subsidiary to tap into multiple knowledge sources between global and local networks (Ambos & Schlegelmilch, 2007) which contribute to the entrepreneurial efforts of the subsidiary. The strength of these ties is measured by the frequency of contact (Granovetter, 1973;1985). Researchers have emphasised the importance of strong ties (Uzzi, 1996) suggesting that small networks characterised by strong ties provide the necessary loyalty and coordination for improved entrepreneurial activities contributing to performance or innovation.

Granovetter's (1973) notion of weak ties describes how actors gain access to new information and ideas through ties that exist outside of their direct collection of contacts. His classic theory on the strength of weak ties suggests that weak ties are generally more likely to provide unique and novel information (Granovetter, 1973). Further research in this area confirms the importance of linkages for increased performance (Hills & Shrader, 1998), while others argue that network ties are positively related to opportunity recognition (Ozgen & Baron, 2007; Singh, 2000). Such ties act as channels to allocate information on new opportunities (Burt, 2003; Granovetter, 1973; Kontinen & Ojala, 2011). Therefore, it can be argued that subsidiary entrepreneurial alertness to recognising opportunities may be determined by the reach of one subsidiary's ties with others.

The study argues that the relational aspect that affects a subsidiary's ability to be entrepreneurial alert include its linkages with other subsidiaries in terms of its network position, its access to both internal and external knowledge and its ability to sell its ideas to its parent, and these are represented by the construct of subsidiary brokerage.

2.3.1.2.1. Subsidiary Brokerage – Relational Aspect

Subsidiary brokerage refers to the coordination across structural holes that bridges two networks together (Burt, 2004). Structural holes refers to missing relationships that inhibit the flow of information between sources (Burt, 2004). The broker occupies the most beneficial position in the link of diverse information and therefore has the best opportunity to generate new combinations (Burt, 2004; Fleming et al., 2007; Hargadon, 2005; Hargadon & Sutton, 1997; Xiang et al., 2022). The literature provides a good sense of how advantage is associated with certain network structures, especially the status advantages of having many, well-connected contacts, and the brokerage advantages of those contacts being separated from one another by structural holes (Kleinbaum, 2012; Nerkar & Paruchuri, 2005; Obstfeld et al., 2014; Rodan & Galunic, 2004).

Extensive evidence has accumulated on status and brokerage advantages associated with individual and organisational achievement. For example, Obstfeld (2005) explains that those found in cohesive networks are more likely to innovative; Rodan and Galunic (2004) also demonstrated that occupiers of brokerage position are often

the source of innovative ideas and more likely to recognise opportunities. The subsidiary that bridges the structural hole has connections on either side and therefore benefiting from information asymmetries obtained (Zaheer & Zaheer, 1997) essential for SEA. Following from this the study proposes that a subsidiary's network position will be critical to its ability to be entrepreneurially alert.

2.3.1.3. Cognitive Aspect of Subsidiary Entrepreneurial Alertness

The cognitive aspect of SEA captures the entrepreneurial mind-set of the subsidiary, it embraces the notion of dynamic sensemaking and decision processes central to the success in diverse environments (Haynie & Shepherd, 2009; Ireland et al., 2003). Entrepreneurship literature suggests that cognition research can investigate the memory, learning, problem identification and decision-making abilities within an organisation (Haynie & Shepherd, 2009; Mitchell et al., 2007). While a cognitive task is difficult to achieve it is positively related to decision performance in contexts that are complex and inherently uncertain (Earley & Ang, 2003; Haynie & Shepherd, 2009). Zahra et al. (2005) argue that organisations have cognitive systems which include shared beliefs (Daft & Weick, 1984), refined by organizational identity (Fiol & O'Connor, 2002; Scott & Lane, 2000) schematic frameworks (McNamara et al., 2002) and dominant logic (Prahalad & Bettis, 1986).

To obtain a greater understanding we examine cognitive research which is increasingly being recognised as a critical perspective, particularly for understanding entrepreneurship – related phenomena (Mitchell et al., 2007). We need to identify the foundations of organisational innovation and performance, through understanding the subsidiary's capacity to identify solutions to market and consumer needs in new and existing information, and notice connections between diverse events and trends (Baron & Ensley, 2006). Cognitive theories allow for understanding of the factors underlying opportunity recognition, many of which highlight the role of mental frameworks that guide it (Gaglio & Katz, 2001; Grégoire et al., 2010; Grégoire & Shepherd, 2012; Matlin, 2008). Initially, the literature argues that two factors influence the probability of recognising opportunities; firstly, it is dependent on the possession of information necessary to recognise an opportunity and secondly, the cognitive properties necessary to exploit it (Mitchell et al., 2007; Shane & Venkataraman, 2000). By examining the

cognitive aspect of SEA, the study can provide a richer understanding as to why some subsidiaries are more entrepreneurial than others (Mitchell et al., 2002). It allows us to understand the mindset of subsidiaries as they interact with headquarters and the environment around them, and how they perceive industry boundaries and opportunities within the host country (Zahra et al., 2005); as it is the knowledge structures that subsidiaries use to make assessments, judgements, or decisions involved in opportunity recognition. This is particularly important as each dimension of SEA can revolve around the mental models use by the subsidiary for example, the way in which the subsidiary pieces together previously unconnected information in recognising opportunities (Baron & Ensley, 2006). The cognitive aspect of SEA is represented here by the construct of subsidiary credibility. Subsidiary credibility relates to the extent of headquarters confidence in the subsidiary's ability to perform in accordance with company norms (Dutton & Ashford, 1993). It can determine the subsidiary's freedom to operate and therefore, provide an interesting variable for understanding SEA.

2.3.1.3.1. Subsidiary Credibility – Cognitive Aspect

Subsidiary credibility is the extent to which headquarters is aware of and confident in the capabilities of the subsidiary to perform in accordance with company norms (Dutton & Ashford, 1993; Gammelgaard, 2009). Credibility positively promotes opportunities as it creates a sense of corporate identity and can be achieved through improving a subsidiary's image for social-responsibility, devotion to social norms, institutional harmony, corporate reputation, customer loyalty, local community relations and mutual support with their network partners (Birkinshaw, 1999; Luo, 2007).

The subsidiary's entrepreneurial performance can promote credibility and trust and act as a prerequisite of their organisational behaviour (Ellis, 2011) thus influencing future innovations. While literature has linked credibility with subsidiary entrepreneurship (Birkinshaw, 1996; Liouka, 2007) it is not directly linked to promoting entrepreneurial activity, but low levels of credibility have been found to inhibit subsidiary entrepreneurial activity (Birkinshaw, 1999; Dimitratos et al., 2014). For example, subsidiaries are influenced by cross cultural experiences (Lorenz et al., 2018) and in

some cases they are challenged to convince the headquarters of their new ideas. In other situations, subsidiaries enjoying credibility are a result of their integration with headquarters (Borini et al., 2009), are at the expense of information exchange. Headquarters' openness to accepting ideas from the subsidiary is a result of the strength of the relationship between the two organisations, for instance, headquarters assigns the subsidiary with a greater degree of credibility if the subsidiary demonstrates an accumulation of various capabilities (Roth & Morrison, 1992).

2.4. Outcome Variables

Subsidiary literature to date has focused on entrepreneurial outcomes represented by initiatives. However organisational level entrepreneurship is linked to both innovation and performance. Entrepreneurship in subsidiaries has been considered in terms of entrepreneurial orientation but this aspect overlooks the initial idea which triggers a reaction in the subsidiary, opportunity recognition. This research argues that focusing on initiative also overlooks two other key contributions from subsidiaries: innovation (such continuous improvements or refinements to new or existing products, services and processes across the organisations) and performance (relative to its sister subsidiaries) as the MNC will make comparisons across the organisation rather than with outside operations. Each variable is discussed below and in the hypothesis development and provides details of its significant contribution to the subsidiary and MNC.

2.4.1. Opportunity Recognition

Opportunity Recognition as described earlier in this chapter, embraces the newness or novelty dimension of an opportunity and the economic value to an organisation (Sarasvathy et al., 2003). Research highlights the importance of entrepreneurship for the overall success of the MNC (Birkinshaw & Hood, 1998; Ghoshal & Bartlett, 1990; Zahra & Hayton, 2008) and particularly the criticality of opportunity recognition as initiating the entrepreneurial process (Ardichvili et al., 2003; Gaglio & Katz, 2001; Karabey & Bingol, 2015; Shane & Venkataraman, 2000; Venkataraman, 2019). Although opportunity recognition has received significant attention it still lacks

cohesion (Renko et al., 2012), specifically towards understanding the subsidiary contextual factors that influence a subsidiary to recognise opportunities.

Research on opportunity recognition traditionally focuses on differences between individuals (Fischer, 2011), examining why some recognise opportunities and others do not. By analysing opportunity as an outcome of subsidiary entrepreneurial alertness the study theoretically contributes to the calls for understanding of why some levels of entrepreneurial alertness can vary between subsidiaries. For example, Fiet (2002) argues that by systemically searching in areas where the subsidiary is already knowledgeable within increases the probability of recognising valuable opportunities. Mahnke et al. (2007) explain that recognising entrepreneurial opportunities 'comprises all of the productive possibilities that an organisation sees and can take advantage of' (Penrose, 1959:31), including the discovery of arbitrage opportunities (Kirzner, 1973), new resource combination (Schumpeter, 1942), and novel ways of performing (Casson, 1982).

Corporate entrepreneurship encompasses a broad variety of entrepreneurial activities which relate to not only the creation of new products, processes or services but also the transformation and renewal of existing products, processes or services within the organisation (Stopford & Baden-Fuller, 1994). Entrepreneurial processes to achieve these outcomes in the MNC centre are particularly important to the recognition of opportunities (Shane & Venkataraman, 2000). Some suggest that an organisation's primary goal is to discover new opportunities in the market earlier than others, distinguish and make an accurate assumption about the values of specific opportunities, and find the right means-ends relationships to capture entrepreneurial profits (Eckhardt & Shane, 2003; Kirzner, 1997).

However, not all outcomes need to be radical, opportunities must align with market needs, feasibility, and desirability (Grégoire et al., 2010) and can also be considered as problem solution seeking. Understanding market demand is an essential element of opportunity recognition. This implies the importance of the subsidiary positioning to understand the opportunities related to its specific business (Prandelli et al., 2016; von Hippel, 1986). Consequently, it is worth further investigating the extent to which each dimension of SEA relates to opportunity recognition in the subsidiary context as

organisations are increasingly relying on opportunities for survival and avoid intense competition (Hansen et al., 2011). By analysing the literature, it would suggest that if the subsidiary increases it awareness of its SEA it may obtain significant advantages. Such as, benefiting from acquiring information through scanning and search as alert subsidiaries are more aware of and sensitive to environmental change, organising and utilising information efficiently by association and connection; and finally interpret information through evaluation and judgement to a comprehensive analysis of the opportunity contribution towards superior performance.

2.4.2. Innovation

Multinational corporations (MNCs) continuously turn to their foreign subsidiaries for research and development (R&D) and innovations. The ability of the MNC to leverage their innovation capabilities across subsidiaries is a valuable source of competitive advantage (Almeida, 1996; Frost, 2001; Hansen, 2002; Hansen & Løvås, 2004; Nobel & Birkinshaw, 1998). The development and diffusion of innovation are identified as key strategic challenges for MNCs in the globalised business environment (Collings et al., 2009; Gammelgaard et al., 2004; Gupta & Govindarajan, 1991; Phene & Almeida, 2008) as innovations developed through recognising opportunities can be diffused across the organisation to generate sustainable competitive advantage (Almeida & Phene, 2004; Bartlett & Ghoshal, 1989; Eisenhardt & Martin, 2000; Frost, 2001; Teece, 2007).

Subsidiary entrepreneurship may not only comprise of radical change and innovation but also less significant but continuous improvements at the subsidiary level known as incremental innovations (Andersson & Pahlberg, 1997; Liouka, 2007). Incremental innovations refine existing products, processes or services, radical innovations, drawing upon reinforced prevailing knowledge and improving their current knowledge. On the other hand, radical innovations are major transformations of existing products, processes or services that often make prevailing products, processes or services obsolete (Dewar & Dutton, 1986; Subramaniam & Youndt, 2005).

Research has shown that opportunity recognition as a form of creativity can result in innovation (Lumpkin & Lichtenstein, 2005). The greater the intensity of opportunity

recognition the more innovative the subsidiary is seen to be. Opportunity recognition puts emphasis on subsidiary ability to exploit possible business opportunities which can be viewed as their entrepreneurial strategy to generate innovative outputs (Manev et al., 2005). In other words, the subsidiary "always searches for change, responds to it and exploits it as an opportunity" (Drucker, 2014:28) which can be primarily performed through innovation.

2.4.3. Subsidiary Performance

In this study subsidiary performance is measured through the construct of relative performance, which is the extent to which the subsidiary performs compared to similar subsidiaries within the MNC. Such an evaluation provides a form of control for variances in performance that may be due to industry (Dess et al., 1990) and value adding activity (Liouka, 2007). Subsidiaries are acutely aware of the dynamics within their MNC environment, they are particularly concerned that resources may go to alternative locations and therefore they seek specific techniques to compete with their sister subsidiaries (Birkinshaw et al., 2005). Liouka (2007) argues that subsidiaries evaluate their relative performance in terms of the headquarters' objectives for the particular subsidiary, what their key subsidiaries competitors which the MNC are undertaking, and their own goals and objectives for maintaining the subsidiary's survival. Subsidiaries can engage in entrepreneurial activities to overcome the boundaries of their resources, by making their resources valuable, or to leveraging resources in distinctive ways previously unknown in their MNC (Alvarez et al., 2013; Barney, 1991).

2.5. Conclusion

Representative variables of structural, relational and cognitive are considered most directly influential on entrepreneurial alertness. The proposed model anticipates that subsidiaries which enjoy supportive structural and relational positions will demonstrate a greater level of entrepreneurial alertness. Given our argument that entrepreneurial alertness determines a subsidiary's ability to recognise opportunities, this research then proposes that the consequences of opportunity recognition are greater levels of innovation and relative performance (See figure 2). The proposed

relationships between the variables are outlined in the following section which details the theoretical framework and the underlying hypotheses.

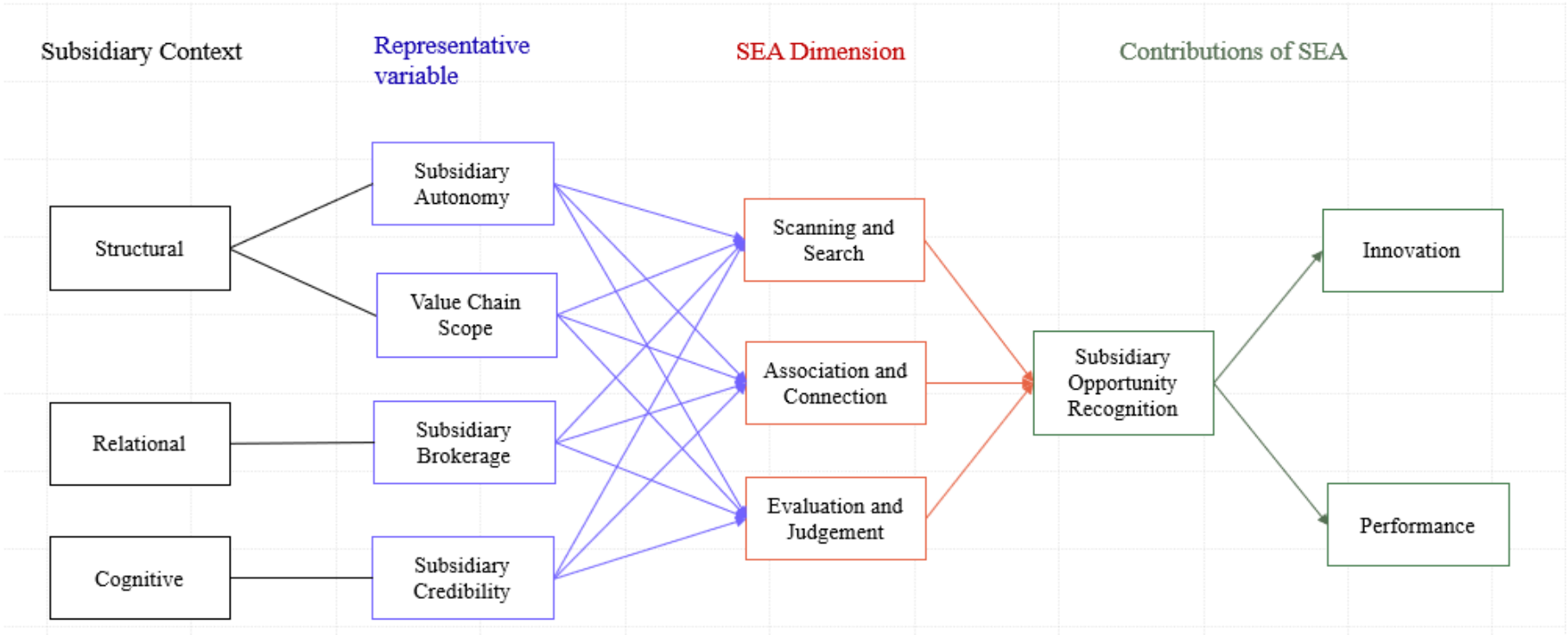


Figure 2: Representative Variables for Structural, Relational & Cognitive Aspects of SEA and Outcomes

Chapter Three: Hypotheses Development

3.1. Introduction

This section combines the selected structural, relational and cognitive aspects within a framework for hypothesis testing. This constitutes an extension of both the entrepreneurship literature, particularly that on entrepreneurial alertness and opportunity recognition, and of the strategy literature on subsidiary behaviour, particularly innovation and performance. The first major contribution of this research is the aforementioned proposed relationships between aspects of subsidiary context and SEA which have not been previously identified or examined. This study also contributes to theories of opportunity recognition, proposing relationships between SEA and opportunity recognition and the subsidiary's potential to generate innovations and enhance performance. The proposed SEA framework represents the first research question: what are the antecedents and outcomes of SEA on opportunity recognition?

3.1.1. Model Dimensions

While recognising the constraints imposed by selecting a limited number of variables to represent the complexity of the antecedents of SEA, those selected were identified from the literature as being most relevant to our theoretically based definition of SEA (defined in chapter two). It should be noted that while directional arrows are used in the diagram for illustration purposes, the propositions specify association rather than causation between the constructs.

The initial hypotheses apply to the influence of structural aspects at the subsidiary level and contend that SEA is influenced by both the level of autonomy and value chain scope enjoyed by the subsidiary. These variables were selected from the strategy literature as representing primary differentials of a subsidiary's capacity and motivation to be entrepreneurially alert.

3.2. Structural Antecedents of Subsidiary Entrepreneurial Alertness

3.2.1. Subsidiary Autonomy

Subsidiary autonomy is a key structural attribute of MNCs (Ghoshal et al., 1994) and is defined as "the extent to which the foreign subsidiary has operational and strategic decision-making rights authority across it entire product line" (O'Donnell, 2000: 535). Autonomy refers to the subsidiary's freedom to make decisions on its own behalf (Young & Tavares, 2004). High autonomy is associated with freedom to act independently, to take strategic actions without restriction allowing the manager to discretely deal with the demands of the local environment. In contrast low subsidiary autonomy arises when decisions are largely made by headquarters (Gammelgaard et al., 2012). While subsidiaries generally seek more autonomy, headquarters will often try to preserve control to ensure strategic alignment in the MNC (Ambos et al., 2011) and demonstrate to stakeholders that headquarters polices are imposed and implemented (Gates & Egelhoff, 1986; Roth, 1992; Roth & Morrison, 1992).

As a result, autonomy is often a source of friction, as subsidiaries tend to desire more autonomy than they are actually granted (Ambos et al., 2010; Chini et al., 2005; Ghoshal & Nohria, 1989; Homburg & Prigge, 2014; Zhang et al., 2008). However, studies such as Dimitratos et al. (2014) explain that autonomy is both an essential and desired outcome of subsidiary development (Birkinshaw et al., 1998b; Birkinshaw & Hood, 1998; Birkinshaw & Morrison, 1995) and particularly linked to the subsidiary's innovative potential (Ghoshal & Bartlett, 1988; Gupta & Govindarajan, 1994; Jarillo & Martíanez, 1990). Autonomy is also positively associated with the pursuit of entrepreneurial initiatives at the subsidiary level (Birkinshaw, 1997, 2000; Birkinshaw & Hood, 1998).

However, it may not always be the goal of the subsidiary to have a high level of autonomy (Ambos et al., 2011). A study of subsidiary roles carried out by Birkinshaw and Morrison (1995) found that both high and low levels of autonomy can achieve good performance levels (Gammelgaard et al., 2012). Low autonomy is found to be important for generations to internal market and hybrid initiatives (O'Donnell, 2000) whereas too much autonomy can interfere with internal networking.

Autonomy is proposed as an antecedent of SEA as it is expected that the ability to act without parental constraint is an essential pre-requisite of a subsidiary's capacity to engage in SEA. Autonomy also requires subsidiary management to be able to think strategically, to be capable of exploiting competencies, maximising opportunities and contribution (Delany, 2000). More succinctly, if they are to ensure their subsidiary's future survival and growth, subsidiary management need the autonomy to engage in SEA.

3.2.1.1. Subsidiary Autonomy and Scanning and Search:

Previous research has shown a positive relationship between subsidiary autonomy and innovation (Ghoshal & Bartlett, 1988; Gupta & Govindarajan, 1994). Lumpkin and Dess (1996) argue the subsidiary can generate an idea when it is free from organisational constraints and performs independent action; furthermore, Prahalad and Doz (1987) have pointed out, that decentralising decision making to the local subsidiary leads to increased flexibility in terms of countering unexpected opportunities. Subsidiaries are aware that part of their value to the MNC is their access to local knowledge and opportunities (Forsgren et al., 1992) and therefore contribute towards firm specific advantages (Birkinshaw et al., 1998b) and subsidiary growth (Johnston & Menguc, 2007).

Therefore, this study argues that a subsidiary can actively engage in *scanning and search* if it has the freedom to allocate resources and time to such activities. A subsidiary is often in a better position than headquarters to identify local demands (O'Brien et al., 2013) and may engage in scanning and search to consciously seek information (Bartlett & Ghoshal, 1989; Garnier, 1982; Jarillo & Martíanez, 1990). Subsidiary autonomy has also been linked to innovative creations in subsidiaries (Ghoshal & Bartlett, 1988) through subsidiary entrepreneurship (Birkinshaw et al., 2005; Boehe, 2007) which may lead to subsidiary growth (Johnson & Medcof, 2007), therefore, the subsidiary should have the motivation to actively scan and search. Consequently, this study seeks to uncover whether subsidiary autonomy allows subsidiaries to dynamically in engage in this dimension.

3.2.1.2. Subsidiary Autonomy and Association and Connection:

The study argues that high subsidiary autonomy can increase the number of actors with whom the unit interacts and the frequency of interactions (Birkinshaw, 1997; Galunic & Eisenhardt, 1996). An autonomous subsidiary is, therefore, more likely to engage intensively with local partners by increasing the frequency of interactions in order to gain access to knowledge (Garcia-Pont et al., 2009). However, information asymmetry between headquarters and subsidiary management regarding the subsidiary's resources (O'Donnell, 2000; Rugman & Verbeke, 2001) indicates that local management should be the most effective in determining local opportunities as subsidiaries are able to develop autonomy independently from the MNC through coalitions with organisations and other actors in the local environment (Cavanagh et al., 2017; Dörrenbächer & Geppert, 2010). Therefore, this study argues that the autonomous subsidiary can access more information that will aid them to successfully *associate and connect* information.

3.2.1.3. Subsidiary Autonomy and Evaluation and Judgement:

Following evaluation of information, a subsidiary exercises judgement when considering if an opportunity exists. This is performed through analysing new market changes, and consequently judging whether an opportunity has potential in the environment. This is an important function as alertness is not regarded as entrepreneurial if it does not involve judgement and a movement towards action (McMullen & Shepherd, 2006; Tang et al., 2012). An evaluation may result in obtaining additional insights via search in order to amend and reassess related alternatives (Tang et al., 2012). This research argues that a subsidiary enjoying more autonomy has a greater chance of evaluating and judging due to their own knowledge and information on the unmet needs of the market. A subsidiary's alertness to the demands of its local environment provides it with a greater understanding of the resources also required to evaluate and judge. Autonomy requires the subsidiary to be able to think strategically, to be capable of exploiting competencies, maximising opportunities and contribution (Delany, 2000). Therefore, the subsidiary needs to be assigned autonomy to allow for the freedom to evaluate and judge which requires the

subsidiary to utilize its own time, direct resources and management activities towards the opportunity.

While autonomy at the subsidiary level primarily is usually granted to enable strategic flexibility (Bartlett & Ghoshal, 1989; Gates & Egelhoff, 1986); increased levels of autonomy provides the subsidiary with the freedom to make their own *evaluation and judgement* and taking responsibility for their own decisions through their capability of SEA.

Hypotheses for Subsidiary Autonomy:

Hypothesis 1a: There is a positive relationship between Subsidiary Autonomy and Scanning and Search.

Hypothesis 1b: There is a positive relationship between Subsidiary Autonomy and Association and Connection.

Hypothesis 1c: There is a positive relationship between Subsidiary Autonomy and Evaluation and Judgement.

3.2.2. Value Chain Scope

This thesis defines value chain scope as the level of activities engaged in to develop a product or service (raw materials procurement, product distribution, sales activities, customer service, etc.) and additionally captures geographic scope (local, regional or global) of such activity. A subsidiary's scope of activities (Pearce, 2004) evolves over time, reflecting the MNC's goals, the subsidiary's resources and skills, and the interactions between headquarters and the subsidiary (Birkinshaw & Hood, 1997; Roth & Morrison, 1992). Therefore, a subsidiary can perform a single activity (e.g., sales) or an entire value chain of activities (Birkinshaw & Hood, 1998). Many subsidiaries have undergone dramatic shifts from traditionally integrated structures (Andersson et al., 2002, 2007) to more vertically controlled cost focused operations (Buckley, 2014; Buckley & Ghauri, 2004; Reilly & Scott, 2014). Headquarters are progressively segmenting their activities, seeking optimal locations for increasingly specialised activity (Buckley & Ghauri, 2004; O'Brien et al., 2011) creating complex structures

of globally fine-sliced activities in a global factory model (Buckley, 2014). However, fine slicing subsidiary value chain activities threatens their innovation and has a knock-on effect by having longer term implications for the MNC. Birkinshaw (1998) suggests that a subsidiary's strategic mandate can intensify its level of entrepreneurship by enabling the subsidiary to access to multiple resources and knowledge bases within the MNC's network (Zahra et al., 2000).

In terms of driving subsidiary opportunity recognition, geographically dispersed MNCs are exposed to different types of opportunities, through developing competitive capabilities within their local markets (Andersson et al., 2002, 2007; Bartlett & Ghoshal, 1989; Ghoshal & Bartlett, 1988, 1990). The subsidiary then can leverage both local knowledge and recognise the opportunities that arise from that knowledge (Collings et al., 2008; Ghoshal & Bartlett, 1990; Szulanski, 1996; Tsai, 2001; Zaheer & Bell, 2005). The relationship between the subsidiary and both internal and external stakeholders associates the opportunity for the subsidiary to leverage local ties and knowledge (Andersson et al., 2007; Cantwell & Mudambi, 2005; Ciabuschi & Martín, 2011; Figueiredo, 2011), consequently influencing its capacity to recognise opportunities and therefore its competitive position (Ciabuschi et al., 2011; Ciabuschi & Martín, 2011). This provides an interest foundation to understand the relationship between value chain scope and SEA.

3.2.2.1. Value Chain Scope and Scanning and Search:

This study argues that a subsidiary exposed to more value chain activities has a greater probability of scanning and searching for opportunities (Huizinga, 2011). The more activities carried out, the broader the value chain scope. This can result in more opportunities presenting themselves as it has significantly more access to multiple resources and knowledge bases (Mudambi, 2008). An understanding of the local environment can also upgrade and stimulate subsidiary development (Buckley, 2014; Buckley & Ghauri, 2004; Reilly & Scott, 2014). In addition, subsidiaries can sometimes engage in cooperative situations with other subsidiaries (Kogut & Zander, 1992), and collaborate with internal and external networks, which allows the subsidiary to scan and search for novel opportunities (Nieto & Santamaría, 2007). Through actively scanning and search, the subsidiary can strengthen its ability to

capture a broader role within the MNC network (Cohen & Levinthal, 1990; Lane & Lubatkin, 1998) and be alert to adopt opportunities for local, regional, or global scope.

3.2.2.2. Value Chain Scope and Association and Connection:

The relationship between the subsidiary and both internal and external stakeholders, sometimes brought together through mandates can produce an opening for the subsidiary to leverage local ties and knowledge (Andersson et al., 2007; Cantwell & Mudambi, 2005; Ciabuschi et al., 2011) consequently influencing its capacity to recognise opportunities (Ciabuschi et al., 2011; Ciabuschi & Martín, 2011). The knowledge transferred within the collaborative cooperative promotes organisational leaning and as a result, the creation of new knowledge (Tsai, 2001) which then can be disseminated throughout the entire corporation. Accordingly, the subsidiary is able to increase its performance, as its capacity to associate seemingly unconnected different information and connect it with new opportunities is increased through distinctive knowledge therefore having a positive impact in subsidiary ability to recognise potential opportunities.

3.2.2.3. Value Chain Scope and Evaluation and Judgement:

The study argues that a subsidiary's value chain scope provides an important mechanism for allowing the organisation to evaluate and judge the opportunities that are developed through the relationships of invaluable networks (McCann & Mudambi, 2004; Mudambi, 2008). The organisational capabilities developed through local interactions provides the subsidiary with this comprehensive knowledge of both the value chain activities and the geographically defined market that the subsidiary operates within (Buckley, 2014; Buckley & Ghauri, 2004; Huizingh, 2011). The subsidiary's engagement ensures more accurate evaluation and judgements through related domains of diverse knowledge and experience.

Hypothesis for Value Chain Scope

Hypothesis 2a: There is a positive relationship between Value Chain Scope (Local, Regional or Global) and Scanning and Search.

Hypothesis 2b: There is a positive relationship between Value Chain Scope (Local, Regional or Global) and Association and Connection.

Hypothesis 2c: There is a positive relationship between Value Chain Scope (Local, Regional or Global) and Evaluation and Judgement.

3.3. Relational Antecedents of Subsidiary Entrepreneurial Alertness

3.3.1. Subsidiary Brokerage

The variable selected to represent the relational aspect of SEA is subsidiary brokerage. The power of linkages within a subsidiary has been seen to influence entrepreneurship related activities (Obstfeld et al., 2014), with occupiers of brokerage positions identified as a significant source of opportunities (Rodan & Galunic, 2004). As addressed (in section 2.3.1.2.1.) brokerage is defined 'as the action of coordination across the structural holes' bridging networks on opposite sides of the hole (Burt, 2007: 18). A structural hole separates two groups which would not otherwise interact closely (Burt, 1992, 2007). A broker occupies the sole immediate position through 'bridging' the two groups together (Fleming et al., 2007). A bridge is a strong or weak relationship that spans a structural hole. A strong bridge or tie is where there is direct communication with other actors within the business environment whereas a weak tie is where there is indirect communication with actors. Institutional organisations have found brokerage to be a key element in entrepreneurial success (DiMaggio, 1992). These linkages can differentiate competing organisations in the same industry and geographical cluster (McEvily & Zaheer, 1999).

Subsidiary brokerage provides the advantage of obtaining early exposure to diverse information (Burt, 2007; Kleinbaum, 2012) consequently, subsidiaries with high brokerage tend to attain greater performance than otherwise similar counterparts (Burt, 2007). This suggests that subsidiary brokerage is positively related to each dimension of SEA as through scanning and search, the subsidiary is exposed to original and unique opportunities (Laursen & Salter, 2006); associating and connecting information successfully, brokerage facilitates the flow of refined knowledge in existing

knowledge bases (Alcácer & Zhao, 2012; Kleinbaum & Tushman, 2007; Obstfeld, 2005; Uzzi & Lancaster, 2003) and evaluating and judging more distinct and novel resources (Laursen & Salter, 2006) from otherwise unconnected networks. Therefore, subsidiaries that occupy a position between two disconnected parties, can exploit and manipulate the information flow for their own benefit (Burt, 2003; Fleming et al., 2007; Padgett & Ansell, 1993). Literature has established that a brokerage position offers not only the timely access to varied and broad resources but also control advantages (Burt, 1992) through utilising these resources, which it is argued here offers subsidiaries a greater probability of accumulating innovative ideas (Hargadon, 2005; Sapsed et al., 2007).

3.2.1.1. Subsidiary Brokerage and Scanning and Search:

The study argues that SEA can build on the importance of subsidiary brokerage and its relationship with opportunity recognition as it allows subsidiaries to actively scan and search through broader relationships with direct and indirect connections. Essentially being in a brokerage position enables subsidiaries to scan and search, as bridging structural holes may embed the subsidiary in networks with high quality levels of knowledge and good sources of creative ideas (Hargadon, 2005; Rodan & Galunic, 2004). This is a result of the extension of an organisation's network through brokerage whereby opportunities can arise as information can be taken from one industry into another (Sapsed et al., 2007). For example, a subsidiary can observe and access diverse expertise and perspectives in various fields from other industries, then modify and apply ideas from there to new areas in their industry (Hargadon & Sutton, 1997; Terjesen et al., 2011). The salient gain of rich connections (Fleming et al., 2007; Hargadon & Sutton, 1997) allow subsidiaries with greater SEA to take advantage of scanning and search from bridging between unconnected actors to provide valuable access, timing, and control benefits (McEvily & Zaheer, 1999; Stam, 2010; Stam & Elfring, 2008). These benefits are particularly important for subsidiaries pressured to recognise opportunity continuously and quickly (Burt, 1992).

3.2.1.2. Subsidiary Brokerage and Association and Connection:

In some situations, brokerage involves a value added factor through the storage and manipulation of knowledge (Hargadon & Sutton, 1997; Howells, 2006; Sapsed et al., 2007); with some describing it as "cross-pollination" between situations (Bessant & Rush, 1995) and "information arbitrage" (Burt, 2005:65). As described earlier, subsidiaries with greater access to scanning and search opportunities are better able to make associations and connections as they can benefit from early and efficient access to more diverse information (Stam, 2010). This allows the subsidiary to achieve early market entry or recognise an opportunity to improve current operations early and creatively. As it is a deliberate activity, this study argues that association and connection will have a positive relationship with subsidiary brokerage. Bridges are valuable for creating information variation. Subsidiaries can associate and connect better due to being a better position for generating new combinations (Brass, 1995; Burt, 2004; Hargadon & Sutton, 1997). Being situated at the nexus of diverse information (Fleming et al., 2007) better allows the subsidiary to exploit and manipulate information flow for its own benefit (Burt, 1992; Padgett & Ansell, 1993). As the greater subsidiary's experience to diverse resources, the higher the absorptive capacity advances (Fleming et al., 2007; Zahra & George, 2002) therefore a subsidiary that acts as a broker can associate and connect efficiently with up to date information (Laursen & Salter, 2006).

3.2.1.3. Subsidiary Brokerage and Evaluation and Judgement:

As brokerage facilitates early access to more diverse information about changing market conditions, competitor strategies, and partnership opportunities (Galaskiewicz & Zaheer, 1999); the study argues that subsidiaries enjoying strong brokerage positions are more able to evaluate and judge. Subsidiaries that play an intermediary role in the network are better positioned to access different information and knowledge and therefore achieve better innovation results (Zaheer & Bell, 2005) thus recognising opportunities through novel combination and recombination of ideas particularly in remote parts of the network (Burt, 1992; Shipilov, 2006; van de Ven, 1986; Walter et al., 2007). The study argues that such subsidiary has increased capability for evaluating and judging an opportunity as for example, bridging across structural holes allows

them to routinely take ideas from one industry, and modify and apply them to their evaluation and judgement mechanisms in their own specific area (Hargadon & Sutton, 1997).

Hypotheses for Subsidiary Brokerage

Hypothesis 3a: There is a positive relationship between Subsidiary Brokerage and Scanning and Search.

Hypothesis 3b: *There is a positive relationship between Subsidiary Brokerage and Association and Connection.*

Hypothesis 3c: There is a positive relationship between Subsidiary Brokerage and Evaluation and Judgement.

3.4. Cognition and Subsidiary Entrepreneurial Alertness

3.4.1. Subsidiary Credibility

Ongoing research consumes itself with explaining the cognitive differences in individuals who portray alertness to opportunities (Baron, 2006; Haynie et al., 2010; Kirzner, 2009). However, the cognitive differences such as subsidiary credibility and how it affects opportunity recognition has been overlooked. Similarly to Birkinshaw (1999), this study defines subsidiary credibility as headquarters' confidence in the subsidiary's capabilities to perform activities (Birkinshaw, 1999). This credibility is achieved by subsidiaries "fulfilling on its promises" made to headquarters (Birkinshaw, 1996; Dutton & Ashford, 1993). By being recognised by headquarters as a credible player a subsidiary will be better able to search and scan, associate and connect, and evaluate and judge opportunities. Therefore, understanding subsidiary credibility is an important aspect of the corporate context especially with reference to recognising opportunities, innovating and performance.

Credibility provides the subsidiary with greater freedom to operate and make more autonomous decisions. Headquarters is also more inclined to take more risks because

high subsidiary credibility can bring more innovation (Liouka, 2007). The subsidiary's credibility is also seen to strengthen its bargaining power (Birkinshaw, 1999; Strutzenberger & Ambos, 2014; Suwannarat & Leemanonwarachai, 2012; Verbeke et al., 2007). A subsidiary enjoying high credibility is more likely to be more involved in the organisational decision making, consequently subsidiary with SEA have a significant voice in the allocation of resources to carry out activities for recognising opportunities (Bouquet & Birkinshaw, 2008). Through enhancing its resources, a subsidiary is better placed to recognise opportunities hence sustaining its credibility developed from manifestations of past performance (Deephouse & Suchman, 2008; Tseng et al., 2004).

This thesis does not look at how credibility is gained but proposes that the subsidiary's current credibility is a driver of SEA. The research argues that the credibility of the subsidiary has a positive relationship with SEA as its history of being a strong player and contributing to its MNC is captured by current levels of credibility and shows that the subsidiary has the capability to be successful in the three dimensions of SEA.

3.4.1.1. Subsidiary Credibility and Scanning and Search:

It is this corporate identity that motivates subsidiaries to actively scan and search. This study argues that the subsidiary's credibility provides them with more freedom to be alert to opportunities (Birkinshaw, 1999; Delany, 2000). As past performance reflects their history of recognising opportunities (Deephouse & Suchman, 2008), the subsidiary is more confident at scanning and searching for opportunities. The subsidiary is aware of headquarters objectives (Gammelgaard, 2009) and the contributory role that it must fulfil and understands that subsidiary's credibility contributes to the performance of the MNC (Birkinshaw, 1997; Roth & Morrison, 1992; Tseng et al., 2004). Consequently, through its credibility, the subsidiary is able to access the resources necessary to enable scanning and search through its established relationship with headquarters.

3.4.1.2. Subsidiary Credibility and Association and Connection:

This research argues that the subsidiary's credibility is built on the strength of the relationships within their networks (Nohria & Ghoshal, 1997). These relationships or

close ties are evident to headquarters demonstrating the subsidiary's credibility (Borini et al., 2009). Association and connection has been argued to be more effective when a subsidiary can access certain relationships and identify information that it can associate and connect to an opportunity as strong contacts established from past performances as a credible player allow a subsidary to access the information from its network, better enabling association and connection between ideas (Burt, 2007; Fleming et al., 2007). The subsidiary can do so as headquarters has the confidence to know that the information required for recognising opportunities can be retrieved from the contacts that the subsidiary has established reflecting its past (Deephouse & Suchman, 2008). The constant exchange of information between the subsidiary and the other actors, due to the credibility established with the organisation, allows the subsidiary to increase its ability to associate and connect information with potential opportunities.

3.4.1.3. Subsidiary Credibility and Evaluation and Judgement:

Evaluation and judgement involves critically assessing the opportunity to establish if the opportunity has profit potential or whether or a positive impact on current processes. Subsidiary credibility allows not only headquarters to be confident in the unit's ability to adequately evaluate and judge a potential opportunity (Birkinshaw, 1999; Delany, 2000) but builds the subsidiary's confidence in its capability. A subsidiary's credibility within its environment allows it to make informed decisions and retain the credibility (Ellis, 2011; Harzing, 1999; Lai et al., 2014; Noorderhaven & Harzing, 2009).

Hypotheses for Subsidiary Credibility

Hypothesis 4a: There is a positive relationship between Subsidiary Credibility and Scanning and Search.

Hypothesis 4b: There is a positive relationship between Subsidiary Credibility and Association and Connection.

Hypothesis 4c: *There is a positive relationship between Subsidiary Credibility and Evaluation and Judgement.*

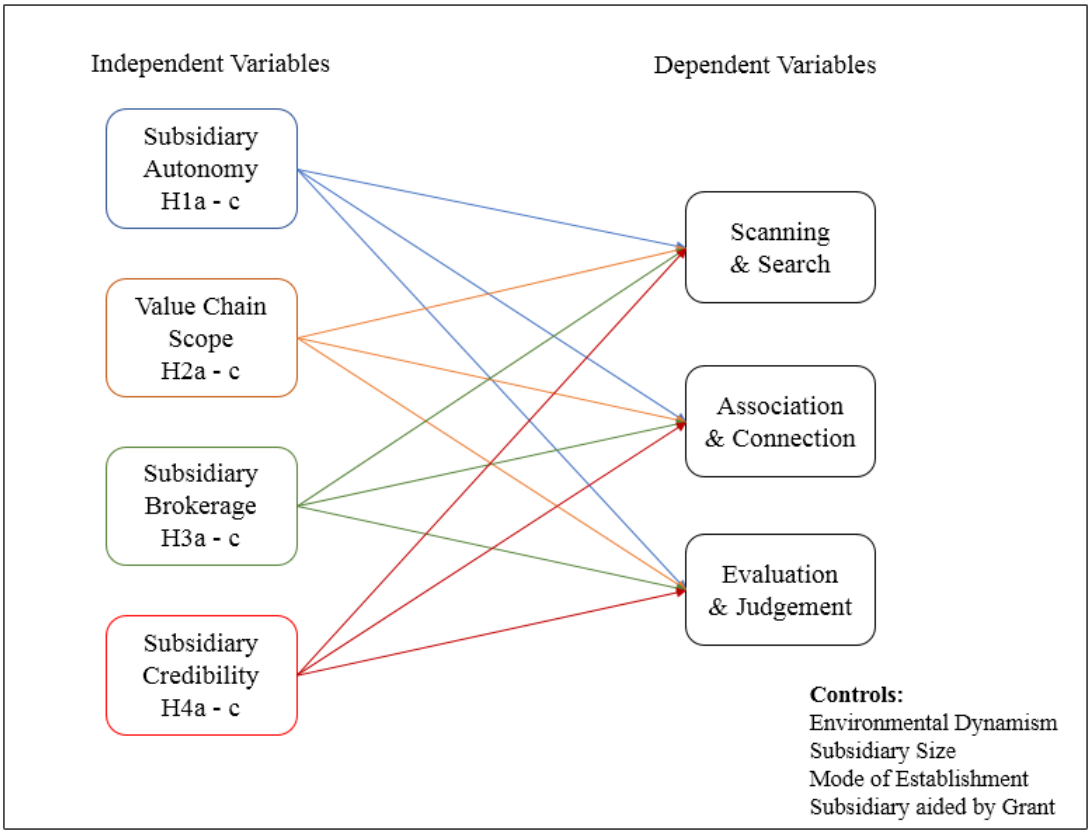


Figure 3: Antecedents of SEA hypotheses

3.5. Outcomes of Subsidiary Entrepreneurial Alertness

3.5.1. Subsidiary Entrepreneurial Alertness and Opportunity Recognition

Entrepreneurial alertness is a relatively new but central part of recognising opportunities, but the specific nature of alertness remains an ambiguous and controversial construct (Tang, 2009). As opportunity recognition has been described as an iterative process whereby insights are contemplated, and new information is collected and considered, SEA better allows the subsidiary to be aware of what opportunities should be recognised, based on the information associated and connected and opportunity evaluated and judged. Therefore, it is argued that SEA is a facilitator of Subsidiary Opportunity Recognition (SOR). This proposes that SEA allows subsidiaries to acquire and interpret valuable information to carry out a speedy response in fast moving environments, a key capability in recognising opportunities (Eisenhardt, 1989; Ma et al., 2009; Zaheer et al., 2010). Scholars who have explored

opportunities argue that technological discontinuities (Tushman & Anderson, 1986) and architectural innovations (Henderson & Clark, 1990) enable "alert" organisations (Kirzner, 1997) to capitalise on opportunities at the expense of other organisations (Ahuja & Morris Lampert, 2001; Christensen & Bower, 1996), demonstrating the value of a subsidiary's responsiveness and manipulation of information.

A number of studies at the individual level of analysis demonstrate the power of alertness in creating awareness of changes, shifts, opportunities, and overlooked possibilities (Kirzner, 1973, 1997; Tang et al., 2012). For example, work by Gaglio and Taub (1992) found that individual entrepreneurs firstly spent more time searching for information in their off hours, secondly, employed different information sources than other executives, and thirdly paid special attention to risk cues about new opportunities. To theorise how SEA positively impacts opportunity recognition, this study builds arguments in relation to each dimension and opportunity recognition, purporting why some subsidiaries are more successful at recognising opportunities than others (Fischer, 2011).

3.5.1.1. Scanning and Search and Opportunity Recognition:

There are many perspectives on the pursuit of entrepreneurial opportunities (Gaglio, 2018; Hsieh et al., 2007; McMullen & Shepherd, 2006; Murphy, 2011; Shane & Venkataraman, 2000; Venkataraman, 2019) with the predominant arguments being that opportunities can be either objective or subjective. Opportunities existing objectively are those that are waiting to be discovered whereas subjective objectives are created (Renko et al., 2012). Scanning and search allows for the investigation of new ideas (Busenitz, 1996) or looking for answers to specific questions. This allows subsidiaries to create a domain relevant of tacit and explicit knowledge (Polanyi, 1967). New knowledge can then be better integrated and adapted to new situations (Weick, 1996). At the subsidiary level, those units that perform more extensive scanning and search will obtain a wider range of information, enhancing their awareness of opportunities (Ericsson et al., 1993; Tang et al., 2012).

The study argues that subsidiaries that engage in scanning and search are more apt to discover opportunities and to make effective choices among potential options. Their

knowledge of the market and environment they operate within enables them to see opportunities where other cannot. Using knowledge this way renders SEA a very important subsidiary capability (Kirzner, 1973). Christensen et al. (1994) maintain that serendipitous and search-based discoveries are among a union of factors in opportunity recognition. In a similar way Lumpkin et al's (2004) model of opportunity recognition shows how knowledge leads to discoveries. The extensive literature undertaken on opportunity recognition confirms the first stage of the initiative includes the discovery or creation of an opportunity (Alvarez & Barney, 2007).

3.5.1.2. Association and Connection and Opportunity Recognition:

Association and Connection comprises the subsidiary focusing on new information, prior experience and making extensions of logic (Tang et al., 2012). This dimension allows a subsidiary to consider multiple options and to make unique connections. Drawn from social cognition theory whereby information from multiple sides of an issue is required (Alvarez & Barney, 2017; Tang et al., 2012). Association and connection is naturally proactive (Alvarez & Barney, 2017) through its deliberate manipulation of information. The same information is continuously interpreted but in different ways for different opportunities. Whenever an opportunity is discovered, association and connection allows the existing schema of the subsidiary to adjust and adapt to the matrices of information and form a new cognitive framework (Gaglio & Katz, 2001; Koestler, 1964).

The study argues that association and connection has a positive relationship with opportunity recognition allowing the subsidiary to think outside the box and perceive links with unrelated information. Once the environment is actively assessed for information the subsidiary can rescan and search for re-clarification and sometimes identify new opportunities or extensions of existing ones.

3.5.1.3. Evaluation and Judgement and Opportunity Recognition:

Evaluation and judgement is the final dimension of entrepreneurial alertness. It determines whether the information presents an exploitable opportunity. Tang et al. (2012) argues that if an opportunity arises from new information, the judgement exercised is based on two factors: (1) the attention to third party opportunity and (2)

the evaluation of first-person opportunity. Third person opportunity from the subsidiary perspective is whereby the opportunity is for another part of the MNC whereas first-person opportunity is for a subsidiary itself. If a subsidiary contends that an opportunity exists, it will bear the uncertainties involved in recognising such opportunity. In line with Kirzner's theory of alertness, it is the focus and attention on new changes, market shifts and information that determines whether a business opportunity with potential profit is recognised. This dimension may also include seeking further information and involve more additional reconsideration of related alternatives. By obtaining additional information a subsidiary can make more accurate evaluations on an opportunity's potential.

This study argues that evaluation and judgement allows for the assessment of information obtained through association and connection. This dimension allows the subsidiary to assess if the opportunity addresses an unmet market need or if the opportunity is not viable and is a "false alarm". Therefore, this dimension has a significant relationship with opportunity recognition, determining if a subsidiary can capitalise on the opportunity.

Hypotheses for Opportunity Recognition

Hypothesis 5a: There is a positive relationship between Scanning and Search and Opportunity Recognition.

Hypothesis 5b: There is a positive relationship between Association and Connection and Opportunity Recognition.

Hypothesis 5c: There is a positive relationship between Evaluation and Judgement and Opportunity Recognition.

3.5.2. Opportunity Recognition and Innovation

This study argues that opportunity recognition is positively related to innovation, as it is implicit that for an innovation to take place, an opportunity must be initially recognised (Amirsardari & Maritz, 2015; Lumpkin & Lichtenstein, 2005; McGuire, 2003). Innovation was first emphasised by Schumpeter (1942) as the means to by which wealth is created through the process of "creative destruction", which is when

a new product or service is introduced, with opportunity recognition being the starting point for innovation. Innovation is an important component of entrepreneurship as it is the outcome of the pursuit of new opportunities (Lumpkin & Dess, 1996). Innovation captures a willingness to support creativity and experimentation to introduce new products/services, and pursue novelty, technological leadership and R&D in developing new processes (Lumpkin & Dess, 1996).

This study conceptualises corporate entrepreneurship as not only generating radical innovations (Andersson & Pahlberg, 1997) but also incremental (value adding) improvements (Freeman, 1987) which are relevant to all types of subsidiaries (Subramaniam & Youndt, 2005).

Incremental innovations take advantage of prevailing knowledge whereas radical innovative capabilities benefit from transformed prevailing knowledge for example by transforming old knowledge to something new. For an opportunity to be recognised a subsidiary must be entrepreneurially alert involving associating and connecting information through its intellectual capital or that of actors; reassessing possibilities, searching for new outcomes and using knowledge in different ways.

Opportunity recognition is the desire to generate something new or the need to resolve an issue that is disturbing the competitiveness of a subsidiary (Feldman & Pentland, 2003). Ghoshal (1987) argues that organisations take from societal variances in structural and managerial processes such as opportunity recognition which help them expand internationally (Zahra et al., 2005). Opportunity recognition also the bridge that connects a breakthrough opportunity to the initial innovation and is highly reliant on the subsidiary's capacity and its access to informal networks enabled by subsidiary brokerage rather than its structural procedures.

Subsidiaries with higher SEA are more likely to recognise opportunities and to increase innovations, an important capability in dynamic and competitive environments.

Hypothesis for Innovation

Hypothesis 6: There is a positive relationship between Opportunity Recognition and Innovation.

3.5.3. Opportunity Recognition and Subsidiary Performance

The entrepreneurship literature demonstrates that entrepreneurship has a positive effect on organisational performance (Covin & Slevin, 1991; Zahra, 1993). This study uses a relative performance measure to examine the relationship of opportunity recognition and performance. Relative performance is defined as distinctive superior performance compared to that of similar subsidiaries within an MNC. As a result of the subsidiary's actions relative performance contributes to the overall organisational performance. For example, each subsidiary is compared on their ability to perform (Tsai, 2002), this results in the MNCs decision to allocate mandates (Tippmann et al., 2014) after subsidiaries compete to receive mandates that can contribute to their role development or relative performance (Birkinshaw, 1997; Birkinshaw et al., 1998b; Roth & Morrison, 1992).

Within the MNC the subsidiary competes against its sister subsidiaries to receive discretionary resources such as financial investments to facilitate the subsidiary's development relative to other subsidiaries; therefore, a subsidiary must be recognised through its existence and achievements in comparison to similar subsidiaries within the MNC. This can be done by gaining headquarters attention through opportunity recognition, therefore helping the subsidiary to realise or reshape their operations (Bouquet & Birkinshaw, 2008; Colakoglu et al., 2009). Subsidiary management are interested in assessing their unit's relative performance in terms of achieving the headquarters' objectives, their sister subsidiaries actions and maintaining their own goals and objectives (Liouka, 2007). A subsidiary operating within the same market as a sister subsidiary must demonstrate superior unique resources relative to similar subsidiaries to be granted additional mandates by headquarters (Kappen, 2011). This can be achieved by continuous opportunity recognition. Opportunity recognition allows the subsidiary to develop or improve operations, increasing productivity and

quality of product, process or service. Therefore, with the competition for headquarters' attention increasing the resources' objective of the subsidiary, is to become the favoured competence creating subsidiary (Burt, 1987).

A subsidiary is not examined in isolation on its own merits but also the relative achievements of a similar subsidiary within the MNC. This is particularly evident where headquarters has limited resource allocation (Kappen, 2011; Meyer et al., 1992). The poorer performing similar subsidiary may reduce the productivity level of the other subsidiary and its technological evolution (Kappen, 2011). Specifically, a subsidiaries frequent interactions caused by continuously recognising opportunities brings a more influential position relative to sister subsidiaries (Gammelgaard et al., 2012). The relative strength of a subsidiary depends on its ability to raise resources and influence its organisational activities through relationships with other subsidiaries inside the MNC.

Hypothesis for Relative Performance

Hypothesis 7: There is a positive relationship between Opportunity Recognition and Relative Performance

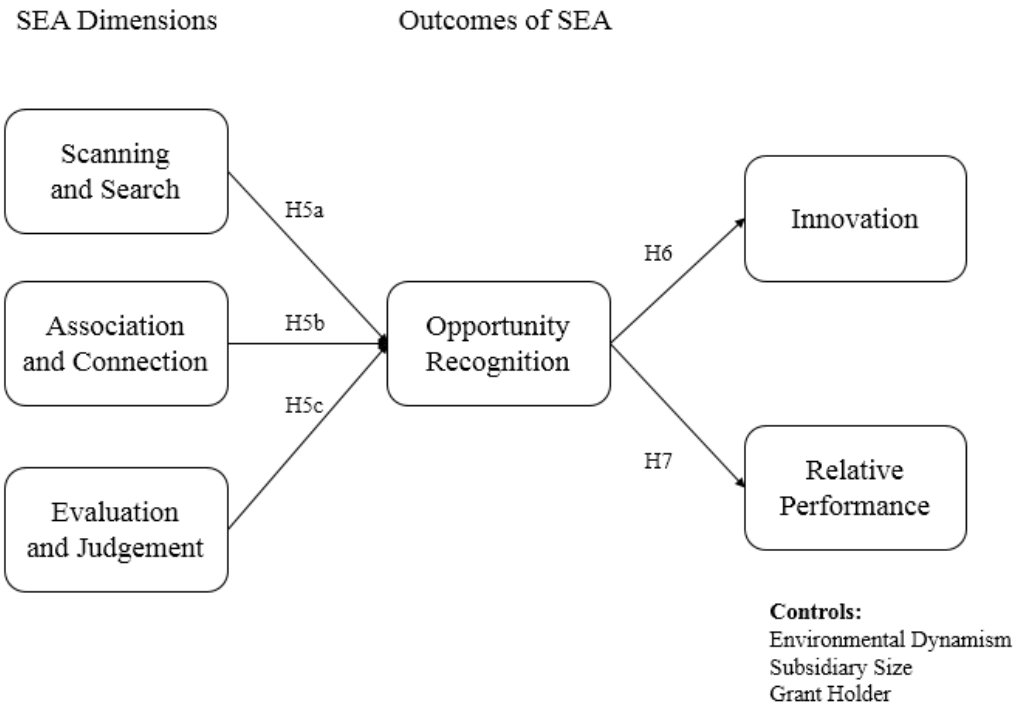


Figure 4: Outcomes of SEA hypotheses

See Appendix 1: Summary of Hypotheses

Chapter Four: Methodology

4.1. Introduction

This chapter describes the research methodology applied to empirically investigate the conceptual model. The research objective is to test the hypotheses, ensuring consistency between the philosophical approach of the study and its key research questions (Easterby-Smith et al., 2012). The chapter firstly describes the rationale for choosing the research design and outlines the research philosophy, this lays the foundation for the data collection. The chapter also demonstrates the key considerations for the particular unit of analysis chosen and the reasoning and techniques the study took when adopting the survey method. The operationalisation the variables used within the survey is also detailed. Finally, the chapter presents the data analysis which includes the rationale for selecting Structural Equation Modelling and explains the requirements needed to successfully utilise partial least squares analysis.

4.1.1. Considerations in Choosing a Research Design

A research design is the principal plan for the gathering, measurement, and examination of data (Gray, 2021). The research design describes the methods that will be adopted for collecting data, approaches to selecting samples and how the results from the data collection are going to be evaluated (Creswell & Creswell, 2017; Gray, 2021). A quantitative research design was identified as most suitable for this study given the requirement to access a large number of MNC subsidiaries to measure and test the relationships within the proposed model.

The relationship between subsidiary context and SEA and the range of outcomes proposed including opportunity recognition, innovation and subsidiary performance can only be determined through statistical testing (Liouka, 2007). Furthermore, a large scale quantitative study can achieve the generalisability required as the objective of this study is to capture the antecedents and outcomes of SEA across a large number of subsidiaries in Ireland varying in terms of industry, size and age (Liouka, 2007). A survey of the population of subsidiaries was adopted. This is in line with common

practice on multinational research (Ambos et al., 2010; Bartlett & Ghoshal, 1986; Birkinshaw et al., 1998b; Ozgen & Baron, 2007).

4.1.2. Research Philosophy

Similarly, to many quantitative studies, this research reflects a positivist approach. Positivism is based on an awareness that the external social world exists objectively, and its characteristics can be captured by using objective measures rather than reflection or intuition. The positivist views knowledge as an objective reality "out there" to be found and this can be achieved through specific objective scientific methods which offer degrees of certainty.

As the objective of this research is to understand the antecedents of entrepreneurial alertness within subsidiaries, the research will use hypotheses to argue that, for example, autonomy is positively related to SEA. Therefore, it allows the study to be systematic and controlled when measuring patterns of behaviour. By taking this approach, the research is independent of the research allowing for objectivity and the identification of relationships between constructs that explain the antecedents and outcomes of the SEA phenomenon (Mertens, 1998).

4.2. Research Setting

The research setting refers to the environment where the data is collected. Data collection was carried out on subsidiaries in Ireland. Ireland was chosen for several reasons, including convenience, cost and accessibility to these subsidiaries. Most importantly, Ireland is an attractive location for MNC subsidiaries. The population of subsidiaries in Ireland is best suited for testing this particular conceptual model as there is a mix in subsidiary age and size.

The Republic of Ireland is one of the most open economies in the world. Welcoming organisations from the U.S., Europe and Asia for a number of decades, these subsidiaries currently employ almost one in ten workers in the economy (Gunnigle et al., 2007). As a host country to highly innovative companies which are "leading this evolutionary process", it enables highly innovative companies to re-shape different sectors, business models and eventually the global economy (I. D. A. Ireland, 2015).

Ireland demonstrates a strong representation of subsidiaries from both U.S. and European MNCs[1]. Therefore, this research complements previous literature that adopts a similar regional geographical approach (Birkinshaw et al., 1998b; Taggart, 1998).

Ireland has also certain vulnerabilities when it comes to MNC activities, Irish subsidiaries may face entrepreneurial pressure because of relocation threats or pressures to renew mandates. For example, a study carried out by *The Economist* in 2012 found that some MNCs are hesitant to establish their presence in Ireland (Lyons, 2012). Factors causing this hesitation included Ireland's peripheral location, small size of the domestic market, the instability of the euro zone and the uncertainty about the country's finances. The cost of doing business in Ireland is also high, encouraging U.S. investments to target emerging markets such as India and China.

4.2.1. Unit of Analysis

The unit of analysis is the main entity where information is obtained. There are several analysis alternatives available when examining entrepreneurial alertness. Firstly, the individual perspective which has been researched on numerous occasions (Kaish & Gilad, 1991; Kirzner, 1973; McMullen & Shepherd, 2006; Tang et al., 2012), secondly the subsidiary's perspective of an individual's entrepreneurial alertness, and thirdly the subsidiary alone in terms of its entrepreneurial alertness at the unit level. This study adopted the third approach.

4.2.1.1. Accessing Total Population

A population is defined as a discrete group of units of analysis (Bryman & Cramer, 2004) or the total of all elements that share some common set of characteristics (Hair et al., 2007). The aim of the data collection was to survey every subsidiary within Ireland (non-industry specific). Given the total population was accessible it eliminated any issues of generalisability.

[1] It has been ranked the best in the world for attracting high value FDI for the sixth time in a row according to the Global Locations Report 2017 by IBM. Ireland is also placed 10th out of 127 countries on the Global Innovation Index 2017

4.3. Survey Population Database

The survey population database for this study comprised of Irish subsidiaries of foreign multinational corporations (MNCs), which in line with similar studies (Birkinshaw et al., 1998b) is defined as an organisation that operates in two or more countries. The population database of subsidiaries of foreign MNCs operating in the Republic of Ireland was created by Data Ireland. Within the database, foreign subsidiaries were identified as having a headquarters who operates outside the Republic of Ireland, therefore ensuring that this study was not targeting indigenous organisations.

4.3.1. Deliberate Exclusions from Population

It was decided to capture the total population of Irish subsidiaries of foreign MNCs. Subsidiary age was not the basis of exclusion although the literature recognises that there is a relationship between the entrepreneurial activity of the organisation and its age, results are somewhat conflicting. For example, organisations 6 years and younger are recognised as new ventures (Brush, 1992; Shrader, 1996), and many still have to achieve a strong market position (Bantel, 1998); organisations over 12 have survived the liability of newness (Zahra et al., 2000) however, have not yet reached a mature stage (Bantel, 1998). The literature also argues that an organisation's entrepreneurial activity just outside the start-up period but also declines with age (Covin & Slevin, 1990; Zahra, Ireland, & Hitt, 2000)

During the pre-test of the questionnaire, it was ensured that the questions were relevant across all of the sectors. Financial service, insurance and call centres were excluded as these have different operating and reporting procedures due to their nature and structure. Call centres were also excluded due to their structure and function (O'Brien et al., 2013). The issue of industry sector had to be given some consideration as targeting subsidiaries across industry sectors has implications. Many researchers have identified that targeting subsidiaries from different sectors increases the threat of internal validity and may complicate the relationships of interest (Frost et al., 2002; Modell, 2005) inferred from the data, as some questions may not suit a particular industry.

Subsidiary size was also recognised. Foreign subsidiaries with less than 20 employees were excluded. The decision was based on targeting subsidiaries with substantial operations, reducing the danger of including 'brass plate' offices, which typically have a low number of full-time employees. Their inclusion could have conflated results.

4.3.2. Final Listing

In total, the database provided for Ireland initially comprised of 1,139 subsidiaries. This was the entire population of foreign subsidiaries across all industry sectors provided by Data Ireland. The majority of subsidiaries within the database obtained had two contacts. After removing the exclusions, the final listing contained the distribution of 1911 surveys to 1,082 subsidiaries for round one, and another 1,000 surveys to 591 subsidiaries in round two. Altogether, a total of 1911 individuals in 1082 subsidiaries were targeted for the research.

4.4. Target Respondent

The survey's target respondents are the subsidiary's CEO/ Managing Director and another top-level manager due to their experience of their subsidiary and headquarters as well as knowledge regarding organisational strategy and structure (Hambrick, 1981) but also their familiarity with the items used within the survey particularly their overview of subsidiary entrepreneurial activities (Zahra, 1993).

Collecting the views of the subsidiary can create a rich database as it reflects a subsidiary focused view of the MNC and its ability to be entrepreneurial alert, however there is a risk of response bias in obtaining the views of the subsidiary and not headquarters. For example, the subsidiary general manager's perception may prompt response bias by changing to make the subsidiary look good or demonstrate that it is more entrepreneurial than it actually is. However, headquarters' perception can be similarly biased as they may wish to be seen as the motivator for subsidiary entrepreneurship. Still, headquarters may put mechanisms in place that actually undermine the subsidiary's ability to be entrepreneurial.

There are also access constraints in distributing the survey; therefore, it was decided to collect the data from subsidiary managers, the desired and most appropriate

informant. As a precaution for social desirability bias, items were mixed so that the respondent would not be able to anticipate the motivation for the study which otherwise might influence his/her response towards socially desirable answers. In addition to the other factors, respondents were requested to state their position within the subsidiary and the number of years they had worked there to ensure that each respondent could be regarded as a key subsidiary expert (Ginsberg & Hay, 1994).

4.4.1. Single Respondent Issues

There are some concerns with using perceptual data collected through surveys (Boyd et al., 1993), including the validity of measures (Lyon et al., 2000). For example, significant issues have been identified within the literature relating to the use of a single respondent when collecting perceptual data (for example, Campbell and Fiske, 1959; Nutt, 1986; Phillips and Bagozzi, 1986; Podsakoff and Organ, 1986). Hambrick (1981) argues that the CEO should be targeted if the researcher has no option but to access one unique respondent (Bowman & Ambrosini, 1997:119) as "asking executives other than CEOs may receive considerably less accurate information" (Hambrick, 1981:271). For this research, in the case that two contacts were available in the database, two individuals were sent the survey, however, the research did not receive two responses from the same company.

4.5. Questionnaire Design

Surveys allow collecting accurate, reliable data on selected variables, and to do so, the design of the questionnaire is essential to obtain valid responses. A number of factors must be considered when assessing if the objectives of the study have been achieved (de Leeuw et al., 2012; Dillman, 2011, 2015). A Total Design Method, emphasises the need to tailor the approach to the particular situation. He argues that to achieve a high response rate, three elements must be included in the survey design (Dillman, 2011):

1. Rewards, the respondents' interpretation of the gain from completing the survey. The study offered a summary of our findings if the respondent attached their business card or contacted the researcher.
2. Costs, what one expects to spend in completing the survey (not monetary costs but psychological costs)

3. Trust, that the rewards outweigh the costs in fulfilling the survey.

Other factors include; keeping the number of questions to a minimum as the senior manager is constricted in the amount of time that he or she can allocate to completing the survey. If the survey is too long, respondents may not attempt to complete it. Therefore, the survey must justify the respondent time spent completing it. The survey must also be professional and well-designed visually to demonstrate the professionalism of the researcher, the importance of the study and also positively reflect the manager and show the importance of obtaining his/her knowledge and experience.

4.5.1. Drafting the Questionnaire

The primary aim in drafting was to ensure that the questionnaire was kept as short as possible to achieve a sufficient response rate while also including the essential items of data to be collected. Response rates have fallen over the last few years due to the increased number of business schools executing investigations into subsidiary activities. Senior management are inundated with requests to complete surveys from not only postgraduate but undergraduate students. Due to time constraints on top management and the high demands of senior decision makers, the questionnaire should be, or present itself to be, short enough to be completed in a tolerable timeframe. The longer the questionnaire, the lower the response rate (Jobber & Saunders, 1993). Keeping in line with best practice, the survey was kept within a completion time of 20-25 minutes (Bagozzi et al., 1991).

The order in which the questions are presented is important as this establishes both the survey's logic and flow (Babbie, 1973; Bradburn et al., 2004; Dillman, 2011). Keeping this in mind, the survey was coordinated according to previous research which demonstrated a successful survey methodology. The first question relates the purpose of the survey, this is considered significantly as it can influence how the respondent answers the rest of the questions. The first question asks to what extent do the following statements relate to people working within your subsidiary? This question implies a non-personal approach as it relates to the actions of other subsidiary rather that to the actions of the respondent. If the first question is not appropriate there is a

risk of decreasing respondent attention and trust (Dillman, 2000). Dillman (2000) explains that the first question should relate to all respondents, be easy to complete and understandable and easy to respond to, i.e., be a closed response rather than an open question (Babbie, 1973).

Fanning (2005) also describes that the best practice for survey design is to group the questions by order and type because respondents are affected by cognitive ad normative influences. Dillman (2000) identifies how the cognitive influences include the following normative effects: an anchoring effect, in that the respondent's answer follow the direction of the previous questions; an addition effect, whereby the answer to the next question is influenced by the first one; and a "norm of even-handedness", whereby the respondent is fair in answering the following question based on the previous question (Dillman, 2000; Fanning, 2005). Applying this guidance, the survey was designed to ensure that the more significant measures were at the beginning of the survey. This was implemented to ensure that in the case of a respondent being unable to complete the survey fully that the main objectives were achieved. The fluidity of the order in which the questions were asked also followed the guidance of pervious research. It was ensured that the questions, that were deemed more difficult to answer, were not grouped together. This encouraged the respondent to complete the entire survey.

In order to develop a 'respondent-friendly business questionnaire' (Dillman, 2000), other questionnaires which had received a high response rate were examined as a guide to achieve a similar outcome. Prioritising Dillman's (2000) suggestions, it was decided to limit the length of the survey to eight pages. This included the cover page, six pages of questions and a back page (Appendix 2 includes the cover letter and Appendix 3 includes the survey). The survey was professionally designed so it warranted attention and demonstrated importance, encouraging the respondent to provide the requested information.

4.5.1.1. The Questionnaire Front Cover

As guided by Dillman (2000), a good questionnaire cover design can improve response rates. The tailored design method suggests that the questionnaire should be unique

compared to other surveys the respondent may receive. Also, if graphics are used, it is important to ensure that they are relevant to the situation, reiterating that good design can improve response rates (Dillman, 2015).

The questionnaire cover for this study was designed with a mix of dark blue, blue and grey to differentiate it from the primarily white paper that so often passes an executive's desk. A professional design company designed the graphic which included a group of colleagues made up of one woman and two men in discussion. The title of the survey 'Seeking insights on subsidiary challenges and opportunities' was placed in the mid-section of the front cover to capture a general essence of the study's objective while avoiding direction in terms of response bias.

4.5.1.2. The Questionnaire Back Cover

The questionnaire back cover consisted of a graphic of two people shaking hands with business letters underneath. On the page before the back cover, the research offered an invitation to comment and re-iterated our appreciation for taking the time to complete the survey. This is recommended by the Total Design Method (Dillman, 2000) as it makes respondents feel as if a conversation has taken place. A number of respondents utilised this section to either discuss the background of their organisation or to express their interest in the research.

4.5.2. Theoretical Considerations in Selecting the Construct Measures

The objective of the survey is to test the hypotheses in the proposed model. Through the extensive examination of the entrepreneurship and international business literature the items for the questionnaires were devised to effectively use previously validated measurements. This maximises convergent and content validity (Churchill Jr, 1979). He argues that 'researchers should have good reasons for proposing additional new measures given the many available' (Churchill Jr, 1979:67). The use of dominant items provides a primary indication that the area of the construct has been taken (Nunally, 1967), and research using these items has already been carried out.

4.5.2.1. Pre-test of the Questionnaire

It was decided to pre-test the questionnaire using research academics and subsidiary managers. The objective of the pre-test was to achieve a professional, readable and appealing survey which achieves the research objectives (de Leeuw et al., 2012) A total of fifteen individuals peer reviewed the survey, these included four subsidiary managers, a consultant within the IDA, Head of Sales of a MNC, and eight academics with previous experience with survey design and distribution. . They were selected due to their specialised knowledge and expertise.

The feedback from industry experts and academics provided us with valuable content which the study discussed with my supervisors in detail and the measures were amended several times until considered acceptable. Given the importance of maintaining the respondent's interest to complete the survey, the length and the complexity of the questionnaire was of serious consideration. Concerns relating to content validity ensured the constructs measured were deemed least susceptible to social desirability bias. For example, the value chain scope measure was adapted as it originally asked the sources and recipients of the subsidiary's knowledge and skills; sister subsidiaries or headquarters. It was decided that the measure should be changed to indicate the geographic scope of the subsidiary's functional activities. The measure was changed as the subsidiary may rather be seen to receive knowledge and skills from the headquarters rather than from a sister subsidiary. Following several iterations and rounds of discussions, the number of constructs to be examined was reduced to the ones considered most crucial to the study.

4.5.2.2. Question Clarity

Great attention was taken to make the instructions clear and unmistakable. Most of the measures required the respondent to indicate their response using a 7-point Likert scale from 'strongly disagree' to 'strongly agree'. Two other scales were used frequently throughout the survey also, 'not at all' and 'to a very large extent' (7-point Likert scale) and 'significantly worse than similar subsidiaries' to 'significantly better than similar subsidiaries' (7-point Likert scale). This was utilised for reasons of clarity and consistency. In addition, using the same scales throughout the questionnaire gives rise

to a risk that the respondent will answer all of the questions the same (Baker, 2003). The study, therefore, sought to mix response scales throughout the survey.

4.6. Questionnaire Administration

4.6.1. First Contact: Questionnaire Posting

The first point of contact to the target respondent was through posting the questionnaire. Within each survey envelope, a personalised cover letter (signed by both the supervisors and researcher), the questionnaire, and a pre-labelled free return envelope was included. To ensure that the envelope did not seem bulky, the cover letter was kept to one page, the questionnaire was kept to a minimum as specified earlier and the return envelope was folded. All three elements were also paper clipped to ensure that they came out together and were presented in the correct order.

The cover letter was printed on Dublin Institute of Technology School of Business letterhead. The letters were mail merged and personalised to each individual respondent, for example included the respondent's full name and title. The research topic was explained and the importance of gathering the respondent's views outlined. It was expressed that anonymity was guaranteed. The cover letter also invited the respondent to attend upcoming seminars and to be provided with a report of the findings, on inclusion of a business card in the return envelope. The reasoning behind providing a token or incentive is to sway any gatekeeper opening the respondent's post to pass the survey to the respondent. Sharkey Scott (2005) explain that interest in the subject matter may suffice as an incentive to subsidiary managing directors. Contact details of supervisors and the researcher were provided, and "real" signatures transcribed as opposed to electronic ones, which take away the personalised touch (Dillman, 2000).

To avoid multiple respondent errors, it was decided to not provide the subsidiary manager with the option of passing the questionnaire on to another manager. This ensured that the respondent has an overall view of the subsidiary. Another manager may have the perspective of a particular functional department.

4.6.2. Second Contact: Follow-Up Phone calls

Follow-up phone calls were conducted 4-5 weeks after the first round of surveys were posted. This allowed the target respondent an appropriate time to respond (Dillman, 2000). The purpose for the follow-up phone calls was to make personal contact with the target respondent and explain the purpose of the study and the potential opportunities that could be gained by the subsidiary by participating. In many cases, the key respondent was unavailable, and the respondent's secretary answered the phone call. Nonetheless, the study asked if the survey had reached the targeted respondent, explained the purpose and benefits of the study and kindly asked if the secretary could remind the key respondent to complete the survey.

This required a lot of time and effort but benefitted the study considering the low response rate in round one. For example, it helped to accurately target the respondents in round two, as in some cases the target respondent's name, position or trading address was incorrect. Therefore, the study was able to update the database and sent it to the correct respondent in round two.

4.6.3. Third Contact: The Questionnaire Posting – Round 2

The second wave of surveys was sent about 5 weeks after the follow up phonecalls. To avoid sending the survey to individuals who had already completed the survey, the database included a unique survey number for each respondent. To comply with the confidentiality requirements, the number was marked only, and the company was not identified in the study. Therefore, once round two was processed, the respondents that completed the survey were eliminated from the distribution list. This avoided annoyance to earlier respondents and also eliminated unnecessary postage costs. Due to the strict budget for the study, 1000 surveys were sent in round two. As issues arose from the database purchased, i.e., organisations had dissolved, the 1000 target respondents were identified based on cross referencing a colleague's successful database, the Fame database, I.D.A. listings and the LinkedIn platform. The cover letter again confirmed anonymity, the nature of the study and the incentive of completing the survey through the means of receiving a report of the findings.

4.7. Operationalisation of Variables

As outlined in section 4.5.2.1., the instrument measures selected represent several iterations of deliberations and debate by an expert panel, based on the twofold motivations of achieving the research objectives from a measurement perspective, and generating a satisfactory response rate for the study to be meaningful.

The research's dependent, independent and control variables are discussed below. As mentioned earlier, a number of measures from previous studies were adapted or merged. Though it was essential to include an adequately comprehensive range of items to represent the underlying construct (Lyon et al, 2000), this number had to be restricted to the minimum sufficient to achieve acceptable validity levels given the key objective of generating enough responses.

As mentioned previously, the majority of the indicators were measured using a 7-point Likert scale, fixed at either 1 = 'Not at all', 4 = 'To some extent' and 7 = 'To a very large extent' or 1 = 'Strongly disagree', 4 = 'Neutral' and 7 = 'Strongly agree'. While several of the measures had originally applied a 5-point scale, it was felt that the 7 points allowed for greater diversity in answers. Although there may be a tendency to hit the middle point labelled 'to some extent' the research found that respondents varied their answers across the scales. Few open-ended questions were asked, and these related to factual matters such as industry sector, number of employees, or parent location.

4.7.1. Independent Variables

The independent variables are organised based on structural and relational antecedents. Firstly, structural antecedents included in the study are the various administrative mechanisms (Kirzner, 1997) that determine a subsidiary's structure and behaviour to be entrepreneurially alert to recognise opportunities. These include subsidiary autonomy and value chain scope (functional activity).

4.7.1.1. Subsidiary Autonomy

The level of autonomy is argued to drive SEA as it determines the level of freedom to scan and search for opportunities and also allow the organisation to freely access information in obvious and less obvious outlets (such as internal and external sources). The 3 - item scale utilised by Birkinshaw et al. (1998) was adopted and used with three response options (decision is taken in your subsidiary; decision is taken at sub-corporate level; decision is taken by corporate headquarters), as shown in Table 1. The original scale and the adaptations made are specified in Appendix 12.2. Subsidiary autonomy.

Table 1: Subsidiary Autonomy Measurement Items

To what extent do the following statements apply to people working within your subsidiary?		
Indicator	Mean	Std. Dev
Changes in product/ service /process design.	1.822	0.808
Subcontracting out of large portions of subsidiary business activities instead of expanding in-house.	1.909	0.790
Switching to a new product/ service /process.	1.938	0.788

4.7.1.2. Value Chain Scope

Value chain scope was measured by adopting from Birkinshaw and Morrison's (2005) and Birkinshaw et al.'s (2005) to measure the scope of mandate in terms of the number of functional activities performed by the subsidiary. The study measured value chain scope by asking the respondent to indicate the number of different functional activities the subsidiary performs (raw materials procurement, research and development, manufacturing operations, product distribution, promotion and advertising, sales activities, and customer service) on a four point sale which identify if the activity was performed for a local, regional or global market with the option to select not applicable, if the activity was not performed by the subsidiary. The study then transformed the yes/no answers into a score so that the study was able to identify the subsidiary's value

chain activity. See Table 2. The original scale and the adaptations made are specified in Appendix 12.3. Value Chain Scope.

Table 2: Value Chain Scope Measurement Items

Please indicate the geographic scope of your subsidiary's functional activities: *(please tick N/A if not applicable to your subsidiary)*		
Indicator	Mean	Std. Dev
Value Chain Scope (Score)	0.834	0.208

4.7.1.3. Subsidiary Brokerage

This measure was designed based on Burt's idea of brokerage (Burt, 2004, 2007), the study used "our subsidiary" to suit the subsidiary context. The 5 - item scale captures the approach of the subsidiary to connecting with certain parties, how they create potential opportunities with others and how they bridge structural holes to access information that may otherwise be inaccessible (see table 3). This was based on a 7 - point Likert scale (1 = strongly disagree, to 7 = strongly agree). The original scale and the adaptations made are specified in Appendix 12.8. Subsidiary Brokerage.

Table 3: Subsidiary Brokerage Measurement Items

Please indicate the extent to which you agree with the following statements:		
Indicator	**Mean**	**Std. Dev**
Our subsidiary is the primary link that connects different people in the organisation to each other.	3.948	1.622
Our subsidiary has many contacts externally that no other unit of the organisation maintains.	4.619	0.844
Our subsidiary has many contacts within the corporation that are unconnected to others within the MNC.	4.613	0.864
Our subsidiary is the main bridge that links otherwise unconnected internal or external groups	3.775	1.485
Our subsidiary is the corporation's primary link to many contacts in the external environment	3.792	1.544

4.7.1.4. Subsidiary Credibility

Subsidiary credibility was measured using the Birkinshaw (1999) scale to capture if a subsidiaries' credibility is related to its ability to be entrepreneurially alert. The 4-item measure for credibility was slightly adjusted so that the perspective would be from the subsidiary rather than the individual, the research changed the original question 1 "The subsidiary has a history of delivering what it has promised to headquarters" to "We have a history of delivering what we have promised to our corporation". Respondent were asked to what extent do the following apply (7 = to a very large extent; 4 = to some extent; 1 not at all). See Table 4. The original scale and the adaptations made are specified in Appendix 12. Subsidiary Credibility.

Table 4: Subsidiary Credibility Measurement Items

To what extent do the following apply to your subsidiary?		
Indicator	Mean	Std. Dev
We have a history of delivering what we have promised to our corporation	6.190	0.665
We make a significant value adding contribution to our corporation	5.896	1.016
We are globally competitive in our area of operation	5.779	0.932
We are regarded by out parent corporation as a strategically important subsidiary	5.814	1.363

4.7.2. Outcome Variables

4.7.2.1. Subsidiary Entrepreneurial Alertness (SEA)

The research adapted the three dimensions introduced by Tang et al. (2012) to capture the constituents of entrepreneurial alertness: scanning and search, association and connection, evaluation and judgement then adapted to capture the subsidiary's perspective. The original items used the singular "I" and it was decided to change it to the plural "we" to measure the subsidiary view. See Table 5 for details of the scanning and search components, Table 6 for details of the association and connection components and Table 7 evaluation and connection component details. The original scale and the adaptations make are specified in Appendix 12. The respondent was

asked to rate each question based on a 7-point Likert scale (1 = strongly disagree, to 7 = strongly agree). The original scale and the adaptations made are specified in Appendix 12.1. Subsidiary Entrepreneurial alertness.

Table 5: SEA – Scanning & Search Measurement Items

To what extent do the following statements apply to people working within your subsidiary?		
Indicator	Mean	Std. Dev
We have frequent interactions with others outside our subsidiary to acquire new information.	5.826	1.186
We always keep an eye out for new business opportunities when looking for information.	5.811	1.004
People in our subsidiary are constantly reading news, magazines, or trade publications to acquire new information.	5.129	1.223
We browse the Internet every day for information.	4.802	1.428
We are avid information seekers and actively look for new information	5.069	1.259

Table 6: SEA- Association and Connection Measurement Items

To what extent do the following statements apply to people working within your subsidiary?		
Indicator	**Mean**	**Std. Dev**
We see links between seemingly unrelated pieces of information.	4.983	1.038
We are good at connecting dots seemingly unrelated information.	5.017	1.078
We often see connections between previously unconnected domains of information.	4.913	0.930

Table 7: SEA - Evaluation and Judgement Measurement Items

To what extent do the following statements apply to people working within your subsidiary?		
Indicator	**Mean**	**Std. Dev**
We have an instinct for potential opportunities.	5.870	0.822
We can distinguish between profitable opportunities and not-so-profitable opportunities.	5.607	0.931
We have a knack for telling high-value opportunities apart from low-value opportunities.	5.792	0.832
When facing multiple opportunities, we select the good ones	5.542	0.821

4.7.2.2. Opportunity Recognition

Opportunity recognition was measured through the use of a 10- item scale consisting of questions derived from the literature (Alvarez & Barney, 2007, 2008; Ozgen & Baron, 2007; Singh et al., 1999) All items were measured by a 7-point Likert scale ranging from 1= strongly disagree to 7 strongly agree, capturing both the subsidiary's ability to recognise opportunities (e.g. item 1 – "while going about day-to-day activities, we see potential new ideas all around us (even though we may not pursue them)") and to their alertness to opportunities (e.g. our subsidiary has a special sensitivity toward recognising new opportunities). Please see Table 8 for details of items used to measure this component. The original scale and the adaptations made are specified in Appendix 12.4. Opportunity Recognition.

Table 8: Opportunity Recognition Measurement Items

For the overall business activities of your subsidiary please indicate your agreement with the following statements:		
Indicator	**Mean**	**Std. Dev**
While going about day-to-day activities, we see potential new ideas all around us (even though we may not pursue them).	5.402	0.897
Our subsidiary has a special sensitivity toward recognising new opportunities.	5.316	0.874
Seeing potential new opportunities does not come very naturally to us (reverse coded).	2.880	1.360
Identifying solutions/products/ processes and services that do not currently exist comes easy for us.	4.752	0.866
We can easily recognise opportunities to increase subsidiary revenues or profitability.	5.316	0.781
We have a strong ability for identifying what our customers want.	5.812	0.847
We have a gut feel for finding new approaches to doing things.	5.547	0.901

4.7.2.3. Innovation

The items developed by Subramaniam and Youndt (2005) to measure innovation (originally based on the work of Tushmann and Anderson (1986) and Henderson and Clark (1990)). This 6-item scale identifies the subsidiary as having a capacity for either an incremental innovation or radical innovation. The subsidiary's incremental innovative capability is assessed through its ability to reinforce and extend its existing expertise and product/ process/service lines. Radical innovative capability is examined by assessing the subsidiary's ability to make existing product/ process/ service lines obsolete (see items in table 9). Each respondent was asked to rate the subsidiary's capability relative to similar subsidiaries on a 7-point Likert scale (1 = significantly worse than other subsidiaries; 4 = about the same; 7 = significantly better than other subsidiaries). Please see Table 9 below for details. The original scale and the adaptations made are specified in Appendix 12.5. Innovation.

Table 9: Innovation Measurement Items

Please rate your subsidiary's capability to generate the following types of innovations in products/ services/ processes relative to other similar subsidiaries within your MNC:		
Indicator	**Mean**	**Std. Dev**
Innovations that reinforce your subsidiary's prevailing products/ services/ processes.	5.216	0.977
Innovations that reinforce your subsidiary's existing expertise in prevailing products/ services/ processes.	5.491	0.872
Innovations that reinforce how we currently compete.	5.430	0.808
Innovations that make your subsidiary's prevailing products/ services/ processes obsolete.	4.310	0.756
Innovations that fundamentally change my subsidiary's prevailing products/ services/ processes.	4.568	0.840
Innovations that make your existing expertise in prevailing products/ services/ processes.	4.421	0.818

4.7.2.4. Relative Performance

The respondents were asked to evaluate their subsidiaries' performance compared to that of similar subsidiaries across a range of measures: productivity achieved, quality of product, process or service, relationships with suppliers, cost of labour, improvement of productivity, use of technology and new business development. The measure adapted items used by Birkinshaw et al. (2005) to capture this construct. A 7-point scale was used ranging from 1= significantly worse than similar subsidiaries, 4= about the same, to 7 significantly better than similar subsidiaries. Please see Table 10 below for the measurement items used. The original scale and the adaptations made are specified in Appendix 12.6. Performance.

Table 10: Relative Performance Measurement Items

Please evaluate your subsidiary's performance relative to similar subsidiaries within your MNC:		
Indicator	**Mean**	**Std. Dev**
Productivity achieved	5.538	0.954
Quality of product, process or service	5.512	0.919
Relationships with suppliers	5.415	0.952
Cost of Labour	3.886	1.338
Improvement of productivity	5.233	0.871
Use of technology	5.199	1.072
New business development	5.078	0.997

4.7.3. Controls

A number of controls were employed to reduce the omitted variable bias (Antonakis et al., 2010). This research acknowledges that there are other variables that may affect SEA, opportunity recognition, innovation and performance. Examining the influence of control variables on the dependent variables is necessary to rule out other potential effects that are unconnected to the hypothesised relationships (Kock et al., 2008). Appropriate control variables were selected from the rich subsidiary literature. These included subsidiary size, environmental dynamism, mode of establishment and grant holder. The control variables were treated as normal independent variables along with the other latent variables (SEA, opportunity recognition, innovation and performance). This allowed us to measure the significance of each path coefficient between independent and latent variables despite the inclusion of these control variables.

4.7.3.1. Subsidiary Size

The number of employees within the subsidiary may impact the subsidiary's entrepreneurial alertness and innovation because larger subsidiaries may have a greater learning capability through specialised research and development department/s. Subsidiary size may also promote diversity or openness to new ideas from various sources (Tang et al., 2012; Zahra, 1993). In addition, there is an argument that larger

subsidiaries within an MNC are under greater pressure to survive (Li, 1995). Therefore, size is included as a control variable. Consistent with prior studies, subsidiary size is measured through requesting the number of full-time subsidiary employees (Roth et al., 1991; Roth & Morrison, 1992). To account for the wide variety in subsidiary size, a logarithmic conversion was used.

Table 11: Subsidiary Size Measurement Item

No. of Full Time Employees (Subsidiary):		
Indicator	Mean	Std. Dev
Subsidiary Size	4.906	1.601

4.7.3.2. Environmental Dynamism

The study granted the opportunity to measure the dynamic nature of a subsidiary's environment, as this is expected to have a major impact on its strategy. The role of the external and internal environment on performance and innovation has been particularly researched (Dess & Beard, 1984; Garg et al., 2003; Levinthal & March, 1993). Environmental dynamism describes the volatility and unpredictability of change in the organisation's environment. The level of dynamism significantly influences innovation and performance at the organisational level and similar arguments apply at the subsidiary level (Garg et al., 2003; Miller, 1983). Environmental dynamism is characterised by the changes in technologies and variations in customer preferences (Jansen et al., 2006). These changes may be a source of opportunity, encouraging the subsidiary to generate radical innovations in response. The 5-item scale to measure environmental dynamism was taken from Jansen et al. (2009). Table 12 provides details on the environmental measure. The original scale and the adaptations made are specified in Appendix 12.9. Environmental Dynamism.

Table 12: Environmental Dynamism Measurement Items

For the primary market served by your subsidiary (external or within the MNC), to what extent do you agree with the following:		
Indicator	Mean	Std. Dev
Environmental changes in our primary markets(s) are intense.	4.824	1.379
Our clients regularly ask for new products and services.	5.088	1.331
In our primary market(s), changes are taking place continuously.	5.633	0.861
In a year, nothing has changed in our primary market(s).	5.556	1.360
In our primary market(s), the volumes of products and services to be delivered change fast and often.	4.701	0.858

4.7.3.3. Mode of Establishment.

Subsidiaries are originally established as greenfield sites or through acquisition. The literature suggests that the mode of establishment has an impact on subsidiary innovativeness (Kappen, 2011). Greenfield sites are more likely to operate closer when the corporate system compared to those that are acquired (Mudambi et al., 2014). Mode of establishment was measured using a dummy variable, with 1 = greenfield site, and 0 = through acquisition. Table 13 shows details of mode of establishment measurement items.

Table 13: Mode of Establishment Measurement Items

Subsidiary originally established as (please tick)		
Indicator	Mean	Std. Dev
Mode of Establishment	0.573	0.495

4.7.3.4. Subsidiary Aided by Grant

Subsidiaries supported by financial incentives towards R&D or encouraging collaborative projects with third level institutes may be more likely to act entrepreneurially in response to these incentives. As the Irish government, though its Industrial Development Authority (I.D.A) supplies such incentives, there was a need to control their potential impact on subsidiary behaviour. In response, this control

measure was captured using a dummy variable with 1 = grant holder (i.e., this subsidiary received a type of grant whether it is a business asset grant or a training grant), and 0 otherwise. Please see Table 14 for details.

Table 14: Subsidiary Aided by Grant Measurement Items

Indicator	Mean	Std. Dev
Subsidiary Aided by Grant	0.453	0.498

4.8. Common Method Variance

Common method variance (CMV) or common method bias occurs when variations in responses are caused by the data collection instrument (in this case, the questionnaire), rather than the actual tendencies of the respondents that the questionnaire seeks to uncover (Podsakoff et al., 2003, 2012). In other words, CMV is caused by the measurement model and not by the network of effects among the latent variables (Kock, 2015). This measurement error threatens the validity of conclusions about the relationships that the research attempts to analyse (Bagozzi et al., 1991; Podsakoff et al., 2003). In order to check for common method variance, statistical measures are required (Podsakoff & Organ, 1986). To be completely thorough in ensuring that common method variance is not an issue, the recommendations of Podsakoff and Organ (1986) and from the literature on PLS-SEM were followed. This included Harman's One Factor Test and a partial correlation procedure (performed in SPSS), and for completeness a full collinearity assessment (performed in SMART PLS).

4.8.1. Harman's One Factor Test

Harman's one factor test is the most widely used measure to test common method variance (Podsakoff et al., 2003).The assumption surrounding this technique is that if a significant amount of common method variance is present, either a single factor will come forth from the factor analysis, or one general factor will explain the majority of the covariance among the measures (Podsakoff et al., 2003). To perform this test, all items from all of the constructs used in the research are included into a factor analysis. By doing so, it can be determined whether the majority of variance can be explained

by one factor. If the unrotated first factor accounts for less than 50% of variance (Podsakoff & Organ, 1986), the survey is free from substantial CMV effects. Three tests were performed, 1) the antecedents' model, 2) the outcomes' model and 3) combined model (antecedents and outcomes). For all three tests, the first factor explained considerably less than 50% of variance. Therefore, CMV does not affect the data (see Appendix 4-6). Although Harman's One Factor test is widely used, it cannot consistently produce an accurate conclusion regarding bias levels of common method variance the data. Therefore, additional tests were performed.

4.8.2. Marker Variable

In addition to assessing common method variance using Harman's One Factor Test, the research used a partial correlation technique whereby a maker variable was included in the questionnaire to control for CMV (Lindell & Whitney, 2001; Podsakoff et al., 2003). In this study, the marker variable is overconfidence (Gudmundsson & Lechner, 2013), which is theoretically unrelated to other scales. It should therefore have zero correlations with the other scales measured. The correlation matrix in appendix 7 confirms that, while the variable has some correlations with the other variables, it does not justify a level of concern (Papadakis et al., 1998).

4.8.3. Multicollinearity Assessment

Multicollinearity exists when two or more variables are highly intercorrelated. If multicollinearity is present, the test performed on the independent variables is unreliable and prevents the research from assessing relative importance (Gudmundsson & Lechner, 2013). To assess multicollinearity issues, the variance inflation factor (VIF) within a well fitted model should not be higher than 4.0 (Garson, 2016) or 3.3 (Kock, 2015). The tables in Appendix 8 show the examination of multicollinearity of both models (antecedents and outcomes of SEA). For both models, the VIFs are considerably below 3.3 and are therefore considered as free of common method variance (Kock, 2015).

4.9. Data Analysis

4.9.1. Introduction to Structural Equation Modelling

Structural Equation Modelling (SEM) is a family of multivariate statistical techniques for the analysis of direct and indirect relationships among variables of interest (dependent and independent) (Chin, 1998; Gefen et al., 2000; Hair et al., 2010; Hashim, 2012). SEM not only assesses the overall fit of a model but the structural model altogether (Chin, 1998; Gefen et al., 2000; Hashim, 2012); evaluating the hypothesised structural linkages among variables. SEM has its roots in two familiar multivariate techniques: factor analysis and multiple regression analysis (Hair et al., 2010), and is also known as covariance structure analysis. It can be performed in software such as LISREL, EQS, AMOS, SEPath and CALIS (Chin & Newsted, 1999).

To overcome limitations of first-generation techniques, such as regression-based approaches, SEM allows flexibility for the interplay between both theory and data (Chin, 1998; Haenlein & Kaplan, 2004). According to Chin (1998), SEM based approaches allow researchers to perform the following: "1) model relationships among multiple predictors and criterion variables; 2) construct unobservable latent variables; 3) model errors in measurement for observed variables; and 4) statistically test a priori theoretical and measurement assumptions against empirical data, i.e., confirmatory analysis" (Chin, 1998).

There are two main approaches within SEM that are commonly used in the strategy, social science and psychology literature: a component-based approach, partial least square (PLS-SEM) and a co-variance-based approach (CB-SEM) (Chin, 1998; Chin & Newsted, 1999; Fornell & Bookstein, 1982; Hair et al., 2010; Hashim, 2012; Henseler et al., 2009). The two approaches are different in terms of their underlying statistical assumptions and the nature of fit statistics they yield (Gefen et al., 2000). PLS-SEM seeks to maximize the explained variance in the endogenous latent variables and in turn of the indicators of the variables. In contrast, covariance-based SEM (CB-SEM), seeks to reduce the difference between the observed and model implied covariance matrices (Garson, 2016). See Table 15 for a complete comparison of PLS-SEM and CBSEM.

CB-SEM has been widely used over the last few decades for confirming or rejecting theories through hypothesis testing. The method uses the maximum likelihood function to reduce the difference between sample covariance and predictive variance displayed in the theoretical model (Chin, 1998; Hair et al., 2013). It is mainly used when the sample size is large, the data normally distributed, and correct model specification is ensured (Wong, 2013: 3).

PLS - SEM provides a more robust estimation of the model compared to CBS-SEM (Henseler et al., 2009). It enables the simultaneously testing of the structural and measurement components in one model (Vinzi et al., 2010). PLS-SEM is recognised as an alternative method when CB-SEM distributional expectations cannot be achieved (Hair et al., 2011). The main objective of PLS-SEM is to maximise the co-variance or predict the relationship between the predictor latent variable and the dependent latent variable (Sosik et al., 2009), for example the co-variance between autonomy and SEA. PLS-SEM is suitable when the research objective is theory development and can also accommodate small sample sizes (Chin & Newsted, 1999), see table 15.

PLS-SEM can also be used to analyse a research model that consists of both reflective and formative paradigms (Chin, 1998). PLS also allows researchers to use either reflective, formative or the combination of both at the same time (Diamantopoulos & Winklhofer, 2001).

Table 15: PLS and CBSEM comparison

Comparison of Partial Least Squares and Covariance based Structural Equation Modelling		
Criterion	PLS	CBSEM
Objective:	Prediction oriented	Parameter oriented
Approach:	Variance based	Covariance based
Assumptions:	Predictor specification (non-parametric)	Typically, multivariate normal distribution and independent observations (parametric)
Parameter estimates:	Consistent as indicators and sample size increase (i.e., consistency at large)	Consistent
Latent variable scores:	Explicitly estimated	Indeterminate
Epistemic relationship between a latent variable and its measures:	Can be modelled in either formative or reflective mode	Typically, only with reflective indicators
Implications	Optimal for prediction accuracy	Optimal for parameter accuracy
Model complexity:	Large complexity (e.g.,100 constructs and 1,000 indicators)	Small to moderate complexity (e.g., less than 100 indicators)
Sample Size	Power analysis based on the portion of the model with the largest number of predictors. Minimal recommendations range from 30 to 100 cases	Ideally based on power analysis of specific model- minimal recommendation range from 200 to 800.

Hair et al. (2011) set out five rules of thumb to decide between PLS-SEM and CB-SEM (See Table 16). The rules suggest selection of the appropriate analysis techniques based on the following criteria: 1) research goals, 2) measurement model specification, 3) structural model, 4) data characteristics and algorithm, and 5) model evaluation. The results of applying these criteria to the research requirements here are detailed in Table 16 below.

Table 16: Outcome of analysis to selecting and appropriate SEM techniques

Considerations for selecting CB-SEM or PLS-SEM		
	CB-SEM	PLS-SEM
Research Goals		
• If the goal is predicting key target constructs or identifying key "driver" constructs		√
• If the goal is theory testing, theory confirmation, or comparison of alternative theories	√	
• If the research is exploratory or an extension of an existing structural theory		√
Measurement Model Specification		
• If formative constructs are part of the structural model, select PLS-SEM.		√
• If error terms require additional specification, such as covariation, select CB-SEM.	√	
Structural Model		
• If the structural model is complex (many constructs and many indicators		√
• If the model is nonrecursive, select CB-SEM.	√	
Data Characteristics and Algorithm		
• If your data meet the CB-SEM assumptions exactly	√	
• Sample size considerations:		
– If the sample size is relatively small		√
– If the sample size is relatively large	√	√
– If the data are to some extent nonnormal		√
• If CB-SEM requirements cannot be met		√
Model Evaluation		
• If you need to use latent variable scores in subsequent analyses		√
• If your research requires a global goodness-of-fit criterion	√	

Therefore, based on the determinates of both statistical methods, this study will adopt PLS-SEM as a causal-predictive analysis is required: the method explains/predicts the target constructs in the structural model (Hair et al., 2011). This method attempts to maximize the variance in the dependent variables explained by the independent variables. PLS-SEM is particularly appropriate to exploratory analysis, as is the case in this study. Most significantly, and in line with the research objectives, PLS-SEM can be used for "theory building such as in studies that focus on identifying critical success drivers" (e.g. Hair et al., 2011:148; Hock & Ringle, 2010; Sarstedt & Schloderer, 2010; Sattler et al., 2010). Finally, this technique is appropriate where the sample size is relatively low.

4.9.2. Partial Least Squares – Structural Equation Modelling

Partial Least Squares (PLS) was first introduced by Herman Wold in 1975 under the name NIPALS (Nonlinear iterative partial least squares). It focuses on maximising the variance in the dependent variable that is explained by the independent variables (Haenlein & Kaplan, 2004: 290). A PLS model is comprised of three elements:

1) a structural part, whereby the relationships between latent variables are reflected;
2) a measurement element (also known as outer model), showing the relationship between the latent variables and their indicators;
3) a weight relations element, used to estimate case values for the latent variables (Chin & Newsted, 1999; Haenlein & Kaplan, 2004).

Henseler et al. (2009) outlines the stages for the basic PLS algorithm based on the work of Lohmöller (1989):

Stage 1: *Iterative estimation of latent variable scores* consisting of a four-step iterative procedure that is repeated until convergence is obtained:

(1) outer approximation of the latent variable scores,
(2) estimation of inner weights,
(3) inner approximation of the latent variable scores, and
(4) estimation of outer weights.

Stage 2: Estimation of outer weights/ loadings and path coefficients.

To estimate the outer weights/ loadings and path coefficients, bootstrapping was performed. This non-parametric technique includes using resampling methods to compute the significance of PLS coefficients (Garson, 2016), treating the observed sample as if it represents the population under examination. The samples are created by randomly picking cases with replacement from the original sample which leads to PLS estimating the path model for each of the bootstrapped samples.

Stage 3: Estimation of location parameters. Instead of just reporting the significance of a parameter, it is more valuable to report the confidence interval.

4.9.3. Reflective versus Formative Indicators

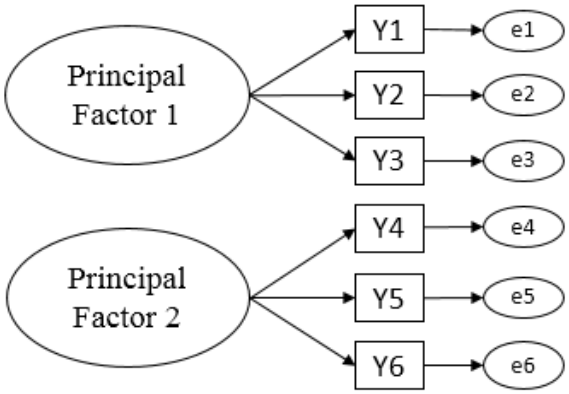
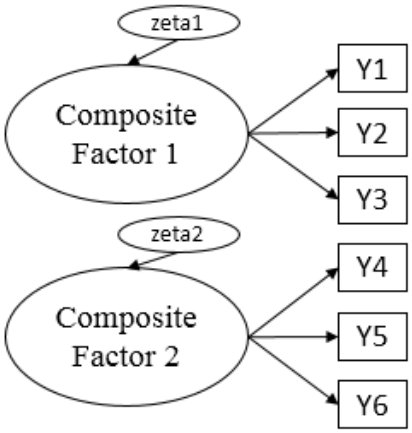
It is necessary to distinguish between two measurement models – reflective and formative within SEM. Traditionally, reflective models have been the norm (e.g. Hogan& Martell, 1987; Morrison, 2002; Subramani & Venkatraman, 2003) whereas formative models are traditionally based in PLS modelling (Diamantopoulos & Siguaw, 2006). However, this is changing. The SEM literature shows that latent variables can be displayed by either formative or reflective models, that model choice depends on the nature of the indicators (Garson, 2016; Hashim, 2012; Jarvis et al., 2003). Operationalisation of the construct (formative and/or reflective indicators) should be based on theoretical considerations (Götz et al., 2010a): in sum ‘‘PLS can handle both types of measurement models, reflective and formative’’(Rodríguez-Pinto et al., 2008:160).

A reflective model is when the observed indicators are expected to be the reaction of the latent variables (the arrows are directed to the observed indicators from the latent indicators) (Vilares et al., 2010). Here indicators are a set of items all reflecting the latent variable they are measuring assuming the factor is the "reality" and measured variables are an illustration of all possible indicators of that reality (Garson, 2016:18). This suggests that dropping one indicator would not matter to the representation of the latent variable. It also means that reflective indicators are a display of error - tendencies of a basic construct with relationships going from the construct to its indicators (Bollen, 1989; Sarstedt et al., 2016), this implies that if the estimation of the latent trait changes all indicators will change simultaneously (Diamantopoulos & Winklhofer, 2001).

A formative model is where the observed indicators are expected to cause or form the latent variables (i.e. the arrows are directed to the latent variables from the indicators) (Vilares et al., 2010). According to Haenlein et al. (2004), formative indicators can be positive, negative or have no correlations among each other (Wong, 2013). The formative model assumes that the indicators are "reality" and are all the dimensions of the factor (Garson, 2016). Unlike the reflective model, dropping an indicator causes the meaning of the latent variable to change. Table 17 summarises the differences

between reflective and formative measurement models as taken from Jarvis et al. (2003).

Table 17: Summary of differences from Jarvis et al 2003: Principal Factor Model and Composite Factor Model

Principal Factor (Reflective) Model	Composite Latent Variable (Formative) Model
	
Direction of causality is from construct to measure	Direction of causality is from measure to construct
Measures expected to be correlated (Measures should possess internal consistency reliability)	No reason to expect the measure are correlated (Internal consistency is not implied)
Dropping an indicator from the measurement model does not alter the meaning of the construct	Dropping an indicator from the measurement model may alter the meaning of the construct
Takes measurement error into account at the item level	Takes measurement error into account at the construct level
Construct possesses "surplus" meaning	Construct possesses "surplus" meaning
Scale score does not adequately represent the construct	Scale score does not adequately represent the construct

The latent variables within the model proposed by the study are based on reflective measures, they reflect the construct of rather than they arise as a consequence. Therefore, having considered and adopted a PLS-SEM approach as the best available for this research, the next section will address the reliability and validity of the study.

4.10. Evaluating the Measurement and Structural models using Partial Least Squares

PLS-SEM combines two types of assessment, that of the measurement model (outer model) and of the structural model (inner model). The measurement or outer model is concerned with the links between indicators and latent variables, whereas the structural model is just concerned with the relations between the latent variables It reports if a set of items attributed to a specific variable is relevant to reflecting this variable. This model provides loadings which are a measure of the link between a latent variable and each of its indicators. This model makes a similar analysis to a regression. In such a PLS model, the independent variables are called the exogenous variables, and the dependent ones are called the endogenous variables.

Chin (1998) has put forward a list of criteria to assess partial least squares model structures. This involves a two-step process (1) the assessment of the outer model, and (2) the assessment of the inner model (Chin, 1998; Hair et al., 2011). Table 18 demonstrates the two-step process adopted.

Table 18: A two-step process of PLS path modelling assessment adopted from Chin (1998) and Hair et al., (2011)

Step 1:	Outer Model Assessment	➢ Reliability and validity of reflective constructs ➢ Validity of formative constructs
Step 2:	Inner Model Assessment	➢ Variance explanation of endogenous constructs ➢ Effect sizes ➢ Predictive relevance

In the following subsection, the guidelines used in the study are discussed in relation to the assessment of measurement and the structural model.

4.10.1 Measurement Model

Smart PLS is statistical tool used to examine the psychometric characteristics of the measurement model and structural model. As this study is based on a reflective measurement model, it will be assessed with regards to its reliability and validity (Hair et al., 2011). Using tests for internal consistency reliability, indicator reliability, and

convergent validity and discriminant validity, the following subsections describe each analysis and compare results to accepted norms for successful data analysis.

4.10.1.1. Internal consistency

Construct reliability assessment characteristically emphasises composite reliability as an estimate of a construct's internal consistency instead of Cronbach alpha as it does not assume that all indicators are equally reliable (Chin, 1998; Hair et al., 2011) and usually underestimates scale reliability (Garson, 2016). The model within this research is exploratory. Thus, composite reliability should be equal or greater than 0.60 (Chin, 1998; Höck & Ringle, 2006). Values between 0.70 to 0.90 are deemed satisfactory in advanced stages of research (Nunnally & Bernstein, 1994) and values of below 0.60 may trigger concerns regarding reliability (Hair et al., 2011).

4.10.1.2. Indicator reliability

Each indicator has a loading which are the standardised path weights connecting the factors to the indicator variables (Garson, 2016). This describes the extent to which the indicator defines its latent variable. A common principle is that more than 50% of an indicator's variance is explained by the latent variable (Götz et al., 2010a). Generally, loadings should be higher than 0.70, with loadings between 0.40 and 0.70 considered for removal if it increases composite reliability (Hair et al., 2011; Hulland, 1999).

4.10.1.3. Convergent Validity

According to Henseler et al. (2009: 299), convergent validity "symbolises that a set of indicators represents one and the same underlying construct, which can be shown through their unidimensionality". In other words, convergent validity illustrates the relationship between two measures that are intended to capture the same construct. To measure convergent validity, average variance extracted (AVE) needs to be examined. AVE includes the variance of the variable's indicators taken by the construct relative to the total amount of variance, including the variance due to measurement error (Götz et al., 2010, p. pg 696). The AVE value should be 0.50 or higher (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). This means that 50% or more of the indicator variance

should be accounted for (Götz et al., 2010a). If the AVE is under 0.50, it means that there is more error variance than explained variance. The reasoning is that when AVE is less than 0.50, on average, item loadings are less than 0.70 (Hair et al., 2010). In case that AVE is lower than 0.50, items of the construct can be dropped to improve the results. It is recommended to eliminate the lowest rated item first (Hair et al., 2010).

4.10.1.4. Discriminant Validity

Discriminant validity is a complementary concept to convergent validity. Compared to convergent validity, discriminant validity shows that the joint set of indicators are not unidimensional (Henseler et al., 2009). Fornell and Larcker (1981) explain that AVE can also be used to establish discriminant validity. They argue that the square root of AVE of each latent variable should be greater than the correlations among latent variables (Wong, 2013). "This means that for any latent variable, the variance shared with its block of indicators is greater than the variance it shares with any other latent variable" (Garson, 2016:67).

However, this technique has been deemed as outdated by recent literature. The latest PLS-SEM papers use the heterotrait – monotrait (HTMT) ratio of correlations to assess discriminant validity. Henseler et al. (2015) describe HTMT as "the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct)" (Henseler et al .2015:121). To ensure that HTMT is met, all values must be below 1.00. "*The HTMT ratio is the geometric mean of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena) divided by the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct)"* (Garson, 2016:70).

1) heterotrait-monotrait (HTMT) ratio of correlations of latent constructs - all values should be below the conservative recommended value of 0.85 (Henseler et al., 2015).

2) HTMT inference test with a 95.0% bootstrap confidence interval. As recommended (Henseler et al., 2015), all values should be below 1.00 which means that the HTMT values are significantly different from 1.00, also indicating discriminant validity.

Table 19: Summary reliability and validity factors examined in the reflective model evaluation

Reflective measurement model evaluation	
Reliability	**Guidelines**
Internal consistency reliability	Composite reliability should be higher than 0.70 (in exploratory research, 0.60 to 0.70 is considered acceptable)
Indicator reliability	Indicator loadings should be higher than 0.70
Validity	
Convergent validity	The average variance extract (AVE) should be higher than 0.50
Discriminant Validity	HTMT values must be below 1.0

4.10.2. Structural model

In PLS-SEM, the evaluation of the structural model is carried out to examine the R^2 measures (determination of coefficients) and the level and significance of path coefficients. By validating the structural model, if the hypotheses are supported by data (Urbach & Ahlemann, 2010). R^2 measures the relationship of the latent construct's explained variance to its total variance (Chin, 1998; Götz et al., 2010b), meaning that R^2 explores the impact of the independent variable on the dependent variable. According to Chin (1998 pg.323) R^2-results of 0.67, 0.33 and 0.19 for latent endogenous variables in the structural model are describe as "substantial", "moderate" and "weak", respectively. Hair et al. (2011:145), however, argue that R^2-results of 0.75, 0.50, 0.25 for endogenous latent variables in the structural model are "substantial", "moderate" and "weak", respectively. These cut-off points are commonly used in business disciplines.

The path coefficient examines the level of significance between two variables (the independent variable and dependent variable). In PLS-SEM, the path coefficients are

tested by means of t-statistics (t-values) (Götz et al., 2010b). Paths coefficients that have a positive result indicate that a positive relationship between the two hypothesised constructs is estimated. The study used the bootstrapping technique to measure the significance of path coefficients.

Bootstrapping is a nonparametric resampling procedure involving repeated random sampling with replacement from the original sample to create a bootstrap sample, to obtain standard errors for hypothesis testing (Davison & Hinkley, 1997; Streukens & Leroi-Werelds, 2016). Bootstrapping is widely applicable and offers a solution to situations where conventional techniques may be difficult to apply. The process assumes that the sample distribution is a realistic depiction of the intended population. A 5,000 sub sample bootstrap with no sign changes option was executed to provide the standard error for each path model coefficient and a stable result (Garson, 2016). The reasoning behind such a large subsample was that in line with best practice, a larger number is advised when using confidence intervals as the estimates of the intervals are more robust and stable as the sub sample increases (Ringle et al., 2015).

The two-tailed option with a significance level of 5% was selected, meaning that the relationship was analysed in both directions. The two tailed test is less restrictive as it allots half of the significance in one direction and the other half to the opposite direction. The significance of the parameters, which are computed by the model, are assessed by the t-value. A parameter is significant at the 5% level if its t-value is larger than 1.96. If the parameter is a loading or a path coefficient, significance means that the probability of the relationship arising by chance is significantly different from zero. This enables the study to generalise results from the sample to the population. That is to say if the parameter is positive and significant at the 5 % level, then it means that there is 95% chance that it will be positive in the population too. Similarly, if the parameter is significant at the 1% level, then there is a 99% chance that the parameter is positive in the population also.

In relation to the significance of coefficient related to model fit, it means that the coefficient in the population is similar to that obtained from the sample. For more accuracy, concerning all the parameters, it is possible to examine at the confidence intervals. They provide two bounds between which there is 95% chance that the real

parameter (the parameter in the population) is correct. If there is no zero in this interval, it can be concluded that the parameter is significantly different from zero. The closer the bounds are to each other, the higher the confidence that the real parameter is close to that of the sample.

To determine the predicative relevance of latent constructs, the blindfolding technique using the Stone-Geisser Q^2 value was undertaken. The purpose of this test is to calculate cross-validated measures of predictive accuracy (reliability) (Garson, 2016; Geisser, 1975; Stone, 1974). The construct cross-validated redundancy Q^2 and construct cross-validated communality Q^2 were assessed. The latent construct has predictive relevance if all values are above zero. This study found that all values are above zero, both antecedents of SEA (see Section 5.2.2) and outcomes (see Section 5.4.2) and therefore the prediction of the observables is of much greater predictive relevance.

Chapter Five: Data Analysis and Findings

5.0. Introduction

This chapter presents the results of the empirical investigation of this study. Presentation of the findings follows the reporting style of PLS-SEM analysis suggested by Chin (2010) as cited in Vinzi et al. (2010). Firstly, the chapter analyses the antecedents of SEA, and secondly the association between SEA and opportunity recognition, as well as the relationship between opportunity recognition and innovation and performance are investigated. In both instances, the measurement model is assessed to determine validity and reliability before examining the structural model to investigate the hypotheses.

5.1. Measurement Model Assessment for Antecedents of SEA

To ensure for rigour of the research a conservative approach was adopted to measuring the reliability, indicator reliability, convergent validity and discriminant validity of the data collected. Following the structure of the previous chapter, the study assesses the measurement model by examining internal consistency reliability, indicator reliability, convergent validity, and discriminant validity. For ease of use, the model is presented below in Figure 5.

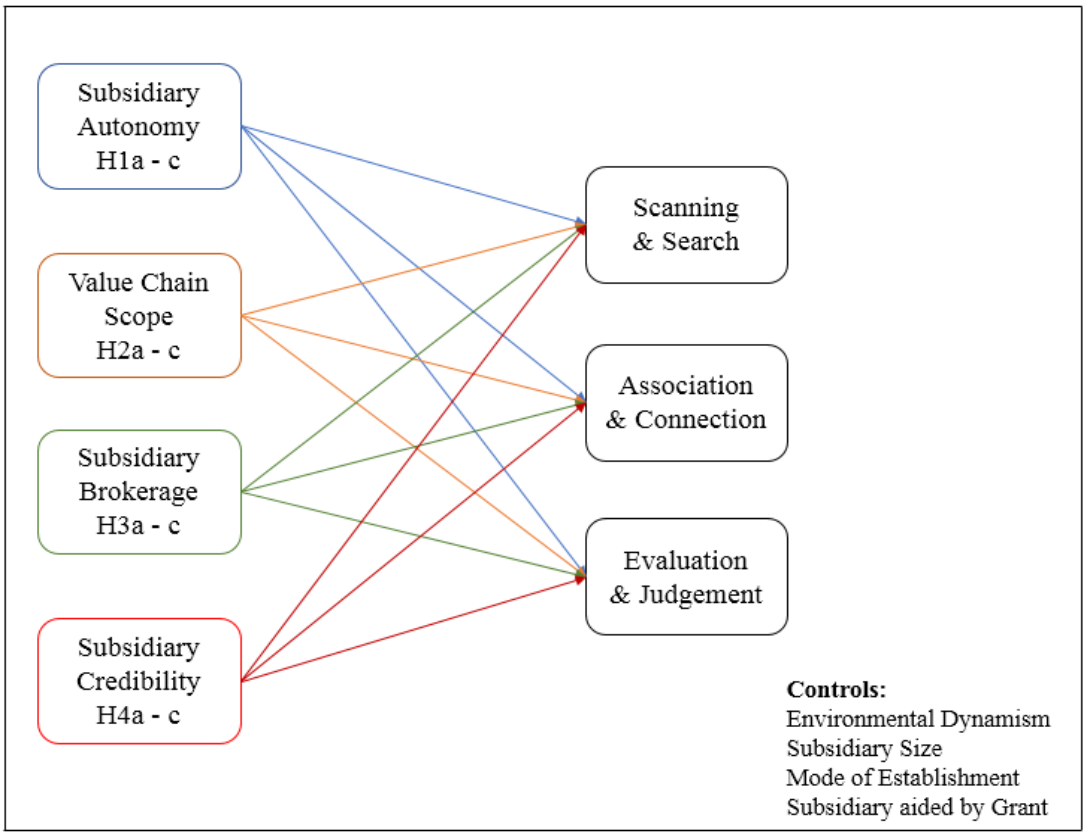


Figure 5: Antecedents of SEA Hypotheses Model

The measurement model assessments of each driver of SEA are shown in Table 20 below. For further details of each variable and its items before and after item drop see Appendix 10. Firstly, assessing the internal consistency reliability which measures the items in the same construct; to achieve satisfactory internal consistency reliability, composite reliability (CR) must exceed 0.7. Before any item was dropped, the CR is generally required to exceed the threshold of 0.7 indicating that the constructs have satisfactory internal consistency reliability. The research also checked the Cronbach Alphas of the constructs. This also exceeded 0.7, indicating internal consistency.

Secondly, the reliability of the items was examined by evaluating the items loadings, this is measurement of the item path weights linking the factors to the indicator variables (Garson, 2016). The acceptable threshold for each loading is 0.7. However, according to Chin (1998) and Barclay et al. (1995), loadings of 0.5 are acceptable if reliability scores are high (Duarte & Raposo, 2010). Based on the analysis, the study shows satisfactory indicator reliability on all, except for the following items which

were dropped: Scanning and Search item AL_ 1 (We have frequent interactions with others outside our subsidiary to acquire new information); Subsidiary Brokerage Brok_2 (Our subsidiary has many contacts externally that no other unit of the organisation maintains) and Brok_3 (Our subsidiary has many contacts within the corporation that are unconnected to others within the MNC); and Environmental Dynamism Ed_5 (In our primary market(s), the volumes of products and services to be delivered change fast and often).

According to Hair et al. (2011) and Hulland (1999) loadings between 0.40 and 0.70 should be considered for removal if this increases reliability. These three variables failed to reach the average variance extracted (AVE) value threshold. Therefore, the items with the lowest loading were dropped. Once the four items were dropped, the convergent validity was deemed satisfactory according to the relevant criterion. Table 20 displays each construct and its related item and loading once the four items were dropped.

Table 20: Measurement Model assessment for SEA variables after Item Drop

Constructs	Item	Loadings
Scanning & Search	Al_4_eyeout	0.675
CR = 0.828	Al_7_magazines	0.797
AVE = 0.551	Al_10_internet	0.597
	Al_12_avidseekers	0.871
Association & Connection	Al_3_links	0.866
CR = 0.905	Al_6_connecting	0.851
AVE = 0.760	Al_9_unconnected	0.898
Evaluation & Judgement	Al_2_good_ones	0.675
CR = 0.836	Al_5_knack	0.843
AVE = 0.562	Al_8_distinguish	0.801
	Al_11_instinct	0.665
Subsidiary Autonomy	Au_1_changes	0.774
CR = 0.840	Au_2_subcontracting	0.783
AVE =0.637	Au_3_switching	0.837
Subsidiary Brokerage	Brok_1_primarylink	0.777
CR = 0.878	Brok_4_bridge	0.917
AVE = 0.707	Brok_5_linkexternally	0.823
Subsidiary Credibility	Crd_1_history	0.734
CR = 0.849	Crd_2_valuetocorp	0.770
AVE = 0.584	Crd_3_competitive	0.783
	Crd_4_regardednb	0.769
Environmental Dynamism	Ed_1_intensechange	0.603
CR = 0.804	Ed_2_clientsregularlyask	0.662
AVE = 0.512	Ed_3_changecontinuously	0.873
	Ed_4r_nothingchanged	0.695
Value chain score	CR = 1; AVE = 1	
Mode	CR = 1; AVE = 1	
Subsidiary aided by Grant	CR = 1; AVE = 1	
Subsidiary Size	CR = 1; AVE = 1	

The next step undertaken was to examine the discriminant validity. Literature uses the Fornell and Larker (1981) criterion, but this method has been criticised of late (Henseler et al., 2015), more recent studies suggest that discriminant validity is better identified by the heterotrait-monotrait (HTMT) ratio (Garson, 2016; Henseler et al., 2015). This research found that the HTMT values of the structural paths range from 0.098 to 0.682, which is less than the required threshold of 0.85, therefore there is no problem with discriminant validity and suggests that the constructs are empirically distinct. See Table 21.

Table 21: Heterotrait - Monotrait Ratio (Antecedents)

	1	2	3	4	5	6	7
1. Association & Connection							
2. Autonomy	0.098						
3. Brokerage	0.351	0.204					
4. Credibility	0.235	0.111	0.474				
5. Evaluation & Judgement	0.505	0.250	0.159	0.350			
6. Scanning & Search	0.815	0.262	0.324	0.318	0.682		
7. Value Chain Scope	0.057	0.133	0.196	0.062	0.068	0.130	

Adopting this approach, Table 22 shows the output of cross loadings between constructs and indicators. Ideally loadings should be higher than 0.7 (some use 0.5) and cross loadings should be under 0.3 (some use 0.4) (Garson, 2016). To examine the indicator loadings, the SmartPLS algorithm produced the output of cross loadings for the second assessment of discriminant validity. Testing here revealed that all items loaded are higher against their respective proposed latent variables compared to other variables i.e. demonstrating that the variable block is higher than any other block in the same row and column however some are over the 0.4 threshold, this however is not an issue are the items that the items correlate are within the same construct therefore they are expected to correlate somewhat higher than the threshold (Ringle et al., 2015). It would be a cause of concern if discriminant validity was not established; in this study discriminant validity is satisfied therefore this is not an issue. The analysis of the measurement models' reliability and validity examinations conducted on are acceptable. All tests are confirmed which displays that the measurement model for this dimension is valid and appropriate to be used to evaluate parameters in the structural model.

Table 22: Cross Loadings (Antecedents)

	Scanning & Search	Association & Connection	Evaluation & Judgement	Autonomy	Brokerage	Credibility	Value Chain Scope
Al_4 (S & S)	**0.675**	0.46	0.482	-0.192	0.258	0.181	0.065
Al_7 (S & S)	**0.797**	0.524	0.428	-0.209	0.121	0.157	-0.03
Al_10 (S & S)	**0.597**	0.383	0.211	-0.017	-0.056	0.101	-0.147
Al_12 (S & S)	**0.871**	0.556	0.424	-0.117	0.306	0.333	-0.091
Al_3 (A & C)	0.488	**0.866**	0.352	-0.042	0.196	0.13	0.014
Al_6 (A & C)	0.626	**0.851**	0.332	-0.061	0.263	0.136	-0.081
Al_9 (A & C)	0.592	**0.898**	0.381	-0.112	0.309	0.247	-0.042
Al_2 (E & J)	0.218	0.189	**0.675**	0.024	0.123	0.179	0.054
Al_5 (E & J)	0.497	0.338	**0.843**	-0.14	0.143	0.253	0.007
Al_8 (E & J)	0.39	0.34	**0.801**	-0.201	0.074	0.191	0.019
Al_11 (E & J)	0.482	0.341	**0.665**	-0.174	0.024	0.21	-0.096
Au_1 (Au)	-0.16	-0.025	-0.083	**0.774**	-0.182	0.037	-0.101
Au_2 (Au)	-0.15	-0.036	-0.187	**0.783**	-0.029	-0.004	0.026
Au_3 (Au)	-0.164	-0.134	-0.139	**0.837**	-0.146	0.086	-0.143
Brok_1 (Brok)	0.196	0.192	0.111	-0.155	**0.777**	0.348	0.11
Brok_4 (Brok)	0.256	0.311	0.11	-0.097	**0.917**	0.23	0.107
Brok_5 (Brok)	0.225	0.239	0.092	-0.117	**0.823**	0.289	0.223
Crd_1 (Cred)	0.176	0.1	0.24	0.105	0.183	**0.734**	0.048
Crd_2 (Cred)	0.17	0.16	0.171	0.038	0.368	**0.77**	0.053
Crd_3 (Cred)	0.322	0.194	0.261	0.026	0.138	**0.783**	-0.024
Crd_4 (Cred)	0.158	0.16	0.148	-0.015	0.417	**0.769**	0.043
VCS_Score	-0.051	-0.043	-0.004	-0.089	0.172	0.03	**1**

5.2. Structural Model of Antecedents

The following subsections explain the tests used to assess the validity of the items used to measure the constructs, which reflects the data collected from the population of Irish subsidiaries for this research. The structural model indicates the relationships between the latent variables by estimating the paths between the constructs (See Table 23 below). The PLS algorithm and bootstrapping procedures were used to analyse the R^2 values of the endogenous latent variables of SEA (Scanning and Search, Association and Connection, and Evaluation and Judgement) (Chin, 1998; Henseler et al., 2009); the examination of estimates for path coefficients which are an indicator of the model's

predictive capability; whereby R2 values of 0.67, 0.33 and 0.19 for endogenous latent variables are described as substantial, moderate and weak respectively. The estimated values for path relationships in the structural model should be evaluated in terms of sign, magnitude, and significance (the latter via bootstrapping).

5.2.1. Coefficient of determination (R^2)

R^2 is the overall effect measure for the structural model (Garson, 2016). As discussed earlier the R^2 is obtained from the PLS algorithm. From the diagram below, you can see that subsidiary autonomy, value chain scope, subsidiary brokerage, credibility and controls explain 26% of the variance in the scanning and search dimension of SEA, 17% of the variance in association and connection dimension of SEA, and 25% of the variance in evaluation and judgement dimension of SEA. This level of R^2 is acceptable (Bauer & Matzler, 2014; Gruber et al., 2010; Hulland, 1999; Nell & Ambos, 2013).

5.2.2. Stone-Geisser Q2 test of predictive relevance

The Stone-Geisser Q^2 test was used to determine the predictive relevance of the dependent constructs, in other words, it measures how well observed values are replicated in the model. This was performed using the Blindfolding techniques in Smart PLS. The cross validated redundancy Q^2 was examined and the results show: scanning and search 0.096, association and connection 0.082; evaluation and judgement 0.114) and cross–validated communality Q^2 (scanning and search 0.279; association and connection 0.470; evaluation and judgement 0.293). All values are above zero, and therefore the dependent constructs have predictive relevance (Akter et al., 2011).

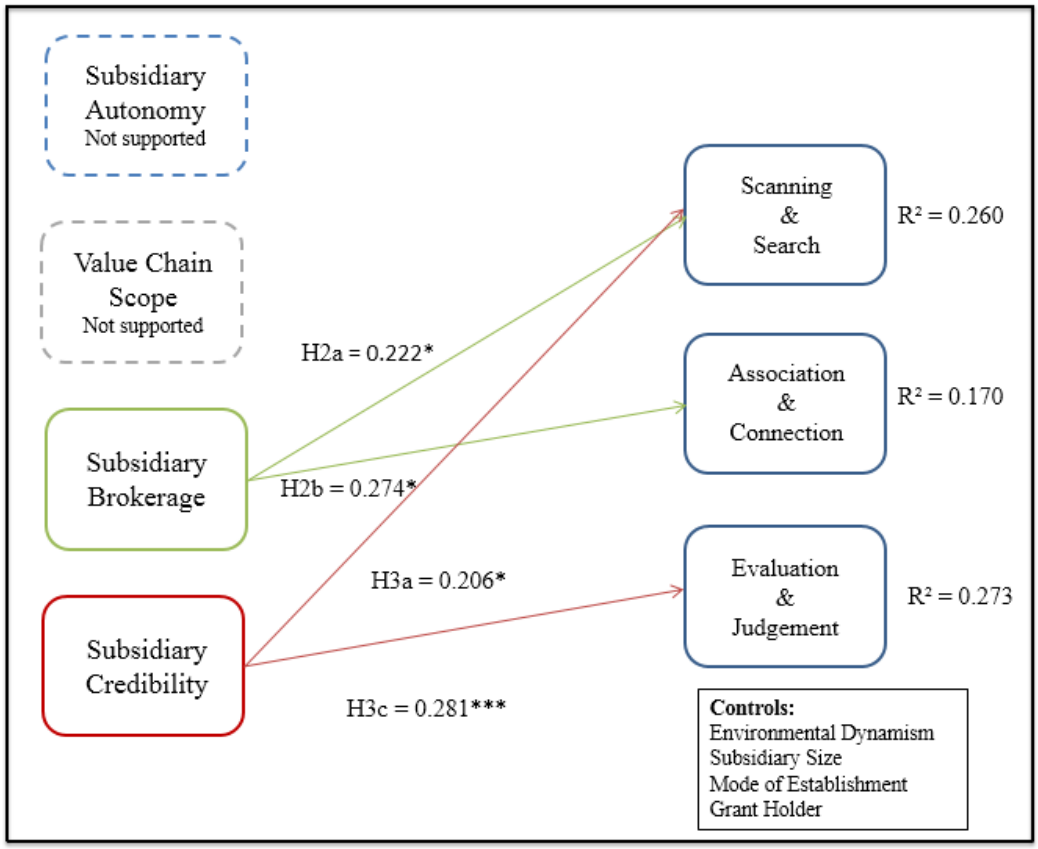
Table 23: Structural Model Analysis (Antecedents)

Dependent Variable	Independent Construct	Direct effect	t-value	Variance explained R^2	Stone-Geisser Q^2
Scanning & Search				**0.257**	**0.096**
	Subsidiary Autonomy (H1a)	-0.115	1.150		
	Value Chain Scope (H2a)	-0.113	1.381		
	Subsidiary Brokerage (H3a)	0.222*	2.359		
	Subsidiary Credibility (H4a)	0.206*	2.434		
	Subsidiary Size (control variable)	0.075	0.827		
	Mode of Establishment (control variable)	0.099	1.101		
	Environmental Dynamism (control variable)	0.261***	3.411		
	Subsidiary aided by grant (dummy variable)	-0.102	1.095		
Association & Connection				**0.165**	**0.082**
	Subsidiary Autonomy (H1b)	-0.055	0.495		
	Value Chain Scope (H2b)	-0.120	1.477		
	Subsidiary Brokerage (H3b)	0.274*	2.439		
	Subsidiary Credibility (H4b)	0.106	1.160		
	Subsidiary Size (control variable)	0.173*	2.020		
	Mode of establishment (control variable)	-0.117	1.346		
	Environmental Dynamism (control variable)	0.075	0.907		
	Subsidiary aided by grant (dummy variable)	-0.129	1.501		
Evaluation & Judgement				**0.251**	**0.114**
	Subsidiary Autonomy (H1c)	-0.113	1.157		
	Value Chain Scope (H2c)	-0.055	0.578		
	Subsidiary Brokerage (H3 c)	0.056	0.574		
	Subsidiary Credibility (H4c)	0.281***	3.387		
	Subsidiary Size (control variable)	0.092	1.150		
	Mode of establishment (control variable)	0.029	0.299		
	Environmental Dynamism (control variable)	0.259***	3.365		
	Subsidiary aided by grant (dummy variable)	-0.239**	2.643		

Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

5.2.3. Hypothesis Testing of the Antecedents of SEA

To test the proposed hypotheses, the path coefficient between two latent variables is measured for significance. The path coefficient value must be at least 0.1 to demonstrate a definite effect within the model (Hair et al., 2011; Wetzels et al., 2009). Figure 6 presents the supported hypothesis.



Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

Figure 6: Antecedents of SEA identifying Supported Hypotheses

5.2.3.1. Subsidiary Autonomy and SEA.

Hypothesis (1a, 1b, 1c)

Subsidiary autonomy, as defined earlier, refers to the subsidiaries freedom to make their own decisions. This study proposed that subsidiary autonomy is positively related to each dimension of SEA (scanning and search, association and connection, and evaluation and judgement). This proposal was based on a number of studies indicating

that subsidiary autonomy is positively associated with entrepreneurial activities (Ambos et al., 2011; Birkinshaw, 1997; Gammelgaard et al., 2012; O'Donnell, 2000). Based on the statistical results presented in Table 23, the examination of the organisational level factors driving SEA found that autonomy is not statistically related to SEA. The absence of significance is particularly interesting as subsidiary autonomy is recognised as a key structural attribute to MNCs (Ghoshal & Bartlett, 1994). It was expected that the subsidiary's ability to act without parental constrain would increase the subsidiary's capacity to engage in SEA. Each dimension of SEA and its relationship with subsidiary autonomy will be examined further below.

Hypothesis 1a proposed a positive relationship between subsidiary autonomy and scanning and search which was not supported[1] by the data (β= -0.115, $p > 0.10$), this is a particular interesting result as literature suggests that in order for scanning and search the subsidiary requires a degree of flexibility when encountering unexpected opportunities. This suggests that the opportunities recognised in the subsidiary are pre-planned or already identified by headquarters. Therefore, subsidiaries has less control over the allocation of resources (Lumpkin & Dess, 1996) and consequently has a restricted amount of access to information particularly for opportunities aimed at satisfying the local consumer (Forsgren et al., 1992; O'Brien et al., 2013).

Hypothesis 1b proposed a positive relationship between subsidiary autonomy and association and connection was also not supported (β = -0.055, $p > 0.10$). This study proposed that subsidiary autonomy can increase the number and frequency of interactions with the local environment through whom the subsidiary obtains information. This finding would suggest that subsidiaries are therefore ineffective in determining local opportunities as their ability to maintain or develop coalitions in the local environment is restricted (Cavanagh et al., 2017; Dörrenbächer & Geppert, 2010). Therefore, it could be speculated that headquarters require opportunities for global purposes and consequently diminish the subsidiary contribution to firm specific advantages such as local responsiveness.

[1] β = Path co - efficient

Finally, hypothesis 1c proposed a positive relationship between subsidiary autonomy and evaluation and judgement was not supported ($\beta = -0.113$, $p > 0.10$). The research proposed that subsidiary autonomy allows the subsidiary to take responsibility of its own time, direct resources and management towards the opportunity, however the result would suggest that the level of strategic flexibility (Bartlett & Ghoshal, 1989; Gates & Egelhoff, 1986) is limited. Despite their understanding of the local environment, they have no such standing when requesting specific resources for evaluation and judgement.

5.2.3.2. Value Chain Scope and SEA.

(Hypothesis 2a, 2b, 2c)

Value chain scope captures the number of value-adding activities within the subsidiary and relates to the locus of an opportunity (local, regional or global). This study proposed that the experience and knowledge of each activity would promote the unit to engage in the activities of SEA more successfully as having a larger scope of activity presents the subsidiary to be exposed to more opportunities. However, findings demonstrate that there is no significant relationship between value chain scope and SEA. For example:

Hypothesis 2a proposed a positive relationship between value chain scope and scanning and search was not supported ($\beta = -0.113$, $p > 0.10$) this suggests that the subsidiary has a limited amount of value chain activities. The subsidiary's value chain activities may be a result of the MNC fine slicing activities. This finding provides subtle but valuable insights as it could be suggested that subsidiaries have a restricted view of activities and consequently reduce their ability to absorb knowledge effectively (Cohen & Levinthal, 1990; Lane & Lubatkin, 1998), and are of a more controlled cost focus operation (Buckley, 2014; Buckley & Ghauri, 2004; Reilly & Scott, 2014). Geographically dispersed subsidiaries are recognised to be exposed to different types of opportunities (Andersson et al., 2002, 2007; Bartlett & Ghoshal, 1989; Ghoshal & Bartlett, 1988, 1990), however within this research, findings suggest that the subsidiaries surveyed are specialised firms with strict mandates and high levels of headquarter monitoring.

Hypothesis 2b proposed a positive relationship between value chain scope and association and connection which the data also did not support ($\beta = -0.120$, $p > 0.10$). The research proposed that that value chain scope allows the opportunity for the subsidiary to leverage local ties and knowledge (Andersson et al., 2007; Cantwell & Mudambi, 2005; Ciabuschi et al., 2011) which can aid the subsidiary to associate and connect information to potential opportunities. However, according to results there is no significance in terms of value chain scope and association and connection therefore this distinctive resource of leverage ties and interacting with internal and external actors provides no worth to the opportunities that are being recognised within the subsidiaries.

Hypothesis 2c proposed a positive relationship between value chain scope and evaluation and judgement was not supported ($\beta = -0.050$, $p > 0.10$). This research proposed that through the diverse knowledge and experience of the value chain scope the subsidiary's engagement in activities allows them to evaluate and judge opportunities more efficiently. Yet interestingly, findings suggest that under restrictive operations, the subsidiary has been provided specific resources to evaluate and judge opportunities within their designated mandate provided by headquarters, therefore showing no significance between value chain scope and evaluation and judgement.

5.2.3.3. Subsidiary Brokerage and SEA.

(Hypothesis 3a, 3b, 3c)

Subsidiary brokerage represents the nominated relational variable in this research's examination of SEA. It refers to the 'action of coordination across the structural holes' which bridges networks on opposite sides of the structural hole together (Burt, 2007:28). The study proposed that subsidiary brokerage would be positively related to each dimension of SEA, that the exposure to original and unique opportunities would increase their scanning and search, acting as a facilitator for the flow of knowledge would promote the association and connection of information more efficiently; and the exposure of novel resources would assist their evaluation and judgement of potential opportunities.

The data identified many significant findings in which it shows that a subsidiary can be the main 'bridge' that links otherwise unconnected internal or external groups. It also finds that the subsidiary is the primary link that connects different people in the organisation and to many contacts in the external environment This study found statistically strong relationships between subsidiary brokerage and scanning and search and association and connection. However, the data showed no significant support for subsidiary brokerage and evaluation and judgement. Each dimension of SEA and its actual relationship with subsidiary brokerage is detailed below.

Hypothesis 3a proposed that there is a positive relationship between subsidiary brokerage and scanning and search. This hypothesis was supported by the data ($\beta = 0.222$, $p < 0.05$). This shows that subsidiaries can use broader relationships with direct and indirect connections to actively scan and search the extension of their subsidiary's network through the brokerage where opportunities can arise as information can be taken from one context into another (Sapsed et al., 2007). Through their relationships with contacts in the external environment, they are exposed to more unique opportunities as the subsidiary can access diverse expertise and perspectives from otherwise unconnected contacts (Hargadon & Sutton, 1997; Terjesen et al., 2011).

Hypothesis 3b proposes a relationship between subsidiary brokerage and association and connection which was also supported by the data ($\beta = 0.274$, $p < 0.05$). It suggests that the subsidiary manipulates and efficiently accesses more diverse information which has a significant impact on the subsidiary's entrepreneurial alertness. This supports the study's argument that through brokerage, the subsidiary's 'bridges' are valuable for creating information variation, while bonds are valuable in eliminating variation and protecting connected people from information inconsistent with what they already know (Burt, 1992, 2000, 2003, 2004, 2007). This demonstrates that through subsidiary brokerage, the subsidiary can take advantage from early access to diverse information (Stam, 2010) by being situated at the nexus of diverse information (Fleming et al., 2007).

Hypothesis 3c proposed that there is a positive relationship between subsidiary brokerage and evaluation and judgement. However, this hypothesis was not supported by the data ($\beta = 0.056$, $p > 0.10$). The study proposed that subsidiaries in a brokerage

position would be greater at evaluation and judgement as their access to information across structural holes would introduce new mechanisms for evaluating. However, this finding suggests that the evaluation and judgement techniques already in place do not need external influence for example from otherwise unconnected contacts or contacts in the external environment. It suggests that the resources in place to evaluate and judge opportunities more than suffice in order to recognise an opportunity.

5.2.3.4. Subsidiary Credibility and SEA

(Hypothesis 4a, 4b, 4c)

This study defines subsidiary credibility as headquarters' confidence in the subsidiary's capabilities to perform activities (Birkinshaw, 1999) which is achieved by satisfying the demands of headquarters (Birkinshaw, 1996; Dutton & Ashford, 1993). Subsidiary credibility allows the subsidiary to be more involved in the organisational decision making and provides the subsidiary the freedom to allocate specific resources. The research found both hypothesis 4a and 4c are supported and hypothesis 4b not supported by the data collected.

Hypothesis 4a proposes that there is a positive relationship with subsidiary credibility and scanning and search, the date collected supports this hypothesis ($\beta = 0.206$, $p < 0.05$). This suggests that the subsidiary's standing within the MNC seen as a motivator to actively scan and search for opportunities. The statistical analysis of the measure of subsidiary credibility showed that the subsidiary has a history of delivering on headquarters' expectations therefore it suggests the subsidiary is more confident at scanning and searching for opportunities. As the subsidiary is regarded by headquarters as a strategically important subsidiary (item 4 in measure, loading = 0.769) the subsidiary is able to use its credibility to allocate the resources necessary to provoke scanning and search.

Hypothesis 4b proposed a positive relationship between subsidiary credibility and association and connection. Interestingly, this hypothesis was not supported by the data ($\beta = 0.106$, $p > 0.10$). It was argued that the subsidiary would be more efficient in the association and connection of information where they can access information which they can associate and connect to an opportunity (Burt, 2007; Fleming et al.,

2007). The result suggests that even though the subsidiary is recognised to make significant value adding contributions to the corporation that it is not done by using their credibility to associate and connect information.

Hypothesis 4c proposed a positive relationship between subsidiary credibility and evaluation and judgement. This hypothesis was supported by the data ($\beta = 0.281$, $p = 0.001$) and makes a significant contribution to the understanding of SEA. This suggests that the subsidiary's capacity for evaluating and judging significantly contribute to SEA as it is able to critically assess the opportunity to establish whether or not the opportunity has profit potential or whether or not it can have a positive impact on current processes. As the subsidiary recognizes itself as being globally competitive in their area of operation, the resources that are required to evaluate and judge are readily available as they have a history of exceeding the expectations of headquarters while sustaining their value adding contribution to the corporation.

As SEA is not a causal construct, subsidiary credibility is essential for scanning and search and evaluation and judgement rather than association and connection.

5.2.4. Impact of control variables

The control variables comprise subsidiary size, environmental dynamism, mode of establishment and subsidiary aided by grant. During statistical analysis, the research found three control variables to be proven significant: subsidiary size, environmental dynamism and subsidiary aided by grant. These control variables provide subtle yet noteworthy contributions to the understanding of the impact the subsidiary has in SEA. Each control is discussed below, detailing the expected relationship versus the actual relationship.

5.2.4.1. Subsidiary Size.

Subsidiary size was expected to have some significance in its relationship with SEA, however, it is only significant for association and connection ($\beta = 0.173$, $p < 0.05$). It was decided to control for subsidiary size as there are opposing views on its effect on entrepreneurship and innovation (Covin et al., 1994; Minbaeva et al., 2003). Therefore, subsidiary size was expected to impact scanning and search as the larger the subsidiary

the greater their capacity to search and scan for opportunities as subsidiaries tend to possess greater resources. Interestingly, the data showed that subsidiary size does not have a relationship with scanning and search. This could suggest that the subsidiary is a specialised organisation, that size is irrelevant to scanning and search.

Subsidiary size has a significant effect on association and connection which demonstrates that the larger the subsidiary the greater the chance to obtain information as more resources are available for the subsidiary to associate and connect information. The relationship between subsidiary size and evaluation and judgement was identified as insignificant. This suggests that the resources needed to evaluate and judge are not determined by subsidiary size, this is an interesting finding as Hedlund (1981) suggests that larger subsidiaries take advantage of their increased resources to exploit opportunities, therefore it was expected that subsidiary size would have a significant relationship with evaluation and judgement.

5.2.4.2. Environmental Dynamism

Environmental Dynamism relates to the rate of change and instability in the external environment (Jansen et al., 2009). The level of environmental dynamism is argued to significantly influence innovation and performance at the subsidiary level (Baron & Tang, 2011; Garg et al., 2003; Miller, 1988). This study proposed that there is a relationship between environmental dynamism and each dimension of SEA. The statistical analysis, however, identifies that environmental dynamism is significantly related to scanning and search and evaluation and judgement.

The study found that environmental dynamism is highly significant in terms of its relationship with scanning and search ($\beta = 0.261$, $p = 0.001$). This suggests that the more dynamic the environment that the subsidiary competes in the more opportunities that can arise making it more efficient for the subsidiary to scanning and search. In terms of operating within their primary market where environmental changes are recognised as intense and taking place continuously (items ED_1, 3, 4), SEA can be seen as a substantial subsidiary capability as the subsidiary's ability to scanning and search can only suggest being more efficient than individual entrepreneurs.

The data identifies that environmental dynamism does not have a significant relationship with association and connection ($\beta = 0.075$, $p > 0.10$). This was not entirely surprising as the linkages and networks established within the subsidiary provides sufficient access to information and experience for the subsidiary to associate and connect information to the potential opportunity.

Environmental dynamism has a significant relationship with evaluation and judgement ($\beta = 0.259$, $p = 0.001$). This suggests that the dynamic environment does not constrain the subsidiary to efficiently evaluate and judge the opportunity. This suggests that intense environments provide the subsidiary with the relevant information needed to make sufficient evaluations and judgement regarding the potential opportunities, they have a greater awareness of the environmental demands and possibility for a value adding contribution to performance.

5.2.4.3. Mode of Establishment.

Literature has previously linked competitive capabilities with established wholly owned subsidiaries (Chen & Hennart, 2002; Gatignon & Anderson, 1988; Gomes-Casseres, 1989; Kogut & Chang, 1991). but there is no clear indication of the relationship between the subsidiary entry mode such as acquisition or greenfield and entrepreneurial performance and for that reason, this control was added to the analysis. However, the analysis showed no significance in the relationship between mode of establishment and any dimension of SEA (scanning and search, association and connection, and evaluation and judgement).

5.2.4.4. Subsidiary Aided by Grant.

The control, subsidiaries aided by grant, was introduced into the study as a dummy variable, to depict whether the influence of grant holder-ship would influence the dimensions of SEA. As Ireland is heavily embedded in foreign direct investment, it provided the study the opportunity to understand the relationship between subsidiary aided by grant and scanning and search, association and connection, and evaluation and judgement. The study proposes that a subsidiary aided by grant has a positive relationship with each of the dimensions of SEA. Surprisingly, there was no significant relationship between subsidiary aided by grant and scanning and search and

association and connection however, it has a negative relationship with evaluation and judgement. This is a very interesting finding as it suggests that grants provided do not allow the subsidiary to efficiently use the frameworks either provided or improved by the grant provider. The subsidiary may be constrained by conditions set by the grant provider and therefore unable to utilise its SEA to the fullest capacity.

Table 24: Summary of the impact of control variables on the antecedents of SEA

	Scanning and Search	Association and Connection	Evaluation and Judgement
Control Variables			
Subsidiary Size	0.075 n/s	0.173*	0.092 n/s
Environmental Dynamism	0.261***	0.075 n/s	0.259***
Subsidiary Aided by Grant	-0.102 n/s	-0.129 n/s	-0.239**
Mode of Establishment	0.099 n/s	-0.117 n/s	0.029 n/s

Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

5.3. Measurement Model Assessment for Outcomes of SEA

Following the structure of the previous chapter, the study assesses the measurement model by examining internal consistency reliability, indicator reliability, convergent validity and discriminant validity. Please refer to Figure 7 for the proposed outcomes of SEA.

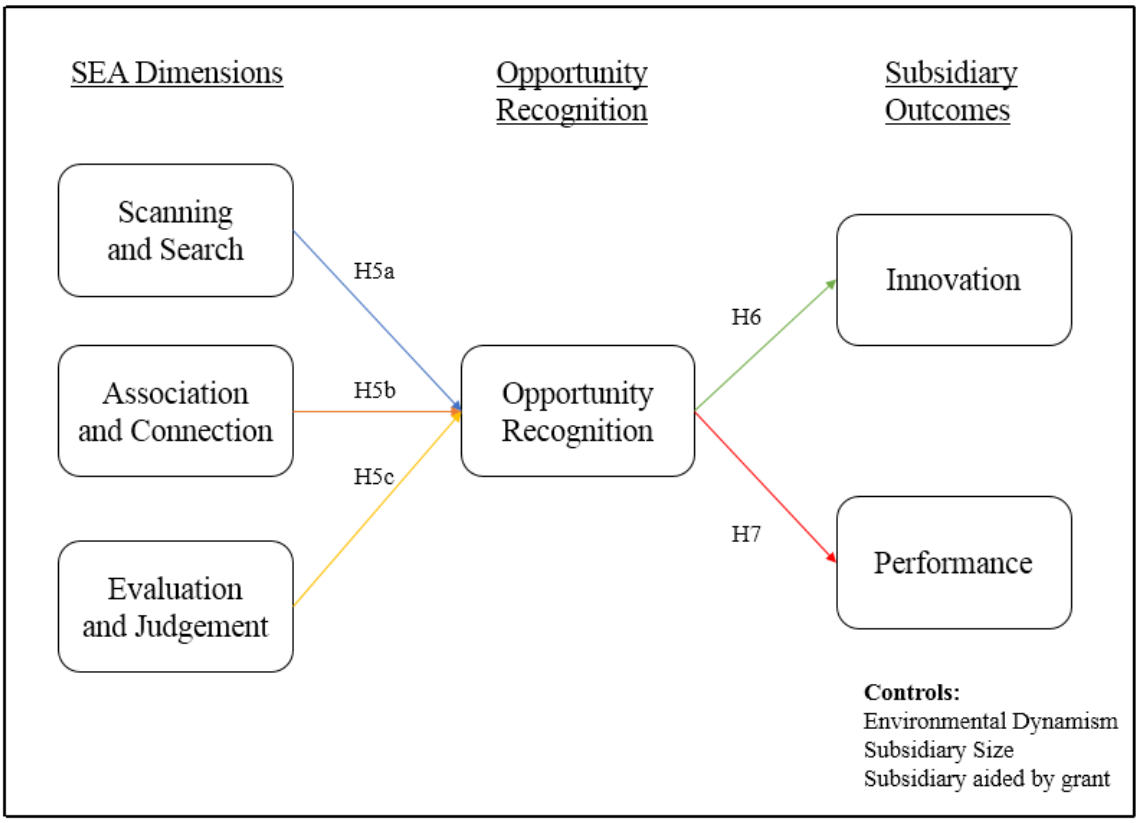


Figure 7: Proposed Outcomes of Subsidiary Entrepreneurial Alertness

Examining the measurement model of the outcome variables the research found that each construct has satisfactory internal consistency reliability, as the composite reliability (CR) had exceeded 0.7 after the items were dropped. Hair et al. (2014) argue that loadings that are between 0.4 and 0.7 should be dropped if it improves the composite reliability. In this study, the indicator reliability assessment showed some items scoring lower than the acceptable threshold. These items included Scanning and Search AL_1 (We have frequent interactions with others outside our subsidiary to acquire new information); Opportunity Recognition OR _3 (Seeing potential new opportunities does not come very naturally to us), OR_4 (Identifying solutions/ products/ services or processes that do not currently exist comes easy to us); Innovation INN_6 (Innovations that make your existing expertise in prevailing products/ services obsolete); Relative Performance RP_2 (Quality of product, process or service), RP_ 3 (Relationships with suppliers), RP_4 (Cost of labour), RP _7 (New business development); and Environmental Dynamism ED_5 (In our primary market(s), the volumes of products and services to be delivered change fast and often).

The average variance extracted (AVE) showed some issues initially with below the threshold scores from scanning and search, opportunity recognition, innovation, relative performance and environmental dynamism. Therefore, items were dropped to improve the results above the 0.5 threshold. Using the same criterion as suggested by Hair et al. (2011) and Hullund (1999), items which ranged between 0.4 and 0.7 were examined. In all, ten items were dropped as detailed in Appendix 11. Once the items were dropped, convergent validity was achieved and deemed satisfactory as outlined in table 25 below.

Table 25: Measurement Model for Outcome Variables after Item Drop

Construct	Item	Loadings
Scanning & Search CR = 0.834 AVE = 0.559	Al_4_eyeout Al_7_magazines Al_10_internet Al_12_avidseekers	0.709 0.769 0.665 0.837
Association & Connection CR = 0.906 AVE = 0.763	Al_3_links Al_6_connecting Al_9_unconnected	0.875 0.865 0.880
Evaluation & Judgement CR = 0.829 AVE = 0.552	Al_2_good_ones Al_5_knack Al_8_distinguish Al_11_instinct	0.599 0.834 0.761 0.757
Opportunity Recognition CR = 0.843 AVE =0.519	OR_1_day2day OR_2_sensitivity OR_5_revenues OR_6_customers OR_7_instinct	0.734 0.823 0.718 0.694 0.620
Innovation CR=0.837 AVE = 0.515	Inn_1_prevailingpsp Inn_2_expertise Inn_3_currentlycompete Inn_4_prevailingobsolete Inn_5_changepsp	0.828 0.818 0.770 0.527 0.591
Relative Performance CR=0.801 AVE =0.574	Rp_1_productivity Rp_5_prodimprove Rp_6_technology	0.798 0.784 0.686
Environmental Dynamism CR=0.802 AVE = 0.505	Ed_1_intensechange Ed_2_clientsregularlyask Ed_3_changecontinuously Ed_4r_nothingchanged	0.646 0.749 0.798 0.636
Subsidiary aided by grant Subsidiary Size	CR = 1; AVE = 1 CR = 1; AVE = 1	

Discriminant validity was examined through the heterotrait monotrait ratio of correlations (HTMT). A satisfactory ratio should be below 1.0 with the heterotrait correlations smaller than the monotrait correlation. According to Henseler et al. (2015), discriminant validity is established if the HTMT value is below 0.90. Table 26

demonstrates that the HTMT requirements were fulfilled as each of the correlations are below 0.90.

Table 26: Heterotrait - monotrait (Outcome variables)

	1	2	3	4	5	6
1. Association & Connection						
2. Evaluation & Judgement	0.505					
3. Innovation	0.417	0.207				
4. Opportunity Recognition	0.559	0.733	0.356			
5. Relative Performance	0.306	0.269	0.572	0.495		
6. Scanning & Scanning	0.815	0.682	0.341	0.792	0.355	

To examine the indicator loadings, the SmartPLS algorithm produced the output of cross loadings for the second assessment of discriminant validity. Table 27 shows the output of cross loadings between constructs and indicators. Ideally loadings should be higher than 0.7 (some use 0.5) and cross loadings should be under 0.3 (some use 0.4) (Garson, 2016).

Table 27: Cross Loadings (Outcome Variables)

	Scanning & Search	Association & Connection	Evaluation & Judgement	Innovation	Relative Performance	Opportunity Recognition
Al_4_eyeout	**0.709**	0.456	0.484	0.226	0.173	0.537
Al_7_magazines	**0.769**	0.526	0.440	0.189	0.152	0.441
Al_10_internet	**0.665**	0.393	0.252	0.050	0.052	0.340
Al_12_avidseekers	**0.837**	0.554	0.456	0.242	0.295	0.528
Al_3_links	0.501	**0.875**	0.350	0.305	0.188	0.371
Al_6_connecting	0.624	**0.865**	0.359	0.332	0.172	0.392
Al_9_unconnected	0.575	**0.880**	0.390	0.269	0.212	0.442
Al_2_good_ones	0.212	0.188	**0.599**	0.121	0.125	0.188
Al_5_knack	0.500	0.335	**0.834**	0.023	0.183	0.512
Al_8_distinguish	0.371	0.338	**0.761**	0.163	0.034	0.432
Al_11_instinct	0.486	0.342	**0.757**	0.077	0.206	0.534
Inn_1_prevailingpsp	0.165	0.261	-0.029	**0.828**	0.309	0.130
Inn_2_expertise	0.184	0.234	0.040	**0.818**	0.236	0.153
Inn_3_currentlycompete	0.312	0.419	0.152	**0.770**	0.359	0.291
Inn_4_prevailingobsolete	0.082	0.069	0.069	**0.527**	0.163	0.105
Inn_5_changepsp	0.120	0.193	0.174	**0.591**	0.327	0.273
Rp_1_productivity	0.232	0.122	0.164	0.303	**0.798**	0.309
Rp_5_prodimprove	0.122	0.104	0.126	0.311	**0.784**	0.206
Rp_6_technology	0.187	0.281	0.140	0.281	**0.686**	0.269
OR_1_day2day	0.517	0.347	0.377	0.253	0.230	**0.734**
OR_2_sensitivity	0.600	0.452	0.536	0.287	0.211	**0.823**
OR_5_revenues	0.342	0.317	0.400	0.021	0.148	**0.718**
OR_6_customers	0.403	0.295	0.477	0.101	0.276	**0.694**
OR_7_instinct	0.346	0.222	0.370	0.237	0.376	**0.620**

While the cross loadings are not higher than their respective variables, some are above the 0.4 threshold. Similar to the assessment of the antecedents of SEA, the cross loadings that correlate higher than the threshold are within the same construct which is to be expected (Ringle et al., 2015). The research satisfies the heterotrait-monotrait ratio requirement and discriminant validity is established.

The analysis of the reliability and validity tests of the measurement model shows acceptable results. All tests are satisfactory, confirming that the measurement model for this dimension is valid and appropriate for the evaluation of parameters in the structural model.

5.4. Structural Model of Outcome Variables

Using the same criterion as earlier when examining the structural model of the antecedents, the study analyses the relationships between the latent variables by estimating the paths between the constructs. This time the endogenous latent variables are the expected outcomes of SEA, most immediately opportunity recognition generating innovations or relative performance. The PLS algorithm and bootstrapping procedures were used to analyse the R^2 values of the endogenous latent variables of SEA (Opportunity Recognition, Innovation and Relative Performance) which is discussed in the following section. The Blindfolding procedure is then used to examine the predictive relevance through Stone - Geisser Q^2 technique, before testing the hypotheses of the outcome variables.

5.4.1. Coefficient of determination (R^2)

As detailed earlier, R^2 is the overall effect measure for the structural model (Garson, 2016) which is obtained from the PLS algorithm. Table 28 below you can see that the elements of SEA, scanning and search, association and connection, evaluation and judgement, and selected controls explain 52% of the variance in opportunity recognition. In turn, opportunity recognition accounts for 23.3% of the level of subsidiary innovation, and 22% in Relative Performance. Therefore, SEA to OR is categorised moderate, whereas OR to Innovation and Relative Performance is categorised as weak.

5.4.2. Stone-Geisser Q^2

The Stone-Geisser Q^2 technique was again used to determine the predictive relevance of our dependent constructs (opportunity recognition, innovation and relative performance). The Blindfolding techniques in Smart PLS was used to examine the cross validated redundancy Q^2 (Opportunity Recognition 0.229; Innovation 0.098; Relative Performance 0.096) and cross–validated communality Q^2 (Opportunity Recognition 0.288; Innovation 0.290; Relative Performance 0.184). All values are above zero, and therefore the dependent constructs have predictive relevance.

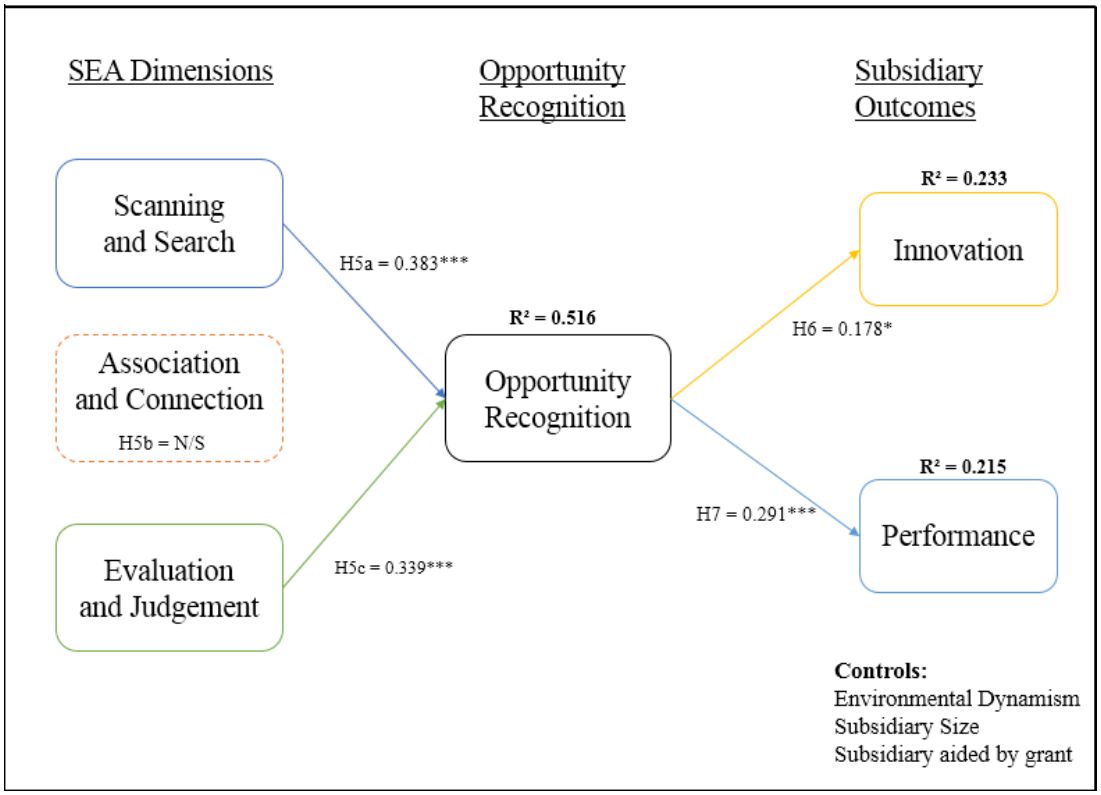
Table 28: Examination of the Outcome Variables' Structural Model

Dependent Variable	Independent Construct	Direct effect	t-value	Variance explained R^2	Stone-Geisser Q^2
Opportunity Recognition				0.516	0.229
	Scanning and Search (H5a)	0.383***	4.698		
	Association and Connection (H5b)	0.041	0.480		
	Evaluation and Judgement (H5c)	0.339***	3.687		
	Subsidiary Size (control variable)	0.141*	2.169		
	Environmental Dynamism (control variable)	0.054	0.802		
	Grant Holder (dummy variable)	0.035	0.504		
Innovation				0.233	0.098
	Opportunity Recognition (H6)	0.178*	1.999		
	Subsidiary Size (control variable)	0.128	1.478		
	Environmental Dynamism (control variable)	0.252**	2.623		
	Grant Holder (dummy variable)	0.299***	3.606		
Relative Performance				0.215	0.096
	Opportunity Recognition (H7)	0.291***	3.362		
	Subsidiary Size (control variable)	0.017	0.192		
	Environmental Dynamism (control variable)	0.212*	2.039		
	Grant Holder (dummy variable)	0.248**	3.075		

Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

5.4.3. Hypothesis Testing of Outcome Variables

To confirm the proposed hypotheses the path coefficient between two latent variables is measured. The path coefficient value needs to be at least 0.1 to account for a definite effect within the model (Hair et al., 2011; Wetzels et al., 2009).



Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

Figure 8: Outcome Variables showing Supported & Not supported Hypotheses

5.4.3.1. Scanning and Search and Opportunity Recognition

Hypothesis 5a

Based on the statistical analyses above, SmartPLS –SEM identifies that Scanning and Search (Hypothesis 5a) has a positive relationship with subsidiary opportunity recognition ($\beta = 0.383$, $p = 0.001$). Scanning and search allows the subsidiary to investigate new ideas in both consistent and sometimes unconventional manner (Busenitz, 1996) i.e. through deliberate search or noticing without search. This relationship proposes that the organisations surveyed are more successful in their entrepreneurial effort to extensive scan and search for opportunities than others, demonstrating that they have SEA (Ericsson et al., 1993; Tang et al., 2012). The results suggest that the extent of the subsidiary's knowledge on the market and environment allows them to be more apt at discovering opportunities and also allows them to see opportunities where others cannot. As item AL_1 was dropped due to poor scoring it suggests that the subsidiaries do not scanning and search through there interactions with others outside the subsidiary.

5.4.3.2. Association and Connection and Opportunity Recognition.

Hypothesis 5b

Hypothesis 5b proposed a positive relationship between Association and Connection and Opportunity Recognition. The results do not support this proposal ($\beta = 0.041$, $p > 0.10$). It should be again noted that the elements of SEA are not additive, if the organisation engages in scanning and search and evaluation and judgement it can still recognise opportunities. Tang et al. (2012, pg:80) explain that "scanning and searching involves a recursive relationship with association and connection as a search may often trigger additional associations and ideas", therefore suggesting that the elements scanning and searching and association and connection are sometimes combined, which is illustrated in this study. In some cases, organisations examine the information and may consider further associations and connections before evaluation and judgement. This demonstrates a non-significant relationship with the stand-alone element, association and connection. Although hypothesis 5b was not supported, it must be acknowledged as logically, theoretically and intuitively important; it is the existing schema within the subsidiary which allows the subsidiary to evaluate opportunities. This second dimension of SEA can be developed and strengthened over time (Valliere, 2013) to create a collective schema, therefore the subsidiary in time may become more efficient and accurate in recognising opportunities.

5.4.3.3. Evaluation and Judgement and Opportunity Recognition.

Hypothesis 5c

The results show that Evaluation and Judgement has a positive relationship with Opportunity Recognition ($\beta = 0.331$, $p < 0.001$). Evaluation and judgement enables the subsidiary to reflect an opportunity through their assessment of information. This supports Kirzner's theory of alertness, it suggests that subsidiaries that are entrepreneurial alert can determine, through evaluation and judgement, whether a business opportunity is recognised. This suggests that evaluation and judgement in significantly important to opportunity recognition as it makes accurate assessments of the opportunity and reflects on subsequent information involved in recognising the opportunity's potential.

Through examining the relationships between the dimensions of SEA and opportunity recognition, this study addresses the gap of the pre-initiative stage of subsidiary initiative and opportunity recognition. It demonstrates that SEA drives subsidiary opportunity recognition through scanning and search, and evaluation and judgement.

5.4.3.4. Opportunity Recognition and Innovation

Hypothesis 6

Based on the statistical analyses performed using SmartPLS – SEM, this study shows empirical evidence that opportunity recognition is positively related to subsidiary innovation ($\beta = 0.178$, $p < 0.005$). The results verify that opportunity recognition is a core driver for innovation. This suggests that subsidiaries with entrepreneurial alertness are more likely to recognise opportunities and to increase innovations of the organisation, and consequently contributing to the he subsidiary's ability to operate within an environment where new products and services rapidly change. Interestingly, the results showed that relative to other subsidiaries, the capability to generate innovations to make the subsidiary's existing expertise in prevailing products, processes or services obsolete, scores low, therefore suggesting that subsidiary aims to contribute through reinforcing existing expertise rather than demolishing existing expertise.

These results also encompass our understanding that there are alternative outcomes from opportunity recognition other than subsidiary initiatives and reduces the gap in our understanding of the positive effect subsidiary entrepreneurship has on subsidiary performance.

5.4.3.5. Opportunity Recognition and Performance

Hypothesis 7

The study proposed that opportunity recognition has a positive relationship with performance (relative performance measure utilized). The results show that there is a significant relationship between the two variables ($\beta = 0.291$, $p = <0.001$). The study shows that opportunity recognition significantly contributes to the relative performance of the subsidiary particularly productivity, the use of technology and new

business development. This is an interesting result as it shows that in areas of significant competition and fastmoving environment that opportunity recognition contributes to the organisation staying ahead of other subsidiaries within their MNC. It demonstrates the importance of opportunity recognition within the subsidiary and the importance of understanding what drives SEA to recognise opportunities.

5.4.4. Impact of Control Variables

The control variables comprise subsidiary size, environmental dynamism, and subsidiary aided by grant. During statistical analysis, the research found each of the three control variables to be proven significant with the each of the outcome variables: opportunity recognition, innovation and performance, please see table 29 for details. These control variables provide noteworthy contributions to the understanding of the impact the subsidiary has opportunity recognition and alternative outcomes (innovation and performance). Each control is discussed below.

Table 29: Impact of control variables on outcome variables

	Opportunity Recognition	Innovation	Relative Performance
Control Variables			
Subsidiary Size	0.141*	0.128 n/s	0.017 n/s
Environmental Dynamism	0.054 n/s	0.252**	0.212*
Subsidiary Aided by Grant	0.035 n/s	0.299***	0.248**

Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

5.4.4.1. Subsidiary Size.

Subsidiary size was expected to have some significance in its relationship with opportunity recognition, innovation and performance, interestingly however, it is only significant for opportunity recognition ($\beta = 0.141$, $p < 0.05$). It was decided to control for subsidiary size as there are opposing views on its effect on entrepreneurship and innovation (Covin et al., 1994; Minbaeva et al., 2003). It is no surprise that subsidiary size has a relationship with opportunity recognition, as much of the research surrounding opportunities identifies that companies of different sizes engage in

entrepreneurial activities (Zahra & Garvis, 2000). Literature also argues that large subsidiaries are able to react to new opportunities hence the significant relationship found in this study, looking at its' relationship with opportunity recognition (Kontinen & Ojala, 2011). Interestingly, the data showed that subsidiary size does not have a relationship with innovation and performance. This suggests that subsidiary size may not be a defining characteristic of innovative behaviour as originally identified (McDougall & Oviatt, 2000). It also suggest that subsidiary size is irrelevant in regard to performance, demonstrating that the size of the organisation is insignificant when determining achieving superior performance.

5.4.4.2. Environmental Dynamism.

Environmental Dynamism relates instability of the external environment that the organisation operates within (Jansen et al., 2009). The level of environmental dynamism is argued to significantly influence innovation and performance at the subsidiary level (Baron & Tang, 2011; Garg et al., 2003; Miller, 1988). This study proposed that there is a relationship between environmental dynamism and opportunity recognition, innovation and performance. The statistical analysis, however, identifies that environmental dynamism is significantly related to innovation and performance.

The study found that environmental dynamism is not significant in terms of its relationship with opportunity recognition ($\beta = 0.054$, $p > 0.1$). This suggests that the less dynamic the environment that the subsidiary competes within the less amount of opportunities are recognised. This is noteworthy as the subsidiaries surveyed identified that they have a strong ability to finding new approaches and can easily recognise opportunities which suggests that this can be done whether the environment is dynamic or stable.

The data identified that environmental dynamism has a significant relationship with innovation ($\beta = 0.252$, $p < 0.01$). This was not entirely surprising but still noteworthy as environmental dynamism has been argued to promote innovation, suggesting that subsidiaries are more effective during crisis such as the instability of their external environment (Hough & White, 2003; Miller, 1983; Priem et al., 1995; Schilke, 2014).

Environmental dynamism has also a significant relationship with performance (β = 0.212, $p < 0.05$). This suggests and concurs with the literature that performance is significantly more positive for organisations in dynamic environments than stable environments (Miles et al., 2000; Thornhill, 2006). The data suggests that productivity levels are achieved in more dynamic environments.

5.4.4.3. Subsidiary Aided by Grant.

Subsidiaries aided by grant was introduced to illustrate whether the influence of a subsidiary with a grant has a relationship with the outcome variables: opportunity recognition, innovation and performance. Surprisingly, the data found no significant relationship with opportunity recognition. This suggests that subsidiaries that hold a grant are not as reliant on grants to recognise opportunities, which suggests that the framework needed for opportunity recognition are already in place within the subsidiaries surveyed.

As Ireland is heavily embedded in foreign direct investment, it was not surprising but still significant noteworthy to identify that the subsidiary aided by grant variable has a significant relationship with both innovation and performance. The majority of grants provided to subsidiaries are directed at R&D, focusing on new technologies which can encourage innovation through improving current products and processes or introducing new ones. This also increases and sustains performance as the level of productivity is achieved and, in some case, exceeded through investments on the subsidized plant, equipment and physical equipment.

5.5. Conclusion

The chapter provided empirical support for several theoretically based hypothesis. The execution of the analysis from the quantitative data provide several particularly interesting insights into the antecedents of SEA and the relationships with each dimension and provides further insights into the alternative outcomes of SEA. These relationships are discussed in greater depth in the next chapter. For ease of reference as summary of the expected and actual findings are provided in Table 30. For a complete summary of the empirical results see Table 31.

Table 30: The expected and actual relationships of the proposed hypotheses

Summary of Research Results			
Hypothesis	**Independent variables > Dependent variables**	**Expected relationship**	**Actual Relationship**
Hypothesis 1a	Subsidiary Autonomy > Scanning and Search	+	n/s
Hypothesis 1b	Subsidiary Autonomy > Association and Connection	+	n/s
Hypothesis 1c	Subsidiary Autonomy > Evaluation and Judgement	+	n/s
Hypothesis 2a	Value Chain Scope > Scanning and Search	+	n/s
Hypothesis 2b	Value Chain Scope > Association and Connection	+	n/s
Hypothesis 2c	Value Chain Scope > Evaluation and Judgement	+	n/s
Hypothesis 3a	Subsidiary Brokerage > Scanning and Search	+	*
Hypothesis 3b	Subsidiary Brokerage > Association and Connection	+	*
Hypothesis 3c	Subsidiary Brokerage > Evaluation and Judgement	+	n/s
Hypothesis 4a	Subsidiary Credibility > Scanning and Search	+	*
Hypothesis 4b	Subsidiary Credibility > Association and Connection	+	n/s
Hypothesis 4c	Subsidiary Credibility > Evaluation and Judgement	+	***
Hypothesis 5a	Scanning and Search > Opportunity Recognition	+	***
Hypothesis 5b	Association and Connection > Opportunity Recognition	+	n/s
Hypothesis 5c	Evaluation and Judgement > Opportunity Recognition	+	***
Hypothesis 6	Opportunity Recognition > Innovation	+	*
Hypothesis 7	Opportunity Recognition > Relative Performance	+	***

Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

Table 31: Complete empirical results of the study

Independent Variables and Controls	Dependent Variables					
	Scanning and Search	Association and Connection	Evaluation and Judgement	Opportunity Recognition	Innovation	Performance
Subsidiary Autonomy	-0.115	-0.055	-0.113	-	-	-
Value Chain Scope	-0.113	-0.120	0.055	-	-	-
Subsidiary Brokerage	**0.222***	**0.274***	0.056	-	-	-
Subsidiary Credibility	**0.206***	0.106	**0.281*****	-	-	-
Scanning and Search	-	-	-	**0.383*****	-	-
Association and Connection	-	-	-	0.041	-	-
Evaluation and Judgement	-	-	-	**0.339*****	-	-
Opportunity Recognition	-	-	-	-	**0.178***	**0.291*****
Subsidiary Size	0.075	**0.173***	0.092	**0.141***	0.128	0.017
Mode of Establishment	0.099	-0.117	0.029	-	-	-
Environmental Dynamism	**0.261*****	0.075	**0.259*****	0.054	**0.252****	**0.212***
Subsidiary Aided by Grant	-0.102	-0.129	**-0.239****	0.035	**0.299*****	**0.248****

Notes * p<0.05, ** p<0.01. *** p<0.001 (based on two tail test)

Chapter Six: Discussion

6.1. Introduction

This thesis examines the initial element of innovations, the recognition of opportunities. Despite its centrality to entrepreneurship research (Dimitratos & Jones, 2005; McDougall & Oviatt, 2003; Zahra & George, 2002), the notion of opportunity recognition has remained unclear within entrepreneurship (Covin & Lumpkin, 2011; Covin & Wales, 2011; Miller, 2011; Rauch et al., 2009). This study addresses this gap and extends scholarly understanding of this critical initiation of subsidiary innovation and subsidiary performance by introducing the concept of subsidiary entrepreneurial alertness (SEA) to the subsidiary entrepreneurship literature. The research develops and provides several important insights through the examination of the impact of subsidiary context by capturing the subsidiary level antecedents of SEA on OR and the alternative outcomes of subsidiary opportunity recognition. The established connections between entrepreneurship and innovation, and entrepreneurship and performance at an organisational level are then theorised and investigated at the subsidiary level.

In addressing the overall research question and theoretical gap of 'what are the antecedents and outcomes of subsidiary entrepreneurial alertness?', this study brings forward the following contributions. Firstly, the concept of subsidiary entrepreneurial alertness (SEA) is introduced to the International Business and Entrepreneurship literature. SEA is defined as a subsidiary's ability to be alert to entrepreneurial opportunities not recognised by others. Through integrating the entrepreneurship and international business literature, this study provides several important insights into SEA for MNCs and their subsidiaries. The empirical data gathered for this study delivers an interesting and valuable contribution to our knowledge of why some subsidiaries are more likely to engage in corporate entrepreneurship than others. This research demonstrates the importance of the subsidiary in recognising opportunities and the initial stage of subsidiary opportunity recognition.

Secondly, this study makes a significant contribution by identifying the influence of subsidiary context impacts SEA. This increases our understanding of the specific

conditions that influence a subsidiary to perform entrepreneurial activities. This was achieved by integrating the entrepreneurship and international business literature to identify a range of antecedents that have a relationship with SEA. This contribution increases our knowledge of the facilitators of SEA and of what the MNC can do to influence subsidiary context and hence SEA.

A noteworthy connection between SEA and opportunity recognition is a significant contribution to the MNC literature. It demonstrates a relationship between SEA and opportunity recognition, and that the MNC can significantly manipulate the subsidiary context and thereby either supporting or discouraging subsidiary entrepreneurship.

Last but not least, this work contributes by responding to the specific calls to analyse whether entrepreneurial alertness leads to more than opportunity recognition (Tang et al., 2012). While acknowledging that subsidiary initiatives or innovation as an outcome of entrepreneurship, this research demonstrates that there is an exciting relationship between opportunity recognition and innovation and performance which represents a valuable contribution to both the entrepreneurship and MNC literature.

The research context provided the study with significant advantage as Ireland is a highly globalized hub for foreign direct investment, specifically attracting major high-technology multinationals and pharmaceutical industry leaders. This allowed this study to understand the structural orientation of the subsidiary and to adequately examine the antecedents of SEA. This chapter demonstrates the significant contributions to international business and entrepreneurship.

6.2. Introducing Subsidiary Entrepreneurial Alertness

The first contribution of this study is to introduce the notion of SEA, and the vital under-investigated pre-opportunity recognition stage. Firstly, the study carefully articulated the concept of entrepreneurial alertness, drawing on existing theories within the fields of international business and entrepreneurship. Extending the initial research in these two fields (Liouka, 2007), the new concept of SEA extends the notion of alertness and refocuses it from the individual level to the subsidiary level.

Subsidiary Entrepreneurial Alertness (SEA) is defined as the subsidiary's ability to identify entrepreneurial opportunities not recognised by others. This definition of

entrepreneurial alertness integrates Kirzner's (1973, 1979) and Tang et al.'s (2012) conceptualisations in the context of the individual. This study's first contribution is to extend this concept thereby identifying entrepreneurial alertness as an organisational capability that can be fostered in the subsidiary, making a collective subsidiary schema, i.e., creating a mindset for opportunity recognition in the subsidiary.

By measuring SEA directly, the study demonstrates that it is now possible to assess not only the contributions it can create, but how both the subsidiary and headquarters can impact the pursuit of opportunities. This was performed by establishing the concept of SEA and the impact of the subsidiary context on SEA. The research also allowed for the examination of the outcomes of SEA in terms of how subsidiaries can contribute to MNC once opportunity recognition has been realized - the subsidiary can contribute through innovation and performance.

The study demonstrates how the subsidiary is dependent on its cognitive frameworks and the efficiency of the evaluation techniques utilised, through identifying the antecedents that influence the subsidiary's capability to exhibit SEA. Therefore, this study presents additional insights into how subsidiary and organisational level factors influence the subsidiary in recognising opportunities.

While research on subsidiary initiatives has numerous classifications (Birkinshaw, 1997; Delany, 2000), and its performance implications (Ambos et al., 2010; Yamin, 2002), our empirical framework and operationalisation of entrepreneurial alertness in the subsidiary context also allows us to understand the other outcomes that can be provided from SEA and opportunity recognition, such as subsidiary innovation and subsidiary performance. SEA allows us to understand the subsidiary's capability to learn quicker and accumulate knowledge attributing to potentially profitable resource combinations in MNCs (Autio et al., 2000; Lee & Williams, 2007; Mahnke et al., 2007; McDougall et al., 1994).

6.3. The Antecedents of Subsidiary Entrepreneurial Alertness

An important objective of this research was to examine the aspects of subsidiary context antecedents of SEA. Key aspects of subsidiary context, subsidiary brokerage, value chain scope, subsidiary credibility and subsidiary autonomy were identified based on the MNC subsidiary literature and offer an extension to literature for their diverse relationship existence within SEA. Each antecedent was analysed as an independent variable, which allowed for the gathering of a more detailed explanation of their relationship with SEA.

6.3.1. Subsidiary Brokerage and Subsidiary Entrepreneurial Alertness

Research has established the important linkages for enabling access to opportunities (Granovetter, 1973; Hills & Shrader, 1998) with some highlighting the importance of weak ties for increasing opportunity recognition Singh (1998). Burt (2005: 18) defines brokerage "as the action of coordination across the structural holes with bridges between people on opposite sides of the structural hole, and network entrepreneurs or brokers are the people who build the bridges". The importance of subsidiary brokerage and the significance of the frequency and quality of linkages developed by the subsidiary with its parent, sister subsidiaries and its external partners, including local organisations, suppliers, clients and universities (Figueiredo, 2011) is established by this work which clearly shows the relationship between brokerage and SEA. The research shows that with the development of internal and external relationships, the subsidiary is able to establish knowledge intensive ties enabling the subsidiary to be entrepreneurially alert (Figueiredo, 2011; Granovetter, 1985; Hansen, 1999). This driver emphasises the importance of maintaining close linkages with key people within headquarters to allow the subsidiary to sell its ideas, gain visibility and support for implementing projects (Dimitratos et al., 2014).

Identifying the connection between subsidiary brokerage and SEA this study recognizes the significant relationship it has particularly with scanning and search and association and connection. It is through the combination of other actors' knowledge, which is gained from bridging across structural holes, that allows the subsidiary to be entrepreneurially alert by specifically harnessing the underlying asymmetries that

characterize and shape them. This antecedent cannot be easily transferred from one subsidiary to the next, it is embedded in the subsidiary's web of relationships, hence constituting as a source of specific advantage for the subsidiary within its MNC. This is a confirmation of Burt's (2005) work, who demonstrated conceptually and empirically that brokerage across structural holes between organisations produces more ideas and new knowledge and they do so to achieve competitive advantage (McEvily & Zaheer, 1999). This study suggests that headquarters encourages the subsidiary to adopt a brokerage culture by developing broader relationships with direct and indirect connections.

This extends Burt's work at the firm level to show that parts of organisations can act as brokers and fill structural holes. Burt (1992; 2004) argues that those that spanned structural holes are more likely to prompt ideas, having more engagement with headquarters over ideas and more ideas evaluated as being valuable. Therefore, this study complements Burt's work by demonstrating an alternative way of thinking for the subsidiary as successful firms with better access to the information and substantially benefits from structural holes (Burt, 1992).

6.3.2. Subsidiary Credibility and Subsidiary Entrepreneurial Alertness

Subsidiary credibility has over time been recognised as a deciding factor when headquarters is allocating a mandate or charter for a product, service, process or activity (Birkinshaw, 1999). Subsidiary credibility captures headquarters perspective of the subsidiary, through examining whether the subsidiary is delivering on its promises (Birkinshaw, 1996). Our findings show that subsidiary credibility has a positive relationship with subsidiary entrepreneurial alertness. Although autonomy did not show a significant relationship with SEA in our research, it may suggest that sufficient subsidiary credibility outweighs subsidiary autonomy when it comes to recognising opportunities and the decision-making authority which surrounds it.

Birkinshaw (1999) argues that entrepreneurial activity can be suppressed by low levels of subsidiary credibility; we find that it is a fundamental underpinning antecedent of SEA. This extends the subsidiary entrepreneurship literature as the study demonstrates that subsidiary credibility is hugely influential to the subsidiary's ability to scan and search the environment for potential opportunities, an installed recognition from

headquarters based on the success of previously recognised opportunities. This is also the case with evaluating and judging opportunities, the schema that allows the subsidiary to successfully evaluate and judge has shown enough accomplishments to be recognised by the parent organisation and therefore increased its own credibility (Baron & Ensley, 2006). This implies that headquarters has confidence in the subsidiary to successful use its own frameworks to recognise opportunities.

This finding emphasises the importance of the subsidiary in adding value to the MNC as subsidiary credibility allows access to knowledge and opportunities within the subsidiary's own specific environments (Andersson et al., 2002). It expands responsibilities and demonstrates the awareness of the parent organisation to allow the subsidiary develop resources and capabilities such as SEA independently (Birkinshaw & Hood, 1998; Cantwell & Mudambi, 2005; Holm & Sharma, 2006; Kotabe & Mudambi, 2004). The findings show that subsidiary autonomy is not significant, which suggests that even if the subsidiary has the freedom to be SEA that it may not be a credible player to win support to carry the opportunity.

6.4. Alternative outcomes of SEA and Opportunity Recognition

The recognition of opportunities at the subsidiary level has been the focus of subsidiary entrepreneurship for some time now, particularly focusing on how opportunity recognition leads to subsidiary initiatives (Ardichvili et al., 2003; Birkinshaw, 1997). However, this study found that there are alternative outcomes of SEA and opportunity recognition. The research uncovered that performance and innovation have a significant relationship with opportunity recognition. Innovation is an important part of entrepreneurship and plays an integral role in enhancing MNC performance (Mudambi, 2011; Nobel & Birkinshaw, 1998); it refers to the acceptance of creativity and experimentation to introduce new products/ process and service, and pursuit of more incremental innovations such as improving operational efficiency. Our research found that the majority of subsidiaries had more incremental than radical innovative capabilities. This means that they take advantage of prevailing knowledge and apply it to strengthen existing products, processes and services which assists future visions and allowing the subsidiary to compete within uncertain environments.

The subsidiary's innovative capacity is particularly important if the subsidiary operates in a dynamic and competitive environment. The pressure to keep up to date with consumer expectations, demands the subsidiary to maintain their innovative capability and keep operating efficiently and ahead of its competitors. The subsidiary may see innovation as a more beneficial outcome as they may obtain more autonomy and more resources to compete consistently. This is a significant finding as it demonstrates that subsidiaries can and have alternative outcomes that directly obtaining new mandates. It allows the literature to question further the other potential outcomes available to subsidiaries and its contributory role to the overall MNC.

Another alternative outcome which was found to be highly significant is subsidiary performance. This is substantially noteworthy as subsidiary performance as an outcome is largely avoided, however, it can be measured relative to the MNC's other subsidiaries. Relative performance contributes to role development, it can provide subsidiaries with the advantage of gaining more resources as a result of recognising opportunities. In order for the subsidiary to enhance its relative performance it must be able to achieve the parent's objectives which maintaining their own goals in a competitive arena. If the duplicative functions occur in the same location, the only way to not suppress opportunities of subsidiary development is to enhance relative performance therefore there is less of a chance in liquidating the knowledge bases in the local environment that the similar subsidiaries compete in. This demonstrate that opportunity recognition as an effective means to improve the performance of subsidiaries (Cogliser & Brigham, 2004; Ireland et al., 2003; Swiercz & Lydon, 2002).

6.5. Overall Conclusion

The purpose of this thesis is to advance scholarly understanding of entrepreneurial alertness in the context of the subsidiary and its role in recognising opportunities. Insights are provided in the study on: (1) the role of subsidiary entrepreneurial alertness and its impact on opportunity recognition, (2) the antecedents that influence a subsidiary to entrepreneurial alert, and (3) the alternative outcomes of opportunity recognition. This concluding discussion demonstrates the key theoretical contributions in the fields of International Business and Entrepreneurship, and the managerial

implication and limitations of the study. Finally, the chapter concludes by demonstrating exciting and potential theory building areas for future research.

6.5.1. Contributions for international business and entrepreneurship literature

This study provides empirical evidence to conceptualize subsidiary entrepreneurial alertness as a key determinant in the pursuit of opportunities at a subsidiary level; establishing its role in opportunity recognition, innovation and performance. It pronounces significant contributions to theory and also demonstrates significant managerial implications. The research sought a synergy between the disciplines of international business and entrepreneurship (Kirzner, 1997; Tang et al., 2012; Verbeke et al., 2007), to introduce SEA to the MNC literature, as previously mentioned entrepreneurial alertness has only been applied to the context of the individual and organisation (Gaglio & Katz, 2001; Kaish & Gilad, 1991; Kirzner, 1997; Shepherd & DeTienne, 2001; Tang et al., 2012). Being the first to measure entrepreneurial alertness through the subsidiary view, it enhances integrity and generalisability of previous empirical research on subsidiary entrepreneurship (Liouka, 2007). SEA allows us to understand why some subsidiaries are more entrepreneurial compared to others and allows the study to theorise the importance of SEA in recognizing opportunities. The introduction of this concept contributes to the growing importance of the awareness of the subsidiary's involvement in entrepreneurial activity as noted by many scholars and practitioners (e.g. Hamel, 2001; Hitt et al., 2010) which applies to "virtually every nation, every industry and every market" (Kuratko, 2009 :421).

Secondly, the study aims to bring attention to specific subsidiary antecedents of SEA drawing from both entrepreneurship and MNC literature, contributing to both disciplines by providing interesting empirical evidence to show how subsidiary specific determinants are significantly related to SEA such as such as subsidiary credibility and subsidiary brokerage. Previous research informed by concepts and models within the entrepreneurship and international business literature identified that structural level variables such as autonomy and value chain scope have a significant influence on entrepreneurial activities (Burgelman, 1983b; Rugman et al., 2011; Rugman & Verbeke, 2001) whereas as it is actually the contextual variables that

manipulate SEA. While the headquarters can determine subsidiary structure determinants (autonomy and value chain scope) it has no significance on subsidiary entrepreneurial alertness. This is a significant finding and contribution to theory; it shows that subsidiary entrepreneurial alertness is established within the subsidiary and is determined by the characteristics of the subsidiary and by the resources and capabilities that the subsidiaries have developed from within. Brokerage positions while they may be assigned by the headquarters (Burt, 2004), it is the subsidiary level that such connections are recognised and exploited. Also interestingly, the relative importance of autonomy shown in previous subsidiary opportunity recognition and subsidiary initiative literature is not supported when identifying the antecedents of SEA. However, it is recognised that this does not mean that autonomy is not significant in opportunity recognition, innovation and performance.

The positive link found by the study between subsidiary brokerage and subsidiary credibility both of which characterizes a subsidiary specifically. Previous research in subsidiary entrepreneurship has focused on the approval of opportunities while overlooking the initial stage of what determines the opportunity to be recognised (Eckhardt & Shane, 2003; Hansen et al., 2001; Shane & Venkataraman, 2000; Short et al., 2010). This study can suggest a number of strategic approaches that subsidiaries should adopt in order to recognise opportunities more effectively and efficiently. For example, the subsidiary should foster a more communal environment, encouraging the subsidiary brokerage.

Similarly, while the level of subsidiary autonomy is determined by headquarters (Birkinshaw, 1997; Birkinshaw & Hood, 1998; Birkinshaw & Ridderstråle, 1999), the subsidiary itself is more responsible for its credibility and is in control of its destiny within the organisation. This significant finding also displays the difference between entrepreneurial alertness in the subsidiary context to the individual context. Applying the findings of studies on EA at an individual level implied that subsidiary autonomy would be significant however this study found that subsidiary autonomy is not related to SEA therefore suggests that subsidiaries are not restricted by the structure implemented by the parent organisation (Tang et al., 2012) but more by their credibility within it.

Finally, this research sought to respond to specific calls to examine if entrepreneurial alertness leads to more than opportunity recognition, with key organizational outcomes such as the pursuit of new initiatives, performance and follow-on innovations worth following (Tang et al., 2012). While literature has previously shown that opportunity recognition leads to subsidiary initiative, this research shows that instead of aiming for a subsidiary initiative that the subsidiary can enhance its relative performance and achieve innovation. The study suggests that alert subsidiaries are more likely to discover new products, process and services and therefore increasing the innovations of their organisation (Gaglio, 2004; Shepherd & DeTienne, 2005) through the process of recognising opportunities in order to create new products, service, or work practices (Schumpeter, 1934; Tang et al., 2012; van de Ven, 1986).

This study also shows a positive link between the relationship between SEA and the relative performance of a subsidiary, i.e., the way in which the subsidiary is perceived relative to its peers. Through SEA and opportunity recognition, a subsidiary is able to enhance its competitive position within the MNC by increasing its performance and therefore benefits enough to increase the critical resources and capabilities to maintain its competitive position within the MNC required. This is a further significant contribution to literature as it is untested in this context.

Figure 9 below illustrates the overall antecedents and consequences of SEA.

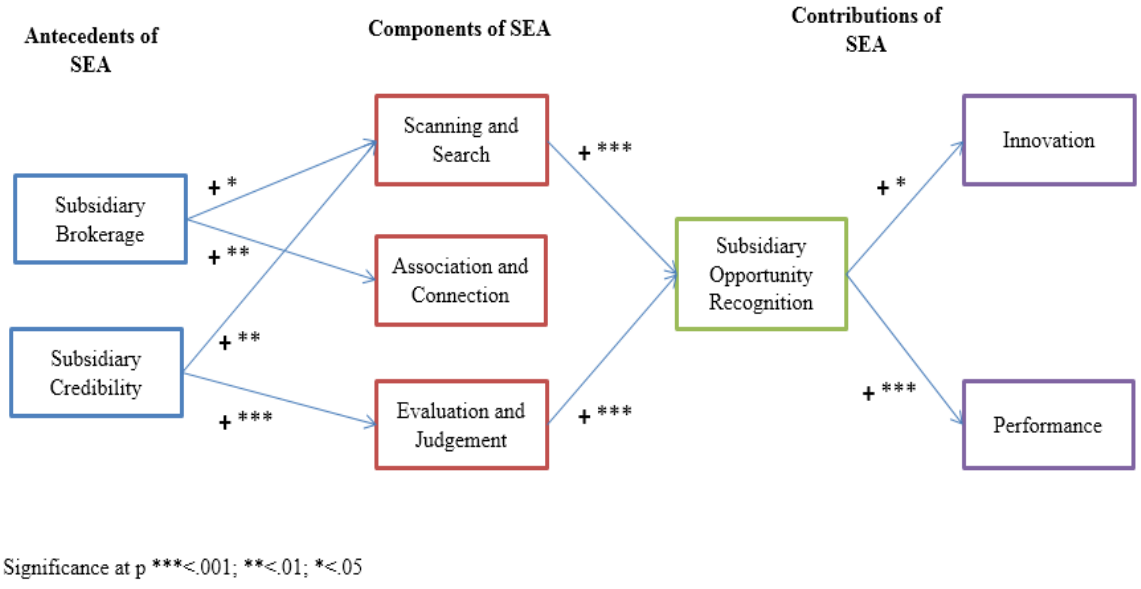


Figure 9: Antecedents and Contributions of SEA

6.6. Limitations

There are a number of limitations of this study to be acknowledged, as similar to other research, it operated within significant cost and time constraints.

6.6.1. Sample Size

Firstly, it is recognised that the sample size obtained is small; however, the sample size was sufficient to test the main effects and controls of the variables of interest. The research was able to capture a diverse number of subsidiaries from different sectors which gave the research with a holistic outlook of their entrepreneurial capacity. See Appendix 14 for characteristics of the subsidiaries that responded. It would have been preferable to distribute surveys to the United Kingdom also. However, due to time and cost constraints, the researcher was unable to do so. Using the Republic of Ireland as the research context, provided significant contributions as it has a large number of subsidiaries with substantial operations and prides itself in its ability to target foreign subsidiaries and provide funding in R&D, training etc. Therefore, the research context offered unique opportunities that would not have been available going further afield. This includes, for example, examining the impact of being a grant holder on subsidiary entrepreneurial alertness and its outcomes.

6.6.2. Cross Sectional Questionnaire

The research was performed by using a cross-sectional questionnaire; this meant that the data was collected at one point in time. It could be argued that this research, looking at the antecedents of subsidiary entrepreneurial alertness and the outcomes of opportunity recognition would be better suited to longitudinal analysis (Matsuno et al., 2002). However, it was not the purpose of this study to understand the process of subsidiary entrepreneurial, but to examine the relationship of different variables. For this purpose, a cross sectional questionnaire is sufficient (Lindell & Whitney, 2001; Lorenz et al., 2018).

6.7. Implications

This research has important implications for literature, subsidiaries, headquarters and policy makers which are explained in the following sections:

6.7.1. Implications for Subsidiaries

In bringing together the fields of international business and subsidiary entrepreneurship the research found a significant synergy in both disciplines (Verbeke et al., 2007), this is the existence of subsidiary entrepreneurial alertness. The positive relationship between SEA and OR, and the respective contribution of subsidiary OR to the MNC has now been empirically demonstrated. Therefore, a shared cognition implemented between subsidiaries on how they can successfully scan and search, associate and connect and evaluate and judge potential opportunities. It is important for the subsidiary to recognize subsidiary entrepreneurial alertness as it also influences performance and innovation. This should also have a significant effect on role development as it declares that subsidiaries although seen to only pursue subsidiary initiatives (Birkinshaw & Fry, 1998), can also increase innovation and their own performance through SEA. Therefore, SEA contributes to the subsidiary in terms of setting a clear model of its opportunity recognition strategy, their strategy to deliver the needs of the headquarters and their own objectives.

This research provides management with insights that if subsidiaries wish to improve their subsidiary entrepreneurial alertness, they need to ensure that they obtain and enhance their credibility, therefore fulfilling the goals of the parent organisation while achieving their own objectives. The study also shows that subsidiaries must bridge structural holes so that they can obtain potential opportunities and gather information and manipulate knowledge to associate to the opportunity to evaluate, whether it has potential and can contribute to the subsidiary entrepreneurial performance. Therefore, the subsidiary must foster a community effort of subsidiary entrepreneurial alertness.

To reiterate the research has important messages for subsidiary managers. These messages are that firstly, establishing SEA is important so they should pay considerable attention to their brokerage position and credibility within the organisation. This is to some extent within their control even if they don’t have

autonomy, so a potential route for constricted subsidiaries. Secondly, that the outcome of SEA is not just innovation but also performance.

6.7.2. Implications for Headquarters

Research on the MNC's structure has consistently examined how the headquarters recognises subsidiary capabilities such as networking and innovation capabilities. Insights gained from our research shows that headquarters who support subsidiary brokerage positions and credibility can maximise the contribution of the subsidiary more to the MNC. It is this increased knowledge of the facilitators of SEA that will extend the subsidiary's ability to enhances its performance and potentially its position and long-term survival within the MNC. Indeed, headquarters can still rely on their subsidiaries to recognise opportunities, hence, attention to brokerage positions and credibility should be paid as by not doing so can inhibit their ability to scan and search as required for SEA. By promoting this entrepreneurial culture, headquarters is, in turn, encouraging more innovation within its subsidiaries. This will also refocus the parent organisation's view of its subsidiary as it is performing more beneficially for the MNC.

Our research shows that the level of autonomy is not a deciding factor to the level of SEA therefore headquarters should embrace subsidiary entrepreneurial alertness as an advantage as it leads to more opportunity recognition and better performance. It also shows that there is no simple answer in terms of the established relationship between subsidiary autonomy and initiatives, as it doesn't hold when considering other important aspects of contribution innovation and performance.

6.7.3. Implications for Policy Makers

The Republic of Ireland relies heavily on foreign direct investment as a source of economic development. As discussed in the research setting section, the I.D.A (Ireland's inward investment promotion agency), a non-commercial semi-state body, promotes FDI into Ireland through partnering with potential and existing investors, helping them to expand or establish their roots in Ireland. The grants and support systems available from the IDA assist with R&D, training etc. This research has found that allocation of a grant within the Republic of Ireland has a positive effect on subsidiary innovation and performance. Therefore, the I.D.A and other grant providers

should continue to enhance current schemes to help businesses. The willingness to support the introduction of new products/services and pursue R&D (Lumpkin & Dess, 2001) can further enhance Ireland's reputation as an attractive country for foreign direct investment.

6.8. Further research

The findings of this research provide a number of valuable contributions to the international business and entrepreneurship literature. However, this study also shows some opportunities for future research. Firstly, as this research was carried out as a single country study, an opportunity for future research would be to extend to other countries. By empirically testing the antecedents of subsidiary entrepreneurial alertness, a more global view of the role of subsidiary entrepreneurial alertness can be explored and also can unfold the impact host and country effects on subsidiaries entrepreneurial capabilities (Miller, 1993; Tallman, 1991, 1992).

Subsidiaries have been identified as a valuable source of entrepreneurship in MNCs (Ambos et al., 2010; Birkinshaw, 1997; Birkinshaw & Ridderstråle, 1999; Delany, 2000). With the development of subsidiary entrepreneurial alertness, there is significant potential to examine other antecedents, such as examining cognitive and behavioral variables (Baron, 2008). The examination of these variables can provide a clearer understanding of other facilitators of SEA.

Entrepreneurial alertness is also linked to creativity and particularly the creativity process. Success in business demands that entrepreneurs and entrepreneurial managers be ever alert to new opportunities and that they exercise imagination and creativity when opportunities come along (Schweizer et al., 2010). This research serves as foundation for future research on opportunities such as understanding other outcomes other than performance and innovation. By examining the relationship between subsidiary entrepreneurial alertness, subsidiary opportunity recognition and innovation, it should be acknowledged that there may be a relationship with creativity also (Ardichvili et al., 2003; Dimov, 2007; Hansen & Hills, 2004; Hills & Shrader, 1998).

To further enrich and develop the fields of international business and entrepreneurship, there is an opportunity to research the link between subsidiary initiatives and subsidiary entrepreneurial alertness. The subsidiary's ability to develop and implement initiatives and how it is achieved, has gathered a wide range of attention for some time (Ambos et al., 2010; Birkinshaw, 1997; Garcia-Pont et al., 2009; Mahnke et al., 2012; O'Brien et al., 2019; Strutzenberger & Ambos, 2014; Tippmann et al., 2018). However, the way in which an initiative begins, literature has failed to show its complexity. The subsidiary entrepreneurial alertness model can provide answers to those seeking to explain the pre-initiative stage (Ardichvili et al., 2003; Baron, 2006; Tang et al., 2012).

Future research could explore subsidiary entrepreneurial alertness through qualitative approaches to see how the process of subsidiary entrepreneurial alertness operates within subsidiaries. A longitudinal study could be beneficial if analyzing more cognitive and behavioral measures. It provides the possibility of examining the micro-foundations of subsidiary entrepreneurial alertness such as its role and the activities of individuals as the interconnectedness of alertness in the process of identifying new opportunities (Hills & Shrader, 1998; Ko & Butler, 2002; Tang et al., 2012).

Finally, the current study has provided a means for future research to examine subsidiary brokerage further. Perhaps subsidiary brokerage may be established especially vis a vis embeddedness which may open a line of enquiry parallel to subsidiary embeddedness. Different degrees of linkages or ties define the extent to which firms are embedded in their environment (Figueiredo & Brito, 2011). Subsidiary embeddedness is in some ways similar to subsidiary brokerage, where subsidiary embeddedness is suggested to be the function of the adaption between the subsidiary and direct and indirect counterparts in its business relationships (Andersson & Forsgren, 1996).

6.9. Concluding Comments

Despite subsidiaries being recognised as a source of new business opportunities, the way in which subsidiaries are alert to opportunities has been overlooked until now. As theory on entrepreneurial activities continues to develop (Barringer & Bluedorn, 1999b; Brown et al., 2001; McMullen et al., 2007; O'Brien et al., 2019), increasing awareness of the role of the subsidiary in recognising opportunities is required. In highly competitive and dynamic environments, it is more important than ever to truly understand the variables that can encourage and influence the subsidiary's ability to be entrepreneurially alert to opportunities.

This research introduces the new concept of subsidiary entrepreneurial alertness, the subsidiary's ability to entrepreneurially alert to opportunities. The study provides several important insights into what contributes to subsidiary entrepreneurial alertness. Integrating both international business and entrepreneurship literature, we identified that the subsidiary's brokerage position and credibility are influential to the organisation being entrepreneurially alert to new opportunities. The research also has empirical evidence to show that there are other outcomes for the subsidiary other than generating initiatives, they can also achieve innovation and contribute to performance while contributing also to the MNC. Therefore, this study moves the literature forward by introducing the theme of subsidiary entrepreneurial alertness, its antecedents and outcomes (Andersson et al., 2002).

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Appendix

Appendix 1: Summary of Hypotheses

Antecedents

Subsidiary Autonomy

Hypothesis 1a: There is a positive relationship between Subsidiary Autonomy and Scanning and Search.

Hypothesis 1b: There is a positive relationship between Subsidiary Autonomy and Association and Connection.

Hypothesis 1c: There is a positive relationship between Subsidiary Autonomy and Evaluation and Judgement.

Value Chain Scope

Hypothesis 2a: There is a positive relationship between Value Chain Scope (Local, Regional or Global) and Scanning and Search.

Hypothesis 2b: There is a positive relationship between Value Chain Scope (Local, Regional or Global) and Association and Connection.

Hypothesis 2c: There is a positive relationship between Value Chain Scope (Local, Regional or Global) and Evaluation and Judgement.

Subsidiary Brokerage

Hypothesis 3a: There is a positive relationship between Subsidiary Brokerage and Scanning and Search.

Hypothesis 3b: *There is a positive relationship between Subsidiary Brokerage and Association and Connection.*

Hypothesis 3c: There is a positive relationship between Subsidiary Brokerage and Evaluation and Judgement.

Subsidiary Credibility

Hypothesis 4a: There is a positive relationship between Subsidiary Credibility and Scanning and Search.

Hypothesis 4b: There is a positive relationship between Subsidiary Credibility and Association and Connection.

Hypothesis 4c: *There is a positive relationship between Subsidiary Credibility and Evaluation and Judgement.*

Outcomes

Subsidiary Opportunity Recognition

Hypothesis 5a: There is a positive relationship between Scanning and Search and Opportunity Recognition.

Hypothesis 5b: There is a positive relationship between Association and Connection and Opportunity Recognition.

Hypothesis 5c: There is a positive relationship between Evaluation and Judgement and Opportunity Recognition.

Innovation

Hypothesis 6: There is a positive relationship between Opportunity Recognition and Innovation.

Relative Performance

Hypothesis 7: There is a positive relationship between Opportunity Recognition and Relative Performance.

Appendix 2: Cover Letter

Seeking Insights on Subsidiary Challeneges and Opportunities

[Date]

Dear

As you are aware the success of foreign subsidiaries operating in Ireland is of great national importance. In response, we are currently undertaking a nation-wide survey of the approaches that Irish subsidiaries take to approaching business opportunities. The aim of the study is to provide valuable insights for practitioners, academics and policy makers.

Success depends entirely on achieving as many responses to the attached survey from subsidiary senior decision makers as possible. Your position as a senior decision maker places you in an ideal position to contribute (responding should take c20 minutes). All responses are *strictly confidential,* completion and return implies consent for inclusion in our research, and only aggregate statistical data will be included in the final report.

We appreciate the value of your time and experience and would be delighted to provide you with a copy of our final report and/or invitation to a series of seminars on the results. For an invitation, or if you have any queries please contact us at (01) 4027193 or email jennifer.dann@dit.ie.

Many thanks Yours Sincerely

_____

Jennifer Dann,

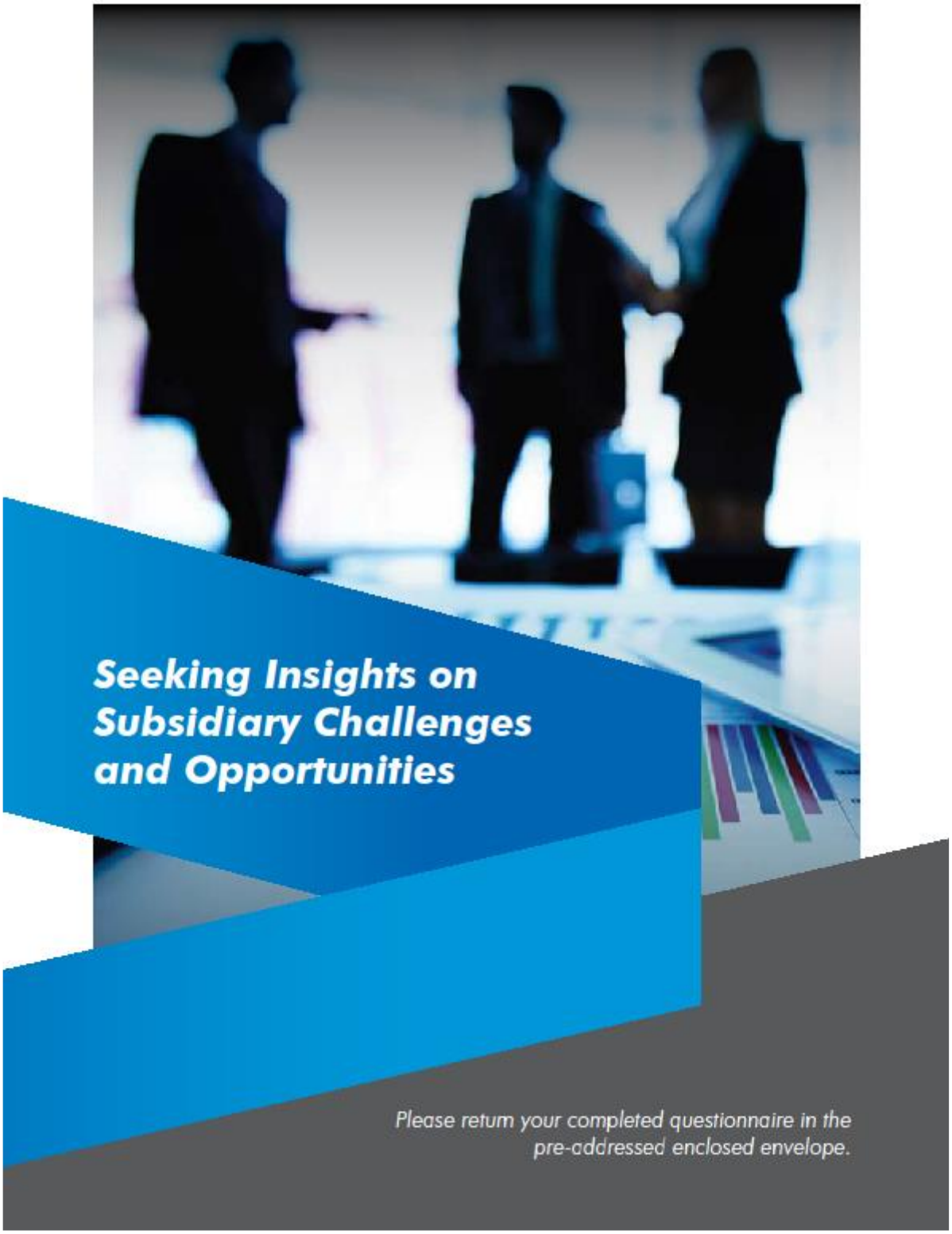
Project Manager and PhD Researcher, DIT

Professor Pamela Sharkey Scott, NUI Maynooth.

Dr Esther Tippmann, UCD.

Dr Anthony Buckley, DIT.

Appendix 3: Questionnaire



Many thanks for taking the time to complete this confidential questionnaire. In appreciation, we would be delighted to provide you with a summary of our findings (just attach your business card).

Job Title: _____ No. of Years Position Held: _____

No. of Full Time Employees (Subsidiary): _____ No. of Full Time Employees (Parent): _____

Parent Location: _____

Subsidiary originally established as (please tick): ☐ Greenfield site ☐ Through acquisition

Industry sector (subsidiary): _____ Industry sector (parent): _____

Q1 To what extent do the following statements apply to people working within your subsidiary? *(please circle response)*

	Strongly disagree			Neutral			Strongly agree
We have frequent interactions with others outside our subsidiary to acquire new information	1	2	3	4	5	6	7
When facing multiple opportunities, we select the good ones	1	2	3	4	5	6	7
We see links between seemingly unrelated pieces of information	1	2	3	4	5	6	7
We always keep an eye out for new business opportunities when looking for information	1	2	3	4	5	6	7
We have a knack for telling high-value opportunities apart from low-value opportunities	1	2	3	4	5	6	7
We are good at connecting seemingly unrelated information	1	2	3	4	5	6	7
People in our subsidiary are constantly reading news, magazines, or trade publications to acquire new information	1	2	3	4	5	6	7
We can distinguish between profitable opportunities and not-so-profitable opportunities	1	2	3	4	5	6	7
We often see connections between previously unconnected domains of information	1	2	3	4	5	6	7
We browse the internet every day for information	1	2	3	4	5	6	7
We have an instinct for potential opportunities	1	2	3	4	5	6	7
We are avid information seekers and actively look for new information	1	2	3	4	5	6	7

Q2 Which level in your business unit has the authority to make the following decisions? *(please tick response)*

	Decision is taken in your subsidiary	Decision is taken at sub-corporate level	Decision is taken by corporate headquarters
Changes in product/ service/ process design	☐	☐	☐
Subcontracting out of large portions of subsidiary business activities instead of expanding inhouse	☐	☐	☐
Switching to a new product/ service/ process	☐	☐	☐

Q3 Please indicate the geographic scope of your subsidiary's functional activities: *(please tick N/A if not applicable to your subsidiary)*

	Local	Regional	Global	N/A
Raw materials procurement	☐	☐	☐	☐
Research and development	☐	☐	☐	☐
Manufacturing operations	☐	☐	☐	☐
Product distribution	☐	☐	☐	☐
Promotion and advertising	☐	☐	☐	☐
Sales activities	☐	☐	☐	☐
Customer service	☐	☐	☐	☐

Q4 For the overall business activities of your subsidiary please indicate your agreement with the following statements: *(please circle response)*

	Strongly disagree			Neutral			Strongly agree
	▼	▼	▼	▼	▼	▼	▼
While going about day to day activities, we see potential new opportunities all round us (even though we may not pursue these)	1	2	3	4	5	6	7
Our subsidiary has a particular sensitivity for recognising new opportunities	1	2	3	4	5	6	7
Seeing potential new opportunities does not come very naturally to us	1	2	3	4	5	6	7
Identifying solutions/ products/ services or processes that do not currently exist comes easy for us	1	2	3	4	5	6	7
We can easily recognise opportunities to increase subsidiary revenues or profitability	1	2	3	4	5	6	7
We have a strong ability for identifying what our customers want	1	2	3	4	5	6	7
We have an instinct for finding new approaches to how we do things	1	2	3	4	5	6	7
Our subsidiary constantly explores or builds possibilities for new solutions/ products/ services or processes	1	2	3	4	5	6	7
Our subsidiary constantly constructs new possibilities for how we do things	1	2	3	4	5	6	7
Our subsidiary constantly looks for ways to improve and innovate what we do	1	2	3	4	5	6	7

Q5 Please rate your subsidiary's capability to generate the following types of innovations in products/ services/ processes relative to other similar subsidiaries within your MNC: *(please circle response)*

	Significantly worse than other subsidiaries			About the same			Significantly better than other subsidiaries
	▼	▼	▼	▼	▼	▼	▼
Innovations that reinforce your subsidiary's prevailing products / services / processes	1	2	3	4	5	6	7
Innovations that reinforce your subsidiary's existing expertise	1	2	3	4	5	6	7
Innovations that reinforce how we currently compete	1	2	3	4	5	6	7
Innovations that make your subsidiary's prevailing products / services / processes obsolete	1	2	3	4	5	6	7
Innovations that fundamentally change my subsidiary's prevailing products / services / processes	1	2	3	4	5	6	7
Innovations that make your existing expertise in prevailing products/services obsolete	1	2	3	4	5	6	7

Q6 Please evaluate your subsidiary's performance relative to similar subsidiaries within your MNC: *(please circle response)*

	Significantly worse than similar subsidiaries			About the same			Significantly better than similar subsidiaries
Productivity achieved	1	2	3	4	5	6	7
Quality of product, process or service	1	2	3	4	5	6	7
Relationships with suppliers	1	2	3	4	5	6	7
Cost of labour	1	2	3	4	5	6	7
Improvement of productivity	1	2	3	4	5	6	7
Use of technology	1	2	3	4	5	6	7
New business development	1	2	3	4	5	6	7

Q7 To what extent has the following occurred or is expected to occur in your subsidiary? Please think about each question in relation to the subsidiary impact and its MNC wide impact. *(please circle response)*

	SUBSIDIARY IMPACT							MNC WIDE IMPACT						
	Not at all			To some extent			To a very large extent	Not at all			To some extent			To a very large extent
	Over the last five years							Over the last five years						
New products/ services developed by our subsidiary	1	2	3	4	5	6	7	1	2	3	4	5	6	7
	In the next five years							In the next five years						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
	Over the last five years							Over the last five years						
Successful bids by our subsidiary for new corporate investments in this country	1	2	3	4	5	6	7	1	2	3	4	5	6	7
	In the next five years							In the next five years						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
	Over the last five years							Over the last five years						
New business activities that were first started by our subsidiary	1	2	3	4	5	6	7	1	2	3	4	5	6	7
	In the next five years							In the next five years						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Q8 To what extent do the following apply to your subsidiary? *(please circle response)*

	Not at all			To some extent			To a very large extent
We have a history of delivering what we have promised to our corporation	1	2	3	4	5	6	7
We make a significant value adding contribution to our corporation	1	2	3	4	5	6	7
We are globally competitive in our area of operation	1	2	3	4	5	6	7
We are regarded by our parent corporation as a strategically important subsidiary	1	2	3	4	5	6	7

Q9 Please indicate the extent to which you agree with the following statements for your subsidiary: *(please circle response)*

	Strongly disagree			Neutral			Strongly agree
Our subsidiary is the primary link that connects different people in the organisation to each other	1	2	3	4	5	6	7
By studying existing competitors, our subsidiary is more accurate in predicting when other competitors might enter new markets	1	2	3	4	5	6	7
Our subsidiary has many contacts externally that no other unit of the organisation maintains	1	2	3	4	5	6	7
If we were in control, our subsidiary's skills would be the most important determinant of success when pursuing a new opportunity	1	2	3	4	5	6	7
Our subsidiary has many contacts within the corporation that are unconnected to others within the MNC	1	2	3	4	5	6	7
Our subsidiary could succeed at making new business opportunities a success even where many other subsidiaries would fail	1	2	3	4	5	6	7
Our subsidiary is the main 'bridge' that links otherwise unconnected internal or external groups	1	2	3	4	5	6	7
Our subsidiary can accurately predict total market demand for a new opportunity	1	2	3	4	5	6	7
Our subsidiary is the corporation's primary link to many contacts in the external environment	1	2	3	4	5	6	7
As we gain more experience at predicting market demand, our subsidiary becomes more accurate in predicting the total demand for a new opportunity	1	2	3	4	5	6	7

Q10 Please indicate the impact of external businesses on how your subsidiary has adapted its: *(please circle response)*

	Very little			Some			Very much
Product/ service technology	1	2	3	4	5	6	7
Production technology	1	2	3	4	5	6	7
Standard operating procedures	1	2	3	4	5	6	7
Business practices	1	2	3	4	5	6	7

Q11 Please indicate the impact of external businesses on how your subsidiary has adapted its: *(please circle response)*

	Not at all			To some extent			To a very large extent
Our subsidiary's work is ORIGINAL and PRACTICAL. Original and practical work refers to developing approaches, methods, products/ services or solutions that are both totally unique and especially useful to the corporation	1	2	3	4	5	6	7
Our subsidiary's work is ADAPTIVE and PRACTICAL. Adaptive and practical work refers to using existing information or materials to develop approaches, methods, products/ services or solutions that are useful to the corporation	1	2	3	4	5	6	7
Our subsidiary's work is CREATIVE. Creativity refers to the extent to which the subsidiary develops approaches, methods, products/ services or solutions that are both original and useful to the corporation	1	2	3	4	5	6	7

Q12 Please indicate the extent to which you agree with the following statements for your subsidiary: *(please circle response)*

	Strongly disagree			Neutral			Strongly agree
Overall this subsidiary would view the option of pursuing a new business opportunity as something positive	1	2	3	4	5	6	7
We would see the overall riskiness of pursuing a new business opportunity as high	1	2	3	4	5	6	7
In uncertain times, this subsidiary usually expects the best	1	2	3	4	5	6	7
This subsidiary sees the possibility of developing a new product/ service or process as a potential opportunity to pursue	1	2	3	4	5	6	7
This subsidiary is always optimistic about its future	1	2	3	4	5	6	7
Overall, we expect more good things to happen to this subsidiary than bad	1	2	3	4	5	6	7
If this subsidiary wasn't innovative, it would be missing great opportunities	1	2	3	4	5	6	7
If something can go wrong for this subsidiary, it will go wrong	1	2	3	4	5	6	7
We hardly ever expect things to go our subsidiary's way	1	2	3	4	5	6	7
The probability of a new product/ service or process introduced by our subsidiary doing poorly is very high	1	2	3	4	5	6	7
There is great uncertainty when predicting how well a new product, process or service will do	1	2	3	4	5	6	7
We would consider developing a new product/ service or process as very risky	1	2	3	4	5	6	7
We rarely count on good things happening to our subsidiary	1	2	3	4	5	6	7
This subsidiary sees the possibility of developing a new product/service or process as a potential loss	1	2	3	4	5	6	7

Q13 For the primary market served by your subsidiary (external or within the MNC), to what extent do you agree with the following: *(please circle response)*

	Strongly disagree			Neutral			Strongly agree
Environmental changes in our primary market(s) are intense	1	2	3	4	5	6	7
Our clients regularly ask for new products and services	1	2	3	4	5	6	7
In our primary market(s), changes are taking place continuously	1	2	3	4	5	6	7
In a year, nothing has changed in our primary market(s)	1	2	3	4	5	6	7
In our primary market(s), the volumes of products and services to be delivered change fast and often	1	2	3	4	5	6	7

Q14 Please indicate the extent to which the following statement describes your subsidiary: *(please circle response)*

	Not at all			To some extent			To a very large extent
	▼	▼	▼	▼	▼	▼	▼
This subsidiary is strong enough to overcome most challenges	1	2	3	4	5	6	7
This subsidiary can handle obstacles that come along	1	2	3	4	5	6	7
This subsidiary is usually successful	1	2	3	4	5	6	7
This subsidiary can deal with operating in the real world	1	2	3	4	5	6	7
This subsidiary can usually handle difficulties that arise	1	2	3	4	5	6	7
This subsidiary finds it difficult to overcome challenges	1	2	3	4	5	6	7

Q15 *Please indicate the extent to which you agree with the following statements: (please circle response)*

	Not at all			To some extent			To a very large extent
	▼	▼	▼	▼	▼	▼	▼
This subsidiary relies only on its previous experience to direct its next moves	1	2	3	4	5	6	7
This subsidiary forecasts changes in its revenue based primarily on recent trends	1	2	3	4	5	6	7
This subsidiary considers that its input is the most important source for directing headquarters regarding future investments in this country	1	2	3	4	5	6	7
This subsidiary is certain that it can overcome any negative event	1	2	3	4	5	6	7
This subsidiary is positive that it has the ability to succeed in any challenge	1	2	3	4	5	6	7

If you have anything you would like to add

Thank you very much for your time. As we said at the very start, we would be delighted to provide you with our findings if you attach a business card or provide your contact information.

Appendix 4: Harman's One Factor Test - Antecedents

Total Variance Explained						
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.513	18.782	18.782	6.823	17.058	17.058
2	3.303	8.259	27.041			
3	2.463	6.158	33.199			
4	2.145	5.363	38.562			
5	1.981	4.952	43.514			
6	1.826	4.566	48.080			
7	1.523	3.806	51.886			
8	1.396	3.490	55.376			
9	1.354	3.386	58.762			
10	1.253	3.133	61.895			
11	1.158	2.896	64.790			
12	1.122	2.805	67.596			
13	1.013	2.533	70.129			
14	.963	2.408	72.536			
15	.935	2.336	74.873			
16	.829	2.073	76.946			
17	.776	1.940	78.886			
18	.688	1.719	80.606			
19	.651	1.626	82.232			
20	.614	1.535	83.767			
21	.608	1.520	85.287			
22	.571	1.429	86.716			
23	.535	1.337	88.053			
24	.488	1.220	89.273			
25	.478	1.195	90.468			
26	.432	1.081	91.549			
27	.384	.960	92.510			
28	.356	.889	93.399			
29	.335	.837	94.236			
30	.302	.754	94.990			
31	.293	.733	95.724			
32	.276	.691	96.415			
33	.236	.590	97.005			
34	.228	.570	97.576			

35	.203	.507	98.083			
36	.189	.472	98.555			
37	.175	.438	98.993			
38	.173	.433	99.426			
39	.126	.315	99.740			
40	.104	.260	100.000			
Extraction Method: Principal Axis Factoring.						

Appendix 5: Harman's One Factor Test – Outcomes

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.005	20.524	20.524	7.279	18.665	18.665
2	3.175	8.142	28.666			
3	2.586	6.630	35.296			
4	2.078	5.329	40.625			
5	1.813	4.648	45.273			
6	1.697	4.351	49.625			
7	1.491	3.824	53.449			
8	1.333	3.418	56.867			
9	1.246	3.195	60.062			
10	1.221	3.131	63.193			
11	1.115	2.859	66.052			
12	1.033	2.649	68.701			
13	.893	2.290	70.991			
14	.881	2.259	73.250			
15	.851	2.181	75.431			
16	.807	2.068	77.499			
17	.786	2.015	79.514			
18	.745	1.911	81.426			
19	.678	1.739	83.165			
20	.620	1.591	84.755			
21	.583	1.494	86.249			
22	.528	1.355	87.604			
23	.494	1.266	88.870			
24	.463	1.186	90.056			
25	.423	1.085	91.141			
26	.394	1.010	92.151			
27	.364	.934	93.085			
28	.335	.858	93.943			
29	.329	.843	94.786			
30	.290	.743	95.529			
31	.278	.713	96.242			
32	.265	.680	96.923			
33	.244	.625	97.548			
34	.215	.550	98.098			

35	.187	.480	98.578			
36	.176	.451	99.029			
37	.168	.430	99.459			
38	.122	.312	99.771			
39	.089	.229	100.000			
Extraction Method: Principal Axis Factoring.						

Appendix 6: Harman's one factor test for combined models

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.820	16.642	16.642	8.064	15.215	15.215
2	3.916	7.389	24.031			
3	3.008	5.675	29.706			
4	2.733	5.157	34.863			
5	2.424	4.574	39.436			
6	2.010	3.793	43.229			
7	1.892	3.571	46.800			
8	1.759	3.319	50.119			
9	1.645	3.103	53.222			
10	1.481	2.794	56.016			
11	1.436	2.710	58.726			
12	1.316	2.483	61.209			
13	1.241	2.341	63.550			
14	1.172	2.212	65.762			
15	1.137	2.145	67.907			
16	1.091	2.059	69.966			
17	1.025	1.935	71.901			
18	1.005	1.897	73.798			
19	.966	1.823	75.621			
20	.923	1.742	77.362			
21	.857	1.616	78.979			
22	.765	1.444	80.423			
23	.712	1.343	81.766			
24	.707	1.333	83.099			
25	.664	1.253	84.352			
26	.622	1.173	85.526			
27	.576	1.086	86.612			
28	.563	1.062	87.673			
29	.544	1.026	88.700			
30	.496	.935	89.635			
31	.446	.841	90.476			
32	.412	.777	91.253			
33	.407	.769	92.022			
34	.359	.677	92.699			

35	.345	.651	93.350			
36	.334	.630	93.980			
37	.321	.606	94.586			
38	.296	.558	95.144			
39	.275	.520	95.663			
40	.271	.511	96.174			
41	.247	.466	96.640			
42	.234	.442	97.082			
43	.227	.428	97.510			
44	.205	.387	97.898			
45	.186	.350	98.248			
46	.176	.332	98.580			
47	.158	.299	98.879			
48	.134	.252	99.131			
49	.121	.229	99.360			
50	.102	.192	99.552			
51	.090	.170	99.722			
52	.079	.150	99.871			
53	.068	.129	100.000			
Extraction Method: Principal Axis Factoring.						

Appendix 7: Correlation Matrix

Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Scanning & Search														
2. Association & Connection	**.611****													
3. Evaluation & Judgement	**.453****	**.399****												
4. Subsidiary Autonomy	-0.137	-0.074	-0.158											
5. Subsidiary Credibility	**.251****	**.186***	**.248****	0.034										
6. Subsidiary Brokerage	0.163	**.267****	0.117	-0.181	**.378****									
7. Opportunity Recognition	**.456****	**.361****	**.465****	**-.206***	**.231***	**.200***								
8. Innovation	**.195***	**.337****	0.155	-0.025	**.243****	**.258****	**.218***							
9. Relative Performance	**.250****	**.249****	**.254****	-0.031	**.387****	**.329****	**.358****	**.380****						
10. Environmental Dynamism	**.259****	0.103	**.284****	-0.115	0.051	0.027	0.166	**.323****	**.280****					
11. Subsidiary Size (Log)	0.129	0.168	0.140	-0.062	**.309****	0.102	**.216***	**.190***	**.190***	0.039				
12. Mode of Establishment	0.111	-0.086	0.098	**-.230***	0.076	-0.081	-0.025	-0.136	-0.035	-0.027	0.165			
13. Grant Holder	0.008	-0.010	**-.192***	0.129	**.254****	0.160	0.029	**.258****	0.130	-0.102	0.139	**-.186***		
14. Marker Variable	0.121	0.092	0.144	-0.123	**.263****	**.383****	**.226***	0.153	**.269****	-0.053	0.133	-0.073	0.157	

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

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 8: Multicollinearity Assessment - Antecedents

	Scanning and Search	Association and Connection	Evaluation and Judgement
Subsidiary Autonomy	1.144	1.144	1.144
Subsidiary Brokerage	1.247	1.247	1.247
Subsidiary Credibility	1.292	1.292	1.292
Value Chain Scope	1.109	1.109	1.109
Environmental Dynamism	1.061	1.061	1.061
Grant Holder	1.187	1.187	1.187
Mode of Establishment	1.175	1.175	1.175
Subsidiary Size	1.163	1.163	1.163

Appendix 9: Multicollinearity Assessment - Outcomes

	Opportunity Recognition	Innovation	Relative Performance
Scanning and Search	2.158	0	0
Association and Connection	1.788	0	0
Evaluation and Judgement	1.596	0	0
Opportunity Recognition	0	1.158	1.158
Innovation	0	0	0
Relative Performance	0	0	0
Subsidiary Size	1.068	1.097	1.097
Grant Holder	1.064	1.034	1.034
Environmental Dynamism	1.143	1.09	1.09

Appendix 10 Antecedent items assessment

Before Item Drop			***After Item Drop***		
Constructs	**Item**	**Loadings**	**Constructs**	**Item**	**Loadings**
Scanning & Search CR = 0.807 AVE = 0.469	Al_1_interations	0.410	**Scanning & Search** CR = 0.828 AVE = 0.551	Al_1_interations	~
	Al_4_eyeout	0.647		Al_4_eyeout	0.675
	Al_7_magazines	0.767		Al_7_magazines	0.797
	Al_10_internet	0.626		Al_10_internet	0.597
	Al_12_avidseekers	0.882		Al_12_avidseekers	0.871
Association & Connection CR = 0.905 AVE = 0.760			**Association & Connection** CR = 0.905 AVE = 0.760		
	Al_3_links	0.869		Al_3_links	0.866
	Al_6_connecting	0.849		Al_6_connecting	0.851
	Al_9_unconnected	0.897		Al_9_unconnected	0.898
Evaluation & Judgement CR = 0.836 AVE = 0.563			**Evaluation & Judgement** CR = 0.836 AVE = 0.562		
	Al_2_good_ones	0.680		Al_2_good_ones	0.675
	Al_5_knack	0.839		Al_5_knack	0.843
	Al_8_distinguish	0.805		Al_8_distinguish	0.801
	Al_11_instinct	0.661		Al_11_instinct	0.665

Before Item Drop			***After Item Drop***		
Constructs	**Item**	**Loadings**	**Constructs**	**Item**	**Loadings**
Subsidiary Autonomy CR = 0.840 AVE =0.637	Au_1_changes	0.774	**Subsidiary Autonomy** CR = 0.840 AVE =0.637	Au_1_changes	0.774
	Au_2_subcontracting	0.775		Au_2_subcontracting	0.783
	Au_3_switching	0.844		Au_3_switching	0.837
Subsidiary Brokerage CR = 0.782 AVE = 0.453	Brok_1_primarylink	0.735	**Subsidiary Brokerage** CR = 0.878 AVE = 0.707	Brok_1_primarylink	0.777
	Brok_2_contacts_no_otherunit	0.355		Brok_2_contacts_no_otherunit	~
	Brok_3_unconnectedcontacts	0.308		Brok_3_unconnectedcontacts	~
	Brok_4_bridge	0.902		Brok_4_bridge	0.917
	Brok_5_linkexternally	0.831		Brok_5_linkexternally	0.823
Subsidiary Credibility CR = 0.849 AVE = 0.584	Crd_1_history	0.736	**Subsidiary Credibility** CR = 0.849 AVE = 0.584	Crd_1_history	0.734
	Crd_2_valuetocorp	0.770		Crd_2_valuetocorp	0.770
	Crd_3_competitive	0.782		Crd_3_competitive	0.783
	Crd_4_regardednb	0.768		Crd_4_regardednb	0.769
Environmental Dynamism CR=0.782 AVE = 0.432	Ed_1_intensechange	0.608	**Environmental Dynamism** CR = 0.804 AVE = 0.512	Ed_1_intensechange	0.603
	Ed_2_clientsregularlyask	0.663		Ed_2_clientsregularlyask	0.662
	Ed_3_changecontinuously	0.863		Ed_3_changecontinuously	0.873
	Ed_4r_nothingchanged	0.681		Ed_4r_nothingchanged	0.695
	Ed_5_volumesfast	0.374		Ed_5_volumesfast	~
Value chain score	CR = 1; AVE = 1		**Value chain score**	CR = 1; AVE = 1	
Mode	CR = 1; AVE = 1		**Mode**	CR = 1; AVE = 1	
Grant holder	CR = 1; AVE = 1		**Grant holder**	CR = 1; AVE = 1	
Subsidiary Size	CR = 1; AVE = 1		**Subsidiary Size**	CR = 1; AVE = 1	

Appendix 11: Outcome items assessment

Before Item Drop			***After Item Drop***		
Construct	**Item**	**Loadings**	**Construct**	**Item**	**Loadings**
Scanning & Search CR = 0.812 AVE = 0.475	Al_1_interations	0.408	**Scanning & Search** CR = 0.834 AVE = 0.559	Al_1_interations	~
	Al_4_eyeout	0.680		Al_4_eyeout	0.709
	Al_7_magazines	0.744		Al_7_magazines	0.769
	Al_10_internet	0.691		Al_10_internet	0.665
	Al_12_avidseekers	0.847		Al_12_avidseekers	0.837
Association & Connection CR = 0.906 AVE = 0.763			**Association & Connection** CR = 0.906 AVE = 0.763		
	Al_3_links	0.876		Al_3_links	0.875
	Al_6_connecting	0.870		Al_6_connecting	0.865
	Al_9_unconnected	0.874		Al_9_unconnected	0.880
Evaluation & Judgement CR = 0.830 AVE = 0.552	Al_2_good_ones	0.606	**Evaluation & Judgement** CR = 0.829 AVE = 0.552	Al_2_good_ones	0.599
	Al_5_knack	0.829		Al_5_knack	0.834
	Al_8_distinguish	0.756		Al_8_distinguish	0.761
	Al_11_instinct	0.764		Al_11_instinct	0.757
Opportunity Recognition CR = 0.756 AVE =0.431	OR_1_day2day	0.731	**Opportunity Recognition** CR = 0.843 AVE =0.519	OR_1_day2day	0.734
	OR_2_sensitivity	0.815		OR_2_sensitivity	0.823
	OR_3_seeing	-0.517		OR_3_seeing	~
	OR_4_comeseasy	0.529		OR_4_comeseasy	~
	OR_5_revenues	0.706		OR_5_revenues	0.718
	OR_6_customers	0.663		OR_6_customers	0.694
	OR_7_instinct	0.580		OR_7_instinct	0.620

Before Item Drop			***After Item Drop***		
Construct	**Item**	**Loadings**	**Construct**	**Item**	**Loadings**
Innovation CR = 0.837 AVE = 0.464	Inn_1_prevailingpsp	0.776	**Innovation** CR=0.837 AVE = 0.515	Inn_1_prevailingpsp	0.828
	Inn_2_expertise	0.756		Inn_2_expertise	0.818
	Inn_3_currentlycompete	0.707		Inn_3_currentlycompete	0.770
	Inn_4_prevailingobsolete	0.597		Inn_4_prevailingobsolete	0.527
	Inn_5_changepsp	0.666		Inn_5_changepsp	0.591
	Inn_6_expertiseobsolete	0.558		Inn_6_expertiseobsolete	~
Relative Performance CR=0.777 AVE =0.342	Rp_1_productivity	0.704	**Relative Performance** CR=0.801 AVE =0.574	Rp_1_productivity	0.798
	Rp_2_quality	0.521		Rp_2_quality	~
	Rp_3_suppliers	0.363		Rp_3_suppliers	~
	Rp_4_labour	0.582		Rp_4_labour	~
	Rp_5_prodimprove	0.750		Rp_5_prodimprove	0.784
	Rp_6_technology	0.592		Rp_6_technology	0.686
	Rp_7_busdev	0.492		Rp_7_busdev	~
Environmental Dynamism CR=0.781 AVE = 0.422	Ed_1_intensechange	0.683	**Environmental Dynamism** CR=0.802 AVE = 0.505	Ed_1_intensechange	0.646
	Ed_2_clientsregularlyask	0.701		Ed_2_clientsregularlyask	0.749
	Ed_3_changecontinuously	0.756		Ed_3_changecontinuously	0.798
	Ed_4r_nothingchanged	0.531		Ed_4r_nothingchanged	0.636
	Ed_5_volumesfast	0.544		Ed_5_volumesfast	~
Grant Holder	CR = 1; AVE = 1		**Grant Holder**	CR = 1; AVE = 1	
Subsidiary Size	CR = 1; AVE = 1		**Subsidiary Size**	CR = 1; AVE = 1	

Appendix 12: Original Scales Adapted to Subsidiary Perspective

Appendix 12.1: Subsidiary Entrepreneurial Alertness

Survey Measure No. 1 - Alertness Adopted From: Tang, J., Kacmar, K.M.M. and Busenitz, L., 2012. Entrepreneurial alertness in the pursuit of new opportunities. Journal of Business Venturing, 27(1), pp.77-94. Question: For the overall business activities of your subsidiary please indicate your agreement with the following statements: (Please circle response)					
Original Items	Adopted to Subsidiary Perspective	**Survey No:**	**Dimension**	**Scale**	**Original Scale**
I have frequent interactions with others to acquire new information.	We have frequent interactions with others outside our organisation to acquire new information	**1**	Scanning & Search	7 Point Likert 1=Strongly agree, 4=Neutral, 7=Strongly Agree	5 point Likert 1=Stongle disagree to 5 = strongly disagree
I always keep an eye out for new business ideas when looking for information.	We always keep an eye out for new business opportunities when looking for information	**4**	Scanning & Search	**Notes**	
I read news, magazines, or trade publications regularly to acquire new information.	People in our subsidiary are constantly reading news, magazines, or trade publications to acquire new information	**7**	Scanning & Search	To capture the subsidiary context we changed I to we.	
I browse the Internet every day.	We browse the Internet every day for information	**10**	Scanning & Search	After tang completed factor analysis from the original 23 items was downsized to 15items. After MSA (measure of sampling adequacy test and principal axis factoring another 2 items were eliminated)	
I am an avid information seeker.	We are avid information seekers and actively look for new information		Scanning & Search		
I am always actively looking for new information. .		**12**	Scanning & Search		
I see links between seemingly unrelated pieces of information.	We see links between seemingly unrelated pieces of information	**3**	Association & Connection		
I am good at "connecting dots."	We are good at connecting dots with seemingly unrelated information	**6**	Association & Connection		
I often see connections between previously unconnected domains of information. .	We often see connections between previously unconnected domains of information	**9**	Association & Connection		
I have a gut feeling for potential opportunities.	We have an instinct for potential opportunities	**11**	Evaluation and Judgement		
I can distinguish between profitable opportunities and not-so-profitable opportunities.	We can distinguish between profitable opportunities and not-so-profitable opportunities	**8**	Evaluation and Judgement		
I have a knack for telling high-value opportunities apart from low-value opportunities.	We have a knack for telling high-value opportunities apart from low-value opportunities	**5**	Evaluation and Judgement		
When facing multiple opportunities, I am able to select the good ones.	When facing multiple opportunities, we select the good ones	**2**	Evaluation and Judgement		

Appendix 12.2: Subsidiary Autonomy

Survey Measure No. 2 – Subsidiary Autonomy Adopted From: Birkinshaw, J., Hood, N. and Jonsson, S., 1998. Building firm-specific advantages in multinational corporations: the role of subsidiary initiative. *Strategic Management Journal*, *19*(3), pp.221-242. Question: Which level in your business unit has authority to make the following decisions? Circle the most appropriate decision level based on the following				
Original Items	Adopted to Subsidiary Perspective	**Survey No:**	**Scale**	**Original Scale**
Changes in product design	Changes in product /service /process design	**1**	1 = Decision made in the subsidiary company; 2 = decision made at the sub corporate level; 3 = decision made at the corporate headquarters	1 = Decision made in the subsidiary company; 2 = decision made at the sub corporate level; 3 = decision made at the corporate headquarters
Subcontracting out large portions of the manufacturing instead of expanding the subsidiary's own facilities	Subcontracting out large portionsof subsidiary business activities instead of expanding inhouse	**2**	**Notes**	
Switching to a new manufacturing process	Switching to a new product/ service/ process	**3**	Birkinshaw et al explains that Subsidiary autonomy. A 7-item scale was taken from Roth and Morrison (1992) that asked subsidiary managers to identify whether certain decisions were made in the subsidiary, divisional level, or head office. During the PLS analysis four of the items were dropped because they loaded very weakly on the construct, leaving three items	

Appendix 12.3: Value Chain Scope

Survey Measure No. 3 – Value Chain Scope Adopted From: Ambos, T.C., Andersson, U. and Birkinshaw, J., 2010. What are the consequences of initiative-taking in multinational subsidiaries? *Journal of international business studies*, *41*(7), pp.1099-1118. Question: Please indicate which of the following functional activities the subsidiary is engaged in and for what geographic scope: (Please tick response)				
Original Items	Adopted to Subsidiary Perspective	**Survey No:**	**Scale**	**Original Scale**
Raw materials procurement	Raw materials procurement	**1**	1 = activity not performed by subsidiary, 2 = performed in single country, 3 = performed in multiple country locations	1 = Local, 2 = Regional, 3 = Global, 4 = N/A
Research and development	Research and development	**2**		
Manufacturing operations	Manufacturing operations	**3**		
Product distribution	Product distribution	**4**	**Notes**	
Promotion and advertising	Promotion and advertising	**5**	The geographic scope was adopted from Birkinshaw and Morrison 1995 article where they measure value scope. We applied 4 categorised to understand where the activity was directed towards	
Sales activities	Sales activities	**6**		
Customer service		**N/A**		

Appendix 12.4: Opportunity Recognition

Survey Measure No. 4 – Opportunity Recognition

Based on : Baron, R.A. and Ensley, M.D., 2006. Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs. *Management science*, *52*(9), pp.1331-1344.
Ozgen, E. and Baron, R.A., 2007. Social sources of information in opportunity recognition: Effects of mentors, industry networks, and professional forums. *Journal of business venturing*, *22*(2), pp.174-92.
Question: For the overall business activities of your subsidiary please indicate your agreement with the following statements: (please circle response)

Items	Based on:	Survey No:	Scale	Original Scale
While going about day-to-day activities, we see potential new ideas all around us (even though we may not pursue them)	Ozgen and Baron 2007	**1**	7 point Likert ranging from 1 = Strongly disagree 4 = neutral 7 = strongly disagree.	7-point Likert-type scale (1 = Absolutely disagree;4 = neither agree or disagree; 7 = Absolutely agree
Our subsidiary has a special sensitivity toward recognizing new opportunities	Ozgen and Baron 2007	**2**		
Seeing potential new opportunities does not come very naturally to us (reverse coded)	Ozgen and Baron 2007	**3**		
Identifying solutions/products/ processes and services that do not currently exist comes easy for us	Additional items based on entrepreneurial pattern recognition per Baron and Ensley, 2006	**4**	**Notes**	
We can easily recognize opportunities to increase subsidiary revenues or profitability	Additional items based on entrepreneurial pattern recognition per Baron and Ensley, 2007	**5**	Items were created based on Ozgen and Baron (2007) and Baron and Ensley (2009) opportunity recognition articles, we created the items to ensure the subsidiary's perspective was captured	
We have a strong ability for identifying what our customers want.	Additional items based on entrepreneurial pattern recognition per Baron and Ensley, 2008	**6**		
We have a gut feel for finding new approaches to doing things.	Additional items based on entrepreneurial pattern recognition per Baron and Ensley, 2009	**7**		

Appendix 12.5: Innovation

Survey Measure No. 5 – Innovation Adopted from Subramaniam, M. and Youndt, M.A., 2005. The influence of intellectual capital on the types of innovative capabilities. *Academy of Management journal*, *48*(3), pp.450-463. Mol, M.J. and Birkinshaw, J., 2009. The sources of management innovation: When firms introduce new management practices. *Journal of business research*, *62*(12), pp.1269-1280. Question: Please rate your subsidiary's capability to generate the following types of innovations in products/ services/ processes relative to other similar subsidiaries within you MNC: (please circle response)			
Items		**Survey No:**	**Scale**
Innovations that reinforce your prevailing product/ service lines.	**Incremental Innovative Capability**	**1**	7 point Likert ranging from 1=Significantly worse than other subsidiaries 4= about the same 7=significantly better than other subsidiaries
Innovations that reinforce your existing expertise in prevailing products/services.		**2**	
Innovations that reinforce how you currently compete.		**3**	
Innovations that make your prevailing product/service lines obsolete.	**Radical Innovative Capability**	**4**	
Innovations that fundamentally change your prevailing products/services.		**5**	
Innovations that make your existing expertise in prevailing products/services obsolete.		**6**	

Appendix 12.6: Performance

Survey Measure No. 6 – Performance (Relative)

Adopted from Birkinshaw, J., Hood, N. and Young, S., 2005. Subsidiary entrepreneurship, internal and external competitive forces, and subsidiary performance. *International business review*, *14*(2), pp.227-248.

Question Please evaluate your subsidiary's performance relative to similar subsidiaries within your MNC: (please circle response)

Items	Original Items	Survey No:	Scale
Productivity Achieved	Productivity	1	7 point Likert ranging from 1=Significantly worse than other subsidiaries 4= about the same 7 = significantly better than other subsidiaries
Quality of Product, Process or Service	Quality	2	
Relationships with Suppliers	Supplier Relationships	3	
Cost of Labour	Labour Costs	4	**Notes**
Improvement of Productivity	Productivity Improvement	5	Measure adopted and small changes to the wording
Use of Technology	Technology	6	
New Business Development	Customer Development	7	

Appendix 12.7: Subsidiary Credibility

Survey Measure No. 7 - Subsidiary Credibility

Adopted from Birkinshaw, J., 1999. The determinants and consequences of subsidiary initiative in multinational corporations. *Entrepreneurship theory and practice*, *24*(1), pp.9-36.

Question: To what extent do the following apply to your subsidiary? (please circle response)

Items	Original Items	**Survey No:**	**Scale**	**Original Scale**
We have a history of delivering what we have promised to our corporation	The subsidiary has a history of delivering what is promised to the parent organisation	**1**	7 point likert range 1= Not at all, 4= to some extent, 7 to a large extent.	1 = strongly disagree; 7 strongly agree
We make a significant value adding contribution to our corporation	We make a significant value adding contribution to our corporation	**2**	**Notes**	
We are globally competitive in our area of operation	We are globally competitive in our area of operation	**3**	Measure adopted and small changes to the wording	
We are regarded by our parent corporation as a strategically important subsidiary	We are regarded by our parent as a strategically important subsidiary	**4**		

Appendix 12.8: Subsidiary Brokerage

Survey Measure No. 8 - Subsidiary Brokerage Designed based on Burt's idea of brokerage; e.g. Burt RS 2004. Structural holes and good ideas. American Journal of Sociology, 110(2), 349-399. Burt RS 2005. Brokerage and closure: An introduction to social capital, Oxford, Oxford University Press. Question: Please indicate the extent to which you agree or not with the following statements: (please circle response)			
Items	**Survey No:**	**Scale**	
Our subsidiary is the primary link that connects different people in the corporation	**1**	7 point Likert ranging from 1=Strongly disagree 4= neutral 7=strongly disagree.	
Our subsidiary has plenty of contacts externally that no other unit of the corporation maintains	**3**		
Our subsidiary has many contacts within the corporation that are unique to us	**7**		
Our subsidiary is the main 'bridge' that links otherwise unconnected others	**5**		
Our subsidiary is the primary link for the corporation to many contacts in the external environment	**9**		

Appendix 12.9: Environmental Dynamism

Survey Measure No. 9 – Environmental Dynamism

Adopted from: Jansen, J. J., Vera, D., & Crossan, M. 2009. Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism. The Leadership Quarterly, 20(1): 5-18

Question: For the primary market served by your subsidiary (external or within the MNC), to what extent do you agree with the following: (please circle response)

Items		Survey No:	Scale	Original Scale
Environmental changes in our primary market(s) are intense	Environmental changes in our local market are intense	1	7 point Likert ranging from 1=Strongly disagree 4= neutral 7=strongly disagree.	7 point Likert ranging from 1=Strongly disagree, 7=strongly disagree.
Our clients regularly ask for new products and services	Our clients regularly ask for new products and services	2		
In our primary market(s), changes are taking place continuously	In our local market, changes are taking place continuously	3	**Notes**	
In a year, nothing has changed in our primary market(s) reverse coded	In a year, nothing has changed in our market	4	Wording changed to a small extent, instead of local we changed it to primary as the subsidiary geographic scope could be further than local.	
In our primary market(s), the volumes of products and services to be delivered change fast and often	In our market, the volumes of products and services to be delivered change fast and often	5		

Appendix 13: Labelling of Survey Variables

Variable	Indicator	Label
Subsidiary Autonomy	Changes in product/ service /process design.	Au_1_changes
	Subcontracting out of large portions of subsidiary business activities instead of expanding in-house.	Au_2_subcontracting
	Switching to a new product/ service /process.	Au_3_switching
Value Chain Scope (Score)		VCS
Credibility	We have a history of delivering what we have promised to our corporation	Crd_1_history
	We make a significant value adding contribution to our corporation	Crd_2_value2corp
	We are globally competitive in our area of operation	Crd_3_competitive
	We are regarded by out parent corporation as a strategically important subsidiary	Crd_4_regardednb
Subsidiary Brokerage	Our subsidiary is the primary link that connects different people in the organisation to each other.	Brok_1_primarylink
	Our subsidiary has many contacts externally that no other unit of the organisation maintains.	Brok_2_contacts_no_otherunit
	Our subsidiary has many contacts within the corporation that are unconnected to others within the MNC.	Brok_3_unconnectedcontacts
	Our subsidiary is the main bridge that links otherwise unconnected internal or external groups	Brok_4_bridge
	Our subsidiary is the corporation's primary link to many contacts in the external environment	Brok_5_linkexternally
Scanning & Search	We have frequent interactions with others outside our subsidiary to acquire new information.	Al_1_interations
	We always keep an eye out for new business opportunities when looking for information.	Al_4_eyeout
	People in our subsidiary are constantly reading news, magazines, or trade publications to acquire new information.	Al_7_magazines
	We browse the Internet every day for information.	Al_10_internet
	We are avid information seekers and actively look for new information	Al_12_avidseekers

Association & Connection	We see links between seemingly unrelated pieces of information.	Al_3_links
	We are good at connecting dots seemingly unrelated information.	Al_6_connecting
	We often see connections between previously unconnected domains of information.	Al_9_unconnected
Evaluation & Judgement	We have an instinct for potential opportunities.	Al_2_good_ones
	We can distinguish between profitable opportunities and not-so-profitable opportunities.	Al_5_knack
	We have a knack for telling high-value opportunities apart from low-value opportunities.	Al_8_distinguish
	When facing multiple opportunities, we select the good ones	Al_11_instinct
Opportunity Recognition	While going about day-to-day activities, we see potential new ideas all around us (even though we may not pursue them).	OR_1_day2day
	Our subsidiary has a special sensitivity toward recognizing new opportunities.	OR_2_sensitivity
	Seeing potential new opportunities does not come very naturally to us (reverse coded).	OR_3_seeing
	Identifying solutions/products/ processes and services that do not currently exist comes easy for us.	OR_4_comeseasy
	We can easily recognize opportunities to increase subsidiary revenues or profitability.	OR_5_revenues
	We have a strong ability for identifying what our customers want.	OR_6_customers
	We have a gut feel for finding new approaches to doing things.	OR_7_instinct
Innovation	Innovations that reinforce your subsidiary's prevailing products/ services/ processes.	Inn_1_prevailingpsp
	Innovations that reinforce your subsidiary's existing expertise in prevailing products/ services/ processes.	Inn_2_expertise
	Innovations that reinforce how we currently compete.	Inn_3_currentlycompete
	Innovations that make your subsidiary's prevailing products/ services/ processes obsolete.	Inn_4_prevailingobsolete
	Innovations that fundamentally change my subsidiary's prevailing products/ services/ processes.	Inn_5_changepsp

	Innovations that make your existing expertise in prevailing products/ services/ processes.	Inn_6_expertiseobsolete
Relative performance	Productivity achieved	Rp_1_productivity
	Quality of product, process or service	Rp_2_quality
	Relationships with suppliers	Rp_3_suppliers
	Cost of Labour	Rp_4_labour
	Improvement of productivity	Rp_5_prodimprove
	Use of technology	Rp_6_technology
	New business development	Rp_7_busdev
Environmental dynamism	Environmental changes in our primary markets(s) are intense.	Ed_1_intensechange
	Our clients regularly ask for new products and services.	Ed_2_clientsregularlyask
	In our primary market(s), changes are taking place continuously.	Ed_3_changecontinuously
	In a year, nothing has changed in our primary market(s).	Ed_4r_nothingchanged
	In our primary market(s), the volumes of products and services to be delivered change fast and often.	Ed_5_volumesfast
Mode of Establishment		Mode
Subsidiary aided by Grant		Grant_holder
Subsidiary Size		Subemp

Appendix 14: Characteristics of Respondents

Industries Surveyed	No. of Subsidiaries	Average Subsidiary Age	Average Subsidiary Size
Pharmaceutical	22	31	290
ICT	7	20	295
Construction	16	36	200
Med Tech	16	19	944
Other (incl. Energy, Aerospace, Logistics and FCMG)	55	34	578