

An examination of how parent MNCs gain competitive advantage from foreign-based subsidiaries

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DECLARATION

The author hereby declares that, except where duly acknowledged, this thesis is entirely his own work. I have read the DBA guidelines and relevant institutional requirements. I have complied with confidentiality and anonymity terms of reference that were deemed appropriate for the research. I have made every effort to minimize my Similarity Index score when I uploaded on Turnitin on Moodle. This thesis is not one for which a degree has been or will be conferred by this or any other university or institution.

Signed:

A handwritten signature in black ink that reads "Paul Sheahan". The signature is written in a cursive style with a horizontal line underneath it.

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ABSTRACT

This research examines if, and how, foreign-based subsidiaries of multinational corporations (MNCs) contribute to competitive advantage for the parent MNC. Initially, theoretical underpinnings for this research are derived from the Uppsala Model on the Evolution of the Multi-National Business Enterprise (MBE) (Vahlne and Johanson, 2013), the Ownership, Location and Internalization (OLI) paradigm (Dunning, 2000) and the Relational View of the Firm (Dyer & Singh, 1998). This led to the generation of a conceptual framework which proposes that locational factors (termed regional attributes) contribute to competences for subsidiary MNCs which in turn contribute to a competitive advantage for the parent MNC.

While quantitative approaches have previously been applied in this research area, the research methodology chosen to address how competitive advantage accrues to parent MNCs was a qualitative approach using an interpretivist philosophy. The study was based in the Mid-West of Ireland where the author is based and initially a list of regional attributes in this region was assembled based on documentary evidence and an interview with a former IDA executive. Three MNC firms based in this region were then selected, and semi-structured interviews were conducted to assess what competences each subsidiary has, and the extent to which regional attributes contribute to such competences. Finally, interviews were arranged with parent MNC directors of the three firms to assess what competitive advantage accrues to the parent firm from its foreign-based subsidiary and the extent to which subsidiary competences contribute to this competitive advantage.

The findings from this research support the view that attributes of the Mid-West of Ireland region do contribute to competences at subsidiary level which, in turn, contribute to parent MNC competitive advantage. In terms of regional attributes, a number of key attributes are proposed for the Mid-West region which include talent availability, infrastructure, the presence of higher education institutes (HEIs), market access and active business networks. These were found to contribute to the many competences generated by subsidiary MNCs which include close partnerships with HEIs, operational cost efficiency and collaborative network opportunities. These competences were, in turn, confirmed by the parent MNC directors to contribute to parent MNC competitive advantage from its foreign subsidiaries; such competitive advantage came from five main areas such as margin enhancement, speed to market and leading innovation.

The findings of this study support the view that subsidiary MNCs capitalise on locational advantages that offer opportunity for parent MNC competitive advantage gain. Subsidiary MNCs can derive competences from the region in which they are based and these can contribute to the parent MNC competitive advantage. The research has important implications for policy makers as they seek to promote regions for the purpose of attracting FDI to a region.

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DEDICATION

To my wife, Lulu, and daughters Sarah, Emily and Anna.

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LIST OF ABBREVIATIONS

EI	Enterprise Ireland
ERP	Enterprise Resource Planning
FDI	Foreign Direct Investment
HEI	Higher Education Institutes
IBEC	Irish Business and Employers Confederation
IDA	Industrial Development Authority
IRDG	Industry, Research and Development Group
LIT	Limerick Institute of Technology
MBE	Multi- National Business Enterprise
MES	Manufacturing Execution System
MNC	Multi- National Corporation
MNE	Multi- National Enterprise
NIHE	National Institute for Higher Education
OLI	Ownership, Location, Internalisation
R&D	Research and Development
RD&I	Research, Development and Innovation
SFI	Science Foundation Ireland
STEM	Science, Technology, Engineering, Mathematics
UL	University of Limerick
WIT	Waterford Institute of Technology

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SECTION ONE:

RESEARCH OVERVIEW AND STUDY CONTEXT

1.0 INTRODUCTION

This introduction chapter is the first chapter of the DBA and introduces the research study which examines the competitive advantage that parent multi-national companies (MNCs) get from their foreign subsidiaries, which may in turn be linked to the region's attributes. It starts with a research overview by reviewing theories of competitive advantage, competences and regional attributes, followed by an overview of the author's background and his interest in the research area. The research question is then explained, followed by a review of the research design which includes areas such as research philosophy, sample selection and research methods incorporating documentary review and a semi-structured interview with a subject matter expert and key MNC informants at subsidiary and parent firm level. This leads to the contribution of this study (which includes contributions to both research and practice), the thesis structure and finally a chapter summary.

2.0 RESEARCH OVERVIEW

Firms strive for competitive advantage as it is linked to profitability and performance (Ma, 2000). An important consideration in this research is what firm competitive advantage means and how it is achieved. In this section, we consider how firms get competitive advantage and consider the importance of subsidiary competences in this regard. The author also reviews the importance of subsidiary regional attributes in competitive advantage gain by the parent MNC.

2.1 Competitive Advantage

Competitive advantage refers to the ability gained through attributes and resources to perform at a higher level than others in the same industry or market (Christensen and Fahey 1984, Kay 1994, Porter 1980 cited by Chacarbaghi and Lynch 1999, p.45). Studies of this advantage have attracted research interest due to its implications for superior performance levels in today's competitive market, and Porter (1985) proposed that strategic management in organisations should be about building and sustaining competitive advantage.

As a relational term, competitive advantage compares a firm and its competitors on certain dimensions of competition. According to Porter (1985), there are two main sources of competitive advantage – cost leadership and differentiation. Superior value stems from offering lower prices than competitors for equivalent benefits, which defines the achievement of

competitive advantage through cost leadership. Differentiation leading to competitive advantage is achieved by providing unique benefits that more than offset the price premium paid. In this context, Ma (2000) described competitive advantage as a relational score on a particular competitive dimension versus rivals that may contribute to superior performance. Ma's (2000) definition of competitive advantage as the differential between two competitors on any conceivable dimension that allows one to create better value than the other emphasises the importance of creating customer value. This supports Barney's (2001) definition which states that a firm is generating competitive advantage when it is developing a value-creation system which is not concurrently being used by its competitors. In a similar way, Wang (2014) stated that competitive advantage is obtained by an organisation when it develops a set of attributes that allows it to outperform its competitors. In short, this structural approach to competitive advantage posits that strong, defensible market position in an attractive industry renders sustained competitive advantage, which implies that industry positioning is important (Porter, 1985).

According to Furrer, Thomas and Goussevskaia (2008), the Resource-Based View (RBV) of the firm has become a dominant theory of competitive advantage. This view posits that unique resources are the sources of sustained competitive advantage (Barney, 1991). According to Barney, to generate such an advantage, a resource must be firm-specific, rare and not capable of being imitated or substituted. The linkage between competitive advantage from unique resources and performance in RBV (Barney, 1991) is more direct than in Porter's (1985) structural approach which suggests that higher performance may be derived from cost or differentiation advantage, but they are not the ultimate determinants of superior performance. For instance, the structural approach posits that superior performance may come from other types of competitive advantage such as speed (Eisenhardt and Brown, 1998) or flexibility (Sanchez, 1995). Interestingly, Teece *et al.* (1997) claimed that in most cases superior performance requires multiple competitive advantages over rivals.

It has also been proposed that MNCs may get competitive advantage from knowledge management (Meihami and Meihami, 2014). This is an interdisciplinary business model with all aspects of knowledge creation, coding, sharing and using knowledge to enhance learning and innovation in the context of the company. Their questionnaire-based study found that knowledge management has an impact on competitive advantage, innovation, organisational performance and customer satisfaction. Furthermore, Argote and Ingram (2000) support the concept of firms, such as law and consulting firms, getting competitive advantage from

knowledge management by exploring the concept of embedding knowledge in interactions involving people, whereby organisations can both affect knowledge transfer internally and impede knowledge transfer externally. Thus, knowledge embedded in the interactions of people, tools, and tasks provides a basis for competitive advantage in firms. Further support for knowledge management as a competitive advantage source is provided by Hsu and Ziedonis (2013) in their study of entrepreneurial firm patents in 370 venture-backed semi-conductor start-ups. They concluded that patents serve a well-known role as legal safeguards in product markets and confer dual advantages in strategic factor markets, improved access and terms of trade, above and beyond their added product market protection. Innovative technology is also a source of competitive advantage for firms as it promotes productivity, and the more productive a company is, the more efficiently it uses its resources (Knight, 2011). Product innovations are products that are perceived to be new by either the producer or the customer; the latter includes both end-users and distributors. Process innovation refers to new processes which either reduce the cost of production or enable the production of new products (Harmsen, Grunert, and Declerck, 2000). Output flexibility is another area of competitive advantage for small firms according to Feigenbaum and Karnani (1991). Their study involved empirical analysis of 3,000 firms across 83 industries between 1979 and 1987 and their findings concluded that small firms that are willing to fluctuate output, can trade cost inefficiency with volume flexibility to increase profits. They also concluded that output flexibility is a more viable source of competitive advantage in volatile and capital-intensive markets and less viable in profitable industries.

While firms in general may accrue competitive advantage from the sources outlined already, MNCs have the advantage of getting competitive advantage by locating subsidiaries in regions that offer locational advantages. According to Dunning (1998), a firm may leverage the Market-Based view to position its operations in a region that offers locational advantages, that can impact competitive advantage through development of technological know-how (Dunning, 1998). The capability and effectiveness of a firm's internal resources can be influenced by MNC subsidiary location, when consideration is given to a region's location advantages, which may include human resources that impact the performance of the company (Rugman, 1980). In a similar way, Porter (1980) suggested that the firm's competitive advantage is determined by the economic environment in which it is embedded, and it is location-bound resources that define the firm's advantage over competitors.

The relational-view of the firm (Dyer and Singh, 1998), which focuses on location-based business relationships as a source of a firm's competitive advantage, acknowledges the possession of firm-specific assets as a prerequisite for transferring operations overseas. Their view suggests that a firm's critical resources may span firm boundaries and be embedded in inter-firm resources and routines. The relational-view of the firm critiques the RBV assumption that resources are owned by a single firm. Dyer and Singh claimed that the potential sources of inter-organisational competitive advantage are relation-specific assets, knowledge sharing routines, complementary resources and capabilities, and effective governance. They further elaborate that inter-firm linkages may be a source of rents and competitive advantage. Dyer and Singh's relational-view of the firm, as a theory of competitive advantage, is of relevance to this research as the contribution that business network relationships make to firm competitive advantage is germane to the research.

The extent to which MNC subsidiaries develop inter-dependent relationships with business partners, i.e., its relational embeddedness, can be a driving factor of subsidiary knowledge creation enabling these subsidiaries to contribute to the competitive advantage of the MNC (Nell, Ambos, and Schlegelmilch, 2011). According to Nell et al., MNC internal factors and environmental factors have been associated, in several research studies, with the development of subsidiary relational embeddedness. This is linked to the focus of this study which is on how MNCs get competitive advantage from their subsidiaries, and in particular, the role that location has in contributing to subsidiary competences and how these confer competitive advantage to the parent MNC. Prahalad and Hamel (1990) suggested that competitive advantage, based on resources and capabilities, is more important than the advantage solely based on products and market positioning, in terms of contributing to sustainable competitive advantage. Location of MNC subsidiaries, by itself, does not give competitive advantage to the MNC. However, it is how the subsidiary MNC capitalises on the locational advantages that offers opportunity for parent MNC competitive advantage gain. Nell and Andersson's (2012) findings on the important influence that environmental characteristics have on subsidiary relational embeddedness, thus yielding competitive advantage to the parent MNC, are important in the context of this research. The author's proposal in this study is that MNC competitive advantage gain from its subsidiary, based in a given region, is through the unique competences that the subsidiary has gained.

2.2 Subsidiary Competences

According to Ma (2000), competences are context-specific traits of a firm and competent firms capitalise on locally based factors to develop competences. Consistent with the RBV, Prahalad and Hamel (1990) treated core competences as a unique set of resources and capabilities that allow a firm to be competitive. Foss and Knudsen's (2013) definition of competence as an idiosyncratic knowledge capital that allows its holder to perform activities in certain ways, and typically do this more efficiently than others, is germane to this research as this infers a competitive advantage gain to the MNC.

Previous studies have highlighted the importance of involvement in local business relationships, as a subsidiary competence. Holm, Holmstrom and Sharma's (2005) quantitative study of 501 Nordic firms, identified that the competitive environment played a significant role in competence development in business relationships. They also claim that this strengthens the subsidiary's impact on the parent MNC performance. This is predicated on the condition that subsidiaries generate unique knowledge, which is partly ascribed to the characteristics of the subsidiary's environment (Foss and Pedersen, 2002). According to Cohen and Levinthal (1990), a subsidiary's competence development is dependent on its absorptive capacity, i.e. its ability to recognise the value of new, external knowledge, to assimilate it, and apply it to commercial ends. They elaborate by stating that to recognise and absorb knowledge in its environment, the subsidiary must be embedded in local networks. In these networks, firms interact and exchange resources and knowledge (Andersson and Forsgren, 2000).

Research by Dimitratos, Liouka and Young (2014) details subsidiary entrepreneurial competences encompassing innovativeness, risk-taking, proactiveness, learning, intra-multinational networking, extra-multinational networking and autonomy. Drawing on an empirical study of 260 subsidiaries located in the UK, they proposed a comprehensive set of scales encompassing these variables which capture distinct subsidiary entrepreneurial competences at the subsidiary level. Their questionnaire-based study emphasises the importance of building entrepreneurial competences for subsidiary survival and long-term growth. Enhanced performance by MNE subsidiaries in what is considered to be first-world countries is a necessity, both to ensure external competitiveness in the global marketplace, and internal competitiveness within the MNE group. Other subsidiary competences identified in literature include leadership development, posited by Bilaji (2011), who identified it as a focus area for building a pipeline of leadership talent. Bilaji's research recognises the trend in India-

based executives who have participated in subsidiary leadership development programmes taking up global roles in MNCs. Additionally, the importance of subsidiary MNC language competences is highlighted by Harzing and Pudelko (2013) in their study of 800 subsidiaries in 25 different countries.

According to Forsgren, Johanson and Sharma (2000), the evolution of specialised competence in a subsidiary is contingent upon societal factors such as the availability of skilled manpower in a country, existence of other firms in related areas, existence of science-based R&D institutions and national industrial policy, which are all crucial factors. According to these authors, skilled manpower is needed for innovation. Similarly, the existence of R&D institutions is important, because they can work as driving forces for the development process in an individual subsidiary. Nations with a history of success and concentration of a particular type of industry (chemicals in Germany, textiles in Italy, for example) are in a better position to innovate and develop competence in that particular industry sector. An additional insight on subsidiary MNC competences was provided by Cantwell and Piscitello (2002) who claimed that the relative attraction of a location for foreign-owned research depends positively upon the local scientific and educational infrastructure and the potential for intra- and interindustry spill-overs. The influence of factors such as these on subsidiary MNC competence gain suggests that an examination of regional attributes, and how they may contribute to subsidiary competences, is core to this current research.

2.3 Regional Attributes

Of interest to this research is the locational advantage of regional attributes and networks and the impact they can have on the competence development of the subsidiary and, in turn, the competitive advantage of the parent firm. Porter (1980) suggested that the firm's competitive advantage is determined by the economic environment in which it is embedded, and it is location-bound resources that define the firm's advantage over competitors. The current research is proposing that parent MNCs get competitive advantage from subsidiary competences based on the competences they [the subsidiaries] derive from regional attributes. Regional attributes are factors such as natural resource endowments, labour and capital availability, productive investments, entrepreneurial culture and attitude, physical infrastructures, sectoral structures, technological infrastructure and public support systems (Kitchin and Thrift, 2009). Dunning's (1998) Eclectic (OLI) paradigm considers host-location

advantages to include market size, natural resources, aspects of the infrastructure, the education system, governance structures and other aspects of political and government activity. This may explain why some regions are more popular for inward investment than others. The presence of attributes in regions is largely viewed in the literature as to why firms locate in those regions compared to those regions with less favourable attributes. Clusters of firms tend to happen in regions with more attributes. According to Dunning (1997), when firms make foreign subsidiary location decisions, the complementarity between local resources and internal capabilities remains important.

2.4 Conceptual Model

The proposed relationship between the regional attributes, the subsidiary competences and the parent MNC's competitive advantage is drawn for the published literature in this area and shown in the conceptual model for the study in Figure 1 below. This diagram proposes that location contributes to the generation of competences at subsidiary level which in turn contribute to competitive advantage. Relevant literature in relation to each of these proposed relationships is now considered.

In this model, it is firstly proposed that regional attributes contribute to subsidiary competences. This is supported by prior studies which has linked such attributes, which include industry groups, government bodies and educational institutions, to competence gain (Ruggero, Deflorin and Scherrer, 2016; Gammelgård, Weizmann-Henelius, Koivisto, Eronen, and Kaltiala-Heino, 2012). Further locational attributes that may impact a subsidiary's competence gain include market access (Porter, 1986) and regional taxation regimes (Altshuler and Grubert, 2004). According to Porter (1986), market seeking MNC performance is governed by how well subsidiary organisations are aligned with local environments, taking account of the global competition occurring at the business level in specific markets. Furthermore, local taxation regime is considered a factor in MNC competence gain that may be a decisive factor in determining investment location choice (Altshuler and Grubert, 2004).

Subsidiary MNC Competence Gain Contribution to Parent Firm's Competitive Advantage

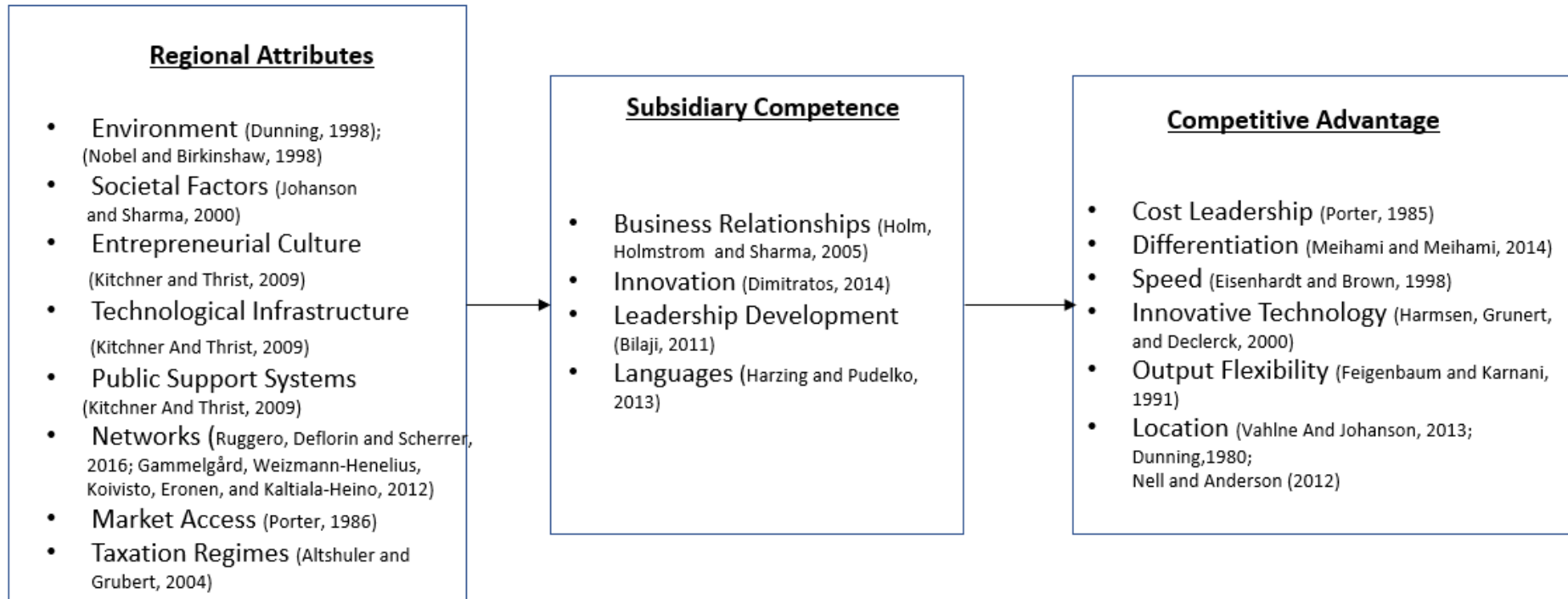


Figure 1 Conceptual Model (Source: Current research)

The second part of the conceptual model is proposing that subsidiary competences contribute to parent MNC competitive advantage. This builds on the work of Holm, Holmstrom and Sharma (2005) that has shown that competence development through business relationships at the MNC subsidiary level has a direct influence on competitive advantage in the larger MNC organisation. Additionally, Andersson, Forsgren and Holm (2002) identified the external embeddedness of subsidiaries as an influence on their capacities for innovation and to be a decisive factor in explaining which subsidiaries will contribute to competitive advantage at corporate level. They argue that the more the external relationships impact the competence development of the subsidiary, the greater the impact of the subsidiary on knowledge development in the parent MNC. This is supported by Nell and Andersson's (2012) findings on the important influence that environmental characteristics have on subsidiary relational embeddedness, thus yielding competitive advantage to the parent MNC. An alternative perspective by Szalucka (2015) on the impact of locational environment on the investing MNC's competitive advantage claims that FDI subsidiary location did not significantly influence the scale and nature of benefits from FDI international activities. While the FDI activity researched in that study showed a positive contribution of the FDI activity to competitiveness, the subsidiary location was not deemed statistically significant.

In summary, the research by Nell and Andersson (2012) and Szalucka (2015), with alternative perspectives on the impact of locational environment on the investing MNC's competitive advantage, gives an interesting challenge to the seminal theories of MNC activities with respect to the importance of location. Dunning's Eclectic (OLI) paradigm has been the dominant analytical framework for explaining foreign activities of MNCs for several decades, with locational advantages clearly advanced as a driver of competitive advantage. There is now a case for evaluating the impact that subsidiary location makes to parent company competitive advantage, based on the important contribution that competence development in MNC subsidiary makes to the parent company competitive advantage. The proposed relationship between regional attributes and the competitive advantage they confer on parent MNCs through the location-based subsidiary competences is examined in this research.

3.0 RESEARCHER BACKGROUND

I have worked for a Baker Hughes Inc. subsidiary in Shannon, Co. Clare since 1991. See Appendix I – Map of Mid-West of Ireland, which incorporates the Limerick, Clare and

surrounding counties. Baker Hughes Inc. is an Oilfield Services Company, publicly listed on New York Stock Exchange. The Shannon-based subsidiary designs and manufactures measurement instrumentation predominantly for the Oil and Gas sector. The types of instrumentation include flow controllers, moisture analysers and flaw detection equipment. For most of the 29-year period of my employment, the subsidiary in Shannon was owned by the General Electric Company, within its Oil and Gas division. My most recent role is with the parent company as a Global Director of Strategic Projects. I have significant experience leading complex manufacturing site start-up projects globally, taking overall responsibility for the projects from inception and development of business cases, winning senior leadership and external agency support, through to commissioning of these facilities. My significant business experience in developing manufacturing and design centres in U.S, Europe, Middle East, Russia, India and China has involved senior leadership level reviews to understand how these investments would lead to competitive advantage and growth for the parent MNC.

My work experience in widely dispersed global regions has piqued my interest in this research. The impetus for the study has been a personal curiosity related to the competitive advantage of firms and how this is impacted by subsidiary competences gained from regional attributes. As the United States-based parent business has been expanding globally by Foreign Direct Investment (FDI), I have gained experience in the regions where the investments are made and also have developed an understanding of the benefits that these bring to the parent business. My role involves identification of potential new investment sites in global regions and this has given me an acute awareness of the importance of the region's attributes and how they may impact the development of subsidiary competences. My experience has raised an awareness of how regions and MNCs differ in terms of the competitive advantage they gain from regional investment and this has piqued my interest in how firm's get competitive advantage, and how this may be derived from subsidiary competences.

For this reason, I considered a study that would involve an examination of the competitive advantage that parent MNCs derive from subsidiary competences. Based on my work experience in FDI within this business, and the parent competitive advantage variances I have observed across regions in this regard, I have sought to gain an understanding for these variances.

4.0 RESEARCH QUESTION

The research question for this study is as follows:

'How do parent MNCs get company competitive advantage from their foreign-based subsidiaries?'

In addressing this question, the study considered how local environment attributes contribute to subsidiary competences and, in turn, how these competences impact on parent company competitive advantage. The three research objectives in support of this research question are as follows:

Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating.

Objective 2: Establish the relative importance of the territory's attributes (including the subsidiary's engagement with networks) to the subsidiary's regionally-based competences and what the resultant competences are.

Objective 3: Determine if, and how, the subsidiary competences contribute to the MNC parent company competitive advantage.

This research question builds on the work of Holm *et al.* (2005) who showed that subsidiary competence development in business relationships strengthens the subsidiary's impact on MNC performance. Similarly, the current study seeks to build on the work of Andersson *et al.* (2002) who found that the external embeddedness of subsidiaries, the extent to which they build strong and inter-dependent relationships with their business partners such as customers and suppliers (Andersson and Forsgren, 1996), has been shown to influence their capacities for innovation and to contribute to competitive advantage at corporate level; this study did not address how competitive advantage accrues to the parent MNC which is the focus of this study. The work of Nell and Andersson (2012) contributed to the business relationships knowledge domain by showing a strong effect of the business network context on the degree of relational embeddedness. Their study concluded that business relationships yield access to strategic resources the company does not possess (Gulati *et al.*, 2000; Dyer & Singh, 1998).

The current research examines how locational factors contribute to parent MNC competitive advantage, thus providing insights into the means by which this relational view of the firm yields competitive advantage. Szalucka's (2015) perspective on the impact of locational environment on the investing MNC's competitive advantage, which claims that FDI subsidiary

location did not significantly influence the scale and nature of benefits from FDI international activities, questions the findings of Nell *et al.* (2012) and Holm *et al.* (2005) and warrants a deeper level of enquiry which this research presents. Thus, the research gap examined in this study is an assessment of how competitive advantage is conferred on the parent MNC through investment in regions, and it is proposed that this occurs by subsidiaries gaining competences, some of which are linked to the region's attributes.

5.0 RESEARCH DESIGN

The process chosen to address the methodological choices for this study is the “research onion” (Saunders, Lewis and Thornhill, 2015) which is shown in Figure 2 below. This outlines a systematic approach to addressing a research question which involves defining the research philosophy, the approach taken, the research strategy, and methods followed in the study. A qualitative methodology was chosen for this study as the researcher wanted to examine the essence of how subsidiary competences, which may be derived from regional attributes, contribute to parent MNC competitive advantage. The majority of prior quantitative studies have determined that competitive advantage is derived from regional attributes, but have not shed light on how this competitive advantage is derived. For example, Holm *et al.* (2005) showed that subsidiary competence development in business relationships strengthens the subsidiary's impact on MNC performance. The research by Holm *et al.* (2005) adopted a quantitative approach which differs from the qualitative approach proposed for this current research. Also, Nell and Andersson's (2012) study into the effect of the subsidiary's business network embeddedness and its impact on parent competitive advantage used statistical analysis methods to examine its hypotheses. Similarly, additional research in this area by Andersson, Dellestrand and Pederson (2014); Szalucka's (2015), and Ratajczak-Mrozek's (2017) all used quantitative techniques to carry out their research analysis. Such studies have added to the body of knowledge on how location factors impact on parent competitive advantage but have not elaborated on how such factors generate competitive advantage for the parent firm. To address this gap, a qualitative methodology which allows for a deeper examination of the relationship between attributes, competences and competitive advantage is adopted, and this is outlined in the next section.

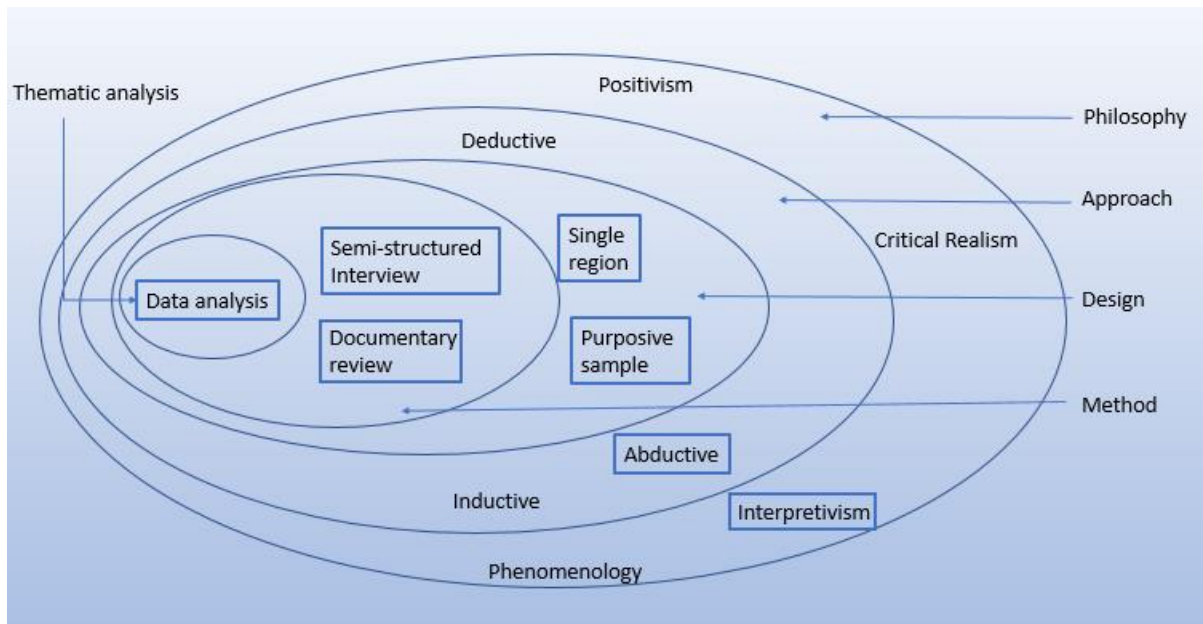


Figure 2 Research Onion (Adapted from Saunders, Lewis and Thornhill, 2015)

5.1 Research Philosophy

The first layer of the research onion presents research philosophy. Interpretivism is chosen for the current study, because, according to Burrell and Morgan (2017), in methodological terms, it is concerned with understanding at an individual level. As the researcher is examining how competitive advantage is derived from regional attributes (and there is an expectation that this may be unique to each MNC, owing to the competences that the subsidiary gains as depicted in the conceptual model), the researcher needs to be embedded in the data collection process. The knowledge created is from the inside, often contextualised and based on sometimes changing reality. According to Schwandt (1994), an interpretivist's approach is characterised by attention to detail, situated in complexity and to the situation's meaning. Burrell and Morgan's second set of assumptions relate to the nature of society with the typology distinguishing between researchers wedded to radical change versus regulation. Interpretivism is concerned with the sociology of regulation. As the research question examines how competitive advantage is gained by the MNC, it is important to adopt an interpretivist philosophy as this level of insightful enquiry is needed to understand the context and unique circumstances that each MNC has, in answering this question.

5.2 Research Approach

Within the research process, the research approach is a way of conscious scientific reasoning (Hoban and Nielsen, 2010). Deductive, inductive and abductive approaches to research are

considered for selection for the current research. Applying a deductive approach to the current research question would involve the testing of theories on firm competitive advantage, location and internationalisation based on the empirical data collected during interviews and published company documentation review. Alternatively, an inductive research approach reasons through moving from a specific case or a collection of observations to a general law, also summarised as moving from facts to theory (Alvesson and Skoldberg, 2017). An example of how an inductive approach to the current research question could be employed is the generation of empirical data during interviews, to develop explanations and emergence of insights on current practices adopted by subsidiary MNCs when developing competence locally and transferring those for parent MNC competitive advantage. The abductive research approach stems from Taylor's (1992) insight that the best advances in science neither followed the pattern of pure deduction or pure induction. According to Andreewsky and Bourcier (2000) and Taylor (1992), abduction is the systemized creativity or intuition in research to develop new knowledge. The researcher's approach to the current study is predominantly abductive. It does include influences from the deductive approach, owing to the testing of the relevance of seminal theories to the interview data collected during the research. Similarly, the inductive approach may also be pertinent as data will be gathered and qualitatively analysed, using thematic analysis, which may lead to generalisations that may inform new theory.

5.3 Sample Selection

In terms of selecting subsidiary and parent MNCs to address the research question, the proposed study uses a purposive sample method, intentionally selecting a pre-defined group of subsidiary MNCs in the Mid-West of Ireland region. The purposive sample method is based on non-probability sampling as it seeks to obtain insights into particular practices related to subsidiary competence gained and transferred to parent company competitive advantage, that exist within a specific location and context. The two aspects to sample selection – firstly, the selection of the Mid-West region and secondly the selection of firms within this region are discussed below.

Firstly, the choice of a single region for this study acknowledges that the impact of local environmental factors on parent competitive advantage may be context dependent, and while the author would ideally have liked this research to span multiple locations, it was decided to select a single location for this study as this will facilitate a level of consistency in the set of

attributes available to influence competence gain subsidiary level. The chosen region for this study is the Mid-West of Ireland where the author is based. As shown in Table 1 (2018 IDA Mid-West supported sectoral employment), IDA¹ Ireland client companies based in that region employed 18,948 staff. The top sectors are Medical and Dental Instruments, Information and Communication Technology, Other Manufacturing and Computer, Electronics and Optical Equipment. The Shannon and Limerick areas have a wide sectoral industry base and several world-leading MNCs represented. The industry parks incorporating these MNCs and indigenous companies are all in close proximity to Shannon International airport which has several daily connections to USA, UK and Europe. The ICT² sector in Ireland's Mid-West region attracts global investment, with the sector comprising more than a thousand organisations of varying scale from indigenous hardware start-ups to the world's largest software companies. Also, the Electronics sector, as the largest manufacturing industry in Ireland, with companies involved in a wide range of sub-sectors including computer systems, peripherals and media, electronic components, data communication equipment, control and test systems and consumer electronics, is strongly represented by MNC subsidiary presence in Ireland's Mid-West.

Table 1 IDA supported sectoral employment in the Mid-West region, Ireland

Employment Mid West	2018
Medical and dental instruments and supplies	3,992
Information and Communication	3,730
Other Manufacturing	3,578
Computer, Electronics & Optical Equipment	2,583
Financial Services	2,267
Pharmaceuticals	2,024
Business & Other Services	774
Total	18,948

Source: IDA Ireland (2018)

Limerick's third level institutions, including the University of Limerick and Limerick Institute of Technology, have a student population of 24,000 and 6,000 graduates yearly, providing a strong pipeline of talent to local business. The University of Limerick has built a strong reputation as a progressive third level educational institution, with strong technology focus and

¹ IDA Ireland is the agency responsible for the attraction and retention of inward foreign direct investment into Ireland

² ICT sector denotes Information and Communications Technology

offering a co-operative education programme at under-graduate level. Science Foundation Ireland’s (SFI) research centres, Lero – a world-class software research centre and Confirm – a smart-manufacturing research centre, are based at University of Limerick and collaborate strongly with MNC subsidiaries and indigenous industries in the Mid-West region. Based on the above it was decided that the Mid-West Ireland region was an appropriate region from which to select three MNC subsidiaries (and their parent companies) for this research.

Having decided on the Mid-West region, the author then considered the selection of a suitable number of subsidiary MNCs based in this region. A purposive sampling method was again used to select firms with the intention of having a representative sample from the dominant sectors in the region. As per Table 1, the Mid-West of Ireland region has dominant industrial sectors embedded within the region – Medical and Dental Instruments, Information and Communication Technology, Other Manufacturing, Computer, Electronics and Optical Equipment. The purposive sampling plan includes an interview with a subsidiary MNC, and its parent company, from three of these main industrial sectors. This total of three MNCs, each with a subsidiary and parent company interview, is a significant part of the data collection plan. A summary of the subsidiary MNC selection criteria used in the research design is shown in Table 2 below.

Table 2 Selection Criteria for Subsidiary MNCs

Selection criteria for participant subsidiary MNC
1. Representative of main industry sectors in Mid-West
2. Subsidiary based in Mid-West at least 4 years
3. Employing at least 50 employees in subsidiary
4. Be clearly involved in Innovation
5. Being a wholly owned subsidiary of a non-Irish MNC

(Source: Current research)

Three MNCs were chosen for the research, in conjunction with the supervisors, as the author sought to examine firms from the dominant industrial sectors in the region, which this sample size provides. Given the qualitative approach being adopted, it was viewed that this number of firms would enable a thorough examination of the research question by the researcher. This table of criteria was reviewed against all IDA portfolio subsidiary MNCs in the Mid-West region to understand initially which companies met the criteria. Thereafter, the three firms were selected to ensure a sectoral spread from the dominant sectors in the region. This selection used

the criteria outlined in Table 2 Selection criteria for subsidiary MNCs. Additionally, the author used judgement on appropriate participant companies based on his knowledge of their involvement in business relationships in the region. Based on that, a representative company from three of the top four sectors, by employment numbers, was chosen for the research. These sectors were ‘medical instruments’, ‘Other manufacturing’ and ‘Electronics’. The resultant three companies chosen for the study are characterised as follows:

Firm A was chosen based on the subsidiary being categorised in the ‘Other manufacturing’ sector as an engineering firm, established in Shannon in 1973, employing 285 people, being actively involved in product development at the subsidiary site and being U.S. parent owned.

Firm B was chosen based on meeting a similar set of criteria. This subsidiary is categorised in the ‘Electronics’ sector, established in Limerick in 1975, employing greater than 1,000 people, being actively involved in product development and being U.S. parent owned.

Firm C is a large employer in the Mid-West of Ireland and represents the ‘Medical instrument’ sector. It was established in Limerick in 1996, employing greater than 1,000 people, actively involved in product and process development and U.S. parent owned.

5.4 Research Methods

For data collection, the researcher opted to use a combination of available secondary data and semi-structured interviews. Each of these methods is now discussed.

5.4.1 Document Review

To elucidate the Mid-West of Ireland regional attributes, a documentary review was used in addition to a semi-structured interview with a former IDA regional director, as a subject matter expert. According to Corbin and Strauss (2008), document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding and develop empirical knowledge in qualitative research. Denzin (2012) described document review as a means of triangulation when used as a supplementary method of data collection in qualitative research. For this research, the document review provides data on regional attributes. The range of documentary sources were predominantly non-academic. This includes government publications from sources including IDA Ireland, Enterprise Ireland, Central Statistics Office and Economic and Social Research Institute. Chambers of Commerce publications related to

the Mid-West, and City and County Council websites such as www.limerick.ie. As the sources for the regional attributes were mainly non-academic, it was felt that a confirmatory opinion of a Mid-West region subject matter expert would enhance this objective's findings. To achieve this, a semi-structured interview with a former IDA regional director, as a subject matter expert, was incorporated into the research design to get practical expert knowledge. This is consistent with the assertion of Bogner, Littig and Menz (2009) who state that the involvement of an expert interview in a research design provides a concentrated and efficient method of gathering data.

5.4.2 Semi-Structured Interviews

Owing to the detailed qualitative nature of the examination required to understand the impact of regional attributes on both subsidiary competences and on parent competitive advantage, the design will involve multiple semi-structured interviews, where each of the three MNCs are interviewed at both the subsidiary and parent company level. By using interviews as the main qualitative research technique, the researcher adopts a process-orientated method, from which the subsequent data analysis is reviewed in an interpretive, value-laden approach (Perry, 1998) which enables an examination of how MNC competitive advantage is derived from its foreign-based subsidiaries. A semi-structured interview involves prepared questioning guided by identified themes in a consistent and systematic manner, interposed by probes designed to elicit more elaborate responses (Alvesson and Deetz, 2000), which was adopted in this research. Additionally, the semi-structured interview incorporates the stages of selecting the type of interview, establishing ethical guidelines, crafting the interview protocol, conducting and recording the interview and reporting the findings (Rabionet, 2011; Irvine, Drew and Sainsbury, 2013) which was followed by the researcher. Based on this, the author believes the semi-structured interview is the best method to collect data to examine how competitive advantage is gained by the parent MNC, answering the research question. This method afforded informants the opportunity to elaborate on some answers which was felt to be necessary to assess how location factors contribute to subsidiary competences (subsidiary interviews) and how such competences contribute to parent competitive advantage (parent MNC interviews). This format also allowed the interviewer to place certain emphasis on parts of questions and answers, where necessary and to bring up specific points when appropriate.

The overall research design is shown below (see Figure 3).

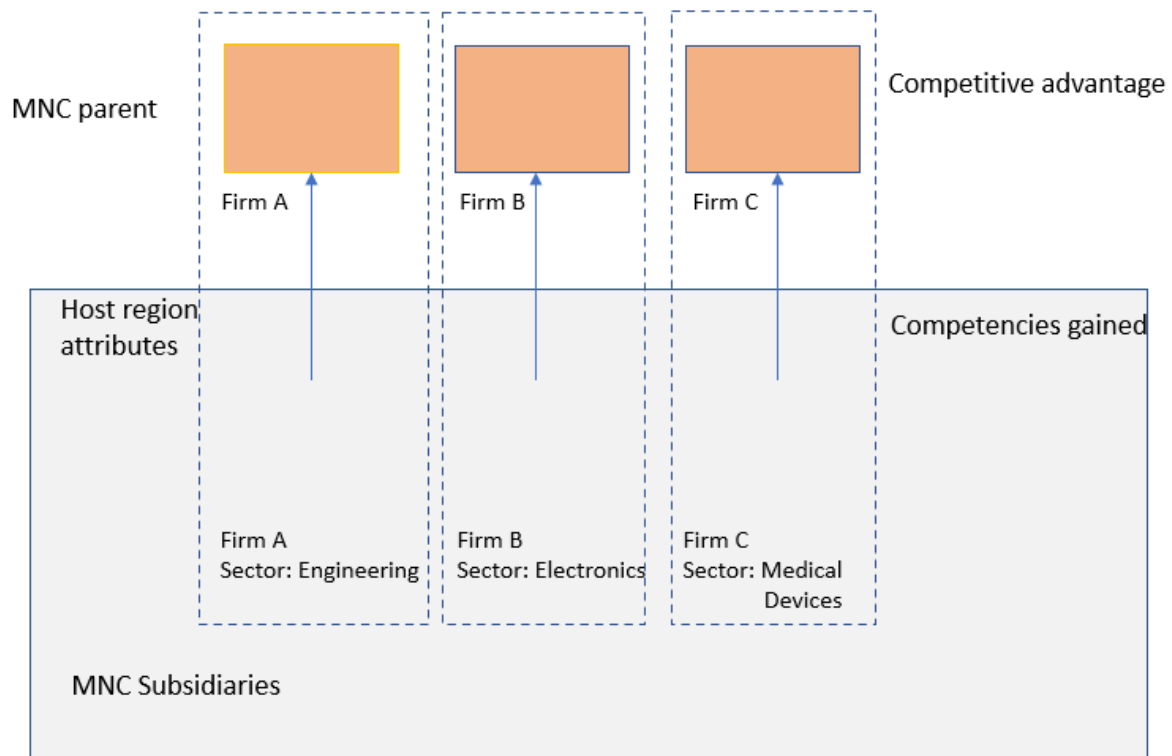


Figure 3 Research design (Source: Current Research)

Details for the two interviews (subsidiary and parent director) for each of the three MNCs chosen for the study are shown in Table 3 – Interview details. This table details the dates for the interviews, place the interviews took place, the duration and the persons interviewed.

Table 3 Interview details

Interviewee	Interview date	Place	Duration
<i>Firm A</i>			
Subsidiary MNC senior director	19 th December 2019	Subsidiary MNC plant office	59 minutes
Parent MNC senior director	17 th January 2020	Subsidiary MNC plant office	55 minutes
<i>Firm B</i>			
Subsidiary MNC senior director	10 th January 2020	Subsidiary MNC plant Office	1 hour 52 minutes
Parent MNC senior director	21 ST January 2020	ERDG office	55 minutes
<i>Firm C</i>			
Subsidiary MNC senior director	27th June 2019	Subsidiary MNC plant office	48 minutes
Parent MNC senior director	5th March 2020	University of Limerick	58 minutes

A description of the three MNCs that participated in the study are shown in Table 4 – Subsidiary MNC Details below.

Table 4 Subsidiary MNC details

	Firm A	Firm A	Firm B	Firm B	Firm C	Firm C
Interviewee	Subsidiary director	Parent director	Subsidiary director	Parent director	Subsidiary director	Parent director
Sector	Engineering		Electronics		Medical device	
Subsidiary employees	285		1,200		1,800	
Parent Location	Houston, United States		Boston, United States		Florida, United States	
Subsidiary est.	1973		1975		1996	

5.5 Data Analysis

Thematic analysis is a method for identifying, analysing and reporting patterns and themes within data (Braun and Clarke, 2006). The method may go further by interpreting aspects of the research topic (Boyatzis, 1998). A theme captures something important about the data in relation to the research question and objectives. It represents some level of patterned response or meaning within the data set. An important question to address in terms of coding is what counts as a pattern/theme. This method enables the researcher to include large amounts of textual information and systematically identifies its properties such as frequency of most used keywords by locating the more important structures in its content.

Themes or patterns within data can be identified in one of two primary ways in thematic analysis: in an inductive way (Frith and Gleeson, 2004), or in a theoretical or deductive way (Boyatzis, 1998). As the approach to the research is abductive, the thematic analysis was predominantly inductive, using themes strongly linked to the data gathered. However, the research’s theoretical underpinning is an important perspective in the analysis; hence there is an acknowledgement that the coding was guided by the research question’s theoretical underpinning.

In seeking to answer the research question, the first stage was to gather the interview data, and to examine the interview transcripts. While examining the transcripts, thematic analysis was used to analyse the data. Originally, the researcher had considered using a software package, such as NVIVO, to assist with the thematic analysis, but as there was three MNCs involved in the research, it was felt that a manual approach which allowed the researcher to be immersed

in the data, and to get a deeper understanding of the meaning behind all of the evidence was more appropriate. The process followed during the thematic analysis involved detailed review of the interview quotes in each transcript with the application of coding for groups of wording that had meaning in the context of addressing the research objectives. Each coding applied to the interview transcript wording was guided by the theory related to each research objective. For instance, coding applied to the interview data with reference to the first research objective, was guided by the literature review that identified regional attributes influencing competitive advantage such as natural resource endowments, physical and technological infrastructures, land and capital availability and public support systems (Kitchin and Thrift, 2009). Thereafter, patterns in the coding were sought to elucidate themes in response to the research objectives. This is depicted in Figure 4 Thematic analysis – Subsidiary competences below.

Thematic analysis – Subsidiary competences

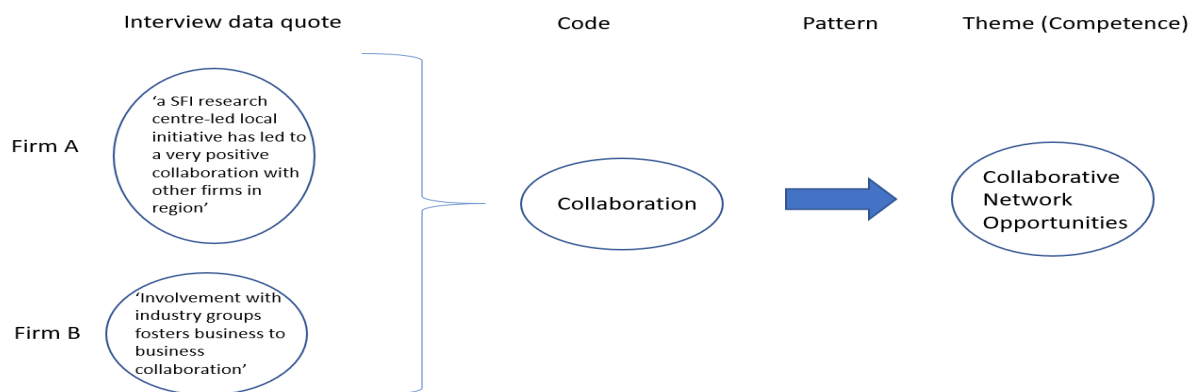


Figure 4 Thematic analysis – Subsidiary competences

6.0 CONTRIBUTION TO RESEARCH AND PRACTICE

The research contributes to the body of knowledge of how subsidiary MNCs can capitalise on location-based factors to generate specific competences, in addition to contributing to our knowledge of how these subsidiary competences can lead to competitive advantage for the parent firm. The theoretical contribution addresses the research gap, answering how parent MNC competitive advantage is derived from subsidiary competences, which is not addressed in other studies. This focus on how competitive advantage is derived builds on the research findings of Holm *et al.* (2005) and Nell *et al.* (2012) which found that location environmental

factors and relational embeddedness contribute to firm competitive advantage but did not reveal how this is achieved. The research findings, reviewed in the Section Three – Discussion, Conclusions and Recommendations, reveal the linkages between a range of subsidiary competences, and their contribution to each of five areas of MNC competitive advantage. For example, these may include subsidiary competencies of Operational Cost Efficiency, Leveraging Government Funding Supports and Collaboration Opportunities from Networks and their contribution to parent MNC competitive advantage of Margin Enhancement. The research will bridge that research gap and contribute to the knowledge domain in this area.

From a practical perspective, this research will contribute to the knowledge domain that is used by regional policy development practitioners responsible for employment growth in regions such as IDA Ireland. By establishing the relative importance of regional attributes for subsidiary competences gain, this has important implications for policy makers as they develop strategies for attracting FDI to a region. Regional attributes have been found in this research to be drivers of MNC competitive advantage through the subsidiary MNC's competence gain. This knowledge can inform policy makers on guiding regional investment choice for FDI attraction. For example, when a government agency with responsibility for FDI attraction has knowledge of the five regional attributes identified in this study, and how they impact investing MNC competitive advantage in the areas identified, it is better informed to make representations with other government stakeholders for investment in these areas of regional attributes.

The research will also contribute to parent company knowledge on how competitive advantage can be derived from subsidiary MNC's competences. The means by which MNCs gain competitive advantage has important implications for subsidiary investment decisions. Knowing the competences that firms derive from regional attributes and how these contribute to competitive advantage is important knowledge for investing firms as they align subsidiary location with their expectations on benefits to the organisation. In practice, if an investing MNC is making a strategic decision to invest in a subsidiary in a region, they will benefit significantly by knowing how the region's attributes may contribute to the subsidiary's competences. Knowing how, in turn, the MNC may derive competitive advantage from those subsidiary competences affords the MNC the opportunity to evaluate the subsidiary competences that may be derived from the regional attributes and how these can impact the MNC's competitive advantage. For example, if an investing MNC has the knowledge from this study that firms in the Mid-West of Ireland region derive a Leading Innovation competitive advantage from

subsidiary competences such as Skilled Technical Workforce, Technology and Innovation Capability and Use of Close Partnerships with Higher Education Institutes, they can make informed decisions on investment region choice and expected competitive advantage benefit.

The third area of practical contribution in the research is the MNC subsidiary's knowledge of how competences are derived from their regional attributes. In Section Three, the linkage between the region's attributes and the subsidiary MNCs' competences are reviewed in detail. For example, the Talent Availability regional attribute contributes to subsidiary competences including Skilled Technical Workforce, Operational Efficiency Driving Cost Position, Technology and Innovation Capability and Leadership Development. This research finding informs the subsidiary MNC of how this regional attribute contributes to subsidiary competence gain. This insight provides valuable knowledge to the subsidiary MNCs on how competences can be gained by leveraging regional attributes. This knowledge can be leveraged to enable opportunities for further competence gain from regional attributes, leading to parent MNC competitive advantage.

7.0 THESIS STRUCTURE

This thesis consists of four sections and is structured as follows:

Section One: Research Overview and Study Context, provides an introduction to the research study aims and objectives. It also provides an overview of the researcher's professional background and the means by which this influenced his chosen research topic. The overall research design is outlined along with the proposed contribution of the study.

Section Two: The Cumulative Paper Series includes the four papers produced and examined during the Doctorate in Business Administration (DBA) programme over the period 2017-2020. Papers one to four of the research series, with prefaces, will assist the reader in understanding the dynamic nature of the research study and the rationale for change as the research progressed. Linking narratives (prefaces) are added between these papers to provide clarification on the changes between each research paper which supports the dynamic nature of the research programme. They also reflect advice received from examiners as each paper was presented, critiqued and assessed.

1. Paper 1 Conceptual Paper presents the research question in the context of the applicable seminal theories of competitive advantage, location and internationalisation. Published literature is critiqued, and the conceptual framework is presented.
2. Paper 2 Methodology Paper discusses the chosen research design and its planned operationalisation in the context of conceptual framework and research aims.
3. Paper 3 Research Design and Initial Findings presents the research design, pilot research findings and main study data collection protocol, all of which are applied in this study.
4. Paper 4 Findings and Discussion presents the main research findings.

These papers were assessed at agreed intervals by the DBA examiners and each was recommended by the examination panel, based on an acceptable standard being reached. The four papers document the research concept, methodology, design and findings while the linking narratives provide an insight into the evolution of this research study and the application of reviewer recommendations at each juncture.

Section Three: The Discussion and Conclusions section summarises the findings of this study in light of relevant literature and confirms that the research question has been addressed. This also highlights the contribution of this study from a theoretical and practical perspective, while acknowledging the limitations of the study. Recommendations for further research are also included in this section before the overall conclusion.

Section Four: Researcher's Reflective Diary: This includes extracts from the author's Reflective Diary to demonstrate the professional development and learning undertaken throughout the lifecycle of the DBA programme and the journey travelled with the support of her Supervisors and Examiners.

8.0 SUMMARY

The research presented in this introductory chapter is focussed on the competitive advantage that MNCs derive from their off-shore subsidiaries. The region chosen for the research is the Mid-West of Ireland region owing to the significant presence of MNC subsidiaries and regional attributes. For data collection, the researcher used available secondary data in the form of

document review and semi-structured interviews with senior directors in each of three subsidiary and parent MNCs to address the research question. Thematic analysis of the interview transcripts was used to analyse the data which is presented in later sections of this document.

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Appendix I – Map of Mid-West of Ireland



Source: IDA Ireland 2019

SECTION TWO:

CUMULATIVE PAPER SERIES

Doctorate in Business Administration (DBA)

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Supervisors: Professor Bill O’Gorman and Dr Tom Egan

Date: 28th June 2018

RESEARCH PAPER SERIES

Paper 1: CONCEPTUAL PAPER

‘An examination of MNC subsidiary location impact on parent company competitive advantage’

ABSTRACT

While the traditional roles of MNC foreign location have diminished in recent years with changes in technology-enabled resources which can be efficiently sourced in global markets, there remains a growing trend in foreign market investment by expanding firms. This suggests that location choice still confers important advantages for MNCs and the importance of location choice is at the heart of this research study. A theoretical review of competitive advantage as it applies to firm performance is initially conducted and this leads to a discussion of the factors that confer competitive advantage on the parent company by leveraging foreign market investment location. Drivers of competence development at the subsidiary location including business relationships and networks that the firm partakes in, and innovation that evolves from the competitive environment that pertains to the subsidiary, are researched. This culminates in a discussion of the impact that competence development at the subsidiary level has on the competitive advantage of that subsidiary and the MNC parent company which is the research aim of this study.

Word count: 8709

List of Abbreviations

MNC Multi- national corporation

MBE Multi- national business enterprise

FDI Foreign direct investment

OLI Ownership, Location, Internalisation

IP Intellectual property

RBV Resource-Based View

MBV Market-Based View

KBV Knowledge-Based View

1.1 Introduction

With the considerable growth of global markets and concurrent increases in international trade since the 1990s, the role that Foreign Direct Investment (FDI) plays as an entry mode for internationalisation has become a strong focus of international business research (Görg & Greenaway, 2004). The predominant theory explaining FDI and the existence of the MNC³ is internalisation theory. According to this theory, market failures are the main reason why a firm would select FDI as a market entry mode, instead of other modes such as exporting or licensing (Buckley & Casson, 1976). However, the traditional roles of industry location have diminished in recent years with changes in technology enabling resources, technology, capital and other inputs efficiently sourced in global markets (Porter, 2000). This could infer that a firm no longer needs to be located near a large market to successfully trade in that market. Yet, contrary to this expectation, there is an ever-increasing growth in foreign market investment, and a preponderance of agglomerations and clusters in industrialised nations, suggesting that location still matters in FDI. Creation of an internal market by FDI is a means of protecting technological know-how, as the firm seeks to expand to new regions. Accordingly, FDI occurs when a firm exploits its competitive advantage over other firms, and its intangible assets need to be protected within its organisational structure. By this FDI route to internationalisation, a firm internalises its foreign market activity (Buckley and Casson, 1998). Indeed, the uncertainty for multi-national companies (MNCs) brought about by the current United States government's strategy of protectionism, coupled with the impending 'Brexit' in the European Union, has brought the role of MNC subsidiaries even more firmly into focus since 2016.

The current research relates to subsidiary MNC location and the impact on its parent MNC competitive advantage. Published research in recent years acknowledges the effect that competitive pressure in the local environment may have on competence development within MNC subsidiaries (Holm, Holmstrom and Sharma 2005). Similarly, it has been found that organisational benefits accrue to firms that are involved in business relationships (O'Dwyer, O'Malley, Murphy, McNally, 2015; Holm *et al*, 2005). Such research is timely as while International Business theory suggests a strong link between FDI location benefits and impact on competitive advantage, there is not a strong empirical data that directly studies this positive relationship (Szalucka, 2015).

³ The acronyms MBE and MNC are used interchangeably during this literature review as the different theories described in this research make use of both acronyms, while describing companies that develop foreign affiliates.

The conceptual paper is structured as follows: Firstly, the dominant theories of competitive advantage of firms are reviewed, primarily with reference to the Market-Based View, Resource-Based View and the Relational-View of the firm. This is followed by a review of internationalisation theory, with a predominant focus on the core locational component of the Eclectic (OLI) paradigm. Benefits that accrue to a parent MNC from foreign subsidiary location are then considered. Finally, the research on how the subsidiary locational environment, through competition and/or business relationships, can develop competences that may drive parent MNC competitive advantage is then discussed culminating in a conceptual framework.

1.2 Competitive advantage of the firm

Competitive advantage is obtained when an organisation develops a set of attributes that allows it to outperform its competitors (Wang, 2014). An earlier definition by Barney (1991), states that a firm is generating competitive advantage when it is developing a value-creation system which is not concurrently being utilised by its competitors. As the current research is focussed on the MNC's competitive advantage gain by having its subsidiary in a particular location, it is important to review the main theories of competitive advantage of the firm. Therefore, a detailed review is undertaken on the Relational-view of the firm, which focuses on location-based business relationships and the Resource-Based view which focuses on the firm's capability development for sustained competitive advantage. The Market-Based View and Knowledge-Based View of the firm are also reviewed. A summary of the main theories is described in Table 1, with description, limitations and relevance to this research.

The dominant mainstream models of competitive advantage are the Market-Based View (Caves & Porter, 1977; Porter, 1980) and the Resource-Based View (Barney,1991). However, the Relational-View of the firm (Dyer & Singh, 1998) is of particular interest to the current research as it considers locational factors in its construct, such as business partnerships, inter-firm knowledge sharing, effective governance and linkages. Each of the models shown in this table are now discussed.

1.2.1 Market-Based View

The Market-Based View of the firm contends that industry factors and external market orientation are the primary determinants of firm performance (Caves & Porter, 1977; Porter, 1980). As depicted in Table 1, it is concerned with the positioning of the firm within the

Table 1: Strategies for Competitive Advantage			
Theory	Reference	Description	Limitations
Firm level			
Market-based view	Caves & Porter (1977), Porter (1979)	Firms formulate strategy in response to the structure of the industry	Theory de-prioritizes the resources and capabilities of the firm.
Resource-based view	Barney (1991)	Competitive advantage based on resources and capabilities that are costly to copy by competitors	RBV ignores the nature of market demand and just focusses on internal resources.
Knowledge-based view	Teece (1997)	Considers knowledge as having characteristics that make it the most valuable asset.	More relevant to knowledge based, higher technology industries
Relational view	Dyer & Singh (1998)	Network routines and processes are basis for competitive advantage.	Views critical resources capable of extending outside the firm

environment in which it operates. Porter's Five Forces model (Porter, 1979) is the dominant theory in this category. The sources of value for the firm are embedded in the competitive situation characterising its end-product strategic position.

Regarding the current research unit of observation, the FDI foreign subsidiary location, a firm may leverage the Market-Based view to position its operations in a region that offers locational advantages, that can impact competitive advantage through development of technological know-how (Dunning, 1998). Porter (1980) suggests that the firm's competitive advantage is determined by the economic environment in which it is embedded and it is location-bound resources that define the firm's advantage over competitors. He further elaborates on the concept of clusters, as part of the Diamond Framework in the Competitive Advantage of Nations, and deepens the understanding as an integral form of competitive advantage at the national and regional level. The concept of clusters captures important linkages, complementarities and spill-overs of technology, skills and information that cut across firms and industries.

1.2.2 Resource-Based View

According to Furrer, Thomas and Goussevskaia (2008), the Resource-Based View (RBV) of the firm has become a dominant theory of competitive advantage. When considering a firm's capabilities, as an enabler of competitive advantage, this perspective is internally focussed. Prahalad and Hamel (1990) suggested that competitive advantage, based on resources and capabilities, is more important than the advantage solely based on products and market positioning, in terms of contributing to sustainable competitive advantage. The Resource-Based View suggests that competitive advantage and performance results are a consequence of firm-specific resources and capabilities that are costly to copy by other competitors (Barney, 1991; Rumelt, 1987). The capability and effectiveness of a firm's internal resources can be influenced by MNC subsidiary location, when consideration is given to a region's location advantages, which may include human resources that impact the performance of the company (Rugman, 1980). The benefits of clusters and agglomerations, in terms of technology spill-overs and network linkages demonstrate the capability-driven productivity impact that firms can accrue in such locations (Girma, 2005).

Development of dynamic capabilities is a key component of the Uppsala Model on the evolution of the multinational business enterprise (MBE) (Vahlne and Johanson, 2013). This

internationalisation model, which explains how multinational businesses evolve, explains how a firm leverages dynamic capabilities to develop competitive strength. The Resource-based view of the firm is consistent with the dynamic capabilities component of this recent version of the Uppsala Model, as it acknowledges the importance of heterogeneous resources in developing the capability of the firm (Vahlne & Johanson, 2013). Some researchers distinguish between tangible and intangible resources and conclude that intangible resources are more likely to be a source of sustained competitive advantage (Lockett & Thompson, 2001). This is consistent with the RBV observation made by Hamel and Prahalad (1994) claiming that knowledge, know-how, intellectual assets and competences are the main drivers of superior performance in the information age. They claim that innovative knowledge gives the firm its competitive position over its rivals. However, the RBV's internal focus on capabilities of the firm has the limitation of not being focussed on external or environmental changes that could drive changes in resource utilisation. Furthermore, the lack of competitor knowledge is a limitation of the resource-based view, yet this competitor knowledge is an important aspect of the market-based view of the firm. However, it has been argued that Resource-Based View ignores the nature of market demand and only focusses on internal resources (Wang, 2014).

1.2.3 Knowledge-Based View

As the RBV's internal focus on capabilities is applied to the full range of firm's assets, the management of intangible resources is critical to survive in a global dynamic environment, according to Teece, Pisano and Shuen (1997). The Knowledge-Based View of competitive advantage suggests that managing knowledge-based resources is more likely to contribute to sustainable competitive advantage. According to Lee and Sukoco (2007), knowledge sharing among individuals and groups is essential for organisations to use knowledge that fuels superior organisation performance. As shown in Table 1, the knowledge resources tend to be more applicable to higher technology sectors, and this is a limitation of this view of competitive advantage. Yet, when researching the location impact of FDI on competitive advantage, the expectation that knowledge sharing is more prevalent in shared location networks, is a plausible explanation for FDI externalities experienced by firms in agglomerations and clusters.

1.2.4 Relational View

Dyer and Singh (1998) offered a Relational-View of the firm that focusses on network routines and processes as an important unit of analysis for understanding a firm's competitive advantage. Their view suggests that a firm's critical resources may span firm boundaries and be embedded in inter-firm resources and routines. The Relational-View of the firm critiques the RBV assumption that resources are owned by a single firm. The authors claim that the potential sources of inter-organisational competitive advantage are relation-specific assets, knowledge sharing routines, complementary resources and capabilities, and effective governance. They further elaborate that inter-firm linkages may be a source of rents and competitive advantage. Such linkages may include inter-firm collaboration, business interactions, relationships and networks (Enright, 2000). Benefits of industrial clustering, as defined by Porter (2000) as geographic concentrations of inter-connected companies and institutions in a particular field, such increased productivity from synergies, better innovation from collaborative research and new business formation, are consistent with the interpretations of this Relational-View of competitive advantage.

The perspective that MNC subsidiaries are embedded in specific business relationships enables knowledge development from the relationship-specific investments with resultant adaptations in technology and business practices (Andersson, Forsgren and Holm, 2002). This is consistent with Dyer and Singh's (1998) Relational-View of competitive advantage and also is complementary with the Uppsala Internationalisation Model (2013) on the evolution of the MBE, which acknowledges the importance of involvement in co-ordinated networks to gain competitive advantage.

In critiquing these main theories of competitive advantage, there is value in understanding the primary sources of profit returns within each model, as they apply to FDI location impact (Dyer and Singh, 1998). These returns range from 'relative bargaining power' in the Market-Based View, to highly sought-after resources, such as human resources and technological know-how, in the RBV. The Relational-View primary sources of profit returns are specific investments, knowledge-sharing routines and effective governance which are associated with MNC subsidiary location. Based on the locational aspects of primary sources of returns evidenced by the Relational-view of competitive advantage, this model closely aligns to the current research based on FDI location impact on parent MNC competitive advantage. The Relational-view of the firm considers the network as the unit of analysis and additional rents are generated from

the network. The collective structure associated with networks, suggests a shared location model, as witnessed with agglomerations and clusters.

Based on the theoretical considerations of the Market-Based View of the firm, RBV and Relational-View of competitive advantage, the current research presents an analysis of the extent to which a parent MNC firm's competitive advantage is impacted by FDI subsidiary foreign location. The Relational-view of the firm gives a model for evaluating competitive advantage from a network and knowledge-sharing perspective which, under the structure of effective governance, is applicable to locations or regions. As the research is evaluating competitive advantage impact at the parent MNC level, based on FDI subsidiary location, the interconnectedness that co-located networks allow is evaluated from the Relational-View perspective. As the theories of firm performance and competitive advantage have been reviewed with respect to the research area, a perspective on the locational constructs within these theories has been gained. By applying the learnings of competitive advantage theory, with specific interest in FDI as a mode of internationalisation, the literature review identifies opportunities for research based on current knowledge generating opportunities in this area. While the Relational-View of the firm is a dominant model that is applied during this research, the RBV is also considered relevant to the study as the dynamic capabilities of the firm, considered essential as the subsidiary develops competences in a competitive environment, generate competitive advantage for the firm. As the research considers if competitive advantage of the MNC is impacted by the MNC subsidiary's location, the development of competences, leveraging dynamic capabilities of the subsidiary firm, and the impact of these on the MNC parent, is consistent with the RBV model.

1.3 Internationalisation Theory

The Uppsala Model of Internationalisation, originally advanced by Johanson & Vahlne (1977), describes the progressive steps a firm takes, from initially having no international product export activity to the most advanced stage of having manufacturing plants in foreign markets. According to this model, firms enter markets with successively greater psychic distance. Their central tenet is that the experiential gain in knowledge through experience creates internal assets for the firm, such as skills and knowledge, thus developing competitive advantage by availing of tacit knowledge. This emphasis on knowledge as an enabler of advantage is

consistent with the Eclectic (OLI) paradigm (Dunning, 2000), which considers ownership (O) advantages as an enabler of MNC activity.

Advances on the original Uppsala Model (Johanson and Vahlne, 1977) are of particular interest to the current research as the revised Uppsala Model (Vahlne and Johanson, 2013) focusses on the evolution of the multinational business enterprise (MBE) from operating in a mode of internalisation to one of the co-ordination of networks. As MNC subsidiary location is a unit of observation in the current research, the co-ordination of networks and involvement in business relationships at that location is of interest to the study.

1.3.1 Competitive Advantage model application to Internationalisation Theory

As the current research is focussed on the MNC parent competitive advantage impacted by FDI subsidiary location, it is important to apply the foregoing models of competitive advantage of the firm to Internationalisation Theory. For example, the seminal work on Internationalisation Theory - the Uppsala Model of Internationalisation, (Vahlne and Johanson, 2013) explains how MBEs evolve through development of dynamic capabilities, entrepreneurship and management of uncertainty. Consistent with the Resource-Based View of the firm (Barney, 1991) the MBE model demonstrates how firms develop their competitive strength through dynamic capabilities. Additionally, the MBE's management of uncertainty as explained by the Uppsala Model is accomplished by the exchange of products, services and knowledge in network relationships – a view that is consistent with the Relational-View of the firm competitiveness.

The Uppsala Model (2013) has facets that are consistent with both the Relational-view and the RBV of firm competitive advantage. The focus of the MBE in this 2013 version of the Uppsala Model is towards change processes in business relationships, deploying entrepreneurship and managing uncertainty, as opposed to the earlier Uppsala Model (1977) which focussed on the original structure of the firm and how it internationalised in incremental fashion through experiential learning. According to Vahlne & Johanson (2013), the Uppsala Model of Internationalisation, as an MBE theory, is rooted in realistic assumptions that are consistent with behavioural theory, and focussed at firm level, whereas the other dominant model used to explain the behaviour of MNCs, the eclectic (OLI) paradigm, is based on assumptions that are more applicable to the wider economic system. Vahlne and Johanson (2013) claim that to understand the development of the MBE, it is important to understand the development of international networks. At this point, it is appropriate to the study to apply the same quest for

an understanding of subsidiary location-based networks as this bears direct relevance to the understanding of how the MNC gains from competitive advantage based on subsidiary location.

Vahlne and Johanson (2013) claim that Internalisation Theory, a key component of the Eclectic (OLI) paradigm as applied to the MNC, is limited in the assumption that a firm should own and control its activities in multiple locations. The reality of firms not controlling its activities all the time, and sometimes having control of resources and capabilities outside its boundaries, as explained by operations within business networks, is explained by the relational view of the firm (Dyer and Singh, 1998). The Uppsala Model (2013) describing the evolution of the MBE, from internalisation to co-ordination of networks demonstrates how the original Uppsala Model of Internationalisation (1977) has developed from a model of increasing foreign market commitments to one that recognizes the importance of business relationships to gain competitive advantage.

As the research area is focussed on the parent MNC competitive advantage impact based on foreign subsidiary location, the Uppsala Model on the evolution of the MBE (Vahlne and Johanson, 2013) serves as a relevant framework for researching how subsidiary location impacts dynamic capabilities, entrepreneurial innovation and management of uncertainty. Coupled with this recent version of the Uppsala Model, the Eclectic paradigm, otherwise known as the OLI paradigm, serves as an important framework in the current research for understanding the foreign activities of MNCs, with reference to location advantages of subsidiary locations. This framework is reviewed in detail in the following section.

1.3.2 Eclectic (OLI) paradigm

The Eclectic (OLI) paradigm provides the cornerstone for the current theories of the MNC according to Verbeke (2013). This model, as first posited by Dunning (1980) has become the dominant framework to explain the foreign activities of the MNC, and this paradigm directly refers to location as a source of competitiveness and highlights the role that location advantages play in strengthening the competitiveness of the investing company. According to Galan and Gonzalez-Benito (2001), ownership (O) advantages predominantly affect the decisions as to why FDI takes place, internalisation (I) advantages relate to how the FDI decision is made and location (L) advantages determine where to set up the foreign subsidiaries. As the focus of the

research is on the MNC competitive advantage gain from foreign subsidiary location choice, the 'L' part of the OLI paradigm is directly relevant to the work.

Galan and Gonzalez-Benito (2001) found in their empirical study of 103 Spanish companies that conducted FDI, aimed at finding out the main ownership, internalisation and location advantages which affect the internationalisation process, that the two largest and interconnected location factors are the size of the host market and its potential for growth. They also noted a third factor - the degree of competence in such a market, as being a relatively significant factor. Additionally, the more intensive the competition, the less attractive the market. They concluded that factors related to the opportunities of foreign markets dominate the location decision. However, aspects of their work are contradictory to the findings of Porter (1980) and Scherer and Ross (1990), who both claim that intensive competition and customer pressure can provide incentives for innovation and that firms should proactively seek dynamic and competitive environments due to this pressure to innovate being beneficial to the firm.

Dunning (1993) takes the view that location (L) advantage is a result of a firm's access to various factor endowments and capabilities spatially distributed within world economies. The author infers that a location advantage occurs if a host-location is well endowed with factors and capabilities, particularly valuable to the firm, which cannot be easily moved or deployed in another location. According to the author, this advantage is based, not only on Ricardian type endowments such as land, labour and capital, but also on networks, market structures, demand conditions and institutional factors such as legal, political and cultural environment which are termed advanced factors in the Diamond Model of National Advantage (Porter, 1990). According to Porter, these advanced factors are regarded as most significant for competitive advantage and can be created or enhanced through investment in training and research and development. These advanced factors are critical for competitive advantage owing to the opportunity they give for competence development at the subsidiary location. Of interest to this research, is the locational advantage of networks within agglomerations and clusters, and the impact they can have on the competitive advantage of the firm. The Eclectic (OLI) paradigm attempts to integrate the individual factors associated with internationalisation into one single scheme. Location (L) advantages refer to the institutional and productive factors that are present in particular geographic areas. They arise when it is better to combine products manufactured in the home country with immobile factors and intermediate products from another location (Dunning, 2000). According to Dunning, the OLI paradigm is dynamic due to the continuous incorporation of new companies into the internationalisation process, together

with more receptive policies in developing countries giving rise to new trends in the process of FDI.

Dunning (1993) claimed that ownership (O) advantages can explain the ability of MNCs to form alliances, by taking advantage of common governance structures in foreign markets, such as relational assets, which allow firms to access resources controlled by partners. This is a form of business network driven by a broad interpretation of ownership advantage. Similarly, Dunning has a broad interpretation of location advantage. According to the author, the Eclectic (OLI) paradigm considers host-location advantages to include market size, natural resources, aspects of the infrastructure, the education system, governance structures and other aspects of political and government activity. For the current research, which is studying the impact of subsidiary location on parent MNC competitive advantage, it is important to research the importance of the host location advantages as outlined by Dunning (2000), coupled with the advantages of co-ordinated networks as defined by the Uppsala Model's evolution of multinational business enterprises (Vahlne and Johanson, 2013).

1.3.3 Firm Motivation for FDI

To understand the benefits that accrue to the MNC from an FDI location choice, it is important to understand the firm's motivations and capabilities for foreign investment, as this can have a significant impact on the choice of subsidiary location (Makino, Lau and Yeh, 2002). In this regard, the firm's capabilities are reflected in its resources and skills necessary to engage in FDI as a mode of internationalisation. A number of perspectives on motivations and capabilities for FDI are now considered.

Firstly, the asset-seeking perspective maintains that firms invest in foreign countries to develop their firm-specific assets or to acquire new strategic assets in a host country (Dunning, 2000). According to Makino, Lau and Yeh (2002), firms tend to invest in host country locations in which their strategic assets needs are located. For example, such assets could be technology or management expertise and Enright (2000) argues that inward FDI in United States is motivated by strategic asset-seeking, owing to the skills and capabilities available in that country. Enright further elaborates that MNC FDI activity in strategic asset-seeking mode is attracted to clusters owing to their advantages in foreign location. This perspective also views FDI as the transfer of firm-specific advantages, that may include the ability to acquire factors of production at lower cost, differentiated products, better distribution or the knowledge for efficient

production. From the capability's perspective, in an asset-seeking motivation, the firm engaging in FDI needs to have the absorptive capacity to adopt the assets it is acquiring during this activity in foreign markets, such as integrating new technology (Makino, Lau and Yeh, 2002).

Alternatively, the asset-exploitation perspective on FDI suggests that a firm transfers its proprietary assets or firm-specific advantages to a foreign country which are exploitable in that country (Teece, 1992). Such advantages include the abilities to acquire factors of production at a lower cost than other firms, the knowledge or control of a more efficient production function, and better distribution facilities or a differentiated product. A third motivation for FDI is market-seeking which, according to Dunning (1993), firms engage in FDI for reasons such as to enhance supply chain relationships in host countries, to pre-empt a rival entry in to the market, to produce close to markets, to lower transportation costs and to benefit from investment incentives.

1.3.4 FDI and Strategic Network Linkages

Strategic network linkages are a form of business relationship in which the participating entities collaborate and share products, services and information for the benefit of all parties involved. The mechanisms through which networks convey competitive advantage are information sharing, enabling access to strategic capabilities and formation of partnerships for mutual benefit. Such network linkages can link firms with complementary capabilities, address shared challenges and overcome obstacles collectively and drive manufacturing process innovation as cited by O'Dwyer et al. (2015). Their research has documented the discernible shift from competition to collaboration within the Irish Pharmaceutical industry, taken by the Solid-State Pharmaceutical Cluster as a response to changing environmental conditions which has seen successful innovation through this co-operative initiative. Such innovation clusters are seen as important for economic development with several countries encouraging innovation clusters through industrial policy.

Clusters (often termed industrial districts) involve networks of independent firms sharing the same geographical location that collaborate for various strategic and operational reasons, including innovation (Mudambi and Swift, 2012). Development of clusters is one example of how interconnectedness brings collaboration, consistent with the Relational-view of the firm. By acknowledgement that the firm boundaries are not as defined as their legal entity would

suggest, and resources and capabilities extend outside the firm, we see the Relational-view of the firm as an emergent strategic model that explains core competence development through strategic linkage which drives competitive advantage for the MNC.

When considering the location advantages of the firm's FDI decision, it is important to consider the strategic network linkages that a foreign subsidiary location offers. According to Fuller and Porter (1986), strategic linkage theory maintains that firms can gain access to desired strategic capabilities by linking to firms with complementary capabilities. The linkages may generate a synergistic effect that enhances the competitiveness of firms involved in such alliances. FDI is an example of such a strategic linkage. Fuller and Porter also claimed that strategic linkages through FDI may give strategic resource benefits in a foreign market, such as technological know-how, or having the reputation for being established in a prestigious market. Such strategic resources available in a foreign network, accessed through FDI, may be market opportunities, natural resources, labour, capital, technology and other strategic assets that are needed for the investors long term survival.

According to Dunning (1997), when firms make foreign subsidiary location decisions, the complementarity between local resources and internal capabilities remains important. Location based factors that minimise transaction or co-ordination costs of markets, are important to the functioning of the network activities. Dunning also claims that a combined approach of conventional and network approaches would suggest that firm specific assets, availability of local resources and the possibility of network linkages may interact to produce the final decision of FDI location. The importance of the local aspect of networks is highlighted in agglomeration externalities associated with intra- and inter-industry knowledge spill-overs when firms are located in close proximity to other economic actors (Rosenthal and Strange, 2004). As noted by Storper and Venables (2004), knowledge spill-overs and skill transfers are greatly facilitated by face-to-face contacts between geographically proximate actors.

1.4 MNC Subsidiary Competence Development Drivers

When considering the benefits of MNC subsidiary locations, it is acknowledged that subsidiaries develop unique knowledge and this is partly explained by the subsidiary environments (Holm, *et al* 2005). Two widely researched environmental drivers of MNC subsidiary competence development are firstly, the competitive pressure the firm faces at its location and secondly, the participation of the firm in business relationships and networks in

same-sector scenarios (this also considers relationships that a firm enters with collaborative, non-competing entities such as with educational institutions, industry groups and governmental organisations). These drivers are now considered.

1.4.1 Competitive Environment

The first environmental factor in driving competence development at MNC subsidiary is the aggregated force in the environment which manifests itself as competition, rivalry, pressure from customers and quality of suppliers. According to Holm *et al.* (2005) such competition and environmental pressure provides an incentive for innovation. Indeed, the benefits of product and process innovation experienced in such competitive environments has been suggested as a reason that firms should seek such dynamic and competitive environments as they create pressure to innovate (Porter, 1990). In addition, Ghoshal and Bartlett (1990) found that the degree of competition in the specific MNC subsidiary environment does impact on the competence development of the same subsidiary. They argued that an important task of the MNC is to seek competitive environments for subsidiary firms for resultant competence development. According to Ghoshal and Bartlett, the qualities of business environments related to specialisation, competitiveness and dynamics differ between industries of different countries, despite the homogenising effects of globalisation. The development of a subsidiary's position in a business environment requires the accumulation of competences in firms, brought about by innovation of new products and processes. The strategy adopted by the firm in this scenario affects the innovation and the competitive strength of the firms in a specific industry. Furthermore, Holm, Malmberg and Solvell (2003) claimed that the level of competition in the business environment pressurises MNC subsidiaries to be innovative and to upgrade their competences.

The development of competences at subsidiary locations that make them competitive and unique within the MNC, has the effect of other sub-units within the MNC seeking these competences (Solvell, Zander and Porter, 1991). Due to this effect, Solvell *et al.* (1991) claim that the competitive pressure within the subsidiary's business environment becomes positively related to the competence of the larger MNC.

1.4.2. Business Relationships and Networks

The second environmental impact driver on competence development arises from the MNC embeddedness in specific business relationships. According to Holm *et al.* (2005), this Relational-View of firm competitiveness claims that knowledge develops in relational-specific investments and adaptations in technology and business practices. This network-based approach of how firms get access to resources and capabilities outside the boundary of the firm is consistent with the development of clusters and agglomerations which sees competing firms within the same sector collaborate and share knowledge for their mutual benefit (Dyer and Singh (1998); Andersson *et al.* (2002)). The current research is also interested in an additional environmental driver of competence development - the non-competitive sources of collaboration that MNC subsidiaries engage with in business network relationships. Collaborative partners in this scenario constitute bodies such as industry groups, governmental organisations and educational institutes.

The findings of Holm *et al.* (2005), based on a study of foreign subsidiaries located in three Nordic countries, where measurable indicators related to competence development and MNC performance in competitive environment and business relationships were used, are an indicator of the relative importance of the drivers of competence development. The 501 responses to questionnaires measuring these drivers of subsidiary competence and performance found that competence development in business relationships had the strongest effect on parent MNC competence development. This study also found that the competitive environment had an insignificant effect on the competence development on subsidiary MNC, and implied that the upgrading of parent MNC competence in product, processes, marketing and sales, does not follow from the degree of local competition in the specific subsidiary environment. However, they concluded that the competitive environment did play a role in competence development in business relationships which in turn played a role in the parent MNC competence development.

Agglomeration externalities, defined as the benefits a firm derives from being located close to other economic actors, may arise from knowledge spill-overs within a region (Neffke *et al.*, 2011). According to Neffke *et al.*, such knowledge spill-overs are facilitated by business networks across similar or diverse industries in close proximity. Two broad categories of externalities are described by Neffke *et al.* (2011). Firstly, MAR externalities arise from a strong local specialisation in their own industry and can be attributed to three sources: labour

market pooling, input-output linkages and intra-industry knowledge spill-overs. On the other hand, Jacobs' externalities arise when firms benefit from the presence of a high level of industrial diversity. Knowledge transfer across industries is experienced in this type of agglomeration owing to the adaptation of industry skills to apply to new industries.

1.4.3 MNC Subsidiary Autonomy and Network Embeddedness

The level of autonomy given to MNC subsidiaries, i.e., the decision-making rights granted by parent companies, has an influence on the level of involvement that the subsidiary will have in business relationships and networks (Gammelgaard *et al.*, 2012). From a subsidiary evolution perspective, autonomy is associated with performance since autonomy correlates with the granting of more advanced roles to the subsidiary (Birkinshaw and Morrison, 1995). Another aspect of MNC subsidiary autonomy is its association with subsidiary entrepreneurship, which suggests a degree of freedom to engage in inter-organisational networks and linkages (Boehe, 2007). Interestingly, the role that entrepreneurship plays in the revised Uppsala Model of MBE evolution (Vahlne and Johanson, 2013) is significant as it acknowledges the emergent importance of network linkages as the firm manages change and uncertainty, via the sharing of products, processes and knowledge across networks.

According to research by Gammelgaard *et al.*, (2012), increased autonomy is expected to increase the number and frequency of the subsidiary's networks. Active engagement with local partners in networks is expected to result in knowledge gain. This study, based on data gathered from a survey of 350 foreign-owned subsidiaries based in Germany, UK and Denmark, found strong evidence of direct and positive linkages between inter-organisational relationships and MNC performance, in addition to subsidiary autonomy and involvement in inter-organisational networks. The evidence of positive linkages between inter-organisational and intra-organisational network relationships suggests an influence from the subsidiary competence development and the subsequent parent MNC competitive advantage. This raises the question of the degree of autonomy that MNC subsidiaries are granted by parent companies, as this may be reflected in the levels of participation in business networks among competing firms and in business relationships with non-competing organisations. The research seeks to ascertain if the level of subsidiary participation in business relationships and networks with competitors is

different to non-competitor relationships and if the latter is also reflected in the level of autonomy granted to the MNC subsidiary.

As defined by Holm *et al* (2005), the concept of embeddedness combines the notions of how to benefit simultaneously from collaboration with external partners and being part of a company with internationally dispersed subsidiaries. Regarding embeddedness of the MNC subsidiary, Ruggero, Deflorin and Scherer (2016) claimed that the level of embeddedness corresponds to the level of collaboration and exchange of knowledge of a subsidiary with internal and external partners and it is widely advocated as a performance-enhancing indicator.

In relation to the current study, the level of subsidiary MNC autonomy and embeddedness in business relationship at the foreign location is under review. As the locational business network participation may be a driver of competence development, the autonomy that the subsidiary has been granted by the MNC to engage in such business relationships may be an important factor in driving competitive advantage at the MNC.

1.4.4 Collaboration amongst Competitive Entities

Dyer and Singh (1998) argued that competitive advantage can be gained by building relationships with other firms. External embeddedness of subsidiaries can be shown to influence their capacities for innovation and competence development, thus leading to competitive advantage at corporate level (Andersson, Forsgren and Holm, 2002). According to Holm *et al.* (2005), the ability of the subsidiary to develop relationships that develop competences affects a subsidiary's possibility of being a provider of knowledge in the MNC. They also claim, based on studies by Trevelen (1987) that the greater the competitive pressure within the subsidiary environment, the greater the tendency for subsidiaries to encounter and deal with the resulting uncertain environment through conducting competence development activities in relationships with important counterparts in the business environment.

Faems, Looy and Debackere (2005) defined effective collaboration as happening when it leverages the differences among participants to produce innovative, synergistic solutions and balances stakeholders' needs. According to Berry (2014), MNCs may need to adapt their strategies of being slow to collaborate and closely guarding intellectual property (IP), to sustain performance in response to changing environmental conditions. Consistent with the Relational-

View of the firm (Dyer and Singh, 1998), effective collaboration in a cluster relies extensively on the relationships among the participating parties while stating that MNCs create linkages when they are directly involved with other firms in the host economy (Giroud and Scott-Kennel, 2009).

O'Dwyer *et al.*, (2015) recorded a discernible shift from competition to collaboration in the Irish pharmaceutical industry from 2005 to 2015. This change occurred over a relatively short period through the creation of a co-operative cluster which provides individual and collective benefits. Innovation clusters are acknowledged as being important for economic development in many countries with many governments encouraging innovation clusters through industrial policy (Arthurs, Cassidy, Davis and Wolfe, 2009; O'Dwyer *et al.*, 2015)

Clusters and agglomerations have been acknowledged to offer several benefits including improved competitiveness through increases in inter-organisation and industrial productivity, as well as developing innovation capability and urging new enterprise formation (Lin, Tung and Huang, 2006). Notably, the author asserts that when successful, such collaborations provide access to complementary assets and encourage transfer of knowledge, allowing participating firms to create and mobilize resources that otherwise may not be possible. In terms of dealing with organisational constraints that collaborative business relationships such as clusters would present, there has been limited research that explores the transition from arms-length to collaborative relationships. However, according to Lorenzen and Mudambi (2012), co-location of the participating firms does not ensure successful interaction. As explained by Hardy, Lawrence and Grant (2005), collaboration involves individual participants working in collaborative teams while representing the interests of organisation stakeholders. He acknowledged that this is particularly challenging when the collaboration is between traditionally competitive participants or between participants who perceive each other's ways as very different, as in the case of academic and industry partnerships.

As suggested by Contractor, Kumar and Kundu (2010), it is insightful to explore the workings of a successful collaboration in the form of a cluster, evaluating how it works. For this reason, the current research examines MNC subsidiary competence development through business relationships with both competitive partners and non-competitive partners. According to Contractor, the nature of the collaboration may be quite different amongst participating entities, owing to the different interests and *modus operandi*.

1.4.5 Collaboration amongst Business and Educational Institutions

As the current research includes the business relationships that the MNC subsidiary has in the foreign location, competence development benefitting from partnerships with non-competing entities such as educational institutes are pertinent to the study. Raunio and Kautonen (2014) described 'open innovation' as a response to manage the increased amount of boundary spanning knowledge flows in and out of the innovation process. Kautonen argues that this encompasses a wide range of collaboration modes involved in technology transfer, amongst industry and university collaboration. Such knowledge flows between business and educational institutes can be understood in terms of the Relational view of the firm, while also being consistent with the Uppsala Model on the evolution of the multinational business enterprise, in terms of co-ordination of networks (Vahlne and Johanson, 2013). Furthermore, a strong relational aspect is a pre-requisite for tacit knowledge transfer between industry and universities, according to Perkmann and Walsh (2007). They propose that links with high relational involvement would include research partnerships, while modes of collaboration related to commercialisation would involve lower levels, in a two-way exchange between industry and educational institute. This may suggest that relational involvement in networks such as research partnerships are more impactful in terms of driving higher levels of competitive advantage for the MNC.

1.5. Parent MNC competitive advantage

With reference to the current research, the knowledge and competences gained by the MNC subsidiary at its foreign location and impacting the competence development at the parent MNC is now reviewed. This takes account of the environmental factors related to the development of knowledge and competences at the subsidiary location and intra-organisational structure enabling the parent MNC to gain competitive advantage based on the subsidiary competence development.

1.5.1. Transfer of Competences Gained to Parent MNC

As the research is focussed on the MNC subsidiary impact on competitive advantage of the parent MNC, it is pertinent to examine the factors that impact the availability of knowledge and developed competences in an intra-organisational structure. In this regard, Ghoshal (1987)

found that MNC subsidiaries develop competences that positively impact the competitive advantage of MNCs by reverse flow of competences from subsidiary to head office,

According to Tsai (2001) and Ghoshal (1987), inside a multi-unit organisation, units can learn from each other and benefit from new knowledge developed by other units. They claim that knowledge transfer from organisation units provides opportunities for mutual learning and inter-unit co-operation that stimulates the creation of new knowledge, contributing to the organisation's ability to innovate and develop competitive advantage.

1.5.2. Parent MNC absorptive capacity

An important consideration in the parent MNC acquiring knowledge from subsidiary MNC units is the parent MNC's absorptive capacity, which reflects the organisation's ability to absorb new knowledge and apply it for its own innovation (Tsai, 2001). The parent MNC's absorptive capacity to acquire the new knowledge and competences generated at the subsidiary location is an important attribute when reviewing parent competitive advantage gain.

Todorova and Durisin (2007) defined the four main related steps of absorptive capacity as knowledge acquisition, knowledge assimilation, knowledge transformation and knowledge exploitation. An alternative definition by Zahra and George (2002), refers to absorptive capacity as a dynamic capability pertaining to knowledge creation and utilisation that enhances a firm's ability to gain a competitive advantage. They argue that dynamic capabilities are embedded in the firm's organisational processes and are directed towards organisational change and evolution. Such capabilities enable a firm to reconfigure its resource base and adapt to changing market conditions to achieve competitive advantage.

With Zahra and George's (2002) interpretation of absorptive capacity as a dynamic capability, the direct role that it plays in the internationalisation process and the evolution of the multinational business enterprise as posited by Vahlne and Johanson (2013) is highlighted. As firms adopt a process to evolve as multinational businesses, they develop dynamic capabilities, adopt entrepreneurial practices and engage in managing uncertainty, which are the steps involved in managing knowledge creation during the internationalisation process.

Zahra and George (2002) further define absorptive capacity in two components, namely potential capacity which comprises knowledge acquisition and assimilation capabilities and realised capacity which centres on knowledge transformation and exploitation. They claim that

an MNC's competitive advantage enhancement relates to a firm's realised capacity. Potential capacity provides firms with the strategic flexibility to adapt in high-velocity environments, thus enabling firms to sustain competitive advantage in a dynamic industry context. As the current research is focussed on the competitive advantage gain by the parent MNC based on subsidiary's location driven competitive advantage, the realised capacity component of the parent absorptive capacity is under review.

1.5.3. Competence Gained from Subsidiary Business Relationships

Research by Holm *et al.* (2005) has shown that competence development through business relationships at the MNC subsidiary level has a direct influence on competence development in the larger MNC organisation. They claim that this strengthens the subsidiary's impact on the MNC performance. This is founded upon the central tenet that MNCs are knowledge seeking organisations and knowledge transfer between its separate units leads to competitive advantage (Madhok, 1997). This is predicated on the condition that subsidiaries generate unique knowledge, which is partly ascribed to the characteristics of the subsidiary's environment (Foss and Pedersen, 2002). According to Dunning (1998) and Nobel and Birkinshaw (1998), environment is assumed to contribute to the development of MNC's competitive advantage.

1.5.4. Subsidiary MNC Embeddedness and MNC competitive advantage

According to Andersson *et al.* (2002), the external embeddedness of subsidiaries has been shown to influence their capacities for innovation and to be a decisive factor in explaining which subsidiaries will contribute to competitive advantage at corporate level. They argue that the more the external relationships impact the competence development of the subsidiary, the greater the impact of the subsidiary on knowledge development in the parent MNC.

According to Uzzi (1997), embeddedness is based on a joint commitment for higher-order knowledge sharing and collaboration routines which are necessary to build resources and capabilities. Embedded relationships within a business context are characterised by mutual adaptation and trust (Dyer & Singh, 1998). Such relationships develop from a process where firms make relationship-specific investments and integrate selected activities with each other. According to Dyer and Singh (1998), developing such strong relationships with external partners is a source of competitive advantage.

The extent to which MNC subsidiaries develop inter-dependent relationships with business partners, i.e., its relational embeddedness, can be a driving factor of subsidiary knowledge creation enabling these subsidiaries to contribute to the competitive advantage of the MNC (Nell, Ambos and Schlegelmilch, 2011). According to Nell, MNC internal factors and environmental factors have been associated, in several research studies, with the development of subsidiary relational embeddedness. Nell and Andersson (2012) examined the importance of the environmental characteristics to the degree of subsidiary relationship embeddedness as it had been posited as a significant driver, yet the evidence of this had been scant. While they reference markets-as-networks logic, which argues that markets are a set of interconnected actors with each having its individual relationships, these relationships are in a wider network context, without specific emphasis placed on the importance of the subsidiary environment in the network.

Nell and Andersson (2012) argued that the MNC subsidiary relational embeddedness is influenced by the complexity of the business relationships in the wider business network. This suggests that the subsidiary environment holds a wide range of actors, outside the direct business relationship between the subsidiary and its network affiliates, that exercise influence on its direct business relationship. Their study shows a non-linear relationship between the complexity of the business network and the subsidiary relational embeddedness. They conclude that the wider business network context is highly important in understanding the variation in subsidiary relational embeddedness. Nell and Andersson (2012) also introduced the notion of avoidance of over-embeddedness, where subsidiaries avoid situations of being over-embedded in response to high-complexity in the business network context. Their research also alludes to limitations that subsidiaries may experience when engaging in business relationships in the wider business context related to the opportunity cost of partaking in these embedded relationships. While firms do benefit from access to strategic resources from such relational involvement (Dyer & Singh, 1998), the costs of high-level adaptation and collaboration may be prohibitively high for the subsidiary.

Nell and Andersson's (2012) findings on the important influence that environmental characteristics have on subsidiary relational embeddedness, thus yielding competitive advantage to the MNC, is to some extent, contradicted by findings in a study by Szalucka (2015). The findings of that study showed that FDI subsidiary location did not significantly influence the scale and nature of benefits from FDI international activities. While the FDI activity researched in that study showed a positive contribution of the FDI activity to

competitiveness, the subsidiary location was not deemed statistically significant. It is worthy of note that the raw data as presented in the study by Szalucka (2015) did show a slightly positive competitive advantage impact of location, albeit not statistically significant in Chi-square independence analysis. However, this slightly positive impact was noted when location was defined in an aggregated sense, i.e. developing countries or developed countries.

The research by Nell and Andersson (2012) and Szalucka (2015), with alternative perspectives on the impact of locational environment on the investing MNC's competitive advantage, gives an interesting challenge to the seminal theories of MNC activities with respect to the importance of location. While Dunning's Eclectic (OLI) paradigm has been the dominant analytical framework for explaining foreign activities of MNCs for several decades, with locational advantages clearly advanced as a driver of competitive advantage, there is now a clear case for evaluating impact of subsidiary location based on the important contribution that competence development in MNC subsidiary location makes to parent competitive advantage.

As the current research is examining the importance of subsidiary location on MNC competitive advantage, the findings of the Nell and Andersson (2012) and Szalucka (2015) studies are important in addressing the research question.

1.6 Summary and conceptual framework

The conceptual framework draws from the range of literature considered in this paper and presents a relationship between a range of MNC subsidiary location-based inputs and the MNC parent company competitive advantage. The drivers of competence development at the subsidiary location firstly include the subsidiary locational environment due to the degree of rivalry, competition and pressure from customers. Such pressure may be an incentive for developing competences through product and process innovation. This is consistent with the Resource-Based View of Competitive Advantage (Barney, 1991). Competences at the subsidiary level may in turn translate to parent MNC competitive advantage via knowledge transfer in intra-organisational networks (Tsai, 2001).

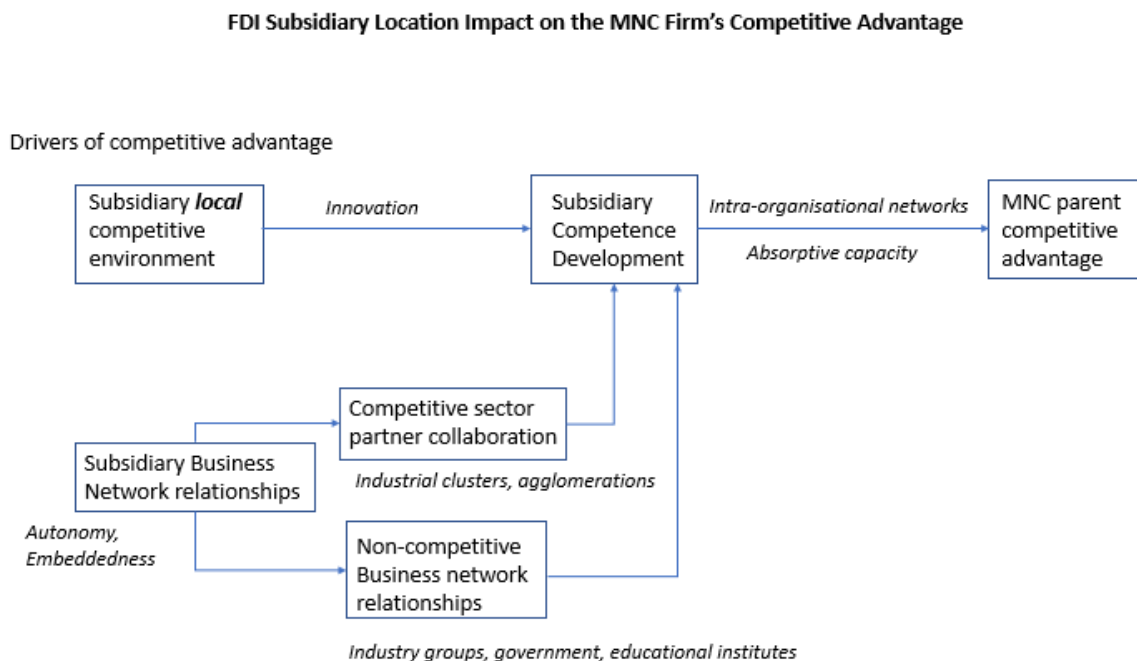
A second driver of subsidiary competence development is the subsidiary business relationships. (adapted from Holm *et al*, 2005). This argues that MNCs are embedded in business relationships in which knowledge is developed from the relationship-specific investments the subsidiary makes. This is consistent with the Relational-View of the firm (Dyer & Singh, 1998) which states that knowledge is created and developed from relation-specific investments such

as adaptation in technology and business practice. Business relationship networks can be formed with competitors, in which they collaborate for the mutual benefit of all parties, as exemplified by the recent successful development of industrial clusters and agglomerations in Ireland (O’Dwyer *et al.*, 2014). That study showed that successful collaboration amongst same sector competitors translates to parent MNC competitive advantage.

A third proposed driver of subsidiary competence development relates to the development of competences by MNC subsidiary business relationships with non-competitor organisations such as industry groups, government bodies and educational institutions. In many regions, such non-competitor groups have established significant links with the business sector and a gap in the current literature is the limited research on the effects of such relationships on competence development and thus on parent MNC competitive advantage.

Additional factors which impact on the potential for competences gained at subsidiary level to be translated to a parent MNC competitive advantage are considered such as the level of autonomy of the subsidiary and its embeddedness in social and business networks (Ruggero, 2016 & Gammelgaard, 2012).

Figure 1. Conceptual Framework



(Source: Current research)

In short, this study seeks to analyse the complex interactions that lead MNCs to choose foreign locations and to assess the relative importance of a range of location-based factors on the ongoing parent MNC competitive advantage (through subsidiary competence development). The research objectives involve identification of the competences gained by the MNC subsidiary, at a particular location, that contributes to its competitive advantage and secondly, verification with the MNC parent company if the identified competences have contributed to the company's competitive advantage.

The author has a keen interest in this area, having worked in the subsidiary of a large US MNC in the mid-west of Ireland for many years. In this role, he has witnessed the above factors and is particularly piqued on the role of non-competitive business network relationships to subsidiary competence development. Paper two of this research will outline the planned methodological approach which is planned to achieve this research aim and it is anticipated that the author's extensive contacts with senior MNC personnel in the mid-west of Ireland will be availed of at that stage.

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Linking narrative – Preface to Paper 2

This preface addresses changes in thinking and approach between the writing of Paper 1, the Conceptual Paper and Paper 2, the Methodology Paper. An initial presentation of the Paper 1 was made to the joint examiners at a Doctoral Colloquium in March 2018. The examiners advised on selected literature references that would embellish the original research area, such as Vahlne and Johanson's (2013) The Uppsala model on evolution of the multinational business enterprise – from internalisation to coordination of networks, which assisted with consolidating the research focus. With the benefit of hindsight, it is acknowledged that the literature review on Internationalisation could have been better developed. A revised Paper 1, incorporating the suggested changes by the joint examiners, was subsequently submitted and approved by the examiners.

The focus of the original research question in Paper 1 was the examination of MNC subsidiary location impact on parent company competitive advantage. Based on developing insights gained from the research literature review, the research question was refined to give more focus to the impact of subsidiary competences, which may be derived from the local environment, on MNC parent company competitive advantage. Based on this, the research question in Paper 2 is focussed on an examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage. Consequently, the original two research objectives were expanded in Paper 2 to four research objectives. Originally, the research objectives in Paper 1 were:

- (i) the identification of the competences gained by the MNC subsidiary, at a particular location, that contribute to the MNC's competitive advantage and
- (ii) verification with the MNC parent company if the subsidiary has contributed to the company's competitive advantage and how

In Paper 2, the research objectives were developed to incorporate more detailed considerations to address the research question. These are as follows:

- (i) describe the local environment in which subsidiaries operate.
- (ii) assess the importance of local subsidiary business network relationships (competitive and non-competitive).
- (iii) analyse the extent to which local environment and network relationships contribute to subsidiary competence development.

- (iv) determine the impact that competence development at the MNC subsidiary location has on the competitive advantage of MNC parent company.

The author's decision to focus on one region – the Mid-West of Ireland, for the research data collection, is based on several factors, including the region's cross-sectoral base of subsidiary MNCs representing high technology industries, in addition to the presence of active business networks and higher education institutes (HEIs) that have industry linkages.

Doctorate in Business Administration (DBA)

Participant name: Paul Sheahan 20074922

Supervisors: Professor Bill O’Gorman and Dr Tom Egan

Date: 16th June 2019

RESEARCH PAPER SERIES

Paper 2: Methodology Paper

‘An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage’

Abstract

This research examines how a subsidiary Multi-National Corporation’s (MNC) competence, influenced by locational factors, impacts on parent MNC competitive advantage. Theoretical underpinnings for this research are derived from the Uppsala Model on the Evolution of the Multi-National Business Enterprise (MBE) (Vahlne and Johanson, 2013), the Ownership, Location and Internalization (OLI) paradigm (Dunning, 2000) and the Relational View of the Firm (Dyer & Singh, 1998). The research question which examines if subsidiary competences derived from the local environment impacts on parent company competitive advantage, is supported by four research objectives. These objectives progress from an identification of the regional attributes that influence the location choice of MNC subsidiaries, to an assessment of whether these attributes lead to subsidiary competence gain, and finally to a determination as to whether the competences gained by subsidiaries at local level contribute to parent company competitive advantage.

In determining a methodology, the “research onion” process (Saunders, Lewis and Thornhill, 2015) is chosen which outlines a systematic approach to resolving a research question. An interpretivist philosophy is chosen to address the research question, owing to the in-depth level of enquiry required and to the need for the researcher to be embedded in the data collection process. The research design will incorporate semi-structured interviews with MNC subsidiaries located in the Mid-West of Ireland, followed by interviews with parent MNC firms.

Paper count: 8,224

List of Abbreviations

MNC	Multi- National Corporation
MBE	Multi- National Business Enterprise
FDI	Foreign Direct Investment
OLI	Ownership, Location, Internalisation
IDA	Industrial Development Authority
IP	Intellectual Property
SFI	Science Foundation Ireland

1.0 Introduction

This research examines how MNC subsidiaries gain competences from the local environment and the extent to which this competence gain, in turn, drives parent MNC competitive advantage. The literature reviewed in the Conceptual Paper concluded that while international business theory suggests a strong link between FDI location benefits and impact on competitive advantage, the empirical data supporting this relationship is weak. While the traditional roles of MNC subsidiary location have diminished in recent years (Porter, 2000), there remains a growing trend in MNC internationalisation by foreign direct investment mode. Research in recent years acknowledges the effect that competitive pressure in the local environment may have on competence development within MNC subsidiaries (Szalucka, 2015; Holm, Holmstrom and Sharma, 2005). It has also been found that organisational benefits accrue to firms that are involved in business relationships (O'Dwyer, O'Malley, Murphy, McNally, 2015; Holm *et al.*, 2005). This suggests that location still confers important advantages for MNCs and the importance of subsidiary location choice, and the inputs this provides for subsidiary competence gain, is core to this research.

This paper details the methodological approach planned for this study, and as per Mills and Birks (2014), this will involve consideration of methodological choices for research philosophy, approach, design, methods and analysis that address the research question which was introduced in the Conceptual Paper for this DBA study. As the conceptual model and research question have been updated since the completion of the Conceptual Paper, this paper starts with a review of the theoretical underpinnings of this study, which leads to the updated conceptual model which depicts the relationships between the drivers of subsidiary competence gain, and the impact on parent company competitive advantage. The research objectives in support of the main research question are then outlined. A discussion on the approach to the research in epistemological and ontological terms is included. The research method used in collecting data is then described and the selection justified, whilst acknowledging any limitations. Data analysis techniques are described along with their justification for selection for addressing the research question. The paper concludes with a discussion of relevant ethical issues for this research study.

1.1 Theoretical Perspectives and Conceptual Model

The Conceptual Paper critiqued literature in areas relevant to the research including competitive advantage of the firm, location theory and internationalisation theory. In relation to models of competitive advantage, the Relational View of the Firm (Dyer & Singh, 1998) is of particular interest as it considers locational factors in its construct, such as business partnerships, inter-firm knowledge sharing, effective governance and linkages. This view allows for inter-firm linkages to be a source of competitive advantage, and these may include inter-firm collaboration, business interactions, relationships and networks (Enright, 2000). Furthermore, the extent to which MNC subsidiaries are embedded in specific business relationships enables knowledge development from relationship-specific investments with resultant adaptations in technology and business practices (Andersson, Forsgren and Holm, 2002). As the research area is focussed on the parent MNC competitive advantage impact, derived from subsidiary MNC competence gained, the Uppsala Model on the evolution of the MBE (Vahlne and Johanson, 2013) serves as a relevant framework for researching how subsidiary location impacts dynamic capabilities, entrepreneurial innovation and management of uncertainty. Coupled with this recent version of the Uppsala Model, Dunning's (2000) Eclectic Paradigm (OLI paradigm) serves as an important framework in the current research for understanding the foreign activities of MNCs, with reference to the attributes of a subsidiary's location choice.

The conceptual framework, shown in Figure 1, presents the relationship between the range of subsidiary MNC regional-based attributes and subsidiary competence gain. It is then proposed that the competences gained contribute to the parent MNC's competitive advantage. Such a model does have literature support; for example, the Resource-Based View of Competitive Advantage (Barney, 2001) suggests that the local environment may be an incentive for developing competence through product and process innovation. Furthermore, according to Holm, Holmstrom and Sharma (2005), competence development at the subsidiary MNC may be driven by competitive business relationships that the firm engages in. This infers that MNCs are embedded in business relationships in which knowledge is developed from the relationship-specific investments that the subsidiary engages in. This is consistent with the Relational View of the Firm (Dyer & Singh, 1998) and the Uppsala Internationalisation Model (Vahlne & Johanson, 2013) which posit that knowledge is created and developed from relation-specific investments. Such collaboration for the mutual benefit of all parties is exemplified by the

successful development of industrial clusters and agglomerations in Ireland (O'Dwyer, O'Malley, Murphy, McNally, 2014).

Further research on the impact of subsidiary MNC embeddedness in business networks, described the innovative performance of firms as being related to their capacity to access external knowledge and integrate it with internal knowledge (Guimón and Salazar Elena, 2015). These authors claim that a direct positive relationship exists between openness in collaboration with universities and sales of new products. Similar findings by Dimitratos, Liuoka and Young (2009), in a quantitative study on innovative entrepreneurial output and its impact on subsidiary MNC performance, found that entrepreneurial output and networking with partners external to the MNC system positively affect economic development contribution.

Engagement by the subsidiary MNC in business relationships with non-competitor organisations such as industry groups, government bodies and educational institutions may also lead to location-based competence gain (Ruggero, Deflorin and Scherrer, 2016; Gammelgaard, Weizmann-Henelius, Koivisto, Eronen and Kaltiala-Heino, 2012). According to these authors, additional factors considered at the subsidiary MNC which may impact parent MNC competitive advantage include its degree of autonomy and its embeddedness in business networks. The level of MNC subsidiary autonomy and its impact on subsidiary competence gain is significant in MNC research and has direct relevance to the research question. In critically assessing this impact on the parent MNC competitive advantage, the transfer of locally developed competence to the parent is then examined, as how knowledge is transferred in intra-organisational networks forms an integral part of the research question (Tsai, 2001).

Additional locational factors that may impact a subsidiary's competence gain include market access and regional taxation regimes. According to Porter (1986), market seeking MNC performance is governed by how well subsidiary organisations are aligned with local environments, taking account of the global competition occurring at the business level in specific markets. Furthermore, local taxation regime is considered a factor in MNC competence gain that may be a decisive factor in determining investment location choice (Grubert, 2004).

1.1.1 Research Question and Objectives

The revised research question for this study is as follows:

‘How do subsidiary competences, gained from the local environment, impact on parent company competitive advantage?’

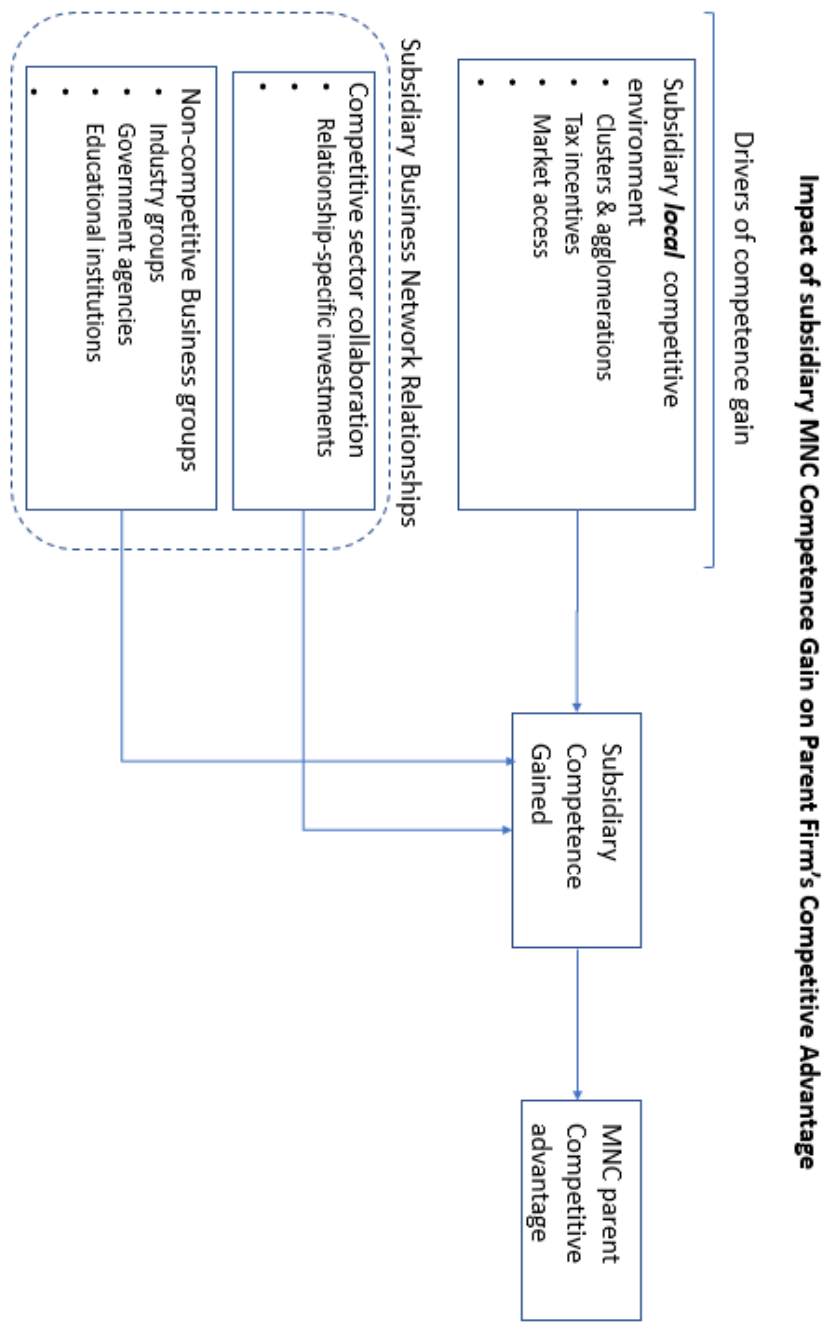


Figure 1 Conceptual Framework (Source: Current research)

Previous research work examining competence development at subsidiary MNCs, and how that impacts competitive advantage of the parent MNC, has been largely concentrated on quantitative studies and has shown mixed results. For example, Holm, Holmstrom and Sharma

(2005) used quantitative statistical methods to find that the competitive environment had an insignificant effect on the competence gained at the subsidiary MNC. However, they concluded that the competitive environment did play a role in competence development in business relationships which, in turn, played a role in the parent MNC competence development. Yet, there has been considerably less research examining the impact of business relationships, both competitive and non-competitive, on competence gained at subsidiary MNC location. Nell and Andersson's (2012) findings on the important influence that environmental characteristics have on subsidiary relational embeddedness, thus yielding competitive advantage to the parent MNC, is contradicted by Szalucka's (2015) study which showed that FDI subsidiary location did not significantly influence the scale and nature of benefits to the parent MNC. These studies give an interesting challenge to the seminal theories of MNC activities with respect to the importance of location and subsidiary competence gain. While Dunning's (2000) OLI paradigm has been the dominant analytical framework for explaining foreign activities of MNCs for several decades and with locational advantages clearly advanced as a driver of competitive advantage, there is now a case for evaluating the impact that competence gain in MNC subsidiary location makes to parent competitive advantage.

In addressing the research question, the unit of analysis is the MNC while there are two units of observation - the subsidiary MNC and the parent MNC. Details of how data will be gathered from these units is outlined later in this paper.

The research objectives are:

Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating.

An important aspect of this research is to understand the socio-economic setting in which the subsidiary is operating. For example, population, number and level of educational institutions, number of public and private sector research centres, number of graduates generated per year, tax regime, political setting, and other attributes are significant in the context of this research.

Objective 2. Analyse the competitive and non-competitive networks the subsidiary is engaged with in the territory in which it is based.

It is important to understand the embeddedness of the subsidiary in the region in which it is operating. This is exemplified by the networks it belongs to, if the subsidiary is an active

member of a cluster or agglomeration, and the degree to which it engages in inter-firm collaboration.

Objective 3: Establish the relative importance of the territory's attributes and the subsidiary's engagement with networks to the subsidiary's competence levels and what the resultant competences are.

Despite the finding by Holm *et al.* (2005) that that the competitive environment had an insignificant effect on the competence development at the subsidiary MNC, the authors did conclude that the competitive environment did play a role in competence development in business relationships which in turn played a role in the parent MNC competence development. This is consistent with Tsai (2001) who found that the parent MNC's absorptive capacity to acquire the new knowledge and competences generated at the subsidiary location is an important attribute when reviewing parent company competitive advantage gain. This phase of the research will assess whether the combination of the territory's attributes and the engagement with networks lead to competence development at the subsidiary level.

Objective 4: Determine if the level of subsidiary competences contributes to the MNC parent company competitive advantage.

This objective will gather empirical data to determine if subsidiary competence gain impacts parent MNC competitive advantage. It will enhance the mixed evidence to date in this area; for example, Nell and Andersson (2012) found that environmental characteristics have an influence on subsidiary relational embeddedness, although this is contradicted by Szalucka's (2015) research which claimed that FDI subsidiary location did not significantly influence the benefits to the parent MNC.

1.2 Research Framework

Having outlined the research question and objectives, the researcher must now establish the appropriate methodological choice, ensuring it is in line with the theme of the research. Holden and Lynch (2004) argued that this choice should be a consequence of the philosophical stance

taken by the researcher and the phenomenon to be investigated. The process chosen to address the methodological choices to be made in this study is the “research onion” (Saunders, Lewis and Thornhill, 2015). This outlines a systematic approach to addressing a research question which involves selecting the research philosophy, the approach taken, the research strategy, and methods followed in the study. For this research, the Research Onion Process model, as shown in Figure 2, is used to indicate all research process steps. It presents a comprehensive process for the research by giving options for the research process at every step involved. The sequential process steps within the research onion are described in the following sections.

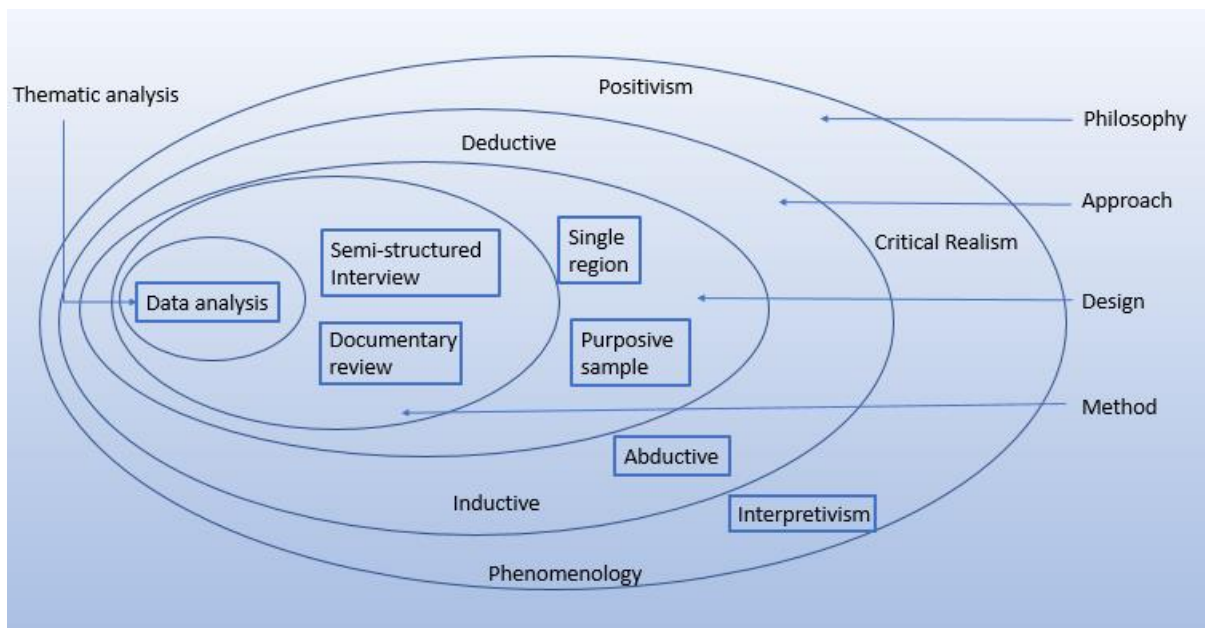


Figure 2 Research Onion: Adapted from Saunders, Lewis and Thornhill, 2015

1.2.1 Research Philosophy

The first layer of the research onion represents research philosophy. The reason research philosophy is considered, is that certain research methodologies may not lend themselves well to the researchers’ assumptions concerning epistemology and ontology. According to Gray (2013), epistemology provides a background to the kinds of knowledge that are legitimate and adequate so that the research methods and the design will work for a given set of objectives. In a similar way, Easterby-Smith, Thorpe and Jackson (2012) suggested that when one has a knowledge of research philosophy, it helps the researcher clarify the kind of evidence being gathered and how to interpret it. Ontology involves an understanding of the nature of reality,

and from a research perspective, the researcher is concerned with his or her assumptions held on how the world operates. A researcher's ontological perspective will range from the positivist view, which suggests that the nature of being can be understood in an objective manner, to the interpretivist perspective which would suggest that the researcher would be involved in the data gathering exercise by being involved in a subjective way.

The researcher could justifiably adopt the positivist research philosophy in the current research, as several quantitative studies have researched the subject. For example, Nell and Andersson's (2012) study into the effect of the subsidiary's business network embeddedness and its impact on parent competitive advantage used statistical analysis methods to examine its hypotheses. Similarly, additional research in this area by Andersson, Dellestrand and Pederson (2014); Szalucka's (2015), and Ratajczak-Mrozek's (2017) all used quantitative techniques to carry out their research analysis. However, having considered carefully the alternative approaches to addressing the research question and objectives, it is felt that an alternative approach to quantitative data analytical methods is needed; an approach which allows a more detailed examination into subsidiary MNC competence gain and impact on parent MNC competitive advantage. A consideration of the ontological separation of the researcher from the subject within the positivist philosophy suggests that an alternative philosophy facilitating the researcher's immersion in the research is more suitable for gathering data to answer the research objectives. From an epistemological perspective, the research will develop deeper knowledge through learnings from the experiences of the research subjects and interpreting their responses; this approach suggests that the objective nature of a positivist philosophical approach is limited for this study.

Using the Burrell and Morgan (1979) Four Paradigm framework for the analysis of Social Theory, the Interpretivist philosophy presents a subjective view on the understanding of the fundamental nature of the social world. The interpretivist perceives reality and knowledge as neither objective or exterior, which suggests involvement of the researcher in the exercise of gathering data, by being involved in a subjective way in the study. According to Gephart (2004), interpretivist studies take a naturalist view that knowledge and understanding are socially constructed. According to Gioia, Corley and Hamilton (2013), a core value of interpretivist studies is the faithful and authentic representation of people's perception of their lived experiences. The approach is often used to examine concepts and relies on interview data to give voice to informants. Interpretivism's ontological stance is to assume that all meanings

are contextual (Burrell and Morgan, 1979, Schwandt, 1994). Epistemologically, it is anti-positivist and assumes we cannot study the world of human affairs in the way that the hard sciences pursue their investigations. According to Burrell and Morgan (2017), in methodological terms, interpretivism is concerned with understanding at an individual level. The knowledge created is from the inside, often contextualised and based on sometimes changing reality. According to Schwandt (1994), an interpretivist's approach is characterised by attention to detail, situated in complexity and to the situation's meaning. Burrell and Morgan's second set of assumptions relate to the nature of society with the typology distinguishing between researchers wedded to radical change versus regulation. Interpretivism is concerned with the sociology of regulation.

In summary, it is proposed that an interpretivist philosophy will be adopted in this research study as this will allow the researcher to be embedded in the data collection process. This is needed to understand each subsidiary MNC's unique profile, the factors that impact local competence gains, and the contribution of such gains to parent company competitive advantage. It is acknowledged that each subsidiary and parent MNC combination is unique, and for that reason, adopting a positivist philosophy and its quantitative methods would not yield the level of insightful enquiry needed for this research study.

1.2.2 Research Approach

Kovács and Spens (2005) described the research process as the summary of all sequential steps a researcher engages in that are necessary for following a path of a specific research approach. Within the research process, the research approach is a way of conscious scientific reasoning (Hoban and Nielsen, 2010). Deductive, inductive and abductive approaches to research are considered for selection for the current research. Deductive research follows a conscious direction from a general law to a specific case and is typically used for testing existing theories (Alvesson and Skoldberg, 2017; Taylor, 1992). A deductive approach reviews theory, derives logical conclusions and proposes hypotheses which can be tested in an empirical setting. Applying a deductive approach to the current research question would involve the testing of theories on firm competitive advantage, location and internationalisation based on the empirical data collected during interviews and published company documentation review.

Alternatively, an inductive research approach reasons through moving from a specific case or a collection of observations to a general law, also summarised as moving from facts to theory (Alvesson and Skoldberg, 2017). According to Stentoft, Arlbjoern and Halldorsson (2002), the development of new theory calls for more inductive research. An example of how an inductive approach to the current research question could be employed, is the generation of empirical data during interviews, to develop explanations and emergence of insights on current practices adopted by subsidiary MNCs when developing competence locally and transferring those for parent MNC competitive advantage.

The abductive research approach stems from Taylor's (1992) insight that the best advances in science neither followed the pattern of pure deduction or pure induction. According to Andreewsky and Bourcier (2000) and Taylor (1992), abduction is the systemized creativity or intuition in research to develop new knowledge. According to these authors, creativity is necessary to break out of the limitations of induction and deduction, which are both delimited to establish relations between already known constructs. An abductive approach allows for an unexpected observation that calls for explaining an anomaly that cannot be explained by using existing theory (Alvesson and Skoldberg, 2017). According to these authors, data is collected to explore a phenomenon, identify themes and patterns and locate these in a conceptual framework. In abductive reasoning, the case presents a plausible but not logically necessary conclusion, provided that its anticipated rule is correct. The abductive approach follows a process from 'rule to results to case' (Danermark, Ekstrom and Jakobsen 2005).

The researcher's approach to the current study is predominantly abductive. It does include influences from the deductive approach, owing to the testing of the relevance of seminal theories to the interview data collected during the research. Similarly, the inductive approach may also be pertinent as data will be gathered and qualitatively analysed, using thematic analysis, which may lead to generalisations that may inform new theory.

1.2.3 Research Design

The research design depicts how the researcher intends to carry out the research work (Gray, 2013). Owing to the need to examine the impact that local environmental factors and business network participation has on subsidiary competence gain, the researcher acknowledges that this may be context dependent. Furthermore, the local environment impact may differ significantly

amongst subsidiary MNCs in terms of competence gained, depending on a range of factors, including the sector within which the subsidiary operates. Ideally, the author would have liked this research to span multiple locations, each with a high level of subsidiary MNC presence to enable a comparative analysis between locations. However, considering the time-consuming nature of such a study, the author has chosen to select a single location for this study as this will facilitate a level of consistency in the set of attributes available to influence competence gain at the subsidiary. The author's accessibility to subsidiary MNCs and their parent organisations, stemming from his employment in a large United States-based multinational company and his involvement in industry groups in the Mid-West region of Ireland, is a key enabler for performing and completing this research work.

1.2.3.1 Subsidiary MNC location - Mid-West, Ireland

The research is focussed on MNCs with subsidiaries based in Ireland's Mid-West region, which is centred around Limerick and Shannon, as the main industrialised zones. The region offers significant attributes that are relevant to MNC competence gain. As shown in Table 1 (2018 IDA Mid-West supported sectoral employment), IDA⁴ Ireland client companies based in that region employed 18,948 staff. The top sectors are Medical and Dental Instruments, Information and Communication Technology, Other Manufacturing and Computer, Electronics and Optical Equipment.

The Shannon region is recognised as one of Ireland's premier industrial locations with a wide sectoral industry base and several world-leading MNCs represented (O'Connell and O'Carroll, 2018). The industry parks incorporating these MNCs and indigenous companies are all in close proximity to Shannon International airport which has several daily connections to USA, UK and Europe. The ICT sector in Ireland's Mid-West region attracts global investment, with the sector comprising more than a thousand organisations of varying scale from indigenous hardware start-ups to the world's largest software companies. Also, the Electronics sector, as the largest manufacturing industry in Ireland, with companies involved in a wide range of sub-sectors including computer systems, peripherals and media, electronic components, data communication equipment, control and test systems and consumer electronics, is strongly represented by MNC subsidiary presence in Ireland's Mid-West.

⁴ IDA Ireland is the agency responsible for the attraction of inward foreign direct investment into Ireland

Table 1 IDA supported sectoral employment in the Mid-West region, Ireland

Employment Mid West	2018
Medical and dental instruments and supplies	3,992
Information and Communication	3,730
Other Manufacturing	3,578
Computer, Electronics & Optical Equipment	2,583
Financial Services	2,267
Pharmaceuticals	2,024
Business & Other Services	774
Total	18,948

Source: IDA Ireland (2018)

Limerick's third level institutions, including the University of Limerick and Limerick Institute of Technology, have a student population of 24,000 and 6,000 graduates respectively, providing a strong pipeline of talent to local business. The University of Limerick has built a strong reputation as a progressive third level educational institution, with strong technology focus and offering a co-operative education programme at under-graduate level. Science Foundation Ireland's (SFI) research centres, Lero – a world-class software research centre and Confirm – a smart-manufacturing research centre, are based at University of Limerick and collaborate strongly with MNC subsidiaries and indigenous industries in the Mid-West region.

The selection of the Mid-West of Ireland, as the single location for reviewing subsidiary MNCs, is based on its strong MNC representation across well-defined industrial sectors. The subsidiaries based there demonstrate varying levels of innovation. Similarly, the author is aware from his own work in the region that there are varying levels of engagement with industry, government agencies and educational institution networks. The MNCs based in this region have parent companies based predominantly in the United States but also in Europe which can offer an interesting point of comparison in this research.

1.2.3.2 Purposive Sampling Method

Firstly, in advance of addressing Objective 1, in order to identify the regional attributes that influence the location choice for MNC subsidiaries, a leading regional development strategist

with decades of significant experience in, and knowledge about, the Mid-West of Ireland region will be interviewed. This ‘expert interview’ will supplement the documentary review of the region and the interviews with subsidiary MNC director-level managers.

In terms of selecting subsidiary and parent MNCs to address the subsequent research objectives, the proposed study uses a purposive sample method, intentionally selecting a pre-defined group of subsidiary MNCs, in the Mid-West of Ireland region. The use of the purposive sampling method is primarily due to the presence of well-defined industrial sectors in this region with the intention of having a representative sample from the dominant sectors in the region. According to Alexiades (1996) and Tongco (2007), when selecting a purposive sampling method, the researcher must decide if it is the most suitable tool for the study. The selected subjects, MNCs in the case of the current research, are chosen non-randomly according to defined characteristics (Bruce and Berg, 2001). The purposive sample method is based on non-probability sampling as it seeks to obtain insights into particular practices related to subsidiary competence gained and transferred to parent company competitive advantage, that exist within a specific location and context. This determines the chosen samples’ suitability for the research.

As per Table 1, the Mid-West of Ireland region has four dominant industrial sectors embedded within the region – Medical and Dental Instruments, Information and Communication Technology, Other Manufacturing as well as Computer, Electronics and Optical Equipment. The purposive sampling plan includes an interview with a subsidiary MNC, and its parent, from each of these main industrial sectors. A fifth subsidiary MNC, and its parent, will be interviewed from the Information and Communication Technology sector. The basis of this decision is to select a firm whose parent is non-US, for comparison within this sector with a US based parent MNC. This total of five MNCs, each with a subsidiary and parent company interview, is a significant part of the data collection plan. A summary of the subsidiary MNC selection criteria used in the research design is shown in Table 2 below.

Table 2 Selection criteria for participant subsidiary MNCs

Selection criteria for participant subsidiary MNC
1. Representative of main industry sectors in Mid-West
2. Subsidiary based in Mid-West at least 4 years
3. Employing at least 50 employees in subsidiary
4. Be clearly involved in Innovation
5. Being a wholly-owned subsidiary of a non-Irish MNC

Source: Current research

Additional details of the five selected subsidiary MNCs selected for this study is shown in Table 3 below.

Table 3 Profile of Selected subsidiary MNCs

	Firm A	Firm B	Firm C	Firm D	Firm E
Sector	ERP software development	Automotive software	Electronics	Engineering	Medical devices
Parent Country	European	United States	United States	United States	United States
Subsidiary innovation level	Strong	Strong	Advanced	Moderate	Moderate
Subsidiary employee base	150	300	1,000	280	1,800
Tenure in Mid-West	5 years	5 years	40 years	40 years	25 years

Source: Current research

In summary, it is proposed that data to address the research objectives is gathered from five subsidiaries based in the Mid-West region of Ireland. These five subsidiaries are representative of the profile of MNC firms in the region. The author, through his membership of network organisations in the Mid-West region, will have access to high level personnel in these chosen organisations.

1.2.4 Data Collection Methods

The next level of the research onion to be considered is the chosen data collection methods, and here, the researcher initially intends to make use of available secondary data in the form of document review and to use this data to prepare the interview protocol for the semi-structured interviews that we be used to collect data to find answers to the research question and research

objectives. Alternative designs were considered for this study such as questionnaires whereby answers using rating scales to a structured set of questions are gathered; however, it was felt that this would not have yielded the in-depth information to adequately assess the subsidiary MNC competence gain impact on parent competitive advantage. Alternatively, the chosen qualitative approach of semi-structured interview was felt to be suitable for the depth of enquiry required for this research. Informants need to be able to elaborate on some answers, placing certain emphasis on parts of answers, where necessary, and to bring up specific points when appropriate. Additionally, qualitative research can provide the necessary information to evaluate differences between the impact of variables that drive competitive advantage based on MNC subsidiary competence (Qu and Dumay, 2011).

Details of the chosen data collection methods are given in the following sections.

1.2.4.1 Document Review

Document review will form an additional source of data for the current research. According to Corbin and Strauss (2008), document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding and develop empirical knowledge in qualitative research. Denzin (2012) described document review as a means of triangulation when used as a supplementary method of data collection in qualitative research.

The types of documents that will be reviewed in the research, to answer the research objectives, range from company registration office filings, to organisational and institutional reports. These data sources are in the public domain and typically found in internet searches and libraries. Data pertaining to the subsidiary and parent MNCs, as it relates to the research objectives, will include publicly available data on the organisational structure. Document review will also include company records that demonstrate company performance, in financial terms and with respect to other measures that reflect innovative practice, such as the number of patents registered. Documents in the public domain that reflect the level of government agency supports received by the subsidiary MNCs will also be reviewed, as this may be relevant to the research objectives.

The document review on regional attributes will include government publications from sources including IDA Ireland, Enterprise Ireland, Central Statistics Office and Economic and Social

Research Institute. Chambers of Commerce publications related to the Mid-West, and City and County Council websites such as www.limerick.ie will also be used.

1.2.4.2 Semi-Structured Interviews

Owing to the detailed qualitative nature of the examination required to understand the impact of the competitive local environment and engagement in business network relationships on competences gained in a diverse set of MNCs in this study, the design will involve multiple semi-structured interviews, where each MNC will be interviewed at both the subsidiary and parent company level (see Figure 3). The rationale for the selection of each MNC has already been outlined to be considerate of the sector they operate in, the parent MNC country of origin and level of embeddedness in business network relationships at the subsidiary location.

According to Khan (2014), rich and in-depth data can play a crucial role in understanding the phenomenon under study and answer the research questions. Interpretivist research data collection methods used to obtain such in-depth data include interviews, focus groups and observation (Harrell and Bradley, 2009). Within the predominantly abductive research approach, employing semi-structured interviews as the main research method was considered optimal, as it facilitates the generation of comprehensive information and data necessary to address the research objectives. Use of the semi-structured interview method is required for data collection owing to the detailed interactions between the parent company, the subsidiary company and its competitive environment. Additionally, the level of innovation at the subsidiary and its business network relationships, along with their overall impact on parent competitive advantage, requires an in-depth means of enquiry. The semi-structured interview facilitates this by allowing the interview informants to elaborate on answers to pre-set questions, when appropriate, thus providing a richer data collection.

According to Alvesson and Deetz (2000), a semi-structured interview involves prepared questioning guided by identified themes in a consistent and systematic manner, interposed by probes designed to elicit more elaborate responses. By using interviews as the main qualitative research technique, the researcher adopts a process-orientated method, from which the subsequent data analysis is reviewed in an interpretive, value-laden approach (Perry, 1998).

Research Design

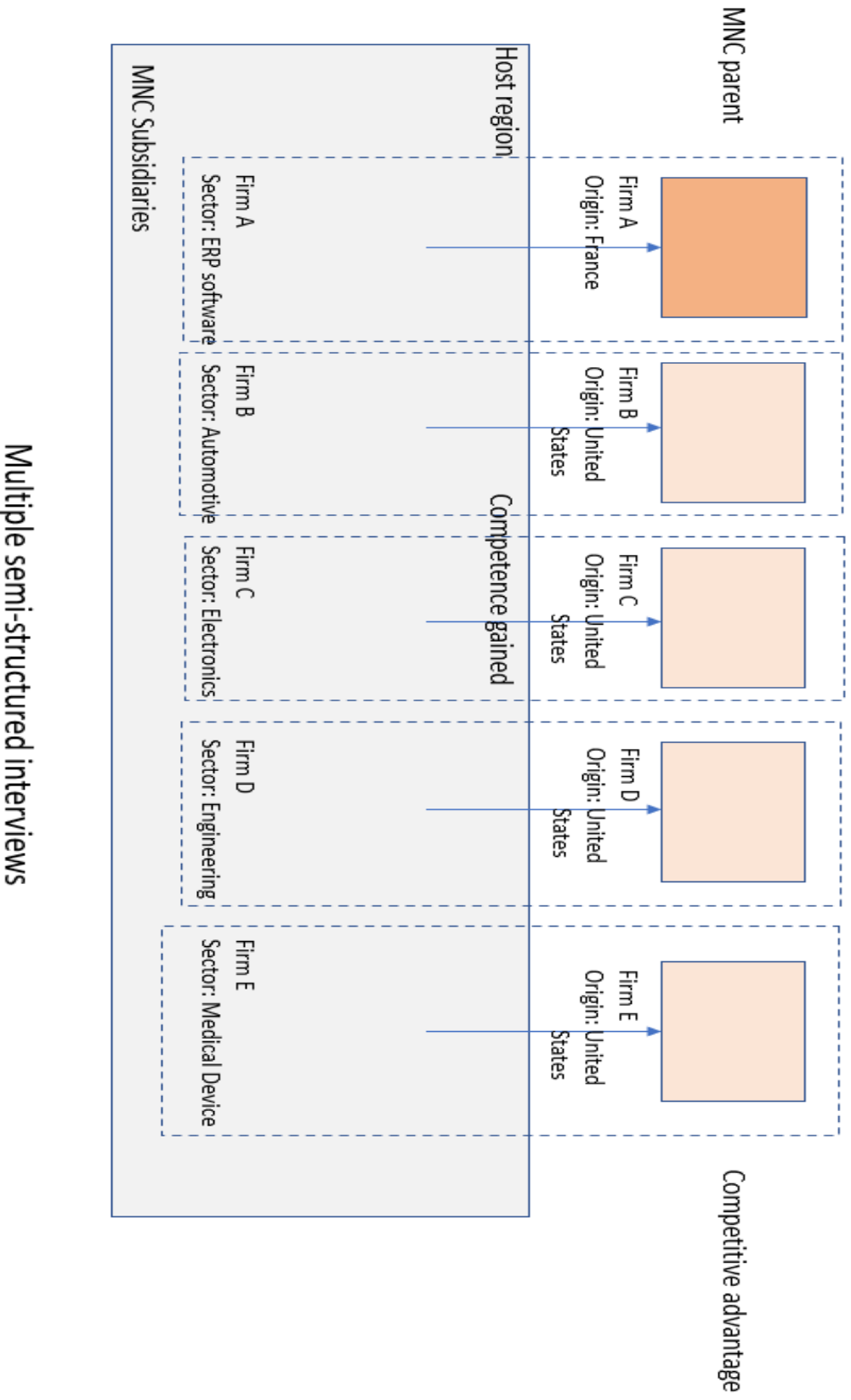


Figure 3 Multiple Semi-Structured Interview Design (Source: Current research)

By applying this interview method to the research, the author addresses the research objectives, by developing systematic questioning around the themes of subsidiary competitive environment, engagement in business relationships, subsidiary MNC competence gain and transfer to parent competitive advantage while allowing the respondents to elaborate on answers of interest. The semi-structured interview incorporates the stages of selecting the type of interview, establishing ethical guidelines, crafting the interview protocol, conducting and recording the interview and reporting the findings (Rabionet, 2011; Irvine, Drew and Sainsbury, 2013). The analysis provides insights and information at a more detailed level than a quantitative approach may provide. As stated by Qu and Dumay (2011), by using an interview technique, the researcher can elucidate the drivers and any interactions among variables affecting competitive advantage of the parent company.

In the current research, managers at director level within the purposively sampled selection of subsidiary MNCs and their parent MNCs will be interviewed to understand the impact of subsidiary MNC competence gain on parent MNC competitive advantage (see Figure 3). To understand the different impact that local environment attributes such as market access, educational institutes, clusters and agglomerations, governmental agency supports, taxation incentives and engagement in business relationships has on subsidiary MNC competence gain, it is important to take consideration of each company context and environment. The qualitative research interview allows for an in-depth investigation into the impact that parent companies gain in terms of competitive advantage from its subsidiary MNC competence gained.

1.3 Proposed Operational Plan

A summary table of each research objective and the methods used for data collection is shown in Table 4. The research methods used to address the research question and supporting research objectives, by examining the relationships between competences gained at subsidiary MNC level and their impact on parent MNC competitive advantage, are described below. These include semi-structured interviews as the dominant method, supplemented by document review and analysis. The application of the research methods to the research objectives is given in the Research Action Plan, shown in Table 5.

The first step in the Research Action Plan is the selection of subsidiary MNCs to participate in the study. Documents for this purposively selected sample will be reviewed in advance to

ensure the MNC meets the selection criteria, as outlined in Table 2, required for the research. Semi-structured interviews will collect data on individual subsidiary MNCs and their parent companies, addressing the research question and supporting objectives. Subsequent qualitative analysis of the data will be carried out which examines themes and patterns in the responses that address the research question and objectives.

Table 4 Research Objectives and Methods for Data Collection

<u>Research objective</u>	→	<u>Research method</u>
1. Elucidate the attributes of the territory in which the subsidiary is operating	→	Document review & Semi-structured interview (subsidiary MNC and subject matter expert)
2. Analyse the competitive and non-competitive networks the subsidiary is engaged with in the territory in which it is based.	→	Semi-structured Interview (subsidiary MNC director)
3. Establish the relative importance of the territory's attributes and the subsidiary's engagement with networks to the subsidiary's competence levels and what the resultant competences are	→	Semi-structured Interview (subsidiary MNC director)
4: Determine if the level of subsidiary competences contributes to the MNC parent company competitive advantage	→	Semi-structured Interview (parent MNC director)

(Source: Current research)

Table 5 Research Action Plan

Intervention	Timeline	Data collection
Subsidiary MNC regional attributes data collection	May - June '19	Interview with Mid- West regional development expert Documentation review
Selection of MNC subsidiaries in Mid- West region	June '19	Per selection criteria outlined in Table 2
Pilot study subsidiary MNC documentation review	June '19	Review of documentation available for subsidiary per section 1.3.4.1
Pilot study subsidiary MNC competence gained by local competitive environment.	June - July '19	Semi-structured Interview with senior manager at subsidiary MNC based in Mid- West of Ireland
Pilot study parent MNC data collection documentation review	June - July '19	Review of documentation available for subsidiary per section 1.3.4.1
Pilot study parent MNC competitive advantage gain	July '19	Semi-structured Interview with senior manager at parent MNC
Qualitative data analysis of Pilot study subsidiary and parent interview transcripts	July - Aug '19	Qualitative data analysis using NVIVO software
Remaining purposive sample subsidiary and parent MNC interviews	October '19 - January '20	Semi-structured Interview with senior managers at subsidiary and parent MNCs
Qualitative data analysis of Pilot study subsidiary and parent interview transcripts	January - February '20	Qualitative data analysis using NVIVO software

(Source: Current research)

1.4 Planned Data Analysis

Thematic analysis is a method for identifying, analysing and reporting patterns and themes within data (Braun and Clarke, 2006). The method may go further by interpreting aspects of the research topic (Boyatzis, 1998). A theme captures something important about the data in relation to the research question and objectives. It represents some level of patterned response or meaning within the data set. An important question to address in terms of coding is what counts as a pattern/theme. This method enables the researcher to include large amounts of textual information and systematically identifies its properties such as frequency of most used keywords by locating the more important structures in its content.

Themes or patterns within data can be identified in one of two primary ways in thematic analysis: in an inductive way (Frith and Gleeson, 2004), or in a theoretical or deductive way (Boyatzis, 1998). As the approach to the research is abductive, the thematic analysis will be predominantly inductive, using themes strongly linked to the data gathered. However, the research's theoretical underpinning is an important perspective in the analysis; hence there is

an acknowledgement that the coding will be guided by the research question's theoretical underpinning.

According to Braun and Clarke (2006), thematic analysis enables researchers to work through large volumes of data in a systematic fashion. This is useful in examining trends and patterns in transcribed interview conversations. Miles and Huberman (1984) also highlight the noting of patterns and themes as a valid conclusion-drawing tactic in qualitative data analysis. The qualitative data analysis software tool, NVIVO, will be used during the thematic analysis stage.

1.5 Limitations of the Study

The research study is limited in terms of generalisations that can be drawn from the themes or concepts concluded due to the limited geographical region that applies to the selected MNC subsidiaries, i.e., Ireland's Mid-West region. While it is beneficial to the research to have a focussed geographical area, in terms of consistent locational attributes, it ignores other regions that can influence the subsidiary MNC in terms of competences gained. There are also limitations associated with the proposed purposive sampling method which relies to some extent on the researcher's judgment on the informants' reliability and competency.

Researchers using this sampling method may also inadvertently omit a vital characteristic in the research area of interest (Anderson, Knowles and Gilbourne 2004; Ramihantaniariyo, Ramambazafy and Quansah, 2003). According to Tongco (2007), there is no cap on how many informants should make up a purposive sample, once the needed information is obtained. This is a relevant concern especially regarding key informants on whom much of the data quality rests. It is critical to be certain of the knowledge and skill of the informant when doing purposive sampling, as inappropriate informants will render the data meaningless and invalid (Godambe 1982). The researcher must also be alert for possible biases on the part of the informant (Seidler 1974).

1.6 Validity and Reliability

In the research, the author will select questions for use in the semi-structured interview format that will address the supporting objectives to the research question, thus yielding data that can be used in a valid qualitative data analysis. As the research method involves multiple semi-

structured interviews, each pertaining to the subject MNCs subsidiaries and parent companies, data from multiple sources will be collected, thus encouraging divergent lines of enquiry. Similarly, as recommended by Yin (2015), the validity of the study will be maintained by establishing good rigour during the data collection process with interim reporting back of recorded interview transcripts to interviewees as part of the process.

According to Gray (2013), conditions for reliability are met if the findings and conclusions of one researcher can be replicated by another researcher doing the same study. By adopting interview methods in the current study, the researcher is controlling the reliability by using a semi-structured interview format, using a pre-defined interview guide, recording the interviews and transcribing these. The transcriptions will be given to the interviewees for assessment of the reliability.

A pilot study will be carried out on the first MNC which will involve document review and semi-structured interview with director level senior executives at the subsidiary and parent operations. Qualitative thematic data analysis will be carried out on this pilot sample which will improve the validity and reliability of the overall research by enabling opportunities for enhancement of the interview questions and documents review in subsequent stages of the research.

1.7 Ethical Issues

According to Lee and Renzetti (1990), ethics is integral to every aspect of management research, rather than being taken into consideration in exceptional stages such as when researching sensitive topics or controversial methods. In a similar vein, Sin (2005) contends that, as researchers, we should treat ethical issues as central to the conduct of all management research. There are specific ethical issues with respect to interviewing that must be handled appropriately. Semi-structured interviews are not totally prescribed. The very act of listening and reflecting back information to interviewees can unfold in unforeseen ways and even cause unintended harm (Warren, 2002). During this research, information will be kept anonymous and protected. The full purpose of the study and commitments required of the interviewees, will be made explicit in advance. The success of the study relies on accuracy and reliability of the accounts given in the interviews. Care will be taken so as not to put interviewees in any position that they feel they must disengage. They will be afforded all opportunities to stop any

line of questioning at any time if they feel it is inappropriate. Ethical approval from the WIT Ethics Committee has been received for the current research and included in Appendix I.

1.8 Concluding Remarks

This paper has outlined the planned methodological approach for this research study and is based around a research question which focuses on the MNC subsidiary competence gain at its location and the transferability of such competence to parent company competitive advantage. The research onion was used as the process to decide on an appropriate philosophy, approach, design and data collection methods for the study. A single site location (Mid-West of Ireland) was chosen as the base for this research and within this region, multiple semi-structured interviews were proposed to gather the necessary data to satisfy the research objectives. The research methods will incorporate semi-structured interview mainly, with supporting documentation analysis. The qualitative data analysis will involve thematic analysis, with comparative analysis and development of themes within the collected data employed.

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1st February, 2019

Dear Paul,

Thank you for forwarding your revised Ethics Application to the Committee for review.

We are satisfied that you have addressed the concerns as outlined previously and we are pleased to approve your application.

However we do wish to note the following and would advise that you amend accordingly:

- In your response and also in documentation circulated in respect of your project you should focus specifically on the management and storage of non-public data, see ref. section 6 *'Companies will be described by sector, regional location and size. Data on companies will either be **publicly available** or not traceable to individuals or their organisations.*
- Avoid making statements to the effect that there *'are **no sensitivities** amongst the parties to be interviewed owing to the anonymity of the research respondents and their organisations. The data that will be researched will either be publicly available or not sensitive in nature'*. Please note that anonymity might protect against 'sensitivities' but doesn't necessarily preclude them.
- Avoid general statements to the effect that there are *'**no ethical concerns** involved as the data will be descriptive, qualitative and not commercially sensitive or confidential in nature'*. We envisage that there may be ethical considerations that will need to be taken into account in your project.
- We recommend that you also note GDPR in the section under Data Protection Act, see ref. Information sheet, second last paragraph.
- In our view, it may be sufficient to return typed transcripts for confirmation purposes to respondents. This also relates to the final question, ref information sheet, last page.
- Finally, in the section on the benefits of participation (ref, Information sheet) it is noted that: *'this is especially important when considering impact that doing business using internet has had on business models in the past decade, while concurrently, the level of FDI has also risen. This requires an in-depth study to understand the importance of location to investment decisions'*. This sentence appears somewhat unrelated to the overall scope of the work. We wish you well with your research study.

We wish you well with your research study.

Kindest regards
Denis

Linking Narrative – Preface to Paper 3

This preface addresses developments between Paper 2, Methodology Paper and Paper 3, Design Implementation and Initial Findings. The two main changes in preparing for Paper 3 relate to the reduction in the number of participant firms in the research and reduction in the number of research objectives. Based on feedback from the examiners and in consultation with my supervisors, it was decided to strengthen the depth of analysis by reducing the number of participant firms from five to three. This reduction was based on the recommendation to address the research objectives in this qualitative study in a reduced number of firms to allow for deeper level of enquiry using the research methods and analysis chosen.

Additionally, it was decided to reduce the number of objectives from four in the Paper 2 to three in Paper 3 as it was felt that the objective related to network relationships is addressed as part of the region's attributes.

The three revised objectives in Paper 3 are as follows:

Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating.

Objective 2: Establish the relative importance of the territory's attributes (including the subsidiary's engagement with networks) to the subsidiary's regionally-based competences and what the resultant competences are.

Objective 3: Determine if and how the subsidiary competences contribute to the MNC parent company competitive advantage.

Preparations for interviewing the former IDA regional director, to determine the attributes of the Mid-West of Ireland region were made and agreement received on participation in the research. Consideration was given to the choice of Pilot Firm to use in the study to ensure the research methodology and data collection methods would be tested fully. This included ensuring that the subsidiary and parent company directors would be available for interview. This also included ensuring that the location for the interviews was available and suitable in terms of being free of interruption. The Pilot Firm was duly selected and agreement received from interviewees.

Doctorate in Business Administration (DBA)

Participant name: Paul Sheahan 20074922

Supervisors: Professor Bill O’Gorman and Dr Tom Egan

Date: 27th November 2019

RESEARCH PAPER SERIES

Paper 3: Research Design and Initial Findings

Abstract

This research examines how a subsidiary derives competences from its location and how such competences impact on parent company competitive advantage. The Conceptual Model presented in Paper One and updated in Paper Two proposes that subsidiary competences can be acquired from the local environment and from subsidiary business network relationships. Paper Two of this DBA study proposed a qualitative approach to addressing the research objectives with an interpretive philosophy being adopted. This paper also outlined that the proposed study will be centred in one location (the Mid-West of Ireland) where the author is based. The paper initially reviews progress on this study to date and outlines additional design considerations which have been undertaken since the completion of Paper Two. These include the selection of a pilot organisation (Pilot Firm) for initial analysis and modifications to the interview guides used to address the research objectives. The paper then moves on to detail the initial findings; this commences with findings of the Mid-West regional attributes which are drawn from an interview discussion with a Mid-West regional development subject matter expert, in addition to documentary review. The final main section of this paper involves further discussions with the subsidiary manager and an interview with a parent company manager in the Pilot Firm to assess the subsidiary competences gained and whether these competences confer competitive advantage on the parent MNC. The analysis of this data involves relevant thematic analysis of data collected to extract the relevant themes, and the paper concludes with reflections on the pilot study which can be brought forward to Paper Four.

Word count: 7,854

1.0 Introduction

This paper presents additional design considerations and initial pilot study findings for a DBA research study which commenced in early 2018. This research study proposes to examine how MNC subsidiaries gain competences from the local environment and from subsidiary business relationships, and whether such competences in turn, drive parent MNC competitive advantage. This introduction section reviews the conceptual model and research design which were developed in earlier papers. This is followed by an outline of additional design considerations which have been addressed since the completion of paper two. The main part of this paper then addresses findings from a study of the Pilot Firm – an MNC with a large subsidiary based in the Mid-West of Ireland.

The Conceptual model for this study is shown in Appendix One, and this depicts the relationships between the drivers of subsidiary MNC competence gain, and the impact on parent company competitive advantage. This model is derived from critiqued literature in areas such as competitive advantage of the firm, location theory and internationalisation theory. It proposes that local regional attributes and the networks the subsidiary engages in help to drive competence gain at the subsidiary level which in turn confers competitive advantage on the parent MNC. In relation to competitive advantage, the Relational View of the Firm (Dyer & Singh, 1998) is of particular interest as it considers locational factors in its construct, and this view allows for inter-firm linkages to be a source of competitive advantage which may include inter-firm collaboration, business interactions, relationships and networks (Enright, 2000). As the research area is focussed on the competitive advantage gained by the parent MNC from subsidiary competences, the Uppsala Model on the evolution of the MBE (Vahlne and Johanson, 2013) and Dunning's (OLI) Eclectic Paradigm (2000) are also considered as relevant frameworks to show how subsidiary location impacts dynamic capabilities, entrepreneurial innovation and management of uncertainty.

The Conceptual Model proposes that competence development at the subsidiary MNC is driven by factors associated with the local competitive environment including subsidiary business relationships; this is drawn from Holm, Holmstrom and Sharma (2005) who found that MNCs are embedded in business relationships in which knowledge is developed from the relationship-specific investments that the subsidiary engages in. It is envisaged that engagement by the subsidiary MNC in business relationships with competitors and with non-competitor organisations such as industry groups, government bodies and educational institutions may also

lead to competence gain (Ruggero, Deflorin and Scherrer, 2016; Gammelgaard, Weizmann-Henelius, Koivisto, Eronen and Kaltiala-Heino, 2012). The Conceptual Model finally proposes that competences developed locally including through network relationships lead to a competitive advantage for the parent firm; this draws from literature on how knowledge is transferred in intra-organisational networks (Tsai, 2001).

1.1 Research Question

Onwuegbuzie and Leech (2006) state that a research question should be emergent, fluid and evolving and should be evaluated throughout the course of the study. According to the authors, a study's research question plays a pivotal role in determining the methodological choices that are deployed in the research design. Consequently, precise wording of the research question and its support objectives will determine the research design, methods for data collection and analysis. The research question for this study is as follows:

'How do subsidiary competences, gained from the local environment, impact on parent company competitive advantage?'

This is in turn broken into three research objectives as follows:

Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating.

An important initial aspect of this research is to understand the socio-economic setting in which the subsidiary is operating. For example, the region's population, number and level of educational institutions, the industry networks, the number of public and private sector research centres, number of graduates generated per year, tax regime, political setting, and other attributes are significant in the context of this research, as they may be drivers of subsidiary competence. As highlighted by Szalucka (2015) and Holm, Holmstrom and Sharma (2006), FDI subsidiary location factors may have an impact on a firm's competence development and competitiveness. Elucidating the region's attributes serves to develop a platform on which to analyse their contribution to the firm's competence gain in a later stage of the research. For this study, it is also important to understand the networks that the firm is engaged in, as drivers of competence gain in the region in which it is operating. According to Andersson, Forsgren and

Holm (2002), this is exemplified by the networks it belongs to, if the subsidiary is an active member of a cluster or agglomeration, and the degree to which it engages in inter-firm collaboration.

Objective 2: Establish the relative importance of the territory's attributes (including the subsidiary's engagement with networks) to the subsidiary's regionally-based competences and what the resultant competences are.

A core part of the Conceptual Model depicts the region's attributes and the subsidiary's network engagement as drivers of subsidiary competence gain. Holm *et al.*, (2005) found that the competitive environment did play a role in competence development in business relationships which in turn played a role in the parent MNC competence development. This is consistent with Tsai (2001) who found that the parent MNC's absorptive capacity to acquire the new knowledge and competences generated at the subsidiary location is an important attribute when reviewing parent company competitive advantage gain. This phase of the research will assess whether the combination of the territory's attributes and the engagement with networks lead to competence development at the subsidiary level.

Objective 3: Determine if, and how, the subsidiary competences contribute to the MNC parent company competitive advantage.

This objective will gather empirical data to determine if subsidiary competence gain impacts parent MNC competitive advantage. It will enhance the mixed evidence to date in this area; for example, Nell and Andersson (2012) found that environmental characteristics have an influence on subsidiary relational embeddedness, although this is contradicted by Szalucka's (2015) research which claimed that FDI subsidiary location did not significantly influence the benefits to the parent MNC.

In summary, the primary outcome of this study is a determination as to whether a subsidiary's regionally based competences confer competitive advantage on the parent company (objective three); this is supported by objectives one and two which elucidate the attributes of the region in which the subsidiary is based, including its industry networks, and how these drive

competences gain at the subsidiary. In addressing the research question, the unit of analysis is the MNC while there are two units of observation - the subsidiary MNC and the parent MNC. Details of how data will be gathered from these units is outlined later in this paper.

1.2 Planned Research Design

The research design depicts how the researcher intends to carry out the research work (Rideout and Gray, 2013). Paper Two described the methodological approach planned for this study, and as per Mills and Birks (2014), this involved consideration of methodological choices for research philosophy, approach, design, methods and analysis that address the research question. The research onion process (Saunders, Lewis and Thornhill, 2015) was used as a relevant framework for these choices and an interpretivist philosophy was chosen to address the research question, owing to the in-depth level of enquiry required and to the need for the researcher to be embedded in the data collection process. Some of the key design decisions made during Paper Two were as follows:

1.2.1 Selection of Location - Mid-West, Ireland Region

Ideally, the author would have liked this research to span multiple locations, each with a high level of subsidiary MNC presence to enable a comparative analysis between locations. However, recognising that the impact that local environmental factors and business network participation has on subsidiary competence gain may be context dependent implied that different local environments may impact differently on subsidiary MNCs in terms of competence gained. A study of multiple locations would also have been very time consuming and for these reasons, the author has chosen to select a single location for this study as this will facilitate a level of consistency in the set of attributes available to influence competence gain at the subsidiary. The author's accessibility to subsidiary MNCs and their parent organisations, stemming from his employment in a large United States-based multinational company and his involvement in industry groups in the Mid-West region of Ireland, is a key enabler for performing and completing this research work.

The Mid-West region is recognised as one of Ireland’s premier industrial locations with a wide sectoral industry base and several world-leading MNCs represented (O’Connell and O’Carroll, 2018). The industry parks incorporating these MNCs and indigenous companies are all in close proximity to Shannon International airport which has several daily connections to USA, UK and Europe. The ICT sector in Ireland’s Mid-West region attracts global investment, with the sector comprising more than a thousand organisations of varying scale from indigenous hardware start-ups to the world’s largest software companies. Also, the Electronics sector, as the largest manufacturing industry in Ireland, with companies involved in a wide range of sub-sectors including computer systems, peripherals and media, electronic components, data communication equipment, control and test systems and consumer electronics, is strongly represented by MNC subsidiary presence in Ireland’s Mid-West.

Table 1 below shows that IDA Ireland client companies based in the Mid-West region employed 18,948 staff in 2018, with key sectors including Medical and Dental Instruments, Information and Communication Technology, Other Manufacturing and Computer, Electronics and Optical Equipment.

Table 1 IDA supported sectoral employment in the Mid-West region, Ireland

Sector	2018 Employment Numbers
Medical and Dental Instruments and Supplies	3,992
Information and Communication	3,730
Other Manufacturing	3,578
Computing, Electronics and Optical Equipment	2,583
Financial Services	2,267
Pharmaceuticals	2,024
Business & Other Services	774
Total	18,948

Source: IDA Ireland (2018)

1.2.2 Purposive Sampling

In terms of selecting subsidiary and parent MNCs to address the subsequent research objectives, the proposed study uses a purposive sample method, intentionally selecting a pre-defined group of subsidiary MNCs, in the Mid-West of Ireland region. The use of the purposive sampling method is primarily due to the presence of defined industrial sectors in this region (Table 1). The selection criteria for participant subsidiary MNCs initially included ensuring a

balance of firms from the main industrial sectors in Mid-West region. Furthermore, it also involved ensuring that the chosen organisation from each sector was involved in regional group network participation, had a track record of undertaking product development or innovation, and that the chosen organisation had a subsidiary tenure of at least twenty years in the Mid-West region. The author also recognised at this stage that firms with longer tenure in the region have a higher probability of having business relationships and participation in networks, so many of these desired attributes in the target organisations tended to cluster together. The outcome of the above considerations was that three organisations were chosen for this study and details of these organisations is shown in Table 2 below:

Table 2 Profile of Selected subsidiary MNCs

	Firm A	Firm B	Pilot Firm
Sector	Electronics	Engineering	Medical devices
Parent Country	United States	United States	United States
Subsidiary innovation level	Advanced	Moderate	Moderate
Subsidiary employee base	1,000	280	1,800
Tenure in Mid-West	40 years	40 years	25 years

Source: Current research

Note that while the chosen three firms do represent a cross-section of the dominant industrial sectors embedded within the region, it is acknowledged that each of these subsidiaries is well established in the region, has good participation in business networks and the level of innovation in the subsidiary is significant. For each of these chosen organisations, the research design envisaged an interview with a subsidiary MNC manager as well as an interview with a parent company manager to ensure that the research objectives were to be achieved.

The Pilot Firm, a medical device subsidiary MNC, has been circled above as it was selected as the firm for preliminary findings which are presented later in this paper.

1.2.3 Data Collection Methods

In summary, Paper Two concluded with an outline of how the chosen research methods will achieve the research objectives and this is summarised in Table 3 below.

Table 3 Research Objectives and Methods for Data Collection

<u>Research objective</u>	<u>Research method</u>	<u>Interviewee</u>	<u>Interviewee</u>
1. Elucidate regional attributes	Document review & Semi-structured interview	Regional Development Subject Matter Expert	
2. Subsidiary competence gain	Semi-structured Interview	Pilot Firm Subsidiary MNC director	Firms A & B Subsidiary MNC director
3. Does subsidiary competence confer competitive advantage on parent?	Semi-structured Interview	Parent MNC director	Parent MNC director
		Paper 3	Paper 4

(Source: Current research)

This table shows that in order to address the first objective - elucidate the region's attributes – (such as its industries, HEIs and population), a combination of secondary data complemented by an interview with an IDA senior executive will be used. Further details of these chosen methods are given in section 1.2.3 and the chosen methods will lead to an understanding of what it is about the host region that attracts FDIs. Note that the information gathered to satisfy this objective will not be repeated in the main study (Paper Four) as the aims of Objective one will have been addressed as part of the information gathered for Paper Three.

The next stage in the research process was to ascertain what the subsidiary considers to be its core competences; and if the region's attributes (including its network relationships) contributed to the subsidiary gaining these competences. The author's view is that the best person placed in the subsidiary to inform about the subsidiary core competences is the Managing Director (MD) and/or a senior executive in the subsidiary. It is the MD and other relevant senior executives in a subsidiary that informs its parent company of its core competences.

The third stage in the process was to interview a relevant key informant in the parent company to ascertain if their subsidiary (based in mid-west Ireland) is contributing to the competitive advantage of the parent company; and if it is how does the subsidiary contribute to the parent's core competitive advantage. A parent MNC director interview will be the main source of data when assessing this objective.

While it is envisaged that the interviewees may not have a clear view on all of their organisation's competences, the researcher will probe the replies given to ensure that the research objectives are achieved. A more detailed research design incorporating multiple semi-structured interviews with senior directors in subsidiary and parent MNCs representing the dominant industrial sectors in Mid-West Ireland is shown in Appendix II.

2.0 Additional Design Considerations

After Paper Two was submitted, further research design considerations were taken into account. These included the selection of the pilot subsidiary MNC and re-visiting the original interview guide submitted in Paper Two appendix. These considerations are elaborated on in the following sections:

2.1 Selection of the Pilot Organisation

According to Ghauri and Gronhaug (2005), a good research design should effectively provide the researcher the means of obtaining data that will answer the research questions within the time, budget and skills constraints of the researcher. Selection of the pilot study subsidiary MNC was an important consideration as the pilot study provides the first opportunity to use the selected data collection methods for the purpose of addressing the inputs to the conceptual framework. Consistent with the concepts of credibility, transferability, dependability, and conformability in naturalistic enquiry posited by Lincoln and Guba (1985), the pilot study provides the opportunity to evaluate the research design to address the research objectives. The outcome a researcher aspires to is to establish that the semi-structured interview data collection method is appropriate to the study, addressing the research objectives while giving opportunity

for refinements to the research tool. While creating a research design in qualitative research, Boeiji (2010) argues that this process allows for inherent flexibility within the design structure.

A pilot study is defined as a mini version of a research or a trial run conducted in preparation of a full-scale study and may be conducted specifically to pre-test a research instrument (Teijlingen & Hundley, 2001). The authors explained that the importance of conducting a pilot study is fundamental to any research as it serves the function of helping to detect possible flaws in the research design and data collection methods.

2.2 Background to Pilot Firm

In the current research, the Pilot Firm was chosen for the pilot study for several reasons related to the richness of the data expected from the chosen subsidiary and parent MNC interviews. These reasons relate to the large scale of the subsidiary organisation in Plassey, Limerick, in which they are one of the region's largest employers and in close proximity to the University of Limerick campus. This subsidiary is a flagship MNC in Mid-West, Ireland as an employer of 1,800 employees either as direct, permanent employees or as a minority number of contractors. The firm is a Medical device company, occupying a very large industrial site, with strong evidence of continued expansionary building work and development in recent years. The firm is in the Limerick area since the mid-1990s and is perceived to be considerably involved in network collaborations with educational institutions and industry groups, both nationally and in the Mid-West region. The author is acquainted with some senior management team members in this firm, thereby making access to the firm for conducting interviews relatively straightforward.

The author's view in advance of the pilot interviews was that the senior leadership team engages well in industry groups in the region and nationally. His own role in network organisations led him to believe that this firm shows prominent signs of engagement with local educational institutions through bursaries that are prominently advertised for STEM courses with particular emphasis on women in STEM.

The Pilot Firm parent MNC is based in Jacksonville, Florida, USA. The subsidiary MNCs within the Firm group of companies are in Limerick and in Hangzhou, China as shown below:

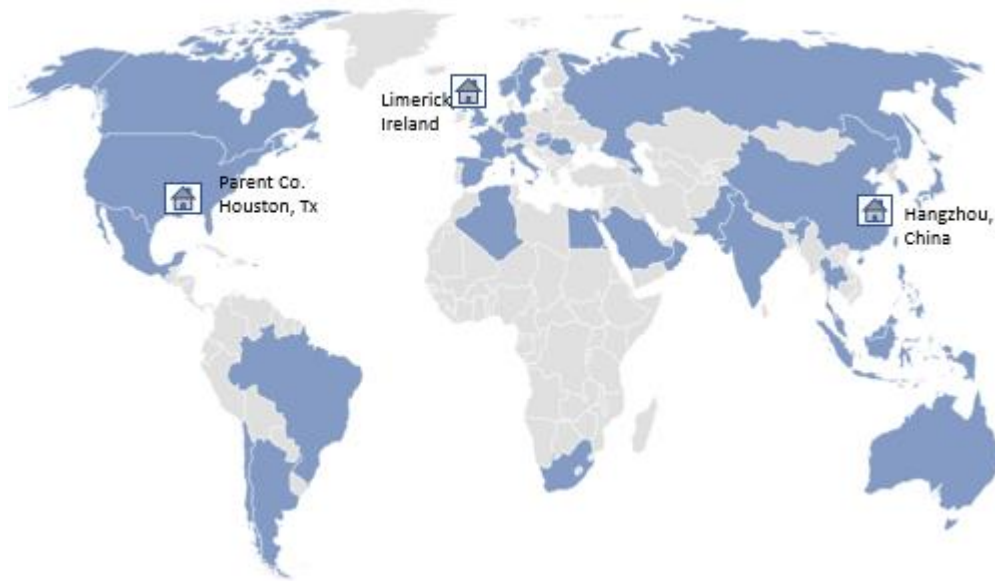


Figure 1 Pilot Firm Global Manufacturing Locations (Source: Current research)

2.3 Interview Guides – IDA Regional Development Subject Matter Expert, Pilot Firm Subsidiary Manager and Pilot Firm Parent Manager

A number of interview guides were also refined in advance of the data collection; this included the interviews with the IDA regional development subject matter expert, and the subsidiary and parent managers at the Pilot Firm. The interview guide for these interviews is shown in Appendices III, IV and V. For the IDA expert, an extract from this interview guide is shown in Table 4 below. The interview questions were drawn from relevant literature and were designed to elicit answers on the attributes of the Mid-West region (Objective 1)

Table 4 Interview guide - Extract: Mid-West regional subject matter expert

An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage		
Research objective	Question	Literature reference
Research Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating	In your opinion what attracts FDI into the mid-west region?	Uppsala Model on the evolution of the MBE (Vahlne and Johanson, 2013)
	How does the region differentiate itself from other regions in this regard?	Strategic impact of external networks (Andersson, Forsgren and Holm, 2002)
	Which regional benefit is highest in importance in attracting foreign investment to the Mid-West?	Eclectic (OLI) Paradigm (Dunning, 2000)
	What are the dominant industry sectors the Mid-West region?	Collaboration in innovation between foreign subsidiaries and local universities (Guimón and Salazar Elena, 2015)
	In your opinion what specifically has attracted these particular sectors to the mid-west region?	The Influence of the FDI Location on Enterprise Competitiveness (Szalucka, 2015)
	How would you describe the business networks in the region and can you give examples?	Competence Development through Business Relationships or Competitive Environment (Holm, Holmstrom & Sharma, 2006)
	Describe the influence of the third level educational institutions on industrial development in Mid-West region?	
	What governmental agencies and supports are present in the region	Brendan O'Regan: Irish Innovator, Visionary, Peacekeeper (O'Connell and O'Carroll, 2018)

Source: Current research

Similarly, an extract from this interview guide for the subsidiary manager in the Pilot Firm is shown in Table 5 below. These questions are again guided by reference to relevant literature, the conceptual model and the research objectives, and the questions were customised to the operations of the Pilot Firm where possible.

Table 5 Interview guide - Extract: Subsidiary MNC

<p>Research title: An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage</p>		
Research objective	Question	Literature reference
<p>Research Objective 2: Establish the relative importance of the territory's attributes and the subsidiary's engagement with networks to the subsidiary's regionally-based competences, and what are these competences?</p>	<p>Would you describe the Mid-West of Ireland as a competitive location for subsidiary location?</p>	<p>Uppsala Model on the evolution of the MBE (Vahlne and Johanson, 2013)</p>
	<p>What are the Mid-West of Ireland attributes that make it a competitive region for subsidiary MNC location?</p> <p>How does the Mid-West of Ireland compare with other regions in terms of competitiveness?</p>	<p>Competence development through business relationships (Holm, Holmstrom & Sharma, 2005) Strategic impact of external networks (Andersson, Forsgren and Holm, 2002)</p>
	<p>Does your company engage in business relationships, otherwise termed business networks, with competitive and/ or non-competitive entities?</p> <p>Can you describe how your company engages in these networks?</p>	<p>The Influence of the FDI Location on Enterprise Competitiveness (Szalucka, 2015)</p> <p>Competence Development through Business Relationships or Competitive Environment (Holm, Holmstrom & Sharma, 2006)</p>

	<p>How has your subsidiary MNC gained competences from the local Mid-West competitive environment and business relationships?</p> <p>Can you give list the subsidiary MNC competences developed, based on Mid-West competitive environment influence, including any competitor collaborations, if any?</p> <p>Can you describe the influence of the third level educational institutions, industry groups and governmental agency supports on competence development in the subsidiary MNC in the Mid-West region?</p>	<p>Exploiting the potential of manufacturing network embeddedness (Ruggero, Deflorin and Scherrer, 2016)</p> <p>Engagement by the subsidiary MNC in business relationships with non-competitor organisations (Gammelgård, Weizmann-Henelius, Koivisto, Eronen, and Kaltiala-Heino, 2012)</p>
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Source: Current research

Finally, an extract from this interview guide for the parent MNC senior director with a view to addressing research objective 3, is shown in Table 6 below. The interview questions were guided by relevant literature around competences and competitive advantages and adapted to the context of the Pilot Firm.

Table 6 Interview guide: Parent MNC extract

Interview guide		
Research title: An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage		
Research objective	Question	Literature reference
Research Objective 3: Determine if and how the subsidiary competences contribute to the MNC parent company competitive advantage.	Can you give examples of how these competences contribute or translate to parent company competitive advantage? How do you measure the competitive advantage benefit that your parent MNC gets from subsidiary competence development? Could you give examples? How does competence gained at subsidiary transfer to MNC competitive advantage? Please provide examples	Knowledge transfer in intra-organisational networks: Tsai, 2001 Complexity of the business network context and its effect on subsidiary relational (over-) embeddedness: Nell & Andersen, 2012; The Influence of the FDI Location on Enterprise Competitiveness: Szalucka, 2015

(Source: Current research)

2.4 Data Collection Protocol

Each of the three interviews arranged for Paper Three will begin by obtaining some information on the interviewees' current role, previous roles, educational background and length of service in the MNC. The number of questions under each research objective will be minimal and designed to guide and develop the conversation. Each interview will be recorded on a mobile phone with the interviewees consent. In each case, the interviews will take place in the interviewees' office to allow for uninterrupted conversation. The recorded interviews will be manually transcribed to Microsoft Word documents and sent back to the interviewees for checking and correction, where necessary.

The process for conducting the semi-structured interview will follow the Waterford Institute of Technology guidelines for carrying out semi-structured interviews. Approval has been obtained from the WIT ethics committee.

The guiding principles for conducting the interviews are as follows:

- Participation was entirely voluntary
- The interview process was anonymous (company and interviewee name)
- Confidentiality was protected
- Interviewees could decline answering any question
- Participants could withdraw from the interview at any stage

2.5 Planned Analysis of Interview Data

Thematic analysis is a method for identifying, analysing and reporting patterns and themes within data (Braun and Clarke, 2006). The method may go further by interpreting aspects of the research topic (Boyatzis, 1998). A theme captures something important about the data in relation to the research question and objectives. It represents some level of patterned response or meaning within the data set. Themes within data can be identified in one of two primary ways in thematic analysis: in an inductive way (Frith and Gleeson, 2004), or in a theoretical or deductive way (Boyatzis, 1998). As the approach to the research is abductive, the thematic analysis will be iterative with themes being developed by constant interaction between theory and data collected. While the approach is predominantly inductive, using themes strongly linked to the data gathered, the research's theoretical underpinning is an important perspective in the analysis; hence there is an acknowledgement that the thematic analysis will be guided by the research question's theoretical underpinning.

The six stages of thematic analysis as depicted by Braun and Clarke (2006) are shown below:

- Stage 1: Familiarise yourself with your data - according to Reissman (1993), the process of transcribing the interview data is an excellent way to familiarise yourself with the data.
- Stage 2: Generating initial codes - the continued review of the interview transcripts involved identification of the codes that are of interest based on the prior document analysis and literature review

- Stage 3: Searching for themes - this is a re-focus at the broader level of themes, rather than codes, and involves the sorting the different codes into potential themes and collating all the relevant coded data extracts with the identified themes
- Stage 4: Reviewing themes – this involves two levels of reviewing the level of the coded extract levels and refining your themes based on whether the thematic map accurately reflects the meanings evident in the data set as a whole
- Stage 5: Defining and naming themes and analysing the data within them.
- Stage 6: Producing the report with fully worked out themes, with final analysis.

3.0 Implementation and Initial Findings

The protocol for conducting the interviews was followed as outlined in section 2.4. Each interviewee was comfortable in the familiar interview setting and the rapport between the researcher and interviewee was good. The interview setting in each case was conducive to a frank sharing of information and in each case, the interviewee’s focus in answering the questions was strong. When required, the researcher provided clarification on the questions, when sought. The timing of the three interviews is shown below:

Table 7: Interview details for Paper Three

Interviewee	Research objective	Interview date	Place	Duration
IDA Regional Development subject matter expert (former)	1. Regional attributes	3rd July 2019	Office	50 minutes
Subsidiary MNC senior director	2.Subsidiary competences	27th June 2019	Subsidiary MNC plant office	48 minutes
Parent MNC senior director	3.Parent company competitive advantage transferred	30th July 2019	Subsidiary MNC plant office	53 minutes

(Source: Current research)

3.1 The Attributes of the Mid-West Region (Objective 1)

The documentary analysis related to elucidation of the attributes of the Mid-West of Ireland initially involved review of IDA publications (www.IDAIreland.com/publications and infographics, 2019; IDA Ireland Tech Cluster map of the Mid-West, 2019) to establish the main industrial sectors in that region, according to employee numbers by sector. Further document review and analysis regarding the regional attributes involved government publications including Limerick City and County descriptors (www.Limerick.ie, 2019; www.Limerickchamber.ie, 2019, www.Shannonchamber.ie, 2019) that detailed the important infrastructural features, in addition to the higher education colleges in the Mid-West region (www.ul.ie; www.lit.ie).

In addition to the document analysis, a semi-structured interview with a former regional director of IDA Ireland, as a subject matter expert in regional development and foreign direct investment confirmed many of the attributes evident in the document review. A section of the thematic map used in the analysis of the interview data is shown in Figure 2 below. The resulting regional attributes from the documentary review and the thematic analysis of the interview data are shown in Table 8 below.

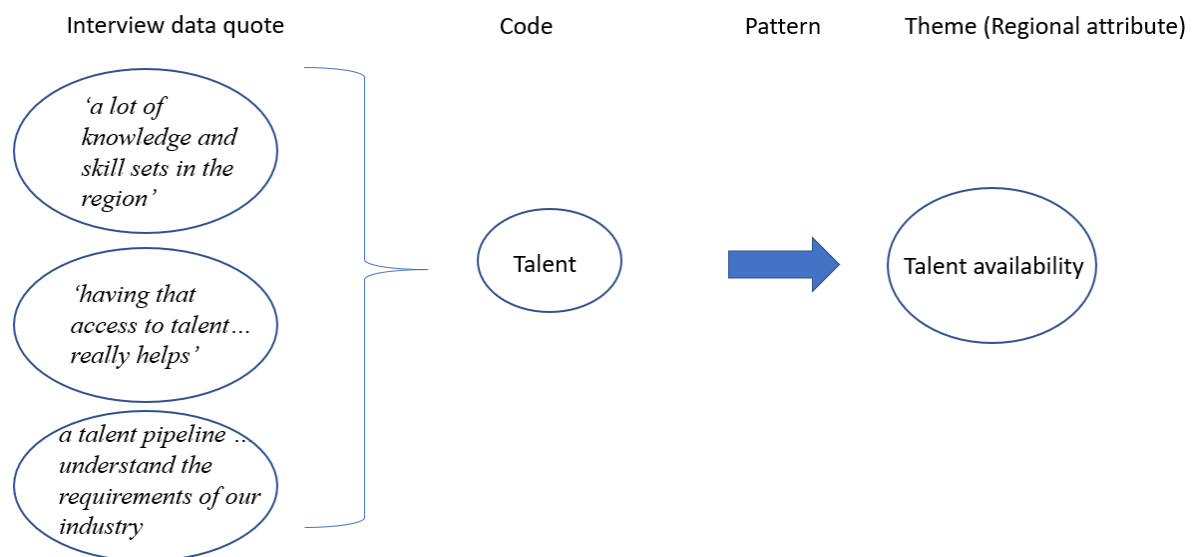


Figure 2 Thematic map section used for regional attribute interview analysis

Table 8: Mid-West, Ireland Attributes

Attribute	Documentary source	IDA Interview source
Talent Availability	www.IDAIreland.com/publications and infographics	
Higher Education Institutions	www.Limerick.ie ; www.ul.ie ; www.lit.ie	Quote ... 'educational institutions in Mid-West see the value that engagement with industry brings' ... Quote 'the collegiate approach, that we are all seen as one team and to the credit of LIT, UL and the educational providers locally, they do partner well with industry and also, they do not compete amongst themselves'
Infrastructure	www.Shannonchamber.ie ; www.Limerickchamber.ie	Quote ... 'availability of property in Limerick and Shannon has been a significant growth factor'
Market Access		Quote... 'the target market for the Plassey, Limerick site is Asia, strategic positioning in Mid-West, Ireland'
Competitive and Non-Competitive Networks		Listed in Table 10 below

(Source: Current research)

A brief discussion of the key attributes of the Mid-West region drawn from these data sources is now provided.

- **Talent availability**

The documentary analysis of University of Limerick and Limerick Institute of Technology publications showed rising numbers in locally educated graduates in STEM disciplines which is geared towards employment in the dominant industrial sectors in the Mid-West region. This fact is corroborated by the interview data of both the former IDA regional director and the subsidiary MNC director, who both highly value the supply of key professional talent as a key attribute of the Mid-West region. For example, the subsidiary MNC director commented that *'from a talent perspective, there are a lot of knowledge and skill sets in the region, we are very close to a large significant university and LIT, so having that access to talent, speaking from our experience here, really helps as well'*. This was supported by the parent MNC director who stated that *'In the Mid-West of Ireland, there is a talent pipeline of people who understand the*

requirements of our industry and in the Plassey Limerick site; we work with third level institutions to incorporate our needs in to their courses’.

- **Higher Education Institutions**

The IDA interviewee highlighted the two technologically oriented higher-level educators as having a strong reputation in terms of their collegial approach and their willingness to partner with industry. Having a supply of key talent, with the education and knowledge required for the sectors that the Mid-West is dominant in, is a vital life line for industry in this region. Furthermore, the ease with which industry can collaborate with the educators, to ensure the appropriate skills are available amongst the graduate cohort, is a significant attribute that the Mid-West region has. Strategic objective number 3 in the Government of Ireland Regional Enterprise Plan to 2020 – Mid-West details the need to develop workforce skills and talent and to enhance the attractiveness of living and working in the Mid-West. The document entitled Profile of the Mid-West region published by Solas (2016) describes a region that has well established education providers demonstrating a growing upward trend in higher education awards from 2010 to 2015. Consistent with this recognition of the higher education authorities in Mid-West being key attributes for the region, the former IDA director highlighted the connectivity and collaboration between these colleges and industry in Mid-Wrest and being key differentiators for the region. The region subject matter expert captures the importance of the higher education institutions when he added that *‘The benefit of the institutions in Mid-West, Ireland is that they see the value that the engagement with industry brings. So, for a simple example, the UL Co-op system, which is very important to the University of Limerick needs to provide a pipeline of companies that will give placements to the undergraduate students. The universities take a very collaborative approach. They see the companies working with the educational institution in taking students for co-op but also they work with some companies in getting funding for research, as an example. It is a symbiotic relationship.’*

- **Infrastructure**

The Shannon airport, Foynes deep sea port and motorway infrastructure, giving connectivity to customers, suppliers and business partners has been described as a distinct advantage that the Mid-West offers. The former IDA regional directors’ interview highlighted the unique advantage of having an international airport with direct daily flights to the United States and the UK as being a key attribute, notably due to the presence of several blue-chip US

multinational companies, with easy access to US parent companies. Additionally, the motorway connectivity between the Limerick and Shannon region and the main arteries in the rest of the country is seen to be a key attribute. The Foynes deep sea port is also highlighted as a key attribute. The Government of Ireland Regional Enterprise Plan to 2020 – Mid-West details the importance of the Shannon airport and Foynes and Limerick docklands in its strategic plan for the growth of employment in the region. Among its five strategic objectives, the delivery of the region’s capacity to deliver on strategic growth is premised on leveraging the Shannon airport and the Limerick county docklands in Foynes and the city, all of which are considered in the report to be strong regional assets.

- **Market Access**

This attribute is considered highly important by the regional subject matter expert, as it positions the Mid-West, Ireland well in terms of strategic location, especially for export markets outside North America. As stated by the subsidiary director, *‘the target market for the Plassey, Limerick site is Asia, pre-dominantly Japan and this market is served very well from our strategic positioning in Mid-West, Ireland’*

- **Competitive and Non-Competitive Networks**

A key part of a region’s attributes can be the competitive and non-competitive networks that the firms engage with in the region and by way of an example, the subsidiary firm interview in the pilot firm outlined a range of competitive and non-competitive networks that it is involved in – these are shown in Table 9 below:

Table 9 Networks that the Pilot Firm is engaged in

Nature of Network	Example	Description
Non-Competitive	<i>IBEC Medtech</i>	Business association within IBEC representing the medical devices and diagnostics sector
Non-Competitive	<i>American Chamber of Commerce, Ireland</i>	A leading international business organisation in Ireland and the leadership voice of US companies in Ireland
Non-Competitive	<i>Limerick for Engineering</i>	An industry led initiative which aims to increase the quality and quantity of engineering talent (apprentice, technicians and engineers) available in the region.
Non-Competitive	<i>Mid-West Action Plan for Jobs</i>	This aims to build on the strengths of the region, to support businesses to start up, grow and generate exports
Non-Competitive	<i>IDA Ireland Mid-West</i>	An inward investment promotion agency which helps potential and existing investors to establish or expand their operations in Ireland.
Non-Competitive	<i>Science Foundation Ireland</i>	Ireland's national foundation for investment in scientific and engineering research

Source: Current research

Note that while all of the above cited networks would be viewed as non-competitive, the Pilot Firm also acknowledged that it is part of innovation clusters in the Mid-West region which is regarded as being important and is a key part of industrial policy (Arthurs, Cassidy, Davis and Wolfe, 2009; O'Dwyer *et al.*, 2015). The Pilot Firm also acknowledged that there is collaboration within its sector, echoing O'Dwyer, O'Malley, Murphy, McNally (2015) who recorded a discernible shift from competition to collaboration in the Irish pharmaceutical industry from 2005 to 2015.

3.2 Pilot Firm Subsidiary Competences (Objective 2)

The second objective of this study sought to establish the contribution of the territory's attributes and network groups, that the Pilot Firm is engaged in, to the subsidiary's competences. In addressing this objective, consideration was given to Kong (2007) who describes the theory of core competence as a subset of resource-based view of a firm, which

allows organizations to rethink, identify, and exploit what they can do to make growth possible in a global competitive environment. A further perspective is provided by Pilbeam and Corbridge (2006), who describe core competence as an accumulation of learning, comprising tacit and explicit knowledge, skills and technologies, which gives an organization a competitive advantage; and Gupta et al. (2009) maintained that core competences and knowledge management is cumulative in sustaining competitive advantage.

The analysis conducted for this objective involved re-visiting the findings of objective one along with analysis of the subsidiary manager interview to arrive at proposed competences for the Pilot Firm. A section of the thematic map for this analysis is shown in Figure 3 below.

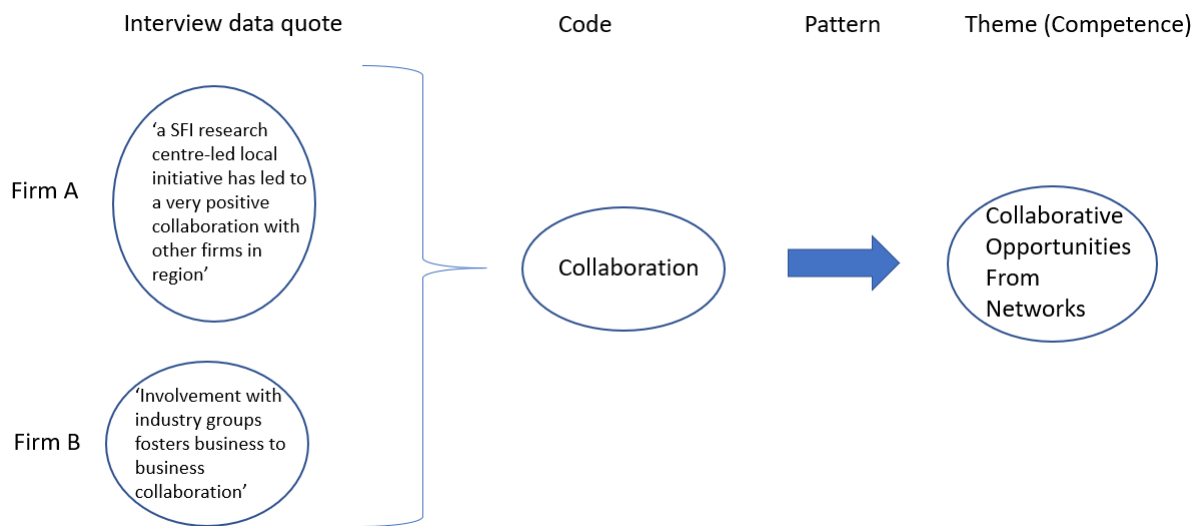


Figure 3 Thematic map section for data analysis

Note that a combination of multiple attributes or networks may be attributable to a single competence gain by the MNC. Also, it is possible that some regional attributes or business network relationships do not contribute to competence gain by the subsidiary. Furthermore, it is acknowledged that the subsidiary MNC may have competences that are not attributable to regional factors such as the territory's attributes or the networks that it engages in. This research is focussed on the competences gained from those regional factors. The Figure 4 below, depicting the summation of the *Pilot Firm Competences Gained from Mid-West attributes and networks*, is a graphical representation of the subsidiary's competences and the regional factors that influence the competency gain. The analysis of the subsidiary senior director interview

determined the subsidiary competences, with further questioning in the subsidiary director interview gaining an understanding of the impact of the regional factors in the subsidiary competency gain.

The stated competences for the Pilot Firm are now discussed in turn:

- ***Innovative automation capability in medical device manufacturing***

The Pilot Firm has developed this competency which is unique to the wider MNC group through a combination of continuous investment by the subsidiary in latest technology software and hardware, along with deployment of professionally and technically qualified graduates and apprenticeships to develop this expertise. This is exemplified by the following quote by the subsidiary MNC senior director: *Within our MNC group of companies, we have expertise at several sites in making medical devices and independently, using automation for manufacturing processes but in our Plassey-based firm, we have expertise in applying automation to medical device manufacturing which is unique.*

The automation group supports the global manufacturing base for the Pilot Firm's wider MNC group and has been developed with support from the University of Limerick, in terms of course module content and the IDA Ireland enterprise agency. *As the parent MNC senior director articulated in the interview, the Plassey site has established itself by applying its automation group to its medical devices manufacturing capability and moving it to a Factory Industry 4.0 setting.*

- ***Development of a dedicated software division for App support***

The subsidiary has developed a software group at the University of Limerick, with 200 employees, serving the wider MNC group, Europe-based companies with specialist support services. This group was developed in the university campus, thus giving a highly visible presence for the subsidiary MNC among the under- and post-graduate population there.

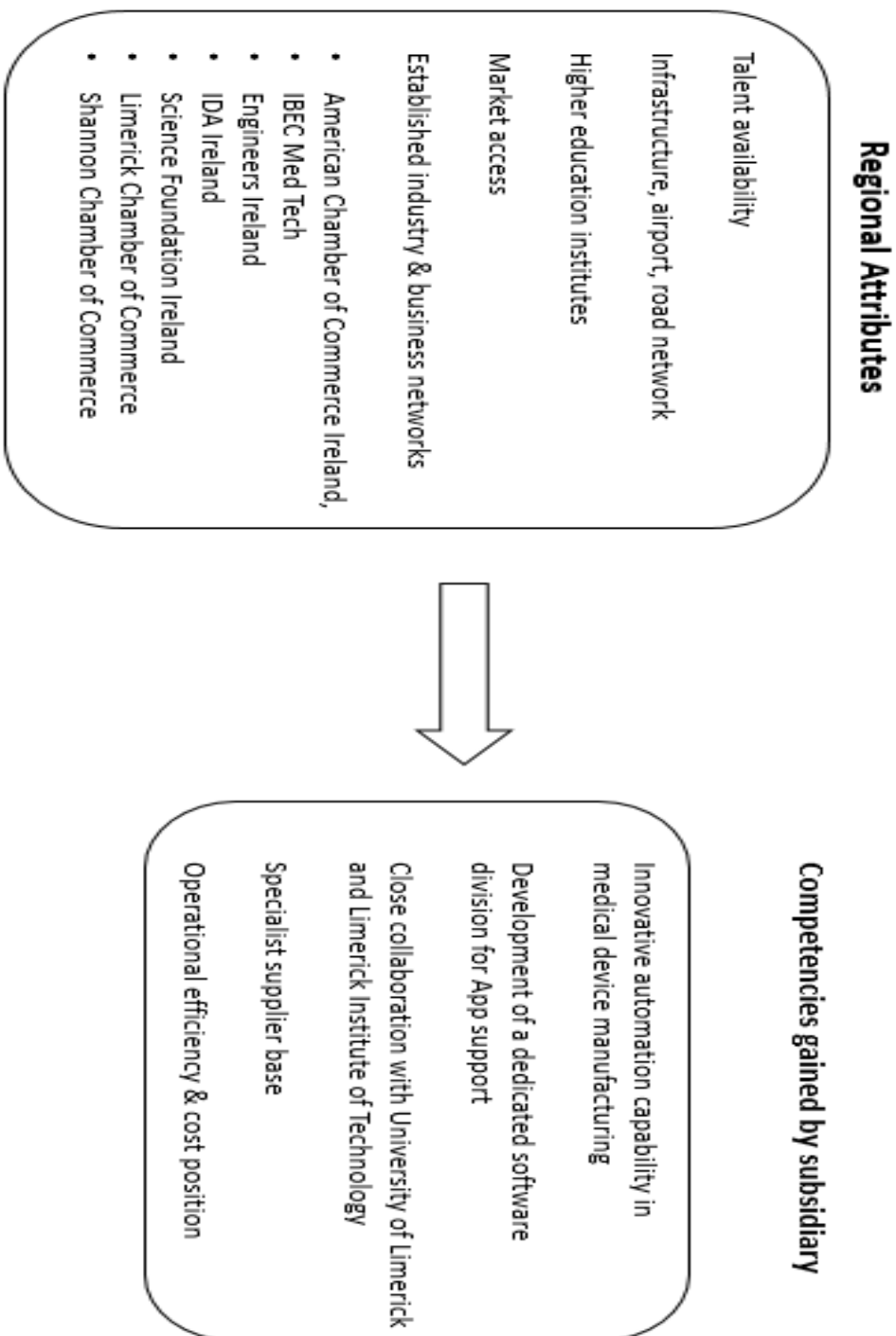


Figure 4 Pilot Firm Competences Gained from Mid-West attributes and networks (Source: Current research)

- *Close collaboration with University of Limerick and Limerick Institute of Technology***

The Pilot Firm has collaborated very closely with University of Limerick and Limerick Institute of Technology to ensure that this business relationship develops a talent pipeline for their future, industry specific needs. Quoting the subsidiary MNC senior director, *‘this is an important stream of future talent for our software group that we attract by giving co-operative work experience opportunities to, in the expectation that we can attract this talent pipeline in the future’*. Also, this collaboration extends to recognising the importance of attracting women to study for STEM careers in third level universities and colleges. According to the subsidiary director, *‘the subsidiary sponsors ten under-graduate female students. The female students who receive the bursaries conduct research on behalf of the university and the MNC’*.
- *Specialist supplier base***

The subsidiary has developed some key partnerships with local companies that deliver specialist products and services. These partnerships have evolved over several years of working as solution providers with the subsidiary, to a point where the suppliers are very well versed in the industry-specific requirements of the subsidiary. Such expertise is not easily sourced at other wider MNC sites globally and this adds significantly to the subsidiary competence. This is highlighted by the subsidiary director in the following quote: *‘We have a strong collaboration with a company in Shannon, an automation company, over the past number of years where today, they support not only ourselves in Limerick but also our parent company in Jacksonville in products and services that are vital to our operations and development’*.
- *Operational Efficient and Cost Position***

The subsidiary has a competitive cost position that is achieved by deployment of its skilled workforce in an efficient way, to optimise its product costs. The subsidiary has a track record of achieving its operational and cost targets by having a well-managed cost base, which benefiting from governmental agency financial supports. The subsidiary senior direct is quoted as saying that *‘the fundamental of what the MNC tried to do in Plassey, Limerick is to establish an efficient manufacturing base. Cost efficiency which was the cornerstone for the investment and we have used technology*

to build on that efficiency ever since. Plassey Limerick is a productive site and is continually working on it.'

In summary, the region's attributes are proposed to contribute to the five stated competences of the pilot firm. This is not intended to be an exhaustive list of competences of the subsidiary firm as it is acknowledged that some competences may arise which are not specific to the Mid-West region (such as taxation); however, the focus of objective three was on how the region's attributes contribute to the subsidiary's competences and the subsidiary interview suggests that these attributes contribute to competence development in a number of ways.

3.3 Link between Subsidiary Competences and Parent Competitive Advantage (Objective 3)

The data collected during the parent MNC senior director interview was used primarily to assess the contribution of the competences of the Pilot Firm to its parent MNC competitive advantage. This involved a review of each of the subsidiary competences with regard to its impact on the parent MNC competitive advantage and the following conclusions were arrived at from this analysis.

The first competence considered, the innovative automation capability that the subsidiary has developed is a uniquely acknowledged feature of the Plassey site, and the parent MNC gains competitive advantage by enhancing its cost position through higher output in the automated manufacturing process. As the Plassey, Limerick site is the best enabled site across the wider MNC for applying automation technology to medical device manufacturing, the parent MNC achieves higher productivity through higher volume output. As the subsidiary MNC director stated, *'the output from the medical device process has multiplied several-fold, up to six times the output that the machines were designed for, prior to automation. Our efficiency and variable cost productivity have increased several-fold due to investment in automation.'* The second subsidiary competence relates to the specialist Information Technology skills group that the subsidiary has developed for ERP, MES and Mobile App, which is based in University of Limerick campus, and leveraged by the wider MNC. The group provides unique services for automation, test equipment design and associated software to the global manufacturing business.

The depth of the skills of these specialist automation and software teams provides competitive advantage to the parent MNC by providing their services which have been honed by availability of local talent. The growth of these two teams has been significant in recent years, precipitating the need for a move to a new purpose-built facility in Plassey, Limerick. The competitive advantage for the parent MNC has been explained as benefitting from a unique skill-set that the subsidiary has developed in automation and medical devices manufacturing. A similar parent MNC competitive advantage emanates from the Information Technology group which develops software for the global MNC in areas including Enterprise Resource Planning, mobile Apps and automation software.

The third competence - talent development in collaboration with the higher educational institutes - does lead to competitive advantage for the parent MNC, as exemplified by the process innovation work that is carried out at the subsidiary by graduates from the local colleges. By the Pilot Firm having the collaborative opportunity with local colleges to seek course input to develop the skills that are sought by their company, this ensures the talent pipeline for their expansion is available. The subsidiary MNC director explains this as, *‘a benefit of being very close to a large significant university and LIT, enabling engagement and collaboration and with that access, speaking from our experience here, really helps to develop knowledge and skill sets that we need in the region.’* In addition, the parent director remarked that the subsidiary site has developed this talent over the life of the site in the Mid-West of Ireland, with consequential competency gain as the local team has worked collaboratively with the industry, educational and governmental partners. The development of career paths for this locally developed talent has given the parent company competitive advantage as evidenced by the 20+ individuals who have taken up global positions within the parent MNC, up to and including Vice Presidential roles at corporate level.

The fourth competence, related to development of suppliers with specialist industry knowledge is a clear demonstration of how the parent MNC gains competitive advantage, as exemplified by the establishment of offices at the parent MNC site by two of the subsidiary MNC specialist suppliers. The development of strategic Mid-West Ireland-based partners, as suppliers of specialist services and product, has given competitive advantage to the parent MNC. Based on the subsidiary MNC building up the business relationship with these two Ireland-based companies, working with them as solution providers for the subsidiary site, the parent company is now getting competitive advantage by having these companies partnering with them at the parent MNC location.

The fifth subsidiary MNC competence, termed operational efficiency and cost position, gives competitive advantage to the parent MNC owing to the achievement of financial metrics that are imperative for the business to meet obligations to shareholders. The parent MNC director has commended the subsidiary for meeting its financial obligations to the wider MNC, which in turn, gives the MNC the cost position it needs to trade competitively in the markets it serves. The parent MNC director is quoted as saying that *‘the Plassey site has a track record of meeting its financial obligations on cost positioning which, in turn, makes the Plassey site an efficient site for manufacturing.’*

The optimising of country specific industry supports can also enhance the cost position of the subsidiary. The benefits that the parent MNC director stated that emanate from this competence related to active participation in industry sector groups such as IBEC Med Tec, which advocates with government on issues related to policy and legislation that may affect how business is done in that sector. Similarly, having a competence in maximising government funding opportunities for innovative and research work translates directly in to competitive advantage for the parent company, owing to the reduction in the costs of this innovative work by availing of these supports.

Interestingly, the parent MNC senior director holds the view that collaboration between internal MNC sites leads to parent MNC competitive advantage. While the competences developed from collaboration with external parties such as educational institutes, governmental agencies and industry groups was extensively reviewed, an interesting finding regarding the parent MNC competitive advantage emanating from internal MNC collaboration was revealed. While sites across an international MNC may be perceived to be in competition for limited investment funding, the parent MNC director’s insight that collaboration across sites gives the parent MNC competitive advantage shows the value of internal networks, as well as collaboration with the external business partners as demonstrated by this research.

4.0 Limitations of the study

While the author is encouraged by the findings from the pilot firm analysis, it is acknowledged that the chosen approach has its limitations. One such limitation is that the analysis for objective two is based on the subsidiary leadership’s perception of what the firm is good at. Similarly, the interview with the parent MNC senior director (for objective three) is used to

assess if competences gained at local level confer a competitive advantage to the parent firm. While acknowledging that these are single data sources within the subsidiary and parent organisations, it is also felt that both interviewees are senior within their respective organisations and well informed in terms their business competences and drivers of competitive advantage – in short, they are viewed as credible source of data (as per Lincoln and Guba, 1985).

4.1 Summary and Reflections

In terms of learnings from the pilot study, it was essential to carry out this in order to gain confidence in the method and thematic analysis. The interviews with the regional subject matter expert, the subsidiary MNC director and the parent MNC director yielded several improvement areas that will be incorporated in to the remaining part of the research. Firstly, the distinct elucidation of attributes for the Mid-West, Ireland region based on the semi-structured interview presented challenges as it was difficult at times to distil, or draw out, the precise attribute from the interview dialogue. The development of ‘a priori’ themes from the literature review and document analysis helped this challenge significantly, as this list was guided by the literature review and specific Mid-West, Ireland related documentation. Similarly, there were minor challenges in the subsidiary MNC interview when seeking clear examples of competences that the subsidiary had gained from being located in the region. At times, the interviewee may interchange between attributes and competences, which meant that the interviewer had to keep focus on the data to be collected instead of looser verbal exchanges that did not address the carefully considered question. Finally, the tight timelines available for this paper submission meant that there was not a huge time to reflect on the competences gained by the Pilot Firm (from the subsidiary interview) which would have improved the quality of the subsequent parent company interview – and the author plans to allow a greater reflection period prior to the parent interview when he progresses to paper four.

In summary, this paper has displayed the additional design considerations which were undertaken since paper two and has then presented the results for a pilot study (Pilot Firm). Good support was found for the existence of many attributes in the Mid-West region and when added to a number of network groups that the Pilot Firm is involved in; it leads to the generation of five stated competences for the subsidiary of the Pilot Firm. All of these competences are

the purported to have a positive effect on the parent company competitive advantage which represents an endorsement for the work being carried out by the Pilot Firm in the region.

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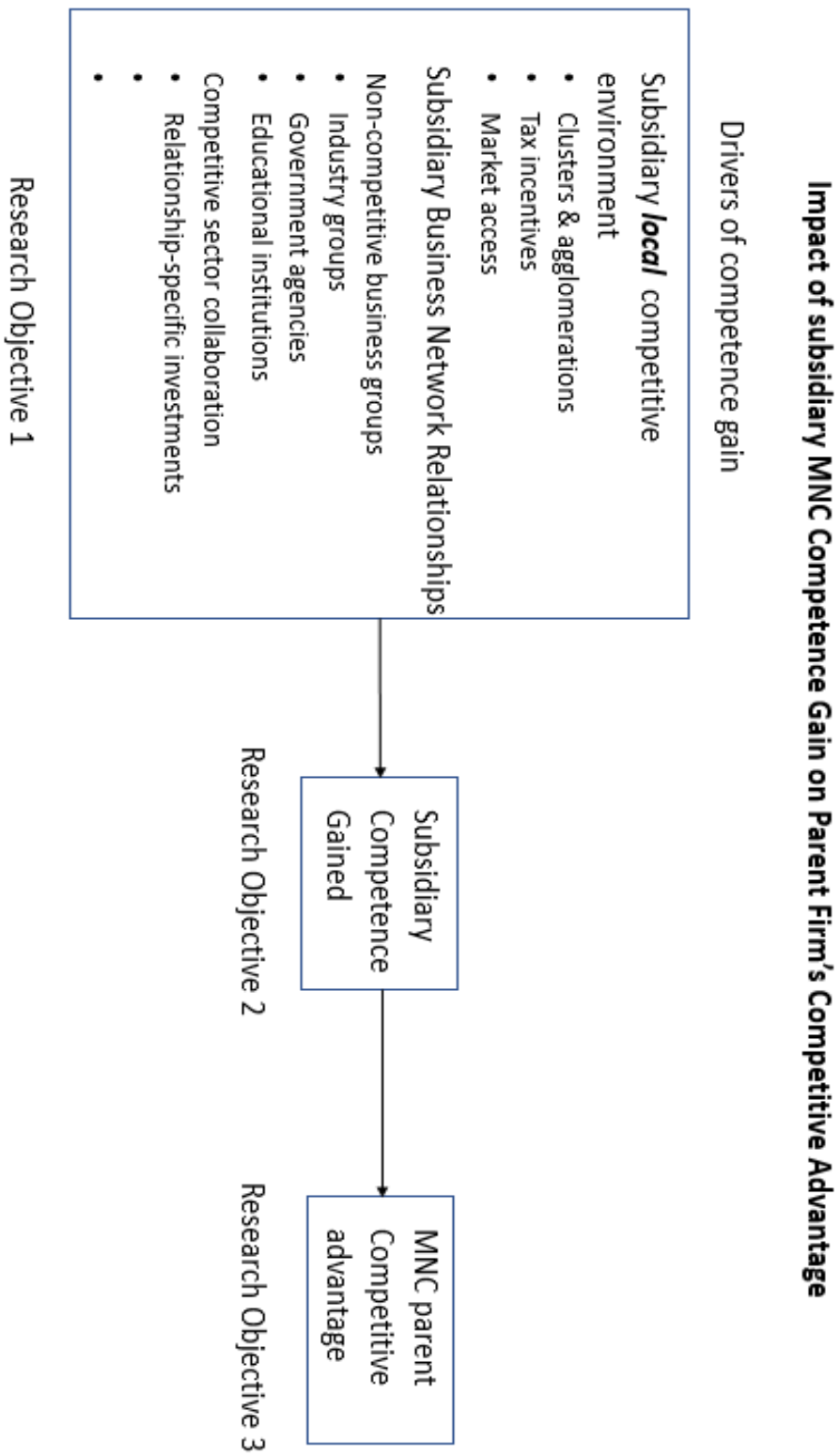
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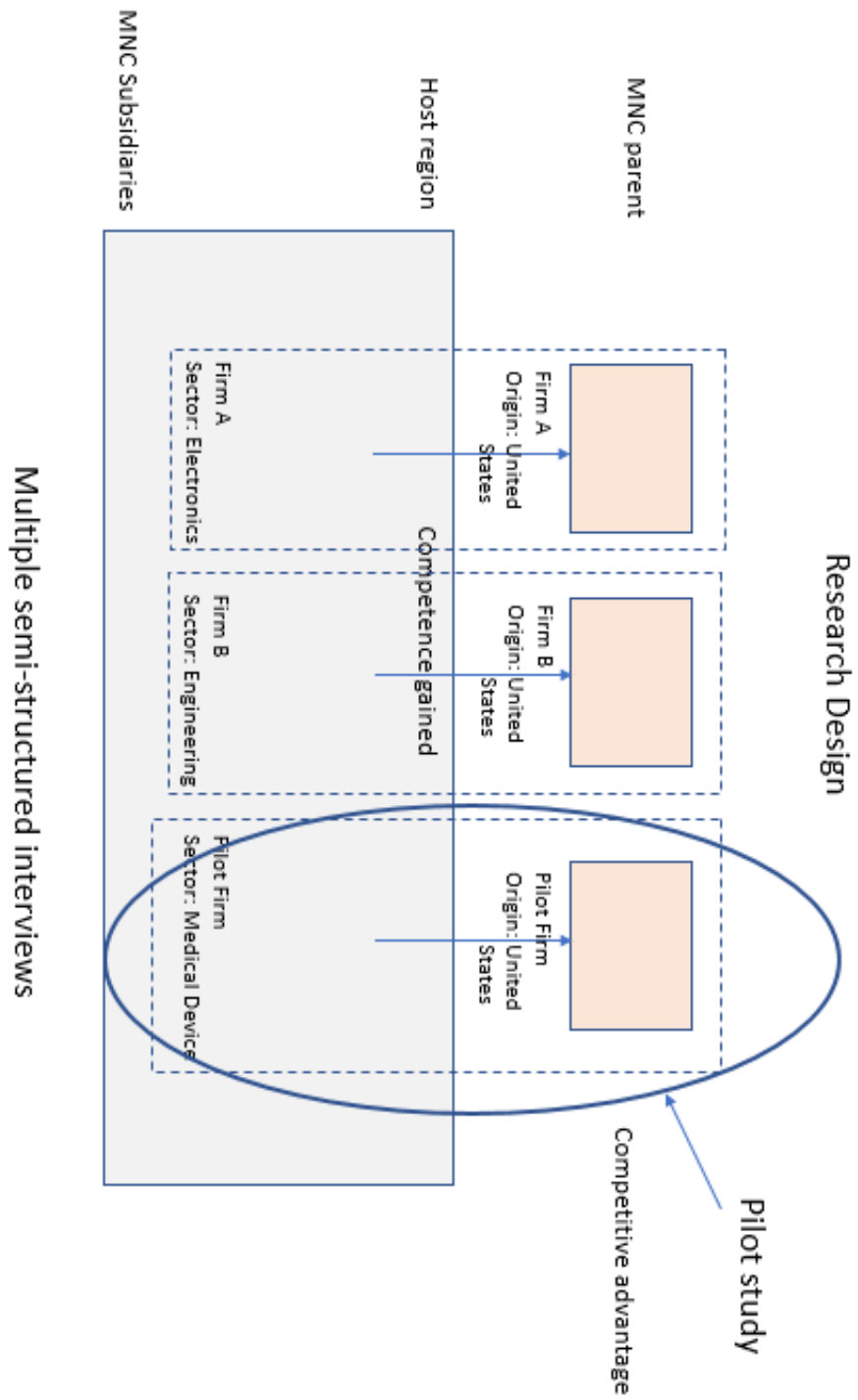
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Appendix I - Conceptual Framework



Appendix II - Overall research design



Appendix III - Interview guide – Former IDA regional manager

Interview guide		
Research title: An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage		
Research objective	Question	Literature reference
<p>Research Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating</p>	<p>In your opinion what attracts FDI into the mid-west region?</p> <p>Is it all about tax relief or are there other reasons why foreign MNC invest and set up subsidiaries in the mid-west region?</p> <p>- What are these other reasons?</p> <p>- How significant or important are these?</p> <p>- How does all this compare to other regions such as Dublin, Galway, Cork?</p> <p>- How does the region differentiate itself from other regions in this regard?</p> <p>In your opinion what is it about the Mid-West that influences MNCs to choose the Mid-West as the choice location?</p> <p>- Is this different than the other regions in Ireland? Why? How?</p> <p>- Is this different than other European regions? How Why?</p> <p>Thinking back over your time as IDA regional manager, in your opinion were there significant and or critical events that encouraged MNCs to locate here?</p> <p>- What were they? - How significant were they?</p> <p>Has the timing of MNC set up in the</p>	<p>Uppsala Model on the evolution of the MBE: Vahlne and Johanson, 2013;</p> <p>Strategic impact of external networks: Andersson, Forsgren and Holm, 2002;</p> <p>Dunning's (2000) Eclectic Paradigm (OLI paradigm)</p> <p>Tax burden on cross-border investment: Grubert, 2004</p> <p>Collaboration in innovation between foreign subsidiaries and local universities: Guimón and Salazar Elena, 2015</p> <p>The Influence of the FDI Location on Enterprise Competitiveness: Szalucka, 2015:</p> <p>Competence Development through Business Relationships or Competitive Environment Holm, Holmstrom & Sharma, 2006;</p> <p>The globalization of competition and the localization of competitive advantage: policies towards regional clustering: Enright, 2000</p> <p>Insights into the creation of a successful MNE innovation cluster: O'Dwyer, O'Malley, Murphy, McNally, 2015:</p>

	<p>region in recent years been linked to the enhancement of specific regional benefits? Can you give any examples of these?</p> <p>Which regional benefit is highest in importance in attracting foreign investment to the Mid-West?</p> <p>What are the dominant industry sectors the Mid-West region?</p> <ul style="list-style-type: none"> - Why do you think these are the dominant sectors? - Why are these sectors here? - In your opinion what specifically has attracted these particular sectors to the mid-west region? <p>How would you describe the business networks in the region and can you give examples? For example, Chambers of Commerce, Limerick for IT, Limerick for Engineering, American Chamber of Commerce Ireland Mid-West and others....</p> <p>What influence do industry groups have on the performance subsidiary MNCs in terms of innovative development?</p> <p>Are networks such as these fostered or spawned by industry members themselves or are they cultivated by governmental (IDA, EI) and educational institute supports (UL, LIT etc)</p> <p>In your opinion how important are these networks to the MNCs (a) in deciding to come to the mid-west, and (b) to staying in the mid-west. In your opinion how much do the MNCs contribute to these networks? Are they net contributors or takers? Or does these networks matter at all to them.</p> <p>In your experience, does IDA or</p>	<p>Regional location of multinational corporation subsidiaries and economic development contribution Dimitratos, Liuoka and Young (2009)</p>
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	<p>similar government agencies support the development of competitive networks (as exemplified by clusters and agglomerations for specific industrial sectors).</p> <p>Similarly, does IDA support development of non-competitive networks such as formation of industry groups, collaborative networks?</p> <p>Have business networks had an impact on the development of clusters or agglomerations in Mid-West or are they a result of government specific policy?</p> <p>Do you have any examples of this?</p> <p>Describe the influence of the third level educational institutions on industrial development in Mid-West region?</p> <p>- In your opinion how has this contributed to the MNC setting up a subsidiary in the region?</p> <p>- Also, in your opinion, how beneficial are these to the subsidiary on going presence and growth in region?</p> <p>- Does it make any difference? Why?</p> <p>What governmental agencies and supports are present in the region?</p> <p>How beneficial are these for the subsidiary?</p> <p>How beneficial is it to the parent MNC that the subsidiary has access to these agencies and supports?</p> <p>What impact do these supports have on subsidiary MNC success in the region?</p>	
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(Source: Current research)

Appendix IV - Interview guide subsidiary MNC senior director

Interview guide		
Research title: An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage		
Research objective	Question	Literature reference
Research Objective 2. Analyse the competitive and non-competitive networks the subsidiary is engaged with in the territory in which it is based.	Would you describe the Mid-West of Ireland as a competitive location for subsidiary location?	Uppsala Model on the evolution of the MBE: Vahlne and Johanson, 2013
	What are the Mid-West of Ireland attributes that make it a competitive region for subsidiary MNC location?	Strategic impact of external networks: Andersson, Forsgren and Holm, 2002;
	How does the Mid-West of Ireland compare with other regions in terms of competitiveness?	Dunning's (2000) Eclectic Paradigm (OLI paradigm)
	What are the government tax incentives and how important are these to the subsidiary MNC?	Local taxation regime Grubert (2004)
	What benefits does the Mid-West offer such as market access?	
	Does the Mid-West offer opportunities for collaboration with competitors?	
	Are there collaboration opportunities with non-competitor organisations?	Competence development through business relationships Holm, Holmstrom & Sharma (2005)
	In order of importance, how would you rank the attributes the Mid-West of Ireland region offers investing MNCs?	
	Which regional attribute features strongest, weakest in terms of influence on your subsidiary MNC competence development?	
	Would you consider your subsidiary as part of a cluster or agglomeration?	

	What benefits does your company get by being a participant in the cluster or agglomeration?	
	Does your company engage in business relationships, otherwise termed business networks, with competitive and/or non-competitive entities?	Collaboration in innovation between foreign subsidiaries and local universities: Guimón and Salazar Elena, 2015
	Can you describe how your company engages in these networks? For example, does your company engage with competitors collaboratively or does your company engage with third level institutions, industry groups or governmental agencies for the benefit of your organisation?	The Influence of the FDI Location on Enterprise Competitiveness: Szalucka, 2015; Competence Development through Business Relationships or Competitive Environment Holm, Holmstrom & Sharma, 2006; The globalization of competition and the localization of competitive advantage: policies towards regional clustering: Enright, 2000
	Can you give examples of such collaboration?	Insights into the creation of a successful MNE innovation cluster: O'Dwyer, O'Malley, Murphy, McNally, 2015:
	Is your subsidiary MNC encouraged to engage in these business networks by your parent company?	Regional location of multinational corporation subsidiaries and economic development contribution Dimitratos, Liuoka and Young (2009)
	Does your subsidiary have the autonomy to make local decisions on engaging in competitor and non-competitor business relationships?	

<p>Research Objective 3: Establish the relative importance of the territory's attributes and the subsidiary's engagement with networks is to the subsidiary's competences and what the resultant competences are.</p>	<p>How has your subsidiary MNC gained competences from the local Mid-West competitive environment and business relationships?</p>	<p>Exploiting the potential of manufacturing network embeddedness: Ruggero, Deflorin and Scherrer, 2016;</p> <p>Engagement by the subsidiary MNC in business relationships with non-competitor organisations Gammelgård, Weizmann-Henelius, Koivisto, Eronen, and Kaltiala-Heino, 2012</p>
	<p>Can you give list the subsidiary MNC competences developed, based on Mid-West competitive environment influence, including any competitor collaborations, if any?</p>	
	<p>Can you describe the influence of the third level educational institutions, industry groups and governmental agency supports on competence development in the subsidiary MNC in the Mid-West region?</p>	

(Current: Current research)

Appendix V - Interview guide - parent MNC senior director

Interview guide		
Research title: An examination of how subsidiary MNC competences derived from the local environment impact on parent company competitive advantage		
Research objective	Question	Literature reference
<p>Research Objective 4: Determine if the level of subsidiary competences contributes to the MNC parent company competitive advantage.</p>	<p>Can you give examples of how these competences contribute or translate to parent company competitive advantage?</p> <p>How do you measure the competitive advantage benefit that your parent MNC gets from subsidiary competence development? Could you give examples?</p> <p>How does competence gained at subsidiary transfer to MNC competitive advantage? Please provide examples</p> <p>How would you describe the level of autonomy given to the subsidiary in terms of partaking in collaborative business network relationships? Please elaborate</p> <p>How do you believe this subsidiary autonomy leads to local competence development? Please elaborate</p> <p>To what extent has the parent MNC's absorptive capacity, i.e. their resources available, been a factor in the transfer of subsidiary MNC competence to parent MNC? Please elaborate.</p>	<p>Knowledge transfer in intra-organisational networks: Tsai, 2001</p> <p>Complexity of the business network context and its effect on subsidiary relational (over-) embeddedness: Nell & Andersen, 2012;</p> <p>The Influence of the FDI Location on Enterprise Competitiveness: Szalucka, 2015</p>

(Source: Current research)

Linking narrative – Preface to Paper 4

This preface addresses changes in the study that occurred between the writing of Paper 3, the Research Design and Initial Findings and Paper 4, Findings. The research design was presented in Paper 3, along with the data collected for the first objective – Elucidation of attributes of the Mid-West region and the Pilot Study findings from the selected firm subsidiary and parent interviews.

Consideration was given to the remaining two firms to be included in the main study. Based on the depth of technology and active involvement in industry networks, along with other factors such as the sector the firms represented and the tenure of the subsidiaries in the Mid-West of Ireland region, the remaining two firms were chosen. This meant that the three firms included in the research have parent firms in United States.

Arrangements were made to interview the subsidiary and parent directors from the chosen firms, including dates and locations and the interviews were duly held.

Doctorate in Business Administration (DBA)

Participant name: Paul Sheahan 20074922

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Date: 22nd June 2020

RESEARCH PAPER SERIES

Paper 4: ‘Findings’

Abstract

An examination of how subsidiary MNC competences derived from the local environment impact is focussed on the competences gained by three multi-national subsidiary companies from the attributes of the Mid-West of Ireland region and their contribution to the competitive advantage of their parent companies. The attributes of the Mid-West include talent availability, infrastructure including the international airport, higher education institutes, market access and active business networks. The research question is supported by three research objectives, namely: elucidation of the Mid-West of Ireland regional attributes, which to the subsidiary’s regionally based competences and what the resultant competences are was addressed in Paper Three, establishing the relative importance of the territory’s attributes and determining if and how the subsidiary competences contribute to the parent MNC competitive advantage.

The Mid-West regional attributes of Talent Availability, Higher Education Institutes and Active Business Networks had the strongest impact on subsidiary competence gain by the three firms researched. The competitive advantage areas of Margin Enhancement, Speed to Market and Leading Innovation have a consistent competence of Technology and Innovation Capability. This is reflective of the impact that strong regional attributes such as the HEIs, Talent Availability and Active Business Networks incorporating government funding have on the competitive advantage of parent MNCs investing in the Mid-West region of Ireland. Another dominant subsidiary competence that impacts the same three areas of parent MNC competitive advantage is Skilled Technical Workforce which is impacted by the regional attributes of HEIs and Talent Availability. There is a dominance of subsidiary competences within the listings to support the overall assertion that they impact parent MNC competitive advantage.

List of Abbreviations

EI	Enterprise Ireland
ERP	Enterprise Resource Planning
FDI	Foreign Direct Investment
HEI	Higher Education Institutes
IBEC	Irish Business and Employers Confederation
IDA	Industrial Development Authority
IRDG	Industry, Research and Development Group
LIT	Limerick Institute of Technology
MBE	Multi- National Business Enterprise
MES	Manufacturing Execution System
MNC	Multi- National Corporation
MNE	Multi- National Enterprise
NIHE	National Institute for Higher Education
OLI	Ownership, Location, Internalisation
R&D	Research and Development
RD&I	Research, Development and Innovation
SFI	Science Foundation Ireland
STEM	Science, Technology, Engineering, Mathematics
UL	University of Limerick
WIT	Waterford Institute of Technology

1.0 Introduction

This paper presents the research findings in keeping with the methodology described in Papers 2 & 3 for a DBA research study which commenced in 2018. This research study proposes to examine how Multi-National Corporation (MNC) subsidiaries gain competences from the local environment which includes subsidiary business relationships, and whether such competences contribute to parent MNC competitive advantage. For the purpose of this research, the researcher uses the definition of competences by Foss and Knudsen (2013) as an idiosyncratic knowledge capital that allows its holder to perform activities in certain ways, and typically do this more efficiently than others. This views competence as a largely tacit component and thus may reside in individuals due to its skill-like character. However, in the context of the theory of the firm and strategic management, competence is seen as the property of the firm rather than individuals.

The conceptual framework for this study was presented in Paper One of this series and is shown again in Appendix I of this paper. It depicts the links between subsidiary MNC competence gain, and the impact on parent company competitive advantage. This model is derived from critiqued literature largely in the areas of competitive advantage of the firm, location theory and internationalisation theory. It proposes that local regional attributes and the networks the subsidiary engages in help to provide competence gain at the subsidiary level which in turn contributes competitive advantage on the parent MNC. As the research area is focussed on the competitive advantage gained by the parent MNC from subsidiary competences, the Uppsala Model on the evolution of the Multi-National Business Enterprise (MBE) (Vahlne and Johanson, 2013) and Dunning's Ownership, Location, Internalisation (OLI) Eclectic Paradigm (2000) are also considered as relevant frameworks to show how subsidiary location impacts dynamic capabilities, entrepreneurial innovation and management of uncertainty.

According to Onwuegbuzie and Leech (2006), a study's research question plays a pivotal role in determining the methodological choices that are deployed in the research design. The research question for this study is as follows:

'How do subsidiary competences, gained from the local environment, contribute to parent company competitive advantage?'

This overall question is broken down into three research objectives as follows:

Objective 1. Elucidate the attributes of the territory in which the subsidiary is operating.

An initial aspect of this research is to understand the socio-economic setting in which the subsidiary is operating, as this may impact subsidiary competence. As highlighted by Szalucka (2015) and Holm, Holmstrom and Sharma (2005), Foreign Direct Investment (FDI) subsidiary location factors may have an impact on a firm's competence development and competitiveness. For this study, it is also important to understand the networks that the firm is engaged in, as these may influence competence gain in the region in which it is operating (Andersson, Forsgren and Holm, 2002).

Objective 2: Establish the relative importance of the territory's attributes (including the subsidiary's engagement with networks) to the subsidiary's regionally based competences and what the resultant competences are.

A core part of the conceptual framework depicts the region's attributes and the subsidiary's network engagement as drivers of subsidiary competence gain. Holm et al, (2005) found that the competitive environment plays a role in competence development in business relationships, which, in turn, plays a role in the parent MNC competence development. This phase of the research assesses whether the combination of the region's attributes and the engagement with networks leads to competence development at the subsidiary level.

Objective 3: Determine if and how the subsidiary competences contribute to the MNC parent company competitive advantage.

This objective gathers empirical data to determine if subsidiary competence gain contributes to parent Multi-National Corporation (MNC) competitive advantage. It enhances the mixed evidence to date in this area. For example, Nell and Andersson (2012) found that environmental characteristics have an influence on subsidiary relational embeddedness, although this is contradicted by Szalucka's (2015) research which claimed that FDI subsidiary location did not significantly influence the benefits to the parent MNC.

The primary outcome of this study is a determination as to whether a subsidiary's regionally based competences contribute competitive advantage to the parent company (Objective three). In addressing the research question, the unit of analysis is the MNC while there are two units of observation - the subsidiary MNC and the parent MNC

The methodological approach for this study was described in Paper Two and as per Mills and Birks (2014), this involves consideration of methodological choices for research philosophy, approach, design, methods and analysis that address the research question. The research onion

process (Saunders, Lewis and Thornhill, 2015) was used as the framework for these choices. An interpretivist philosophy was chosen to address the research question, owing to the in-depth level of enquiry required and to the need for the researcher to be embedded in the data collection process. The research used a purposive sampling method, intentionally selecting a pre-defined group of subsidiary MNCs, in the Mid-West of Ireland region to address the research objectives. This is primarily due to the presence of defined industrial sectors in this region, as shown in Appendix II. The selection criteria ensured a balance of firms from the main industrial sectors in the Mid-West region. Furthermore, the criteria ensured that the chosen organisation from each sector was involved in regional group network participation, had a track record of undertaking product development or innovation, and that the chosen organisation had a subsidiary tenure of at least twenty years in the Mid-West region. The researcher's involvement as a board member of the American Chamber of Commerce Ireland has given him access to the participant companies in the study. His employment as a director of a US MNC subsidiary company in the Mid-West of Ireland region has also provided him with a good background to the research area and his involvement in business and industry networks in Ireland has motivated the research topic. Parent company director access has been facilitated by his subsidiary network.

An abductive approach to the research was adopted, involving semi-structured interviews with a regional development subject matter expert and the chosen subsidiary and parent firms' directors. Thematic analysis of the interview data facilitated the development of themes that addressed the research question and supporting objectives. A summary of the methods for data collection to meet the research objectives is shown in Table 1 below.

Table 1 Research Objectives and Methods for Data Collection

<u>Research objective</u>	<u>Research method</u>	<u>Interviewee</u>	<u>Interviewee</u>
1. Elucidate regional attributes	Document review & Semi-structured interview	Regional Development Subject Matter Expert	
2. Subsidiary MNC competence gain	Semi-structured Interview	Subsidiary MNC director Pilot Firm	Subsidiary MNC director Firms A, B, C
3. Competitive advantage contribution to parent MNC?	Semi-structured Interview	Parent MNC Director Pilot Firm	Parent MNC Director Firms A, B, C
		Paper 3	Paper 4

(Source: Current research)

2.0 Review of Paper 3 Findings

Paper 3 presented initial research findings for the three research objectives. Research objective one - elucidation of the attributes for the Mid-West Ireland involved documentary review and semi-structured interview with a regional development subject matter expert. Research objectives two and three involved pilot study interviews with subsidiary and parent directors of a large MNC with a subsidiary in the Mid-West region. These interviews addressed the impact of Mid-West regional attributes on the subsidiary competence gain and the competitive advantage gained by the parent company from these subsidiary competences. In terms of learnings, the pilot study was carried out to gain confidence in the research method and thematic analysis used with the data.

2.1 Attributes of the Mid-West Region

Elucidation of the Mid-West of Ireland region’s attributes involved a combination of secondary data from documentary analysis of publications listed in Appendix III. This was complemented by a semi-structured interview with a former IDA senior executive, with responsibility for Mid-

West regional development which confirmed many of the attributes evident in the document review. This interview also revealed the Mid-West business networks dominant in the region. See Appendix IV.

2.2 Pilot Study Findings

Firm C was chosen as the Pilot Study firm. This firm is a prominent medical device manufacturer, based in Limerick, with its parent firm in the United States. The Limerick subsidiary was established in 1996 and has greater than 1,000 employees there. The site team is involved in several industry and business networks in the Mid-West region and actively collaborates with industry partners on regional initiatives. Findings in respect to objectives two and three for the Pilot Study are summarised in Appendix V. This proposes that the Mid-West regional attributes do impact on competences gain in the Firm C subsidiary, and that these subsidiary competences do contribute to the parent MNC competitive advantage. For the Pilot Study, an analysis of the Firm C subsidiary and parent interview data indicates that five main competences exist at the subsidiary plant. These are Medical Device Automation, Operational Efficiency and Cost Position, Software Skills – ERP, MES and Mobile App, Close Collaboration with UL and LIT and Specialist Supplier base partnership.

While the researcher was satisfied with the analysis of the subsidiary and parent interviews in relation to the generation of the subsidiary firm competences, there were challenges during these interviews in generating examples of competences that the subsidiary had gained from being located in the region. This involved the interviewee moving between regional attributes and competences, which meant that the interviewer had to keep focus on the data to be collected instead of looser verbal exchanges that did not address the carefully considered question.

In relation to whether the generated subsidiary competences contributed a competitive advantage on the parent firm, the evidence gathered from the parent interview suggested that the five competences contributed to four dimensions of competitive advantage - enhanced cost position, software & automation expertise, access to specialist technologists and partnerships in innovation. The parent global operations executive stated the competitive advantage of this subsidiary competence as follows: *'the production output from the medical device process has multiplied several-fold, up to six times the output that the machines were designed for, prior to automation. Our efficiency and variable cost productivity have increased several-fold due to*

investment in automation. This gives our parent MNC a more competitive cost position'. Furthermore, the expertise that the automation group gives the wider MNC from the UL base is a further recognised competitive advantage by the parent MNC.

In summary, the data obtained from the pilot firm is deemed to be a good fit for the research although the author was mindful that pilot case studies can be used to refine the “data collection plans with respect to both the content of the data and the procedures to be followed” (Yin, 2009, p. 92). Baskarada (2014) also advises that pilot studies should reflect on lessons identified and, as appropriate, provide avenues for the implementation of lessons into the next iteration. For this study, it is felt that the data obtained from this organisation is suitable for inclusion in the main research study with some refinements. The author believes that the subsidiary interview data can be used in its current form but that the data from the parent company was compromised by the confirming nature of the questioning by the researcher which created a likelihood of competences being confirmed as leading to a competitive advantage for the parent firm. Going forward, a revised approach of conducting a new parent company interview with another senior executive with a more unbiased questioning approach will yield richer findings.

3.0 Preparation for Paper Four

For the study’s main research findings, data from interviews with senior executives of subsidiary and parent company firms A, B and C, focusing on research objectives two and three, were used. The respective locations of the three firms within the Mid-West Ireland are shown in Appendix VI. A profile of these firms is given in Table 2 below.

Table 2 Profile of Targeted Firms

	Firm A	Firm A	Firm B	Firm B	Firm C	Firm C
	Subsidiary director	Parent director	Subsidiary director	Parent director	Subsidiary director	Parent director
Sector	Engineering		Electronics		Medical device	
Parent Location	Houston, United States		Boston, United States		Florida, United States	
Subsidiary est.	1973		1975		1996	

(Source: Current research)

3.1 Approach to Interviews

For the subsidiary and parent interviews, in each case, the researcher started with a blank sheet approach to asking about the subsidiary’s competences. In this way, the original subsidiary list of competences could be compared to the parent global operations executive’s perception of the subsidiary competences. The interview guide for these interviews are shown in Appendix X and XI. The interview questions were drawn from relevant literature and were designed to elicit answers on the competences gained by the subsidiary from the Mid-West of Ireland attributes (Objective Two) and the impact these competences had on parent company competitive advantage (Objective Three).

3.2 Profile of Interviewees and Interview Details

In each of the company interviews (subsidiary and parent) for all firms, the interviewee was a senior executive for the respective companies. A profile of each MNC director and subsidiary MNC is described in Table 3 below.

Table 3 Profile of Director Interviewees

Firm	Firm A	Firm A	Firm B	Firm B	Firm C	Firm C
Interviewee	Subsidiary	Parent	Subsidiary	Parent	Subsidiary	Parent
Tenure range (years)	10 to 15	15 to 20	20 to 25	25 to 30	15 to 20	20 to 25
Responsibility	Senior Executive	Global Operations Executive	Senior Executive	Global Operations Executive	Senior Executive	Global Operations Executive
Sector	Engineering		Electronics		Medical device	

(Source: Current research)

Details of the interviews conducted, interviewees, date, place and duration are shown in Table 4 below.

Table 4 Interview Details

Interviewee	Interview date	Place	Duration
<i>Firm A</i>			
Subsidiary MNC senior director	19 th December 2019	Subsidiary MNC plant office	59 minutes
Parent MNC senior director	17 th January 2020	Subsidiary MNC plant office	55 minutes
<i>Firm B</i>			
Subsidiary MNC senior director	10 th January 2020	Subsidiary MNC plant Office	1 hour 52 minutes
Parent MNC senior director	21 ST January 2020	ERDG office	55 minutes
<i>Firm C</i>			
Subsidiary MNC senior director	27th June 2019	Subsidiary MNC plant office	48 minutes
Parent MNC senior director	5th March 2020	University of Limerick	58 minutes

(Source: Current research)

The interviews were recorded on an iPhone and the transcripts manually typed. The transcripts were sent to the interviewee for completeness review. The process for conducting the semi-structured interview followed the Waterford Institute of Technology (WIT) guidelines for carrying out semi-structured interviews. Prior to conducting the interviews, approval was obtained from the WIT ethics committee.

The guiding principles for conducting the interviews were as follows:

- Participation was entirely voluntary
- The interview process was anonymous (company and interviewee name)
- Confidentiality was protected
- Interviewees could decline answering any question
- Participants could withdraw from the interview at any stage

According to O'Reilly and Parker (2012), data saturation in qualitative interviewing is attained, when there is enough information to replicate the study. Moreover, Guest, Bunce and Johnson (2006) maintain that data saturation is reached when further coding is no longer feasible. Based

on the Pilot Study findings, and the depth of insights from the research, it was felt that having subsidiary and parent interview data from three firms, the research question and objectives would be adequately addressed.

3.3 Thematic Analysis of Interview Data

Thematic analysis is a method for identifying, analysing and reporting patterns and themes within data (Braun and Clarke, 2006). According to the authors, a theme captures something important about the data in relation to the research question and objectives. It represents some level of patterned response or meaning within the data set. Themes within data can be identified in one of two primary ways in thematic analysis. Firstly, in an inductive way (Frith and Gleeson, 2004), or secondly, in a theoretical or deductive way (Boyatzis, 1998). As the researcher's approach to the study is abductive, the thematic analysis was iterative with themes being developed by constant interaction between theory and data collected. While the approach was predominantly inductive, using themes strongly linked to the data gathered, the research's theoretical underpinning was an important perspective in the analysis. Hence there is an acknowledgement that the thematic analysis is guided by the research question's theoretical underpinning.

The transcribed data from the subsidiary director interview and the first part of the parent director interview which focused on the subsidiary's competences was the focus of the thematic analysis. The six stages of the thematic analysis, and how it applied to the research, are shown in Table 5 below.

While each interview was being conducted and recorded, the semi-structured nature of the discussion allowed for deeper questioning and understanding of the thematic data being revealed. In response to successive questions on research objective questions, the interviewee's emphasis on particular points of importance allowed for development of themes during the interview process. This allowed for re-focussing on themes at a broader level, consistent with stage 3 of Braun & Clarke's 6 step process, to relate the consolidated themes to the research objectives. Definition of the themes in each case allowed for further analysis of the interview transcript data to confirm the relevance of the quoted material to the themes.

Table 5 **Thematic analysis stages applied to interview data**

Stage	Description	Thematic analysis actions
<i>Stage 1</i>	Familiarise yourself with your data	Transcribed the recorded interview
<i>Stage 2</i>	Generating initial codes	Identified key interview text based on prior document analysis and literature review
<i>Stage 3</i>	Searching for themes	Re-focussed on broader themes within the text, relevant to addressing research objectives, by collating all relevant coded extracts
<i>Stage 4</i>	Reviewing themes	Review of themes for accuracy by reference to the research objective wording
<i>Stage 5</i>	Defining and naming themes and analysing the data within them.	Naming competences consistently with data and themes that emerged
<i>Stage 6</i>	Producing the report with fully worked out themes, with final analysis	Developed a list of competences for each subsidiary

Adapted from Braun and Clarke (2006)

Consistent with Stage 6 of Braun and Clarke’s model for thematic analysis, the reporting of the themes for addressing research objective 2 – the impact of regional attributes on subsidiary competence gain, was enabled by aggregating the common themes within the three-company data set.

4.0 Paper Four Findings

Thematic analysis of each of the three company’s subsidiary and parent directors’ views of the subsidiary competences, and how these are gained from regional attributes, led to the generation of common themes in relation to various competences of the three firms. These key themes are now discussed, and this leads on to an analysis of how the Mid-West’s regional attributes contribute to each of these competences.

4.1 Relative Importance of Regional Attributes

Paper 3 of this study established five main attributes of the Mid-West region which were likely to contribute some benefits to each of the three target firms. While the initial part of the interview discussions for all firms focused on the competences of each firm, the discussion subsequently reviewed the regional attributes to assist with understanding if and how these attributes contribute to the competences of each firm.

- Talent availability in the region was viewed as extremely important by the subsidiary directors of all three firms; all emphasised the availability of STEM graduates and skilled labour which is a key consideration as all operate in an advanced manufacturing environment, with product and process innovation playing an important role. This talent availability also positions the researched firms for adapting to new technologies. Firm B subsidiary director confirmed that their company *'took practically 100% of electronics graduates from that degree course in the initial years and the more graduates we hired the more talent that we had available to grow the Limerick site. That led to our talent being exported to the US, such as a future CEO and VPs .. they all came from that course'*. This view was supported by Firm A subsidiary director stating that *'we were able to source this talent from UL and LIT engineering courses and also from other industries in the region.'* Consistent with Firm's A and B, Firm C subsidiary senior executive confirmed the importance of talent availability in the region when expressing his view that *'from a talent perspective, there are lot of knowledge and skill sets in the region'*.
- Infrastructure, particularly the airport & transport hubs, were also considered important by all three firms. As all three firms have US based parent firms and a strong customer base in Europe, Middle East and Asia, an international airport in the region is extremely important. In particular, the Firm C subsidiary director noted that FDI depends highly on airport connectivity to the parent and sister companies, as well as to customers. While there was commonality across the three firms in relation to the importance of the international airport, an interesting point regarding the importance of the road infrastructure was made by Firm B subsidiary director. That subsidiary has a high dependence on sixty miles distance road travel between Limerick and Cork for its employee base and for collaboration with the Tyndall research institute in Cork. The Firm B subsidiary senior executive explained that *'the M20 road project is critical. It*

will open up a huge commuter road where people in Limerick can work in Cork and vice-versa'. He described the Limerick to Cork corridor as *'a huge catchment area'*. Road infrastructure was not deemed as important for Firm A or Firm C; although the Firm C did cite its importance in facilitating employees travelling to the Plassey site.

- Commonality was shared by all three firms regarding the importance of the presence of higher education institutes in the Mid-West region. Firm C placed very high value on its engagement with the UL, and its close proximity to that university. The parent director mused that *'the R&D group embedded in the university campus, interfacing directly with the academics and our firm running our own Masters degree programmes, educating our future clients, is very important'*. Similarly, Firms A and B also highly rate the importance of the presence of HEIs, citing their engagement with both UL and Limerick Institute of Technology (LIT), and collaborative work with faculty in both institutes. Consistent with Firm C, the Firm A subsidiary director reflected on this importance as *'when our MNC sees the pipeline of talent from the local university and colleges, and ease of hire, and flexibility/ skills of the workforce, it is a real benefit to our firm'*. Similarly, Firm B subsidiary director expresses the HEI importance by stating that *'UL is a very important university as a talent factory for our Limerick plant'*.
- Market access was also ranked highly important by each of the researched firms as a regional attribute, with emphasis made by Firm C on the ease of access to Asian and Europe. Firm C subsidiary director confirmed *'the location is very important from a distribution and logistics perspective, market access, being part of Europe, English speaking, and even simple things like, time zones matters, having the ability to be able to communicate with our markets'*. Firm B's subsidiary director concurs on the importance by highlighting *'the access to the European automotive and industrial customer base is highly important'*. Firm A subsidiary senior executive emphasised the importance of Middle East market access to their key customers by confirming that *'shipping direct to customers from the Shannon region is made easy because it is in Europe and its access to the Middle East, Far East and Asia is good'*.
- Active business networks, as a regional attribute, were regarded as highly important by two of the firms B & C, whereas Firm A held a neutral opinion on their importance. Firm B and C's participation in these networks, such as the American Chamber of Commerce Ireland, Engineers Ireland and Irish Business and Employers Confederation

(IBEC) is more embedded, thus accounting for the higher relative importance placed on this regional attribute. As described by the Firm B subsidiary director, *'a great example of network participation benefit is MIDAS – an industry association for electronics manufacturers. They bring companies together to develop funding proposals to government. I think that is very proactive and it gets companies working together. it fosters business to business collaboration'*. Firm B's subsidiary director is a strong advocate in the Mid-West region for leveraging business opportunities amongst the subsidiary MNC group, as evidenced by the development of a customer engagement centre at its Limerick site. Similarly, Firm C subsidiary senior executive's example of how business networks collaborate to work with the government on issues that are important to them. He cites the example of IBEC, the Irish Business and Employer Confederation, being a strong voice for their sector while confirming that *'one of the things that Irish subsidiaries can do easily is talk to government and this is remarked upon by the parent organisations'*. In contrast to Firm B and C's high rating of importance for this regional attribute, Firm A's participation in networks is a more recent activity, and the benefits of this participation are limited thus far, as perceived by the subsidiary director citing the *'networks such as IRDG which is a nation-wide group'*.

In summary, the five regional attributes identified in research objective one were all confirmed as being of importance to the three researched firms, with some attributes being more important for some and vice versa.

4.2 Subsidiary Competences

The main focus of the interviews with the subsidiary directors was to ascertain what the competences are at the subsidiary plants in the Mid-West region. The views of parent company directors were also sought to see if the local view on competences corresponded with the views of the parent. The approach taken initially was to analyse each MNC separately to understand the impact of regional attributes on subsidiary competence. The results of these thematic analyses for Firms A, B and C are shown in Appendix VII, VIII and IX respectively. In the main findings report, the author is extracting the commonality across the three firms, while also identifying the individuality of findings and differences within the interview data.

The six stages of thematic analysis as depicted by Braun and Clarke (2006) were applied to the interview data, to determine themes that addressed the competences for the subsidiary, as depicted by the subsidiary and the parent director. Contrary to the researcher's initial belief, it was found that the parent director frequently cited more local competences than the local subsidiary manager. There may be cultural factors influencing this divergence as it is possible that the US parent directors may be more descriptive of the competences at local level than the Irish based subsidiary directors. A summary of the competences that emerged from a detailed review of the parent & subsidiary transcripts is shown below in Figure 1 below. It is proposed in this figure to link the subsidiary competence to regional attributes elucidated in Objective 1. This is further elaborated in Section 4.3 in this document. Note that in Figure 1, it can be seen in the top left cell that the regional attribute 'Talent Availability' contributes to a 'Skilled Technical Workforce' competence for all three firms, shown by the A, B & C designation in that cell. By comparison, 'Talent Availability' as a regional attribute contributes to 'Software Development' as a subsidiary competence only for the Firm C, and not for Firms A and B. This is shown by the cell corresponding to 'Software Development' showing the C designation only

4.2.1 Competence #1: Skilled Technical Workforce

Each of the three firms' subsidiary and parent directors highlighted the skilled technical workforce within their subsidiary as a competency for their respective companies. The Firm C subsidiary and parent interviews made specific reference to the skills their subsidiary had in automation for medical device manufacturing as a key strength. The parent company director stated, *'the piece that Limerick does best is to be out in the forefront of automation and Factory 4.0 (Digital factory, Smart technology...) Limerick is by far and away the most automated part of our wider MNC'*.

This is also supported by Firms A and B subsidiary directors who made reference to specific technical talents that their respective workforces had. Firm A subsidiary director identified the specific skills related to measurement technology, confirming *'we have a dominance of technically qualified staff....from the entire employee population of 277, we have 120 graduate engineers and approximately 40 technical staff with other technical qualifications'*. Further commonality in the Skilled Technical Workforce competence across each of the researched firms is highlighted by Firm B's skills in the domain of electronic circuit design.

Competencies (attributed to region)	Regional attributes				
	Talent availability	Infrastructure (incl. airport, road network)	Higher education institutes	Market access	Active Business networks
Skilled technical workforce	A, B, C	I	A, B, C		
Use of close partnerships with HEIs			A, B, C		A, B, C
Operational cost efficiency	A, C			A, C	
Leveraging government funding					A, B, C
Technology & Innovation capability	A, B, C		A, B, C		A, B, C
Collaborative network opportunities					B, C
Software development – MES, ERP, App	C		C		
Partnership with specialist supplier base					C
Leadership development - Management and Technical	B		B		
Competencies (unrelated to region)					
Team ethos (A, B, C)					
Lifestyle offered (B)					
Workforce vitality (B)					

Legend: A = Firm A, B = Firm B & C = Firm C

Figure 1 Regional attributes and MNC subsidiaries competence matrix (Source: Current research)

In Firm B's case, the competence is reflected in the significantly high number of patents that their Mid-West subsidiary files each year. As stated by the Firm B parent company director, *'the ingenuity and creativeness of the internal collaboration in Limerick has given rise to a high number of patents from a relatively low-cost position'* The parent company directors in each case concur with the subsidiary director's view. In the Firm B case, the skilled technical workforce competence was further embellished by the global reach of this technical talent from the Mid-West Ireland region.

Firm B's Skilled Technical Workforce competence relies, to some extent, on the region's road infrastructure as this enables its highly skilled workforce to commute to the Mid-West-based site. The infrastructure facilitates ease of travel locally from the site to University of Limerick for collaborative research, while also enabling its skill base to travel to an important research centre and its other site in Cork. Additionally, a significant cohort of Firm B's employee base travels routinely to the Mid-West site, from the Cork area where this is facilitated by the road infrastructure. While it is acknowledged that the current infrastructure suffices in bringing employees to the Mid-West site, the need for further infrastructural improvements to the road network have also been highlighted. As Firm B subsidiary senior executive highlighted, *'the M20 motorway project will open up a huge commuter belt where people in Limerick can work in Cork and vice versa. It's a huge catchment area. I consider Cork to be in close proximity to the Mid-West based site.'*

4.2.2 Competence #2: Close partnerships with Higher Education Institutes

Close partnerships with higher education institutes were identified as a competence in each of the three company's subsidiary and parent company interviews. For each firm, commonality is seen in the value of relationships with HEIs which is emphasised by the numbers of graduates, as a talent pipeline, in disciplines that are important to their organisations. The relationship, both historical and present day, is stronger for Firms B and C than for Firm A due to their involvement in the structuring of technical course content to meet the demands of the subsidiary whereas Firm A doesn't have such input on course syllabus at UL. For Firm A, the importance of their partnership with HEIs is mainly to avail of talent and to use some research facilities. Initially, Firm B's linkage with UL (NIHE at the time) in 1970s was a critical part of their decision to locate in Limerick. UL structured a degree course specifically around Firm B's requirements. However, in the present day, the courses are available ubiquitously and the

importance of the UL linkage today is more around the supply of talent for their growth. In this regard, commonality is seen with both Firm A and B's current day relationship with HEIs in the region, primarily availing of the graduate talent their subsidiaries need, whereas Firm C's partnership with UL, as explained by the parent director is more embedded in terms of course design for their company's specific needs.

Firm B parent company director states that *'It is a very important university as a talent factory..... When there was no semi-conductor manufacturing in Ireland, they set up a course in 1970s which was instrumental in growing the company at the start'*. Firm C sees the strength of HEI close partnerships as a wider benefit to the subsidiary, as evidenced by the location of their parent company MNC centres of excellence in automation and software development within the UL campus. As identified by the Firm C parent director *'we have fifty researchers and designers employed directly in the design group and another fifty who are indirectly working in the R&D group through the university campus structure where we are located'*. This is evidenced by their direct involvement in delivering Master of Engineering degree courses in Automation and Industry 4.0 there. Additionally, the subsidiary's access to Science Foundation Ireland (SFI) research centres based in UL is another benefit that is highlighted. This view is consistently held by the subsidiary and the parent company director for Firm C.

4.2.3 Competence #3: Leveraging Government Funding Supports

There is a high degree of commonality amongst the three companies researched when highlighted the leveraging of government funding supports, mainly from IDA Ireland, Enterprise Ireland (EI) and SFI as a subsidiary competence. Interestingly, this competence was highlighted in both the subsidiary and the parent company interviews for all three firms. While the form of these supports may range from R, D & I cash grants to R & D tax credits, and to free post-doctoral placements on SFI industry fellowships, the overall leveraging of these supports is recognised in each company as a strength. The ability to recognise the supports that are available, to identify how they may apply to the subsidiary and to maximise the benefit is a strength, that is recognised by each firms' subsidiary and parent company directors. The high value that these funding supports give is supported by Firm B's subsidiary director *when highlighting the value of SFI industry fellowship placements*. He confirmed that *'the SFI fellowship programme is probably the single best advantage that we can leverage, getting post-*

doctoral scientists uniquely qualified in areas we want. Firm B has developed a recognised competency in successfully deploying such low-cost post-doctoral knowledge in its subsidiary organisation. The commonality across the three researched firms is further supported by Firm A's parent director's claiming that *'with the assistance of IDA funding to develop accredited measurement technology capability, we have been able to develop, a flow calibration loop which is one of the few in Europe that is used for testing and calibrating our product.....: for Shannon, comparatively, it is a huge strength*'. Further support for this finding is provided by Firm C parent company director stating the importance of working with government to protect the valuable funding supports by citing the example of *'Irish government officials expanding the terms of the R&D tax credits after the networking and advocacy approach made by their collaboration'*

4.2.4 Competence #4: Operational Efficiency Driving Cost Position

Firm's A and C highlighted cost position as a strength of their Mid-West based companies, whereas Firm B does not see it as a competence, highlighting that its subsidiary faces more cost competition from other sites in its MNC group. Firm A's parent company director confirmed that the Mid-West based site is classified as a growth site within the wider group *'for being a high performer on operational metrics and cost position. Interestingly, the cost position is also being helped by the site's ability to leverage government funding.'* This view on operational efficiency and cost position is supported by the Firm C subsidiary director who explained that *'as we continue to grow our operational competences, and use them, harvest them, see the benefits coming through, gains, innovation, cost reduction... they definitely move the needle in terms of competitiveness'*. In contrast, Firm B's parent company director takes a divergent view to Firm's A and C while claiming that *'Limerick can't compete on salaries so where Limerick needs to be competitive is what they are making and how they do it.'* Interestingly, while cost position is not considered a strength, the Firm B parent director highlights the lifestyle in the Mid-West Ireland region as a significant strength of the subsidiary when it comes to employee retention, which is a very important consideration for their business.

4.2.5 Competence #5: Technology and Innovation Capability

The technology and innovation capability for subsidiaries to differentiate their product offering and manufacturing processes was commonly highlighted across all three researched firms as a strength. For Firm B, having this capability, in terms of plant and equipment, that can allow the subsidiary to pivot to new technologies when business units required, is a significant subsidiary competence. This positions the Firm B subsidiary well for attracting new business and products that the market requires. The subsidiary director reflects on that importance of building *'below the line capabilities' that pivot quickly to product technologies. For all of our 'below the line' capabilities, we work with research institutes and our funding partners, where we look at long term trends'*.

As a subsidiary competence, this is supported by Firm A which has differentiated their site within the wider MNC group by investing in calibration capability which is a competence that has significant cost and lead time advantage for the business. As Firm A's parent company director stated, *'we are gaining market share in some of our key flow measurement technologies.'* Further concurrence on this subsidiary competence is evidenced by Firm C's recognition by the World Economic Forum for process automation excellence and Industry 4.0. The parent company director highlighted *'the recognition of what you are doing is absolutely world-class and the spin off that has in the region is very important. People want to be employed by a company like that which is a competitive advantage in terms of hiring and retaining talent.'*

4.2.6 Competence #6: Collaboration Opportunities from Networks

Firms B and C share a common view on the opportunity that the collaboration amongst industry networks in the Mid-West region gives. These two firms highlighted their respective company's dealings with CONFIRM, the SFI research centre for advanced manufacturing engineering based at UL, and how that opened a business opportunity in the area of automation, that would have been very difficult for their respective parent companies to achieve. As the Firm C parent company director pondered *'I see great collaboration with our peers, setting up a network of six key firms, working on the same problem... that connectivity is a stronger argument than being close to Silicon Valley in my view'*. This is supported by Firm B's

subsidiary director who highlighted that *'business to business' collaboration works better in Mid-West than other regions from what I know*. He elaborates to say *'By working together in networks, we are trying to increase the talent pool. That's a benefit. Another benefit is when it comes to working with government on local issues such as the M20 motorway, or Shannon airport.'*

Interestingly, Firm A subsidiary's involvement in collaboration opportunities from networks, has been more recent than Firms B and C, and more aligned with industry groups addressing common challenges such as sustainability. While Firm A's subsidiary has hosted industry group meetings and chaired focussed discussions on the challenges that face industry in the region, this is a recent departure for the firm. Firm A subsidiary director explained that *'we have developed our own business understanding of how to do such collaboration work where IP may be developed in partnership with an external body. That paves the way for future collaborations, which is the work we are seeking to do with other industrial partners in the mid-west.'*

4.2.7 Competence #7: Team Ethos

Firms A, B and C parent company director interviews expressed commonality in terms of strength in global project management, attributable to the team ethos and technical competence in the respective subsidiaries. This also emanates from factors such as favourable time zone for dealing with East and West global regions, and strong technical and business leadership at those locations. The Firm C director states *'knowing the people on your teams personally, inside work, outside work, having a good relationship with people... having that relationship and collaboration is very valuable. It's more than just the customer and client relationship. It's a very open team ethos. It's way more than a relationship that you could ever build up on an e-mail.'* This is supported by Firm B parent company director who explained the team ethos as *'Limerick contributes culturally in terms of the whole team dynamic, which can't be underestimated. The Limerick team may solve problems quicker and better. This may show up the corporate team but that's not a bad thing. And that is only because it shows a mirror up to the parent MNC team.'* In common with Firms B and C, the Firm A subsidiary senior executive made reference to team ethos as a factor in global project management strength, reflecting more on the Shannon site's technical ability to execute complex technical projects. Firm A senior

executive highlighted that *'our technical capability and ethos has driven our growth in terms of more technically complex project and product offerings to customers'*.

Notably, two of the regional attributes – Infrastructure and Market Access, did not lead to more than one subsidiary competence gain amongst the three firms researched. While the infrastructure attribute was deemed important by each firm, the evidential subsidiary competences derived from the interview data were strongly focussed on the international airport, and the ease of travel to other company sites that it provides. While this gives the advantage of easier connection with other company sites, there was no strong evidence in the interview data of the subsidiary firm's gaining competences, as defined by Foss and Knudsen (2013) to be an idiosyncratic knowledge capital that allows its holder to perform activities in certain ways, and typically do this more efficiently than others. Apart from Firm B's subsidiary senior executive highlighting the importance of the road infrastructure to its Skilled Technical Workforce competence, due to their employees commuting between Limerick and Cork, there was little evidence of subsidiary competence gain based on this regional attribute. Additionally, the regional attribute of Market Access is associated with the single competence of Operational Cost Efficiency. The interview data from the three subsidiary senior executives highlights the logistical benefits of good market access which impacts the operational costs of the firms positively. Yet, there was no evidence of other subsidiary firm's gaining competence based on this regional attribute.

In summary, the generation of the above competences of the three subsidiary firms was arrived at by thorough review of the relevant subsidiary and parent director interviews. While this was a large part of research objective two, this objective also sought to understand if the subsidiary competences were gained from the Mid-West Ireland regional attributes, elucidated in research objective one. This linkage is shown in Figure 1 and is summarised in the next section.

4.3 Influence of Regional Attributes on Subsidiary Competences

Figure 1 has highlighted how the regional attributes of the Mid-West region influence the competences at each of the three firms and this is further summarised in Table 6 below:

Firm Competence	Regional Attribute	Explanation
Skilled Technical Workforce	Talent Availability Higher Education Institutions	The firms are routinely hiring graduates from the HEIs, to match their STEM graduate requirements. It was also highlighted by the Firm A and Firm C that the strong manufacturing history in the Mid-West of Ireland has been a significant factor in the availability of talent for industry in the region.
Close Partnership with HEIs	Higher Educational Institutions Active Business Networks	The business networking approach that the University of Limerick and Limerick Institute of Technology take with industry is recognised by the three firms researched.
Leveraging Government Supports	Active Business Networks	The government agencies such as IDA, EI and SFI take a business partnership approach to delivering these funding supports in the Mid-West. Subsidiary firms leverage the support of IRDG which is a business-led support group for MNCs that coaches the members on how to apply for government funding.
Operational Efficiency Driving Cost Position	Talent Availability	The plant productivity and efficiencies at Firm A and Firm C are enabled by teams such as the automation teams are driving operational efficiency and stronger cost position for the subsidiary firms. In the case of Firm A, cost positioning is positively impacted by product quality measures and these are managed by the technical talent that work at the subsidiary company.
Technology and Innovation Capability	Talent Availability Higher Education Institutions Active Business Networks	Due to the investment required to support the technologies to support this innovation capability, the business network regional attribute is important as business relationships with organisations such as IRDG can assist with funding supports. The other two regional attributes impact this competence owing to the role each plays in having the skills available to support this competence.
Collaboration Opportunities from Networks	Active Business Networks Collaboration	For Firm B, the Mid-West region collaborative network, spearheaded by CONFIRM, facilitated the initiative for companies to engage in sharing their needs for meeting Industry 4.0 compliance. By sharing this information across the main industry partners in the region, the opportunity for global MNC-wide automation solutions for the worldwide network of Firm C factories has been advanced to becoming a formal parent-level partnership.
Team Ethos	None	The three researched firms did not associate their subsidiary team ethos to regional attributes.

Table 6 Influence of Regional Attributes on Subsidiary Firm Competences (Source: Current research)

In summary, the Mid-West Ireland regional attributes, as revealed during the IDA regional director interview and the documentary review for Paper 3, appear to have contributed to the competences of the subsidiary MNCs in that region. Most notably, as depicted in Figure 1 and shown again in Table 6, the attributes of Talent Availability, Higher Education Institutes and Active Business Networks have had an impact on subsidiary competence gain. Indeed, for several competences, there have been more than one contributory regional attribute, as seen in the case of five competences across the three firms (see Table 6). The technology and innovation capability competence in each of the firms were influence by the three most dominant attributes mentioned above.

A comparison of the results of section 4.1 with the above data in Table 6 reveals that while the subsidiary senior executives felt that the regional attributes were important to their company, the attributes contributed to the subsidiary competences at varying levels. Indeed, the attribute of Market Access contributes to just one subsidiary competence – Operational Cost Efficiency, for all three firms. Additionally, the regional attribute of Infrastructure contributes to just one subsidiary competence – Skilled Technical Workforce – for Firm B only. The researcher’s view of this apparent inconsistency is that the level of these attributes are equivalent to that offered in alternative subsidiary locations and as such, these attributes by themselves are not considered to be attributes which enable the subsidiary to perform activities in certain ways, and do things more efficiently – this is linked to the definition of competence by Foss and Knudsen (2013).

Finally, it is noted in Table 6 that the subsidiary competence of Team Ethos (and indeed the stated competence of Firm B in terms of workforce vitality and lifestyle offered) were not directly linked to the Mid-West regional attributes. Firm B global operations executive reflects on this by surmising that *‘in terms of a strength, we take for granted, how in Ireland, the working as a team comes completely naturally. The more I look around the world, what we have in Limerick in terms of natural team collaboration, and willingness to share, is the polar opposite to the individual contributor mind set in other countries.’* The team ethos he refers to as something that is associated with Ireland, in his opinion, as opposed to the Mid-West region. Workforce Vitality, as a subsidiary competence, is similarly not attributed to Mid-West regional attributes by Firm B’s global operations executive. He reflects that *‘it is good to have vitality and employee turnover. The average age of the California plant may be 60 years whereas the average age in Limerick is 40 years. Vitality is something you get from on-boarding people and you bring in, infuse new talent partly because the company is growing and partly because people are retiring... there is a trend for the pension age to increase in*

Ireland and I don't see that as a benefit to Ireland. If we look at the US, where there is no pension age, the age of company employees tends to be a lot higher'.

In terms of the Lifestyle Offered competence, Firm B's subsidiary senior executive describes the favourable Mid-West region advantages as *'the lifestyle factors such as housing availability are becoming more important, which were not issues in the early days when our company sought a subsidiary location in Ireland. Basically, the quality of life offered by Mid-West is now a strong draw.'* While the Firm B parent director associates the housing availability with the Mid-West region, he does not align the Lifestyle Offered competence to any of the five regional attributes identified in the documentary analysis and the regional development subject matter expert interview.

This implies that firms may have competences in a subsidiary location which are not directly linked to that region. However, the data in Table 6 does indicate that the vast majority of local competences are linked to attributes of that region which was a key part of research objective two in this study,

4.4 Competitive Advantage gained from Subsidiary Competences

The Resource-Based View of the firm suggests that competitive advantage is a consequence of firm-specific resources and capabilities that are costly to copy by other competitors (Barney, 1991). The relational view of the firm (Dyer & Singh, 1998) suggests inter-firm linkages to be a source of competitive advantage which may include inter-firm collaboration, business interactions, relationships and networks. This literature feeds into the third research objective which sought to examine the impact that subsidiary competence has on parent company competitive advantage.

The source of data to address this objective was the parent company director interviews and note that these interviews started with discussions of how each firm achieved competitive advantage before any reference was made to the perceived competences of the local subsidiary. This was to avoid potential bias that may occur if the interviewee felt in any way obliged to confirm that their subsidiary's competences contributed to parent company competitive advantage – this was felt to be a weakness in the original interview with the parent company director for firm C.

A summary of the analysis of the three parent company director interviews is shown below in Figure 2. This is based on a detailed analysis of the respective transcripts and suggests that there are five common sources of competitive advantage for the parent MNCs from their Mid-West region Ireland subsidiaries. These are discussed in the next section which also includes a discussion of how the local subsidiary competences are contributing to these sources of competitive advantage.

4.4.1 Competitive Advantage #1: Margin enhancement

The parent company directors of the three researched MNCs highlighted that they gained competitive advantage from the product margin enhancement accrued to their product lines based on their subsidiary's competences. As explained by Firm B parent company director, *'a high margin product enables a dominant market share which is consistent with their parent company strategy of being first mover in the marketplace'*. By having the technical capability to *'pivot to new technologies'* and the technologists to develop innovative products, at the Mid-West subsidiary, the parent company gets the advantage of being first mover in their regulated marketplace, which brings with it, higher margins for the product line. Margins are also enhanced by leveraging government funding supports which is consistent across the three firms researched. He emphasized *'that is why getting funds like the IDA Ireland grants which can accelerate getting the product to market, quicker, by on-boarding talent as part of funded programmes is an important consideration when we consider the Limerick sites competitiveness.'*

This view on parent competitive advantage gain from margin enhancement is also supported by the Firm A parent company director. This firm benefits from margin enhancement from its operational efficiency subsidiary competence, as evidenced by high product quality performance, which drives favourable cost position. This enables market share growth through competitive bidding for sales opportunities. By having a favourable product margin, Firm A's parent company can quote product competitively while maintaining the shareholder margin expectations.

	Margin enhancement	Speed to market	Collaboration enabling growth opportunities	Leading innovation	Global project management
Firm A competencies	Operational efficiency Driving cost position Leveraging Gov't Funding supports Specialist supplier base	Technology & Innovation capability Team ethos	Collaboration opportunities from networks	Skilled technical workforce Technology & Innovation capability Use of close partnerships with HEIs	Team ethos Skilled technical workforce
Firm B competencies	Technology & Innovation capability Leveraging Gov't Funding supports Network collaborative opportunities	Technology & Innovation capability Skilled technical workforce Team ethos	Collaboration opportunities from networks	Technology & Innovation capability Skilled technical workforce Team ethos	Team ethos Leadership development - Management and Technical
Firm C competencies	Operational efficiency driving cost position Leveraging Gov't Funding supports Specialist supplier base Skilled technical workforce	Team ethos Technology & Innovation capability Specialist supplier base	Collaboration opportunities from networks	Use of close partnerships with HEIs Technology & Innovation capability Skilled technical workforce Collaboration opportunities from networks	Team ethos Collaboration opportunities from networks

Figure 2 Subsidiary competences contributing to parent MNC competitive advantage (Source: Current research)

As explained by Firm A parent company director *'by having that technical capability in Shannon, our cost position is helped considerably as we no longer have to send our high accuracy instruments to external calibration facilities in The Netherlands and Denmark for calibration, prior to shipping to customers. This avoids significant additional cost and lead time for our product.'*

The commonality across the three researched firms is supported by Firm C, whose parent company director also identified the benefits of margin enhancement, as a parent company competitive advantage. This, he asserts, is predicated on favourable cost position of the Mid-West region Ireland subsidiary, attained by operational efficiency in manufacturing. The market share that the parent company holds for the medical devices manufactured at the Mid-West subsidiary site is dependent on the product costs, which allows the company to be price competitive in its target markets, predominantly Europe and Asia. By developing automation skills in the medical device manufacturing space, it gains variable cost productivity that has a direct impact on its product price to market. In this case, lower costs enable margin enhancement, which in turn, enables opportunity for increased market share by being price competitive. The Firm C parent company director claimed *'our bottom-line competitive advantage is helped massively by how excellent our operational efficiency is'* as testament to this competency impact on margin enhancement. This is exemplified by the specialist supplier base that Firm C has partnered with in the Mid-West region which also gives margin enhancement opportunity for the parent company owing to the innovative cost solutions that the supplier develops for the wider MNC business.

4.4.2 Competitive Advantage #2: Speed to market

The findings from all three firms researched show commonality in terms of parent company competitive advantage gain based on subsidiary *'speed to market'*. For Firm C, the parent MNC speed to market benefit means having direct market access and being able to deliver its products through delivery channels to the timelines their customers want. By having leading edge automated manufacturing and channel partners with direct market access, it enables their speed to market as a competitive advantage to their parent company. Their speed to market in terms of technological advances are also enhanced by their design centre's close collaboration with the higher education institutes. The parent director suggested *'it takes a long time in our world to adopt a new technology. So, the earlier we are aware of something, with TRL projections,*

where we are on the curve, the quicker we can work on the technological advances that are important for our business.'

Firm B gives further support to 'speed to market' as a parent competitive advantage by the subsidiary being able to develop innovative products that the marketplace wants, as a first mover in the marketplace. The Firm B parent director explained that *'being first to market with technological advances is vital to our business and it is more important than product cost'*. Having the technical capability that enables the subsidiary to pivot to new technologies allows faster market entry with the innovative products required. Firm B parent company director highlighted that, *'it's not just innovation but equally important is the timing of that.... Speed to market is key'*. Additionally, having the skilled technical workforce to support the innovative product development is a key enabler for facilitating the speed to market for new product designs. As the parent company's strategy is to be the first to market with its innovative products, due to the margin benefits it brings, the subsidiary competences that facilitate this are a competitive advantage for the parent company.

Interestingly, Firm A considers speed to market as product placement lead time. However, the sales order fulfilment model differs between Firm A subsidiary and Firms B and C. Firm A manufactures custom designed products for each customer order whereas Firms B and C supply product to channel partners' forecasts or on Internet sales demand. For Firm A, delivering on faster lead time by having the technical capability at the subsidiary to execute all sales order activities, is a competitive advantage for the product line. The investment in calibration capability at the subsidiary has reduced lead time for the product by four weeks typically, and enhanced margin by 10%. Firm A parent company director emphasised that *'calibrating our meters in-house is significantly cheaper than doing it externally in mainland Europe. It makes our cost position a lot more competitive and reduces lead times considerably, and we need to do both to remain competitive in the measurement technology marketplace.'* This allows the parent MNC to be more price and lead time competitive when bidding against competitors. Furthermore, this has enabled significant market share growth for the product lines that use this calibration facility.

Interestingly, the Team Ethos competence, while not impacted by a regional attribute according to the company interviewees, is an enabler for speed to market for Firms A, B and C. There is commonality in the emphasis that each firm place on their subsidiary team's responsiveness to the 'speed to market' requirement.

4.4.3 Competitive Advantage #3: Collaboration Enabling Growth Opportunities

Firm B and C parent company director interviews both highlight the parent MNC competitive advantage of having an ecosystem in the Mid-West that is characterised by the collaboration amongst businesses in the region. The Firm C parent company director stated *'they succeed in maximising the ecosystem.... we have supply partners like M... A... who wouldn't exist only for the focus and relationship our subsidiary built with them over the past 20 years.'* That Mid-West based supply partner has opened an engineering design office in the parent MNC city in U.S. and the parent is now getting the competitive advantage of process solutions for reducing manufacturing cost, which this supplier delivers.

Firm B parent company director's perspective is captured in his assertion that technology domains are merging as evidenced by the broad range of industry participants involved in next generation technology. He highlighted the example of the multiple stakeholders involved in the development of autonomous vehicle technology ranging from car manufacturers, integrated circuit designers, camera technology, satellite imaging providers, insurance industry and government from the point of view of legislation. Firm B has invested in a customer engagement centre in Limerick with the purpose of having industry partners collaborate to find technological solutions of interest to their respective companies. Firm B's experience with the centre, which incorporates temporary work centres with customers that enable design and pilot production, is that there is a high level of demand for collaborative engagement from wider industry and business stakeholders, ranging from healthcare providers, to medical device companies and non-competing industries.

A tangible example of how this collaboration has given competitive advantage to the Firm B parent is the large sales opportunity it has opened up for the parent MNC, based on the business relationship the company has with another Mid-West subsidiary company. By virtue of the collaborative business relationship between the two Mid-West subsidiaries, the parent companies of the two subsidiaries have engaged in a meaningful business relationship that has benefits to the wider Firm B MNC. The parent company director highlighted that this business opportunity would not have opened up to the parent company without the local Mid-West collaboration between the subsidiaries involved. He stated that *'having that dialogue with SVPs from our corporate team and their counterparts in the partner firm brings far more weight to the relationship at corporate level'*. A key stakeholder in this collaborative opportunity was UL, whose advanced manufacturing engineering research centre facilitated the engagement by

having key industry participants attend their industry group meetings. This cross-sectoral collaboration has given significant parent company competitive advantage for Firm B.

Similarly, the Firm C parent director has highlighted the benefits of participation in collaboration in the Mid-West. One example discussed by the parent company director relates to participation in a Med Tech cluster group within the employer group, IBEC, that has benefitted the parent company by participation in discussion with government around legislation that is important for the Mid-West based subsidiary. By involvement in such an employer group, with access to legislators in government, the parent MNC gets competitive advantage by having influence in legislative frameworks that range from the placement of their products on the market, to government policy on grants and R&D tax policy. He informed *'there were times when R&D tax credits were at risk of being reduced, changed or withdrawn as part of government policy and through the network of the IBEC, the American Chamber and similar bodies, we managed to engage with the right government people to have our say, invite them to our businesses and to show them the real value of those tax credits. The outcome was that the Irish government officials ended up expanding the terms of the R&D tax credits after the networking and advocacy approach made by this collaboration'*.

Interestingly, Firm A's parent sees network participation with other Mid-West industries as a potential opportunity for addressing challenges the business has with issues such as sustainability. The Firm A parent director gave the example of the subsidiary hosting an event for the American Chamber of Commerce Ireland in the Mid-West for participating companies, to discuss and share best practice on the sustainability challenge. Owing to the challenge that sustainability presents to the parent company, in which it has set out clear targets such as achieving net carbon emissions by 2050, meeting this challenge would be seen by the parent company as giving competitive advantage in several ways. He highlighted that *'Sharing expertise is beneficial but also opening up collaboration opportunities which we see as strategically important for our next wave of growth.'*

4.4.4 Competitive Advantage #4: Leading Innovation

There is commonality across the three firms on Leading Innovation competitive advantage, which emanates from the highest number of subsidiary competences identified in the parent company director interviews. According to the Firm C parent director, the parent MNC gets competitive advantage from the subsidiary's close partnerships with the HEIs, its technological

and innovation capability and its skilled technical workforce. Interestingly, the subsidiary's network collaborative opportunities give competitive advantage to the parent company by engagement with Mid-West based partners to design market-leading factory automation technology. The Firm C, in collaboration with the SFI research centre for Advanced Manufacturing Engineering, based at the UL is also collaborating with industry partners based in the Mid-West to design manufacturing systems that are adopted across the range of parent company global plants, which gives productivity and margin enhancement benefits to the wider business. The Industry 4.0 data management systems that have been designed in collaboration with these Mid-West based partners have been adopted by the wider base of MNC factories in the region. The Firm C parent company director stated that *'in our R&D centre, we have been ahead of the IDA and one of the interesting things is we've have had a very succinct focus on Industry 4.0 since 2015, so since the beginning'* Additionally, the Firm C subsidiary MNC has achieved World Economic Forum recognition for factory excellence, which gives the parent MNC competitive advantage which is founded on operational excellence and enhances the reputation, as an employer, of the parent MNC. As the Firm C parent director stressed *'People want to be employed by a company like that which is a competitive advantage in terms of hiring and retaining talent'*.

Consistent with Firm C, the Firm B parent company director highlighted the recognition that the Limerick based subsidiary has for product innovation at its site, which gives the parent company competitive advantage through patented products released for global sale. As he stated. *'Some of the technologies that have come out of Limerick and continue to come out of Limerick have a global impact. Whether it is automotive start/ stop technology, touch screens, not to mention a lot of the industrial robotic products, that we just take for granted. So, the innovation and the ability to being first to market in a lot of technology areas.... this gives parent company competitive advantage in a tangible way'*. He continued, *'what comes with that is leadership within the company, both technical leadership, business leadership and people management. And in terms of a strength, we take for granted, how in Ireland, that working as a team comes completely naturally. The more I look around the world, what we have in Limerick in terms of natural collaboration, both internally and externally, and willingness to share. It gives is competitive advantage'*.

The commonality across the three researched firms on this competitive advantage is confirmed by the Firm A parent company director. He identified that the Leading Innovation competitive advantage that the parent company gets from the subsidiary competences of Skilled Technical

workforce, Technology and Innovation Capability and Use of Close Partnerships with HEIs, is *‘because we are a high end manufacturing centre, with ambition to develop innovation capability, the fact that there is a strong engineering presence in the universities is a key one’*.

4.4.5 Competitive Advantage #5: Global Project Management

The three MNC parent company directors expressed a common view that managing global projects in their Mid-West subsidiaries is a parent company competitive advantage, benefitting their global businesses. Interestingly, while the types of projects being managed may differ across the three different companies, a common thread is the team ethos that is prevalent in the subsidiaries. Firm A subsidiary operates a business that designs and manufactures a high percentage of its product for individual sales orders, and as such, requires interaction with the customer during the sales order fulfilment cycle. According to the parent company director, the competitive advantage the parent company gets from the subsidiary’s project management execution is a differentiator in the market which it dominates for such project type orders. The Shannon [Mid-West region] team is situated in a favourable time zone for dealing with the US, and also the Middle East and the Far East – all regions that are very relevant for its energy technology business. Managing project type sales orders, with regular customer interface during design approval stages, with customers that have an eight-hour time zone difference from Eastern US, would be very challenging from US. As stated by the parent director, *‘where Shannon is positioned time zone-wise, is very beneficial, particularly when running complex global projects from the Mid-West of Ireland, because a high percentage of those are destined for the Middle East for our Oil & Gas market. Additionally, the talent that the Shannon business has on-boarded to manage the project business is strongly technically and has project management skills and experience, which differentiates the subsidiary team when attracting this business.’*

In contrast to Firm A, Firm B’s business in Limerick [Mid-West region] incorporates business units, which have team members dispersed throughout the global network of its companies, that are responsible for product design and commercialisation. The management of product design projects for selected business units is led from the Limerick site and benefits from co-location with the subsidiary’s large-scale manufacturing site. The co-location benefits the business units have include the ability to leverage the technologies within manufacturing when designing new product. This internal collaboration within the Limerick site means that the

project management tasks of designing a new product and bringing it through all stages of manufacturing prior to release, has a higher validation success rate. As stated by the Firm B parent company director, *'what we have in Limerick in terms of natural collaboration and willingness to share, is the polar opposite to the individual contributor mind set in other countries. The competitive advantage this gives the parent company is faster release of new product designs, enabled by project management of globally dispersed resources.'*

In common with Firms A and B, Firm C also benefits from the global project management competitive advantage. Interestingly, Firm C's project management function is similar to Firm B in that it is related to engineering projects that are benefiting the global business. While Firm B's project management is for new product design, and Firm A uses project management for complex sales order execution, Firm C uses project management when implementing new processes and technologies to maintain a competitive cost position for the subsidiary company. Examples are given by the parent company director of new automation technologies that are implemented by collaborating with the parent company's automation centre of excellence at the UL campus and the internal team at the subsidiary site. The parent company director emphasised the workings and culture of the project team as *'a very open team ethos.'* The project management skills that the subsidiary deploys locally with several participants outside the subsidiary company lead to a beneficial cost position that is a competitive advantage for the parent, while maintaining price sensitive market share in a competitive environment.

In summary, it is clear that subsidiary competences in the Mid-West region of Ireland for the three firms researched do contribute to the competitive advantage of their respective parent MNCs. As demonstrated by four of the five parent MNC competitive advantages above, they emanate from more than one subsidiary competence. The Collaboration Enabled Growth Opportunities competitive advantage accrues to the parent MNC for Firms A, B and C and in each case, this is impacted by the network collaborative opportunities for subsidiary competence. The Margin Enhancement and Leading Innovation competitive advantages have the highest number of subsidiary competences, ranging from two to four competences in each case. The most commonly occurring subsidiary competence across all five parent competitive advantages is Technology and Innovation Capability, which contributes consistently in three competitive advantages; Margin Enhancement, Speed to Market and Leading Innovation. The Skilled Technical Workforce is the shared second highest occurring subsidiary competence contributing to the same three parent competitive advantages with the Leading Innovation advantage for each of the three firms being impacted by this competence. The Team Ethos

subsidiary competence has dominance in the Global Project Management competitive advantage, yet interestingly, it was not influenced by the Mid-West of Ireland regional attributes.

It is also interesting to note that Network Collaborative Opportunities is the single subsidiary competence for the Firms A, B and C collaboration which enabled growth opportunities and competitive advantage. However, the parent company for these three firms places high emphasis on this competitive advantage, owing to the wider business benefits that this Mid-West region-based collaboration has introduced to their companies.

In short, valuable insights into the influence that the regional environment has on the competitive advantage of parent company MNCs have been achieved. This satisfies the third research objective of this study.

5.0 Paper 4 summary

This paper has presented the findings from the analysis of six semi-structured interviews with senior directors at local and parent company level in three MNCs based in the Mid-West region of Ireland. Valuable lessons were learned from the original pilot study which were incorporated into the design of these interviews and it is believed that valuable conclusions can be drawn from the analysis of this data. Across the three firms researched, some clear commonality has emerged from the interview data which leads the author to conclude that, in several cases, the competences gained by the Mid-West located subsidiaries are derived from the regional attributes. Furthermore, commonality across the three parent company interview responses indicate that the subsidiary's competences in each case lead to MNC parent company competitive advantage.

The research found that the Mid-West regional attributes, as revealed in Paper 3, contribute to the competences gained by MNC subsidiaries based in that region. For each firm, it was found that the regional attributes of Talent Availability, Higher Education Institutes and Active Business Networks had the strongest contribution to subsidiary competence gain. Interestingly, it was also established that some subsidiary competences, namely Team Ethos, Workforce Vitality and Lifestyle Offered are not influenced by the regional attributes. An additional unexpected finding was that there was important emphasis placed on two regional attributes - the international airport in region and market access, that did not contribute to subsidiary

competence. Yet both of these regional attributes are rated highly in terms of importance by the subsidiary and parent company directors.

Research Objective 3 examined the contribution that the regionally based subsidiary competences have on parent company competitive advantage. There is commonality in the interview data across each of the three researched firms in terms of the competitive advantage gained by their respective parent companies. There was strong evidence supporting this in three aspects of parent MNC competitive advantage - Margin Enhancement, Speed to Market and Leading Innovation having a consistent competence of Technology and Innovation Capability. This is reflective of the influence that strong regional attributes such as the HEIs, Talent Availability and Active Business Networks incorporating government funding have on the competitive advantage of parent MNCs investing in the Mid-West region of Ireland.

Notably, each firm's parent company director interview emphasised the competitive advantage their MNCs derive from Leading Innovation, ranging from the industry-wide pioneering role on Industry 4.0 initiatives adopted by Firm C to the recognised ability of Firm B to be first to market with latest technologies in their industry. In a similar way, Firm A parent company derives competitive advantage from the competence that its subsidiary has in providing market-leading accredited product calibrations which meet the higher accuracy needs of its customers.

Another dominant subsidiary competence that contributes to the same three dimensions of parent MNC competitive advantage is Skilled Technical Workforce which is supported by the regional attributes of HEIs and Talent Availability. Additionally, despite the Network Collaborative Opportunities subsidiary competence being the only one that facilitated the parent MNC competitive advantage of Collaboration Enabled Growth Opportunities, this is an important one for Firm B and C as stated in the director interviews. Both Firms B and C parent company interviews acknowledged the substantial wider MNC-level sales opportunity that has developed due to the collaboration, with other organisations, by their respective subsidiaries in the Mid-West, Ireland region. The role that a Science Foundation Ireland (SFI) research centre based at UL has played in this collaboration has also been recognised by the parent MNCs in each case. A further example of cross-organisation commonality in parent MNC competitive advantage is Speed to Market. This has been emphasised in the interview data by each of the three researched firms which reflects the parent firm's acknowledgement of the ability of the subsidiaries to deliver new designs and product meeting market lead time and competitively.

Based on the main research findings discussed above, the author believes that there is a dominance of subsidiary competences within the listings to support the overall assertion that they do contribute to parent MNC competitive advantage.

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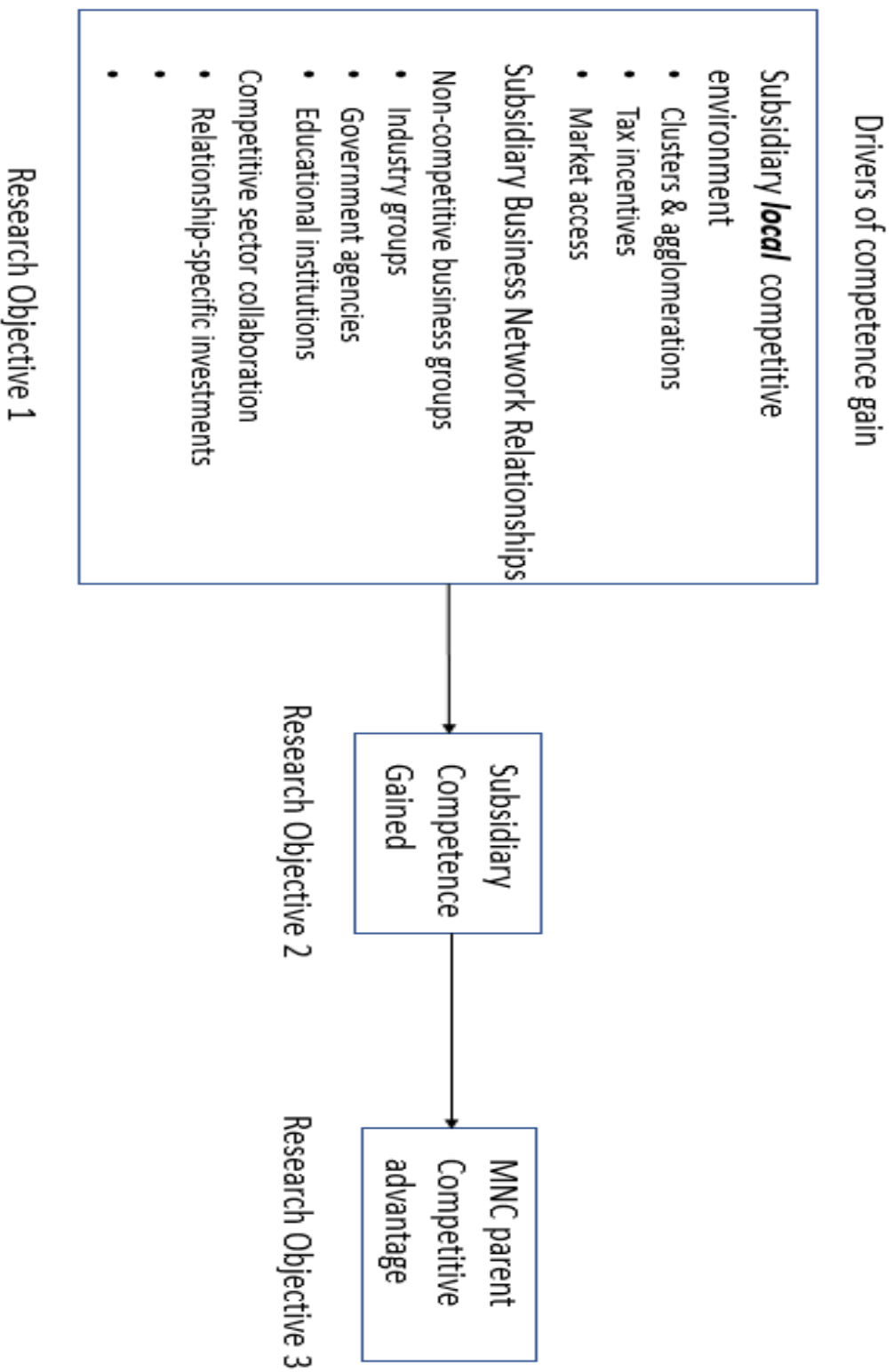
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Subsidiary MNC Competence Gain Contribution to Parent Firm's Competitive Advantage



Appendix I - Conceptual framework

(Source: Current research)

Appendix II - IDA supported sectoral employment in the Mid-West region, Ireland

Sector	2018 Employment Numbers
Medical and Dental Instruments and Supplies	3,992
Information and Communication	3,730
Other Manufacturing	3,578
Computing, Electronics and Optical Equipment	2,583
Financial Services	2,267
Pharmaceuticals	2,024
Business & Other Services	774
Total	18,948

Source: IDA Ireland (2018)

Appendix III: Mid-West, Ireland Attributes

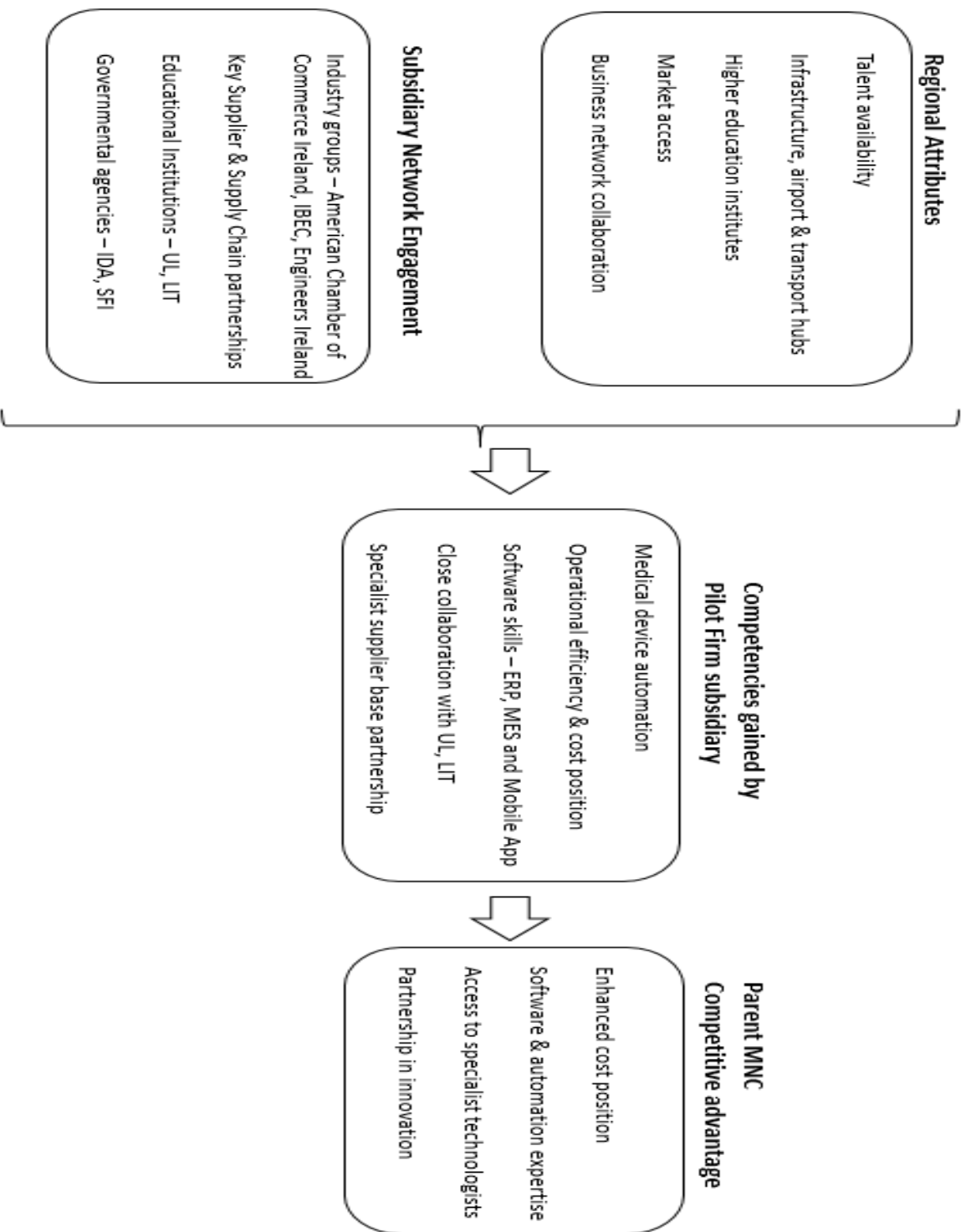
Attribute	Documentary source	Extracts from IDA Regional Manager Interview
Talent Availability	www.IDAIreland.com/publications and infographics	<p>‘the UL Co-op system, which is very important to the University of Limerick needs to provide a pipeline of companies that will give placements to the undergraduate students.</p> <p>‘The universities take a very collaborative approach</p> <p>‘companies working with the educational institution in taking students for co-op but also they work with some companies in getting funding for research, as an example. It is a symbiotic relationship.’</p>
Higher Education Institutions	www.Limerick.ie ; www.ul.ie ; www.lit.ie www.sfi.ie www.bernalinstitute.com	<p>‘educational institutions in Mid-West see the value that engagement with industry brings’</p> <p>‘the collegiate approach, that we are all seen as one team and to the credit of LIT, UL and the educational providers locally, they do partner well with industry and also, they do not compete amongst themselves’</p>
Infrastructure	www.Shannonchamber.ie ; www.Limerickchamber.ie ; www.shannongroup.ie	<p>‘availability of property in Limerick and Shannon has been a significant growth factor’</p>
Market Access	www.enterprise-ireland.com	<p><i>‘The airport is probably one of the top 3 most significant aspects of the region. All of the intangible factors on FDI decision making I referred to earlier is irrelevant if you don’t have connectivity’</i></p>
Active Business Network	www.limerickchamber.ie www.shannonchamber.ie www.Confirm.ie www.limerickforengineering.ie	<p>‘I think Ireland in general is very strong, ... very active in the role that networks play, but it is not limited to Mid-West.</p> <p>‘networks probably work better for established companies, ones that have landed’</p> <p>‘Ireland is very strong on networks and they work collaboratively for the good of all participants’</p> <p>‘the business to business collaboration is stronger in Mid-West than in any other region’</p>

Appendix IV - Mid-West Business Networks

Nature of Network	Example	Description
Non-Competitive	IBEC MedTech	Business association within IBEC representing the medical devices and diagnostics sector
Non-Competitive	American Chamber of Commerce, Ireland	A leading international business organisation in Ireland and the leadership voice of US companies in Ireland
Non-Competitive	Limerick for Engineering	An industry led initiative which aims to increase the quality and quantity of engineering talent (apprentice, technicians and engineers) available in the region.
Non-Competitive	Mid-West Action Plan for Jobs	This aims to build on the strengths of the region, to support businesses to start up, grow and generate exports
Non-Competitive	IDA Ireland Mid-West	An inward investment promotion agency which helps potential and existing investors to establish or expand their operations in Ireland.
Non-Competitive	Science Foundation Ireland	Ireland's national foundation for investment in scientific and engineering research

(Source: Current research)

Appendix V - Paper Three Pilot Study Findings



(Source: Current research)

Appendix VI - Map of Mid-West Ireland - Firms A, B & C locations



Source: IDA Ireland 2019

Appendix VII - Firm A competence list

- Skilled technical workforce
- Use of close partnerships with HEIs
- Operational efficiency driving cost position
- Leveraging government funding supports
- Technology & Innovation capability
- Team ethos

(Source: Current research)

Appendix VIII - Firm B competence list

- Skilled technical workforce
- Use of close partnerships with HEIs
- Network collaborative opportunities
- Leveraging government funding supports
- Technology & Innovation capability
- Leadership development – Management and Technical
- Team ethos
- Lifestyle offered
- Workforce vitality

(Source: Current research)

Appendix IX - Firm C competence list

- Skilled technical workforce
- Use of close partnerships with HEIs
- Operational efficiency driving cost position
- Leveraging government funding supports
- Technology & Innovation capability
- Network collaborative opportunities
- Software development – MES, ERP, App
- Partnership with specialist supplier base
- Team ethos

(Source: Current research)

Appendix X - Interview guide – Subsidiary MNC director

Background information

1. Could you give me some background to your own position in the company, such as your tenure in the role, and your role and responsibilities in the company and any previous roles you have had in the company?

Prompt:

- *Do you have P&L responsibility?*
- *What does the site director role entail? What functions report to the role?*

2. How long has the subsidiary been in the region?

3. What is the size of the company in terms of employee numbers, revenue and footprint?

4. What is the employee profile within your subsidiary company?

Prompt:

- *How many professional, technical, skilled, non-skilled employees in the company?*
- *Do technical, skilled or professional employees come from Mid-West based higher education institutions or from outside the region?*
- *Has this trend changed in recent years, or during any growth phase of the company?*
- *Do employees travel from neighbouring counties or travel long distances to work?*
- *Do employees relocate from overseas to work in your subsidiary company?*

5. What has the growth trend been in recent years?

Prompt:

- *Is this a key site within the parent MNC structure, attracting investment for growth?*
- *Has the investment fuelled growth?*

6. What is the organisational structure of the company, where does it fit in the parent company structure and how does it compare with other sites within the parent organisation?

Prompt:

- *Is the site strategically important in the wider MNC?*

7. Why did your parent company invest in the Mid-West, Ireland region?

Prompt:

- *Was it a conscious decision to invest in Ireland or Mid-West, Ireland?*
- *Does the parent company differentiate the Mid-West of Ireland from other regions in Ireland?*

8. What networks is your company involved with in Mid-West, Ireland
Prompt: A network meaning any organisation that involves a positive business relationship
9. Can you explain how your company engages in business networks?
10. What benefits does your subsidiary get from participation in these networks?

Objective 2: Subsidiary competences

1. What are your subsidiary's strengths?
Prompt:
 - *What is your company good at?*
 - *A strength is something that differentiates the Mid-West based company from other sites within the wider parent MNC*
 - *An example of a strength: A technical competence in a defined area, e.g. Precision measurement technology...*
2. How is the Mid-West-based site evaluated by the parent business?
Prompt:
 - *What are the measures used by the business to evaluate performance and importance to the wider MNC?*
3. How does the Mid-West-based site compare with other plants within the wider MNC on these performance or evaluation measures?
Prompt:
 - *Does the subsidiary perform better than other sites within the wider MNC?*
 - *Is that performance attributable to the subsidiary strengths?*
 - *Are there other drivers of subsidiary performance, other than the subsidiary strengths mentioned above?*
4. What are the benefits your subsidiary gets from the strengths detailed above? Please give precise explanations of these benefits for each strength listed.
Prompt:
 - *For example, if labour productivity is a strength, a resultant benefit may be a competitive cost position...*
5. Why do these strengths deliver the benefits detailed above? For each benefit, please explain why the associated strength(s) has delivered the benefit.
Prompt:
 - *Elaborate on the 'why' specific benefits accrue from each of the strength.*
 - *For example, if a strength is a technical competence within a functional group in your company, why does that deliver a benefit to your company?*

Objective 2: Regional involvement in subsidiary competency gain

1. What has the regional involvement been in driving ‘what the subsidiary is good at’?

Prompt:

- *What regional attributes that you associate with the Mid-West, Ireland, as opposed to attributes of Ireland Inc. drive subsidiary company strengths?*

2. Do the Mid-West region’s attributes drive these company strengths more than other regions where other subsidiary sites are located?

Prompt:

- *For example, is the influence of regional attributes in the Mid-West stronger in terms of strength gain than other regions where the parent MNC has subsidiary sites?*

3. For each competence detailed earlier in this interview, how has each of them been influenced by Mid-West regional attributes?

Prompt:

- *Has competence XXXXX been driven by any distinctive attribute of Mid-West, Ireland?*

4. For competences detailed earlier in this interview, would each of these be a feature of the subsidiary if the company was based in a different region in Ireland?

Prompt: *For example, some regions, such as the Midlands, do not have the same depth of higher education institutes as the Mid-West. If the subsidiary was based in the Midlands region, would that impact their gain of strengths or competences?*

5. Which regional attribute(s), if any, drive each company strength detailed above?

6. In each case, how do these regional attributes drive the respective company strengths?

(Source: Current research)

Appendix XI - Parent MNC direct interview questions

Background information

1. Could you give me some background to your own position in the company, such as your tenure in the role, and your role and responsibilities in the company and any previous roles you have had in the company?

Prompt:

- *What is your area of responsibility?*
- *What is the organisation structure of the parent MNC and what subsidiaries report on to it?*
- *What is the size of the company in terms of employee numbers, revenue and footprint?*
- *What functions report to your role?*

2. How do regionally-based subsidiaries within the wider MNC differ from each other?

Prompt:

- *Does each subsidiary have its unique product lines that it manufactures and places on the market?*
- *How do the subsidiaries inter-relate with the parent MNC and how do they inter-relate with each?*

3. What degree of autonomy does the regionally-based subsidiary have?

Prompt:

- *What decision making is done locally and what is deferred to the parent MNC?*
- *What determines the degree of autonomy given to regionally-based subsidiaries?*

4. Please give a brief profile of the parent MNC company?

Prompt:

- *Do regionally-based sites differ in terms of their employee profile?*
- *Has this trend changed in recent years, or during any growth phase of the company?*

5. *How does the subsidiary in Mid-West Ireland add to the parent company competitive advantage?*

6. How does the parent MNC measure competitive advantage it gets from each of its subsidiaries?

7. *Is the Mid-West, Ireland site a key subsidiary within the parent MNC structure, attracting investment for growth?*

Prompt: *Has the investment fuelled growth?*

8. Which are the more important subsidiaries within your parent organisation? Are some subsidiaries more important than others? How many subsidiaries are strategically important?
9. How important is Mid-West Ireland compared with other regions where subsidiaries are based?

Prompt: How do you determine if a subsidiary is strategically important within your MNC group of companies?

10. Why did your parent company invest in the Mid-West, Ireland region?

Prompt:

- *Was it a conscious decision to invest in Ireland or Mid-West, Ireland?*
- *Does the parent company differentiate the Mid-West of Ireland from other regions in Ireland?*

11. What networks is your company involved with in Mid-West, Ireland?

Prompt: A network meaning any organisation that involves a positive business relationship

12. Can you explain how your company engages in business networks?

Prompt:

Is this network engagement encouraged?

13. What benefits does your subsidiary get from participation in these networks?

Prompt:

Please give some tangible examples?

Objective 2 & 3: Competitive advantage conferred from the Mid-West, Ireland subsidiary competences.

1. What is the Mid-West Ireland subsidiary good at?

Prompt:

List every strength the Mid-West based subsidiary has..

What is unique about the Mid-West subsidiary?

2. *Does each of these strengths confer competitive advantage to your parent company?*

Prompt:

- *For each subsidiary strength, comment on whether it gives competitive advantage to the parent company.*
- *What is unique to the subsidiary about each strength listed?*

Note: Strengths established in the subsidiary interview will be woven into the questions if they are not highlighted by the parent company director.

3. How does each of these listed strengths of the subsidiary confer competitive advantage to your parent company?

Prompt:

- *For each listed subsidiary strength, comment on how it gives competitive advantage to the parent company.*
- *Seek firm examples of how the parent MNC gets competitive advantage from the subsidiary competences*

4. How does the parent MNC measure the competitive advantage it gets from each of the subsidiary's strengths?

Prompt:

- *Are there metrics associated with the competitive advantage gain by the parent MNC?*
- *Is the competitive advantage gain by the parent MNC perception based?*

5. In each case where competitive advantage is conferred on the parent MNC from the subsidiary's strengths, why does that accrue to the parent MNC?

Prompt:

- *Is it because the Mid-West, Ireland subsidiary has strengths that other regionally-based MNCs does not have?*
- *If that is the case, why does the Mid-West Ireland subsidiary have these strengths that other subsidiaries do not?*
- *Please elaborate on why the Mid-West Ireland has these strengths in comparison with other subsidiary sites*

(Source: Current research)

SECTION THREE:

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

1.0 Introduction

Section Three of this thesis reviews the findings of this study with reference to literature in this field and highlights the contribution of the study as well as providing some recommendations for future research. The main aim of this research was to see if the investing parent MNC gets competitive advantage from a regionally-based subsidiary. This question is assessed through an examination of the subsidiary's competences, some of which may be derived from regional attributes and which may be specific to the region, and some of which may not be related to the region. A context for this study is the growing trend in foreign market investment by expanding firms⁵, and this trend has been observed despite the traditional role of the MNC subsidiary foreign location diminishing in recent years. In this regard, Dicken (2011) highlights the growth in FDI despite the development of highly sophisticated communications systems that facilitate seamless movement of goods globally. This suggests that subsidiary location choice still confers important advantages for the MNC, and this is explored further in this research.

Each of the four cumulative papers contained within Section Two of this thesis addressed one element of the overall research, starting with Paper One - Conceptual Paper - which outlined the conceptual design for the study. This paper critically reviewed literature concerning the way in which international firms gain competitive advantage and the role that subsidiary location plays in that. The relational view of the firm (Dyer and Singh, 1998), as a theory of competitive advantage focussing on location-based advantages, such as business relationships, is of particular interest in this research. Dyer and Singh's view suggests that a firm's critical resources may span firm boundaries and be embedded in inter-firm resources and collaborations, a view which was examined in this research. The relational view of the firm shares close links with Porter's (2000) description of the benefits of industrial clustering, and in addition, the resource-based view (Barney, 1991) is also of interest as it suggests that competitive advantage is a consequence of firm-specific resources and capabilities which can be influenced by MNC subsidiary location advantages. Location theory, as depicted by Dunning's (1979) Eclectic (OLI) paradigm, was also considered as it explains the internalised foreign activities of the MNC, referring to location as a source of competitiveness. Dicken (2011) supports this view, positing that for innovative processes which drive technological

⁵ In 2015, global FDI flows increased by 25% to USD 1.7 trillion, reaching their highest level since the global financial crisis began in 2007 (OECD, 2016). FDI flows into EU countries in the same period increased by 54% (from USD 282 billion to USD 434 billion).

change, the conditions of knowledge accumulation are highly localised, having a very distinct geography. Alternative perspectives on the contribution of locational environment to the investing MNC competitive advantage were also reviewed; such as research by Nell and Andersson (2012) and Szalucka (2015), these studies present alternative views on the importance of location to MNC activities. Nell and Andersson (2012) determined the important influence that environmental characteristics have on subsidiary relational embeddedness, thus yielding competitive advantage to the MNC. However, Szalucka (2015) showed that FDI subsidiary location did not significantly influence the scale and nature of benefits from FDI international activities.

Paper Two - Methodology Paper - presented the proposed research methodology for this study, which was guided by the “research onion” process (Saunders, Lewis and Thornhill, 2015). This research strategy adopted was to focus on MNCs with subsidiaries based in one region - Ireland’s Mid-West region - which offers significant attributes that are generally considered to provide competence gains to MNC (www.limerick.ie; www.IDAIreland.com; www.shannonchamber.ie). As the research question asks if the parent MNC gains competitive advantage from subsidiary location choice, the approach proposed was that of a qualitative study, firstly to determine the attributes of the subsidiary location by a combination of a documentary review and semi-structured interview with a subject matter expert in regional development. Secondly, the competences of a purposive, but representative, sample of subsidiaries operating in this region were determined through semi-structured interviews with subsidiary and parent MNC senior directors. A subsequent thematic analysis was employed in analysing this information. The final part of the research methodology was to determine if the parent MNC gained competitive advantage from their respective subsidiary competences, this was addressed through semi-structured interviews with MNC parent company senior directors. The chosen qualitative approach incorporating semi-structured interviews was felt to be suitable for the depth of enquiry required for this research. The author believes that the level of insightful enquiry needed to examine if, and how, parent MNC’s gain competitive advantage from foreign-based subsidiaries justified a qualitative methodology. This contrasts with the vast majority of prior studies in this area such as Nell and Andersson (2012), Andersson, Dellestrand and Pederson (2014) and Szalucka’s (2015) – all of whom adopted quantitative methods.

Paper Three - Research Design and Initial Findings - presented an updated research design with some initial findings from the analysis of a pilot organisation in the Mid-West of Ireland. As a

first step in the process, the regional attributes of this region were elucidated through a documentary analysis of secondary data from relevant publications, which was complemented by a semi-structured interview with a former IDA⁶ Ireland senior executive, with responsibility for the Mid-West Ireland regional development. The documentary analysis involved a review of IDA publications (www.IDAIreland.com/publications and infographics, 2019; IDA Ireland Tech Cluster map of the Mid-West, 2019) to establish the main industrial sectors in the region according to employee numbers by sector. Further document review and analysis regarding the regional attributes involved government publications including Limerick City and County descriptors (www.Limerick.ie, 2019; www.Limerickchamber.ie, 2019, www.Shannonchamber.ie, 2019) that detailed the important infrastructural features including the higher education colleges in the Mid-West region (www.ul.ie; www.lit.ie).

A pilot study was then undertaken. This involved an interview with a senior executive of an MNC subsidiary based in the region, to establish the pilot firm's competences, and to explore if they were derived from regional attributes. This was followed by an interview with a senior director of the subsidiary's parent company MNC to establish their perception of the subsidiary's competences and if these competences contributed to the MNC parent company competitive advantage. Interview guides were refined in advance of the data collection from the interviews with the IDA regional development subject matter expert, the subsidiary and parent company managers at the first firm. As the approach to the research is abductive, the thematic analysis of the subsidiary MNC parent director interview data was iterative with themes being developed by constant interaction between theory and data collected.

Paper Four - Findings and Discussion - reported the main findings of this research of the three MNCs subsidiary companies based in the Mid-West region and their respective parent companies based in the U.S. The findings showed that the MNC subsidiaries derived a range of competences which are specific to the Mid-West of Ireland region and the majority of these do contribute to the competitive advantage of the parent firm. This paper included a thematic analysis of each subsidiary director and parent company director interview to determine subsidiary competence gain, while establishing the contribution that the regional attributes had on this. The findings were largely positive in terms of the Mid-West of Ireland regional attributes contributing to subsidiary competence gain and that these competences contribute to

⁶ IDA Ireland is the agency responsible for the attraction and retention of inward foreign direct investment into Ireland

parent MNC competitive advantage. Paper Four concluded with a revised conceptual model as shown in Figure 1 below.

2.0 Discussion of Key Findings

The research question is to assess if, and how, parent MNCs get competitive advantage from their foreign-based subsidiaries. In addressing this question, a documentary review and thematic analysis of the semi-structured interview data were utilised to establish how local environmental attributes contribute to subsidiary competences which in turn, impact on parent company competitive advantage. In reviewing how this question was addressed, this chapter initially reviews the types of parent MNC's competitive advantage derived from its Mid-West of Ireland region-based subsidiary. The competences gained by the respective subsidiary MNCs and the regional attributes of the Mid-West of Ireland are then reviewed as they form an important contextualisation to the research. In particular, this contextualisation can help the reader to understand the socio-economic setting in which the subsidiary is operating. Regional attributes are then reviewed; these factors such as natural resource endowments, labour and capital availability, productive investments, entrepreneurial culture and attitude, physical infrastructures, sectoral structure, technological infrastructure and public support systems (International Encyclopaedia of Human Geography, 2009). Based on this, for each MNC, the research involved an examination of how subsidiary competences, which may be derived from regional attributes, contribute to parent MNC competitive advantage, which is depicted in the conceptual framework in Figure 1 below.

2.1 Thematic analysis of interview data

The thematic analysis involved development of themes from patterns of coding that were applied to interview data extracts, with guiding reference from the conceptual model and underpinning research theories. Addressing research objective one, to elucidate the regional attributes, in addition to the documentary review, the subject matter expert interview data was transcribed by the author and familiarity gained with the content by repeat reading. Initially, the author colour coded wording and phrases within the transcript to group similarly worded content. See Appendix I – Extract of subject matter expert interview data with colour coding. In this way, the researcher was able to clarify and collate the transcript content to allow clear insights to be extracted. With guiding reference from the conceptual model which indicated the regional attributes revealed in previous published studies, in addition to other inductive insights that the data revealed, the analysis was conducted manually by the researcher.

Subsidiary MNC Competence Gain Contribution to Parent Firm's Competitive Advantage

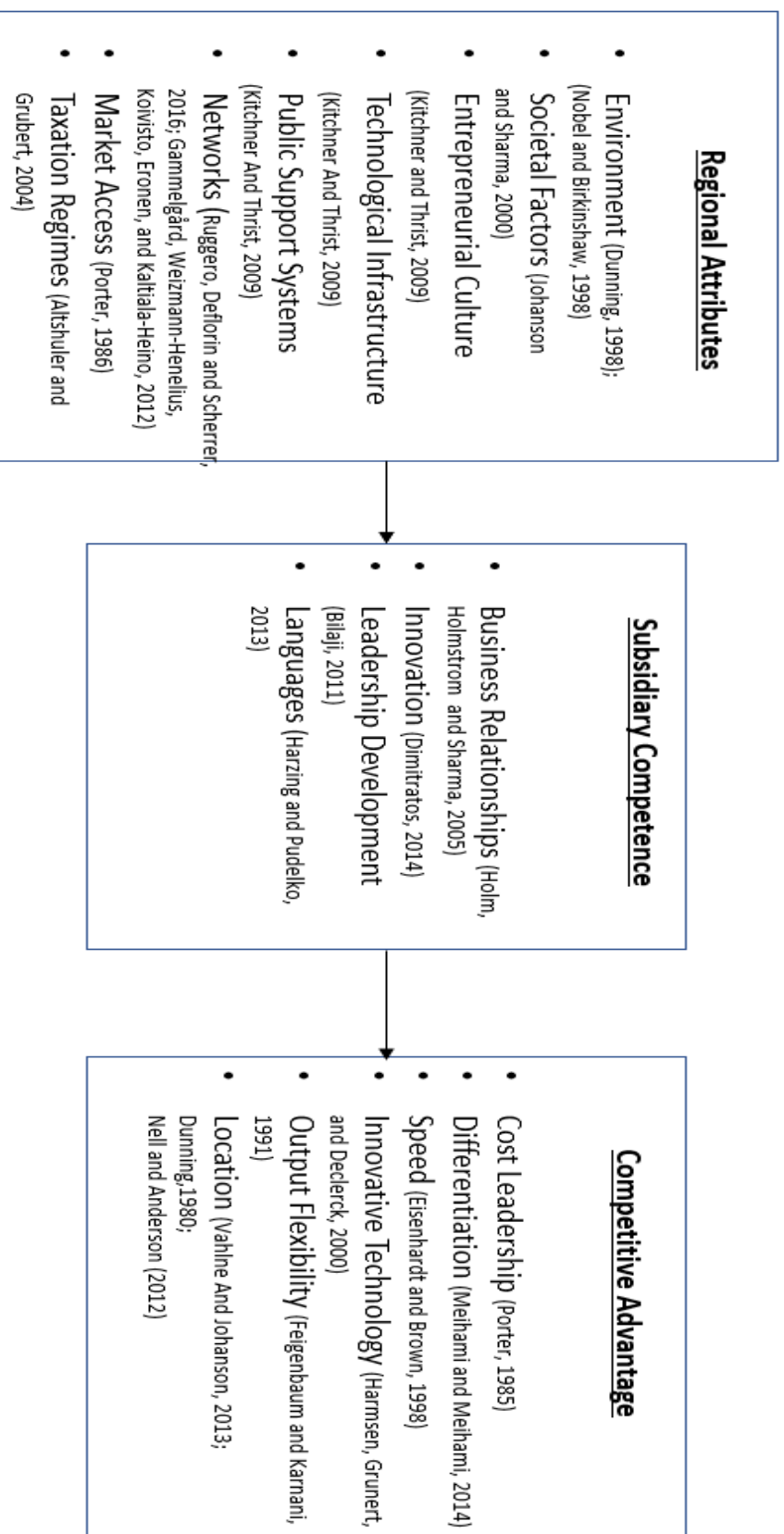


Figure 1 Conceptual Model (Source: Current research)

The process for thematic analysis is shown in Figure 2 below. Simplified wording was used to code the data, as demonstrated in Figure 2, which reveals how meaning was applied to interview quotes, with reference to prior published work and in some cases, new data.

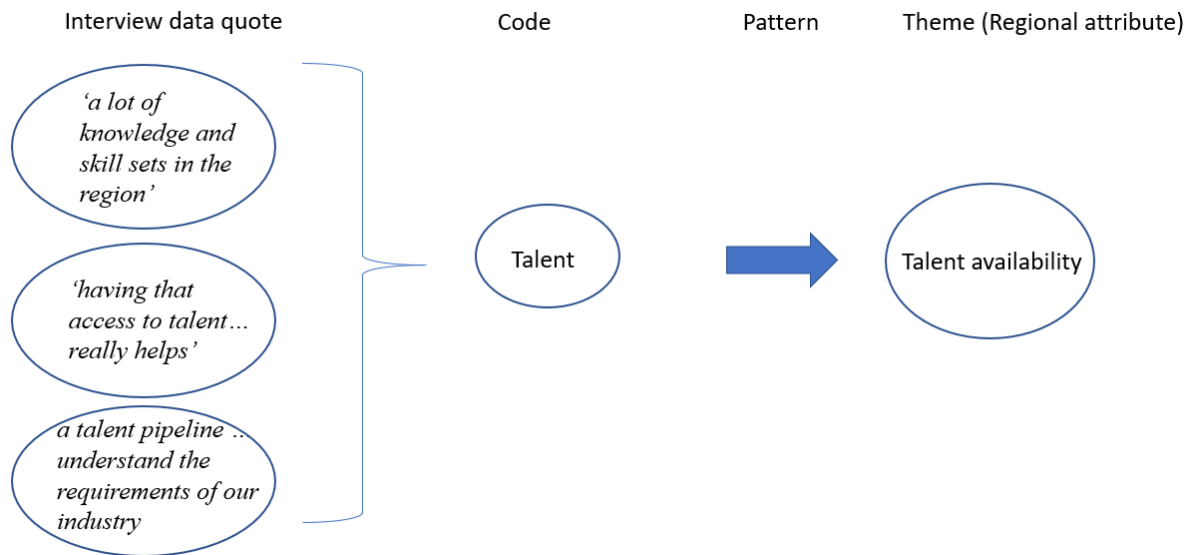


Figure 2 Process used for regional attribute interview data thematic analysis

After the Coding was defined, based on the interview data and guided by the theoretical references outlined in the conceptual model, patterns were sought by the researcher to elucidate themes with direct meaning for the research objective. For example, in Figure 2 above, the transition from the code 'Talent' to regional attribute theme 'Talent availability' involved iterative review, back and forth, between similarly worded Talent codes to ascertain the most appropriate theme. This also involved review back to the original interview source data to extract precise meaning to the emerging theme. The process, in the case of the Talent code, revealed that the true meaning of the Talent code involved the access and availability of Talent in the Mid-West region, which the researcher appropriately defined as 'Talent Availability'. The thematic map for regional attribute thematic analysis is shown in Figure 3 below.

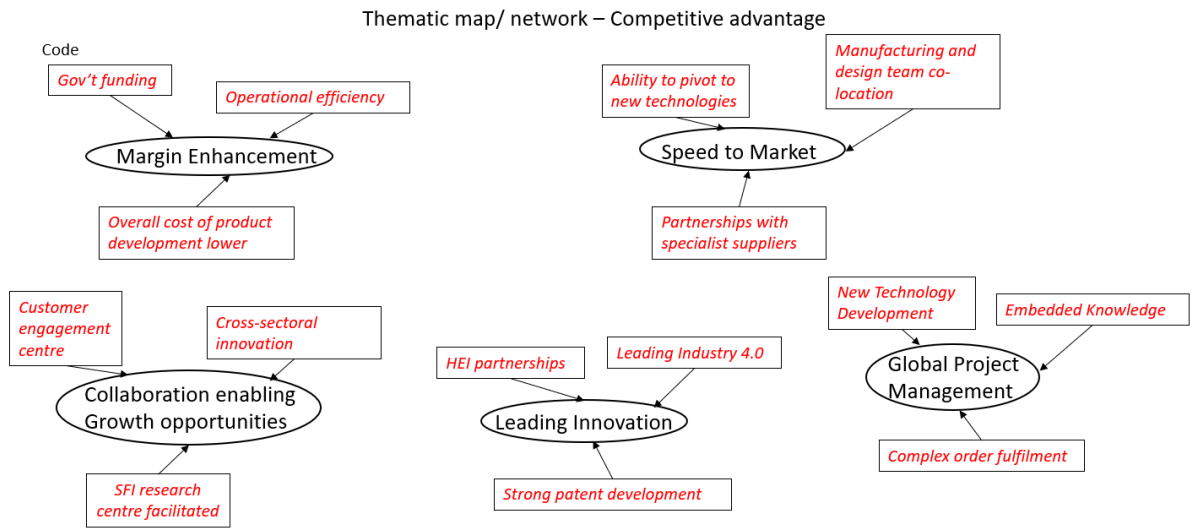


Figure 3 Thematic map for regional attribute thematic analysis

The process of extracting themes from the interview data was conducted throughout the entire subject matter expert interview transcript until the researcher was satisfied that the interview data had been utilised fully for the purpose of defining regional attribute themes.

Thematic analysis was similarly conducted to establish subsidiary competences and parent MNC competitive advantage. An example of the process used for extracting subsidiary competences from the interview data with the subsidiary and parent MNC directors' interviews is shown in Figure 4 below.

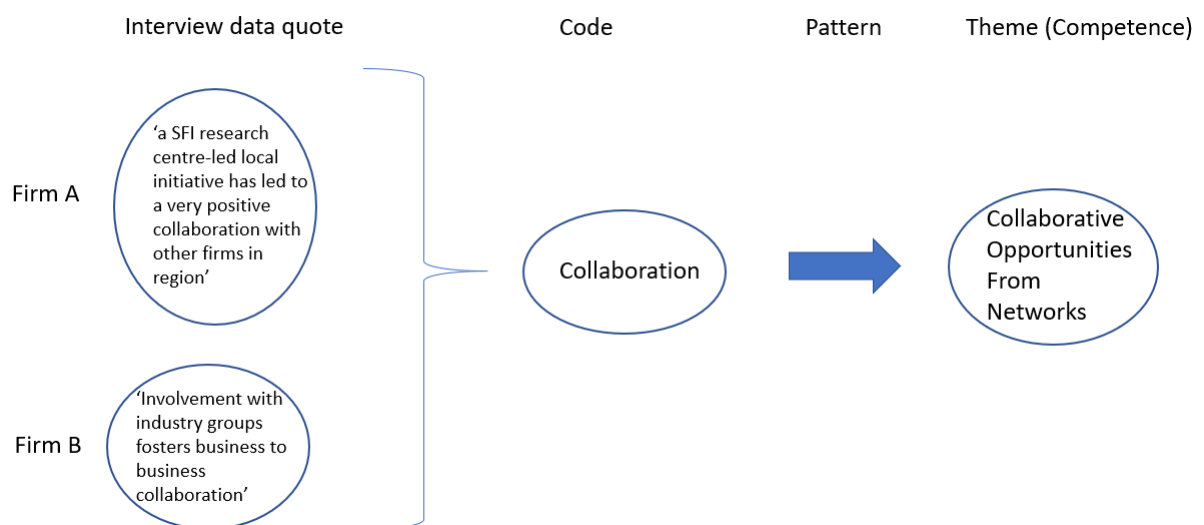


Figure 4 Process used for subsidiary MNC competence thematic analysis

In a similar process to the one described for extracting regional attributes themes from the subject matter expert interview data, the subsidiary MNC and parent MNC director interview transcript data was analysed the same way. The iterative review between the interview data quotes and the codes, along with grouping of the codes with similar meaning, allowed for meaningful description of the competence themes as shown in the example above. The thematic map for subsidiary MNC competences is shown in Figure 5 below.

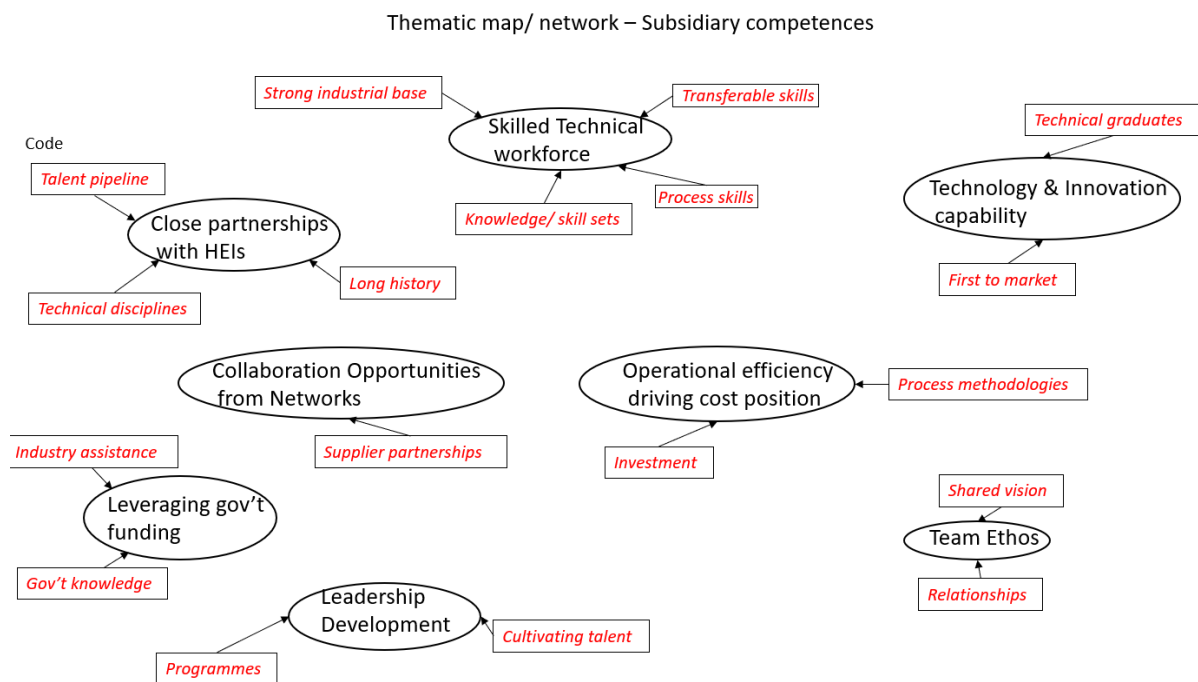


Figure 5 Thematic map for subsidiary MNC competence thematic analysis

In this case, the transition from similarly coded ‘Collaboration’ interview data extracts to the competence theme defined as ‘Collaborative Opportunities from Networks’ was achieved by rigorous review of the original quotes to understand the actual subsidiary competence associated with the ‘Collaboration’ code. From several repeated readings of the original transcripts, and the context in which the interview data was used, it became clear that the subsidiary competence was the subsidiary availing of ‘Collaborative Opportunities from Networks’. This clearer meaning of this competence was achieved by repeated analysis of the interview wording, identifying patterns across the coded extracts and defining the theme which addresses the research objective. See Appendix II – Example of theme development from raw interview data.

A similar process was utilised for extracting the parent MNC competitive advantages from the parent MNC senior director interviews. The thematic map for parent MNC competitive advantage is shown in Figure 6 below.

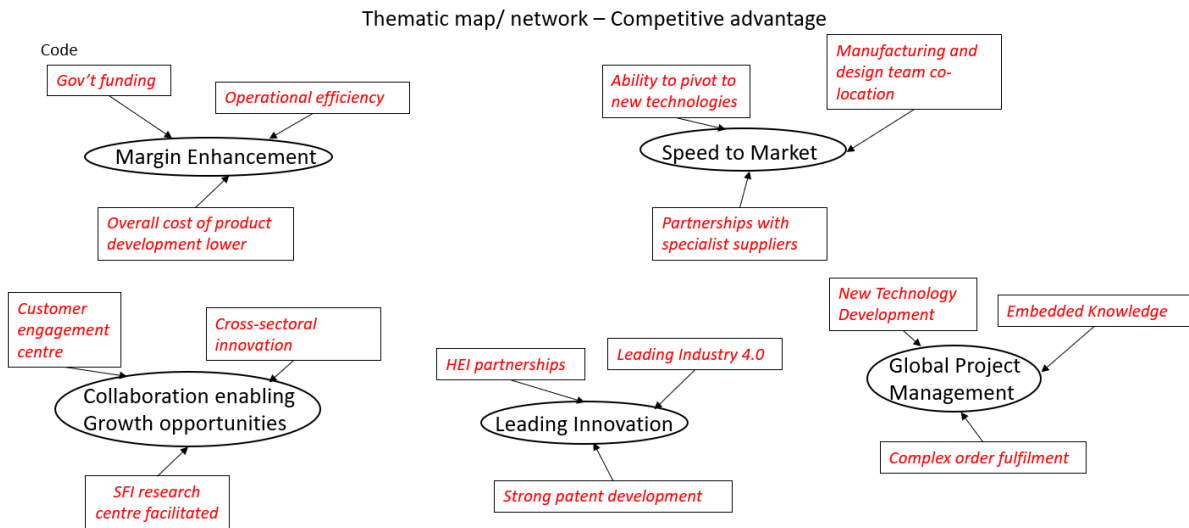


Figure 6 Thematic map for parent MNC competitive advantage thematic analysis

2.2 Parent MNC Competitive Advantage

When addressing the research question, the concept of a competitive advantage, and how firms acquire it, is considered. According to Wang (2014), competitive advantage is obtained when an organisation develops a set of attributes that allows it to outperform its competitors. Barney (1991) stated that a firm is generating competitive advantage when it is developing a value-creation system which is not being utilised by its competitors. The dominant models of competitive advantage such as the Market-Based View (Caves & Porter, 1977; Porter, 1980) and the Resource-Based View (Barney, 1991) explain how firms acquire this. Porter's Market-Based View (1980) suggests that the firm's competitive advantage is determined by the economic environment in which it is embedded, and it is location-bound resources that define the firm's advantage over competitors.

Porter (1986) elaborated on the concept of clusters, as part of the Diamond Framework in the Competitive Advantage of Nations and deepens the understanding as an integral form of competitive advantage at the national and regional level. The concept of clusters captures important linkages, complementarities and spill-overs of technology, skills and information that cut across firms and industries. In this regard, the Relational-View of the firm (Dyer & Singh, 1998) is of particular interest to the current research as it considers locational factors in its construct, such as business partnerships, inter-firm knowledge sharing, effective governance and linkages. This suggests that the location of MNC subsidiaries can be a driver of the parent MNC competitive advantage.

The three MNCs in this research were found to acquire competitive advantage in five key areas, namely (i) Margin enhancement (ii) Speed to market (iii) Collaboration enabling growth opportunities (iv) Leading innovation and (v) Global project management. These were determined from a review of semi-structured interviews with the parent MNC senior directors. Each of the five competitive advantages is now discussed within the context of relevant literature in the following sub-sections.

2.2.1 Margin Enhancement

The first competitive advantage finding to discuss from the parent MNC interviews was Margin Enhancement. In the context of this research, this is considered a deliberate set of actions a business takes to increase revenue and lower cost, thereby improving gross margin. The subsidiary MNC's cost position, its capability to enhance unit costs through operating efficiencies, its ability to drive higher revenues and higher price by utilising the talent at the firm, in addition to the funding supports that the site attracts, are all considerations that contribute to a parent MNC's competitive advantage. It was found that having a subsidiary based in the Mid-West region of Ireland enhanced margin leading to an improved financial position for the overall MNC. This finding supports Porter's (1985) identification of cost leadership as being one of the main sources of sustained competitive advantage. His work described the superior value that stems from offering lower prices than competitors for equivalent benefits which, he states, defines the achievement of competitive advantage through cost leadership.

As Firm C parent company director stated, *'our gross margin is helped massively by our excellent operational efficiency in Limerick'*. Similarly, Firm A's parent company director

acknowledged the good management of costs at its Mid-West based subsidiary by stating that *'Shannon's management of costs is very good and its track record in this regard is also a contributor to the site being a Growth site.'* The efficiencies and management of costs at each subsidiary, as evidenced by these parent directors, give favourable margin for the parent MNC.' This is consistent with the findings of Makino, Lau and Yeh's (2002) study of FDI activity of 328 Taiwanese firms, which concluded that motivation for FDI may include the ability to acquire factors of production at lower cost and better distribution of the knowledge for efficient production. This also supports Dunning's (1993) assertion that a firm's motivation for FDI may be market-seeking, in which firms engage in FDI for reasons including producing close to markets and to lower transportation costs.

Additionally, each of the parent MNC directors highlighted the benefit of government financial supports. This aligns with Dunning's (1993) explanation of market-seeking motivation for FDI which includes benefitting from investment incentives. Firm B's parent company director's highlights the financial benefits of having a strong technology team in Limerick as this drives product line financial performance. He claimed that *'a business unit leader could build the product cheaper if he/ she moved it elsewhere, but he doesn't want to leave the Limerick site due to the technical capability and co-location benefits for his product line. From a future technology development viewpoint, he cannot develop technically better product than in Limerick despite the lower manufacturing costs elsewhere. Limerick has done significant work to make sure he can't get a better overall proposition elsewhere. He cannot replicate the strength of the overall business proposition elsewhere.'* In this way, it can be seen that while the Mid-West of Ireland region may not be as low-cost as other global regions, the productivity and management of costs in terms of innovation, in addition to funding supports offered to companies based there, make it attractive for companies to locate there and lead to overall margin enhancement.

2.2.2 Speed to Market

An additional competitive advantage derived from the parent director interview data was Speed to Market. Each of the three subsidiaries analysed brings new designs to the market or places product on the market as a differentiator for their parent MNC. In Firm B's case, by having a co-located Technology and Manufacturing team that can commercialise new designs faster than their competitors it gives their parent MNC a first mover advantage that is an important

competitive differentiator in their business. As Firm B parent company director stated, *'building technical capabilities that pivot quickly to product technologies, working with research institutes and our funding partners, looking at long term trends, we can predict what our business units will need in 2, 3 or 4 years from now and make investments accordingly. This allows us to be first to market with new technologies that gives the MNC competitive advantage. First mover advantage is very important in our industry'*. This finding supports Eisenhardt and Brown's (1998) research in which they identified speed as a source of competitive advantage. They described the principle of time pacing which is used by Intel Corp., among several other successful corporations, who remain competitive by defining time periods in which the company must turn out new products. As this management practice keeps companies competitive in the marketplace, it can be viewed that this speed in releasing new products is a means of differentiation, which Porter (1985) identifies as a main source of competitive advantage.

Firm C parent company director attributed his firm's fast product market placement to partnerships that the subsidiary has developed with specialist suppliers, including logistics suppliers, which enabled strong subsidiary operational performance. This had a strong influence on establishing market share in European and Asian markets which gives a competitive advantage to the parent MNC. Firm C's parent company director referred to *'a cluster of third-party vendors, such as logistics companies, that work with subsidiary MNCs, who know what the work standards required by our time-sensitive industry are, what the trade regulatory requirements are, which were a differentiator in terms of placing product on the market to meet timelines required.'* In this case, the parent company director sees the subsidiary has gained a competence in partnering with a specialist supplier base, within a cluster, to bring the 'speed to market' competitive advantage to the parent MNC. Firm C's ability to place product on the market, which is delivery-time sensitive, gives a competitive advantage to the parent company. This is in tune with Nadvi and Halder's (2005) claim that specialist suppliers and logistics providers play an integral role in local clusters entering global supply chains, which is consistent with the findings of this research, in which Firm C identified specialist product and service partners as important to their export performance.

Firm A's parent company director also highlighted the speed to market for product placement as a differentiator from their Shannon-based subsidiary which gives competitive advantage to the wider MNC when competing for business. He stated that *'logistics hubs and infrastructure were key differentiators when placing product on its Middle East market'*. By working closely

with logistics partners, exercising innovative skills in developing industry-specific service levels for its Middle Eastern Oil and Gas sector customers, Firm A's subsidiary has developed a competence that gives the parent MNC a competitive advantage. These services include freight, customs clearance and specialised documentation for exporting to that global region. The parent MNC identifies the 'speed to market' competitive advantage that is derived from this competence.

2.2.3 Collaboration Enabling Growth Opportunities

The third area of parent MNC competitive advantage pertains to two firms in the study and suggests there are strong business relationships amongst subsidiaries in Mid-West of Ireland leading to mutual benefit gained by participating firms. This means that subsidiary MNC firms collaborate with other subsidiary MNCs in the region on business growth initiatives which generate competitive advantage to their respective parent MNCs. As explained by Firm B parent company director, *'in Limerick we have developed a customer engagement centre, which has hosted collaboration meetings with another subsidiary MNC in this region, and facilitated by the UL-based Science Foundation Ireland research centre for smart manufacturing, to develop new technologies for Industry 4.0 related automation. These meetings would not have happened between the respective parent MNCs, without going through complex channels, yet in the Mid-West of Ireland, the business network opened up the collaboration opportunity by leveraging the active network in the region. This gives our MNC very good competitive advantage.'* In a similar way, Firm C identified collaboration as an enabler for growth opportunities as the parent company director explained that *'there is great collaboration with our peers in this region, and with several MNC subsidiaries working on similar initiatives such as those concerning automation and factory digitisation. That connectivity is stronger in this region than I have experienced anywhere else.'* This finding supports Nell, Ambos, and Schlegelmilch's (2011) proposition that the extent to which MNC subsidiaries develop inter-dependent relationships with business partners, i.e. its relational embeddedness, can be a driving factor of subsidiary knowledge creation enabling these subsidiaries to contribute to the competitive advantage of the MNC. This is also consistent with Dicken's (2011) claim that the basis for localised knowledge clusters lies in several characteristics of the innovation process that are highly sensitive to geographical distance and proximity. Dicken's list of regional characteristics includes localised knowledge sharing which is supported by the collaboration enabling growth opportunities experienced in this research.

The Collaboration Enabling Growth Opportunities competitive advantage finding is also consistent with the findings of Holm's *et al.* (2005) quantitative study of 501 Nordic firms in which it was determined that business relationships had the strongest effect on MNC competence development. Their research concluded that the competitive environment did play a role in competence development in business relationships which, in turn, played a role in the parent MNC competitive advantage.

2.2.4 Leading Innovation

The fourth area of competitive advantage that the subsidiary gives the parent MNC is in leading innovation. The parent company directors of each firm studied in this research highlighted the contribution that their respective subsidiary's innovative capability made to the wider MNC. This is exemplified by the Firm B's parent company director's reflection that *'the Limerick site is very good at designing patentable product and this ingenuity and creativeness in Limerick has given rise to a high number of patents from a relatively low-cost position, that are commercialised by our global team.'* He further elaborated that *'in Limerick, we have differentiated product, as created by the ingenuity of the co-located team, at a low-cost position, that really delivers for the wider business.'* For each of the three firms, the presence of the HEIs and the collaborative work with research centres at these institutes is an important contributory factor for subsidiaries' leading innovation which gives competitive advantage to their parent MNCs. Firm C parent company director highlighted the vanguard position that its Limerick-based subsidiary holds on Industry 4.0 implementation, which gives the parent MNC competitive advantage. He claimed that *'the Limerick site's proximity to, and collaboration work with, educational institutions and key industrial bases, is a factor when we consider how our Ireland site could lead Industry 4.0 for our wider MNC.'*

Such collaborative work demonstrates consistency with benefits of industrial clustering as described by Porter (2000) and interpretations of the Relational-View of the Firm (Dyer and Singh, 1998) which suggest that a firm's critical resources may span firm boundaries and be embedded in inter-firm resources and routines. This is also complementary to the work of Al-Laham and Amburgey (2005), whose study of 843 U.S. biotechnology firms claimed that FDI in a knowledge intensive industry, which the three firms in this research are, is pulled towards centres of innovation located in recipient countries.

This finding is also in line with Knight's (2011) assertion that innovative technology is also a source of competitive advantage for firms as it promotes productivity, and the more productive a company is, the more efficiently it uses its resources. The finding also supports Harmsen, Grunert, and Declerck's (2000) identification of process innovation as a competitive advantage in which new processes either reduce the cost of production or enable the production of new products.

2.2.5 Global Project Management

The fifth area of competitive advantage – Global Project Management – pertains to the subsidiary MNC's capability to manage new technology projects and to manage complex sales order fulfilment projects. Both of these types of Global Project Management give competitive advantage to the parent MNC albeit in different ways. For Firm A, the complex sales order project management enables the parent MNC to be competitive in the marketplace when bidding for business, predominantly in Middle East and Asia. For Firms B and C, the Global Project Management is more focussed on new technology and designs being project managed from the Mid-West region of Ireland based subsidiary sites. As Firm B's parent company director described, *'we have shaped the strategy of the Limerick subsidiary, adding higher value to global business units which manages the development of new product technologies? This work is project managed from design concept to global commercialisation at the Limerick site.'*

Jayne's (2007) insight into project management performance drivers, claimed that there is a growing recognition that the 'people' dimension of project management - good communication, a cohesive team, inspirational leadership, strong negotiation skills is often more important than the process or methodological steps of project management. This is also consistent with Prahalad and Hamel's (1990) view that competitive advantage, based on resources and capabilities, as is the case with the people dimension of project management posited by Jayne (2007), is more important than the advantage solely based on products and market positioning, in terms of contributing to sustainable competitive advantage.

According to Meihami and Meihami, (2014), the 'people' dimension of project management is explained by how MNCs get competitive advantage from knowledge management. As they explained, the interdisciplinary business model that uses knowledge to enhance organisational performance and customer, which is integral to project management, has an impact on

competitive advantage. This also supports Argote and Ingram's (2000) description of firms getting competitive advantage from knowledge management by exploring the concept of embedding knowledge in interactions involving people, which is an integral part of good project management.

In conclusion, there is clear evidence from the research findings detailed in this section, that the investing parent MNCs gain competitive advantage from their Mid-West region of Ireland based subsidiary firms. The research data concludes that MNC competitive advantage is derived from five main areas and the extent to which this is linked to the subsidiary's competences will be explored in the next section. The findings do support Dunning's (1979) Eclectic (OLI) paradigm which postulates that there is a strong link between FDI location benefits and impact on competitive advantage, indeed this study provides strong support for the link between subsidiary location and parent MNC competitive advantage.

2.3 Subsidiary MNC Competences

Having ascertained that parent MNCs can acquire competitive advantage through offshore-based subsidiaries in the Mid-West of Ireland, this study also sought to examine how this competitive advantage is derived from the foreign based subsidiaries. To achieve this, two stages of analysis were performed – firstly, the specific competences of the local subsidiaries were reviewed, and these were then examined to identify if they were derived from the attributes of the Mid-West region. The author's view of a firm's competences is drawn from Foss and Knudsen's (2013) definition of competence as an idiosyncratic knowledge capital that allows its holder to perform activities in certain ways, and typically do this more efficiently than others. The thematic analysis of the subsidiary and parent company director interviews across the three MNCs researched revealed a range of subsidiary competences, including skilled technical workforce, close partnerships with higher education institutes, operational cost efficiency, leveraging government funding, technology and innovation capability, collaborative network opportunities, leadership development, and team ethos. These are discussed, in the context of relevant published literature, in the following sub-sections.

2.3.1 Skilled Technical Workforce

One of the competences identified was skilled technical workforce. As noted by Firm C's subsidiary director, *'there is lot of knowledge and skill sets in our subsidiary employee base'*.

This is supported by Firm C's parent company director acknowledging that *'there is a strong skills base in our subsidiary, around process thinking such as 'six sigma'. In the electronics industry, particularly in the Mid-West region in the 1980s and 1990s, it was normal to use this process thinking. Now, the medical device companies, regardless of which company, have had that manufacturing skill set available to them. Based on their manufacturing history, everyone is expecting higher yields, for example. So, our subsidiary has a skilled technical workforce that has skills such as these.'* This evidence supports Toner's (2011) research on the role of workforce skills in the innovation process in developed economies which claimed that the predominant form of innovation in firms is incremental, and this points to the central role of the broader workforce in the generation, adaptation and diffusion of technical and skills. Such incremental innovation utilises the process thinking methodologies such as six sigma process improvement, as evidenced by Firm C's technical workforce.

Consistent with Toner's (2011) findings, the current research highlights the important role in development of a skilled technical workforce. Other research by Kinkel (2015) of 1,484 German manufacturing companies, highlighting the importance of a firm's skilled technical workforce competence, found that the lack of talent in the home region was an important motive for the R&D off-shore relocation. The evidence from the current research, identifying the importance of the skilled technical workforce, concurs with the findings of Kinkel (2015) and Toner (2011).

Further evidence in the current research of this competence is demonstrated by the one subsidiary company which has developed a competence in software development which is leveraged across its wider MNC group of companies. As Firm C parent director stated, *'the Limerick site has built an expertise in the manufacturing execution system software, and in the SAP layer. The Limerick site has 200 people working on software for MES and SAP type systems supporting our wider MNC operations in Europe'*. A strong level of partnership between the HEIs and the subsidiary firm has been recognised as an influential factor in the subsidiary competence gain. This evidence supports Walsh's (2016) assertion that Ireland has become a hub for overseas companies seeking to locate their digital assets in Europe, such as cloud computing firms and data centres. Walsh acknowledged the strong role played by key stakeholders such as ICT Ireland SkillNet, Irish Computer Society, Institute of Technology Tallaght and the Irish Chapter of the International Association of Software Architects, in developing Ireland as a strong host country for such investment. Firm C parent director's

recognition of the importance of its subsidiary's software development competence is demonstrable evidence of the ICT skillsets referenced by Walsh (2016).

2.3.2 Use of Close Partnerships with Higher Education Institutions

Evidence to support the notion of a strong business relationship network between the MNC subsidiaries and the HEIs as a competence of the three firms was derived from the research data. As acknowledged by Firm B subsidiary director, *'the ability for our parent MNC to work with the university at the initial stages of investing in the Mid-West region, to develop a degree course that our business needed, is perhaps unique to this region. The people like Professor Ed Walsh, – University of Limerick (UL) President, who could see that this could be huge for his university and also for the region, from an employment point of view, where he could get employment for his graduates, was pivotal. This collaboration would guarantee employment for his graduates.'* This is also acknowledged by the Firm B parent company director who noted that *'the flexibility UL has in our working relationship is a competitive strength for us'*. This evidence supports Perkmann and Walsh's (2007) research which claimed that a strong relational aspect is a pre-requisite for tacit knowledge transfer between industry and universities. This competence gain through active business networks involving the participant firms in the research and the HEIs provides this channel for tacit knowledge transfer. Perkmann et al. (2007) proposed that links with high relational involvement include research partnerships, while modes of collaboration related to commercialisation would involve lower levels, in a two-way exchange between industry and educational institute. Interestingly, this finding extends Porter's (2000) view of the benefits of industrial clustering, as increased productivity from synergies and better innovation from collaborative research amongst geographically proximate firms, to business relationships with HEIs, which is also consistent with the knowledge-sharing interpretations of Dyer and Singh's (1998) Relational-View of the Firm.

This is supported by the Firm C subsidiary director's explanation of the working relationship with the local university whereby he stated *'our company is very involved in promoting the area of women in STEM⁷ careers, with universities, and we sponsor ten graduates who uniquely conduct research on behalf of the university and our company. They are full time students who receive a bursary. From this, we learn more about women's participation in*

⁷ STEM is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach

STEM and what we can do to improve that participation. This benefits our subsidiary significantly as we develop actionable plans, based on research data, to increase STEM interest and participation by women.’. In this case, the subsidiary’s partnership with HEIs is identified by the subsidiary and parent directors as a competence due to the linkage it provides to third level institutions which can deliver on its corporate goal to increase STEM participation by women.

In summary, the three firms in this study have close links with local HEI’s and the generation of close links with such institutions was considered a valuable competence for all firms, as evidenced by Firm B’s long-standing links with the UL engineering department, and the benefits it brings in terms of course content to meet the needs of their industry. Firm C’s close partnership with the HEIs, as a competence, is evidenced by their innovative engagement with UL on bursary schemes that enable the subsidiary to meet its objectives of increasing women’s participation in STEM careers. Firm A has also developed a competence in partnership with HEIs by collaborating on research projects to benefit their Shannon-based business. This is viewed as a competence for Firm A as their subsidiary is unique across their wider MNC in terms of having access to engineering department testing facilities in a HEI.

2.3.3 Operational Efficiency Driving Cost Position

According to Coelli, Rao, O’Donnell and Battese (2005), operational efficiency is the capability of a firm to deliver products or services to its customers in the most cost-effective manner possible while still ensuring the high quality of its products, service and support. It is often achieved by streamlining a company’s core processes in order to more effectively respond to continually changing market forces in a cost-effective manner. As evidenced by Firm A parent company director, our Mid-West region of Ireland subsidiary *‘successfully optimises its cost position to ensure we meet the contribution margin expectations of the parent company. For a site such as that, for example, we may invest in technical capability, plant and equipment to enable the site to meet its cost position targets, through productivity measures as an example.’* Similarly, Firm C subsidiary director acknowledged their site’s operational efficiency by stating that *‘our site’s operational efficiency competence gives the parent MNC a cost position, margin competitive advantage’*. The operational efficiency driving cost position competence provides evidence of Porter’s (2000) industrial clustering, which includes the benefit of increased productivity from synergies. This is evidenced by Firm C parent director’s explanation of ‘process thinking’, as a skill that the Limerick-based subsidiary

utilises, as a methodology for improving yield in the electronics industry being transferable to the medical device industry for process improvement. A benefit of industrial diversification in a cluster is that frequently, industries face problems in their production processes that have close analogues in other industries (Jacobs, 1969). According to Firm C's parent company, the synergies that result from transferable 'process thinking' methodologies for yield improvement, such as 'six sigma', will lead to operational efficiency driving cost position.

This competence gives an interesting insight into Krugman's (2011) critique of the New Economic Geography, where he described it to be of less relevance when describing current developments in advanced economies because it focuses more on tangible causes of the spatial concentration of economic activities. In this research finding, we have seen evidence of operational efficiency driving cost position subsidiary competence, as a tangible cause of the observed economic activity, in this region, suggesting that New Economic Geography still has relevance.

Furthermore, the operational efficiencies driving cost position competence is consistent with Enright's (2000) claim that MNC FDI activity in strategic asset-seeking mode is attracted to industrial clusters owing to their advantages in foreign locations. Enright's perspective views FDI as the transfer of firm-specific advantages, that may include the ability to acquire factors of production at lower cost, differentiated products, better distribution or the knowledge for efficient production.

2.3.4 Leveraging Government Funding

In the Mid-West region of Ireland, government funding programmes are pervasive and channelled predominantly through IDA Ireland to the MNC sector. They range from research, development and innovation funding, to research and development tax credits, training grants, and international marketing grants. These cash grants and tax credits are universally available to IDA Ireland clients. As Firm A's parent company director explained, *'the IDA funding assisted with the development of an accredited flow calibration loop which is one of a few in Europe that is used for testing and calibrating our product. By having that technical capability in Shannon, our cost position is helped considerably'*. Firm C's subsidiary director also explained the value of R&D tax credits from the Irish government when stating that *'the Irish government tax officials have been invited to our site to see first-hand the investment that our firm makes with the tax credit funding. The visit was very productive and seminal moments*

such as that visit can have a huge bearing on government policy and indeed, the competitive advantage of the parent MNCs who have invested in the country.'

The 'leveraging government funding' subsidiary competence across the three subsidiary MNCs supports Dunning's (1993) assertion that firms engage in FDI for reasons such as to benefit from investment incentives. The three firms reviewed identified the value of the business relationship aspect of working with government agencies to avail of the funding, in addition to sharing knowledge across firms on funding supports available. This knowledge-sharing practice amongst firms is an important source of inter-organisational competitive advantage, as depicted in Dyer and Singh's Relational-View of the Firm (1998).

Evidence of successful leveraging of government funding as a competence is provided by Firm A's subsidiary director who highlighted that their employment number in Shannon increased by eighty-five persons between 2016 and 2018 due to the IDA Ireland funded projects undertaken during that time. Consistent with Firm A's experience, Bondonio and Greenbaum's (2006) study of the impact of EU Structural Funding on regionally based industrial firms suggests positive employment growth resulting from such business incentives.

2.3.5 Technology and Innovation Capability

Innovation capability is defined as a firm's ability to identify new ideas and transform them into new products and services that benefit the firm. Organisations must be able to manage change in an increasingly complex eco-system to succeed in the contemporary globalised environment (Yoo and Kim, 2015). Dynamic capabilities are core to innovation (Tidd, 2012), as they are linked to competitiveness (Eisenhardt, 2004). As stated by Firm B's parent company director, *'technology and innovation are key differentiators for the Limerick site. Some of the technologies that have come out of Limerick have a global impact. The subsidiary's innovation and the ability to be first to market in a lot of technology areas gives our wider MNC a competitive edge in the marketplace.'* In a similar way, Firm A's subsidiary director acknowledged that *'having an internationally accredited facility for flow and moisture meter calibration enables us to attract technical graduates as it makes our subsidiary a higher-level facility for innovation and manufacturing'*. Firm C's parent company director added that *'our Limerick site is at the forefront of Automation and Industry 4.0, Digital factory and Smart technology'*. This supports the findings of Raunio and Kautonen (2014) who described the eco-

system's 'open innovation' as a response to manage the increased amount of boundary spanning knowledge flows in and out of the innovation process.

The evidence that this Technology and Innovation Capability competence provides also supports the research by Belderbos, Lykogianni, and Veugelers' (2008) on the foreign innovation activities of 102 European firms. Their research identifies the benefits of such foreign innovation activities in terms of incoming R&D spill-overs in the local market from rival firms and better access to the general knowledge pool in the host country, termed technology sourcing.

As evidenced by the interview data in the current research, there is demonstrable innovation capability within the researched firms to suggest that there is an 'open innovation' environment in which subsidiary firms collaborate on knowledge share to the benefit of the region's 'eco-system'. As Firm B's subsidiary director noted, *'our customer collaboration centre in Limerick is targeted at partnerships we can build with other firms in the region to develop next generation technologies that benefit both parties'*. Parallels can be drawn with the research by LeBas and Sierra (2002) who reviewed the determinants of the foreign location of technological activities of MNCs by reviewing 345 firms with the greatest patenting activity in Europe. They confirmed that almost 70% of MNCs locate their activities abroad in technological areas. The Mid-West region of Ireland region has been shown in this research to have these cluster-associated attributes as evidenced by the cross-sectoral subsidiary collaboration, in addition to availing of HEI research centre facilitation of their collaborative technology development. The Technology and Innovation Capability competence highlighted by the subsidiary MNCs in this research provides evidence of an 'open innovation' eco-system amongst the firms in the Mid-West of Ireland region.

As Puig and Gonzalez-Loureiro (2017) described – co-operative efforts can arise in the form of clusters across firms belonging to multiple industries, or in the same or related industries, along with 'public actors.'

2.3.6 Collaboration Opportunities from Networks

Two of the three firms researched identified the collaborative opportunities that their subsidiaries have gained from participation in active business networks. For example, Firm B's subsidiary director highlighted how *'the MIDAS electronics systems Skillnet, as one example of strong networks, brings companies together and they submit funding proposals to*

government which is very proactive and it gets companies working together. It fosters business-to-business collaboration'. Firm C's subsidiary's director also highlighted this point by stating that *'we have a strong collaboration with a company in Shannon, an automation company, over the past number of years where today, they support not only ourselves in Limerick but also our parent company in the U.S. in products and services that are vital to our operations and development.'* These tangible examples that the two subsidiaries gave of collaborating with other subsidiaries in the Mid-West of Ireland region supports the evidence of this region demonstrating features of an industrial cluster. This also supports Li and Bathelt's (2018) research on location advantages in a review of 3500 MNC investments within and between Canadian and Chinese firms, which asserted that firms in knowledge intensive industrial environments with substantial business experience are especially inclined to direct their investments to clusters. They concluded that their findings support the idea that multi-site firms, particularly MNEs, leverage local knowledge pools by strategically locating affiliates across clusters. This also supports Dyer and Singh's (1998) relational view of the firm claim that the potential sources of inter-organisational competitive advantage are relation-specific assets, knowledge sharing routines, complementary resources and capabilities, and effective governance. They further elaborated that inter-firm linkages may be a source of rents and competitive advantage. Additionally, according to Enright (2000), such linkages may include inter-firm collaboration, business interactions, relationships and networks, which is demonstrated by two of the three firms in this research.

The Collaboration Opportunities from Networks competence is also evidenced in the research by subsidiary firms partnering with specialist suppliers in the region. This is evidenced by Firm C subsidiary, for whom the presence of international logistics partnerships in the Mid-West of Ireland region, and the firm's competence in partnering with the logistics service provider, is a key enabler for market access. As Firm C subsidiary director highlighted, *'these collaborative partnerships in warehousing and logistics serve us very well in the region, enabling our business to access international markets overnight, in many cases. Our region has professional service providers that know what MNCs need to be competitive and their offerings match that need'*. As Kalafsky and Duggan (2016) noted in their study of small and medium sized exporters from Nova Scotia, having access to professional service providers is a key determinant for exporting to international markets. This is also consistent with Dyer and Singh's (1998) Relational-View of the Firm which emphasises the value of business partnerships when considering how firms create competitive advantage. This finding also

supports the author's view that the Mid-West of Ireland region exhibits features of an industrial cluster; for example, the definition by Turkina and Assche (2018) includes MNC partnership with specialist suppliers for global connectedness. They noted that established supplier clusters can obtain access to superior inter-task knowledge capabilities by building international linkages to stronger value chain players, which it can use to upgrade its value chain activities. Their study described how improvements in vertical connectedness, as exemplified by specialist suppliers adding value, stimulate a cluster's innovation performance. As Firm C subsidiary director noted, their partnerships in value chain activities with specialist logistics firms improves their *'ability to place time-sensitive product on the market'*. Similarly, the importance of Partnership with Specialist Supply Base competence is evidenced by Firm A's identification of their *'ability to meet Middle Eastern Oil and Gas sector customer logistics requirements by collaborating with local carriers that have developed good knowledge of our business requirements.'*

2.3.7 Team Ethos

Each of the three firms' subsidiary and parent directors expressed commonality in terms of strength in global project management derived from the team ethos competence in their respective subsidiaries. This is evidenced by the Firm C subsidiary director when stating *'knowing the people on your teams personally, inside work, outside work, having a good relationship with people... having that relationship and collaboration is very valuable. Its more than just the customer and client relationship. It's a very open team ethos. It's way more than a relationship that you could ever build up on an e-mail.'*

Further evidence of the Team Ethos competence is provided by Firm B's parent company director who explained the team ethos as *'Limerick contributes culturally in terms of the whole team dynamic, which can't be underestimated. The Limerick team may solve problems quicker and better.'* In common with Firms B and C, Firm A's subsidiary director made reference to team ethos as a factor in global project management strength, reflecting on the Shannon site's teamwork and technical ability to execute complex technical projects. Firm A subsidiary director highlighted that *'our technical capability and ethos has driven our growth in terms of more technically complex project and product offerings to customers'*.

This evidence supports Lee's (2016) research findings on the impact of economic geography on innovation, and the assertion that the main personality trait associated with innovation is

conscientiousness, a trait defined by organization, hard work, and task completion, the three subsidiary MNCs researched consistently included these traits to their subsidiary performance.

2.3.8 Leadership Development

There was clear evidence that Firm B's subsidiary company had developed a competence in leadership development. This competence was recognised by the parent MNC in terms of the global leadership roles that had been filled in the wider MNC by employees who started their careers in the subsidiary firm and availed of leadership development there. As Firm B subsidiary director described it: *'We have a leadership program here to ensure we are cultivating the next line of business leadership. For example, the leadership programme for talent development, how to run more efficient meetings, logistics... that is all done based on Limerick-originated initiatives in many cases.'* He elaborated that *'these initiatives get embedded for the benefit of the global business.'*

In summary, the analysis of the subsidiary and parent MNC interviews revealed a range of eight competences across the three MNCs based in the Mid-West of Ireland region. In some cases, evidence for the competence was presented by all three subsidiary MNCs while in other cases, the competence was identified for two or one subsidiary MNC. The next stage of the discussion chapter examines the contribution that these subsidiary competences make to the parent MNC competitive advantage.

2.4 Link between Parent MNC Competitive Advantage and Subsidiary Competences

The analysis of the eight subsidiary competences (discussed in section 2.2) and their impact on the five areas of MNC competitive advantage (outlined in section 2.1) for all three MNCs is shown in Figure 2. This shows how subsidiary competences contribute to parent MNC competitive advantage. In particular, Figure 7 shows the competences associated with each of the areas of competitive advantage. For example, the margin enhancement aspect of competitive advantage was influenced by a range of competences such as operational cost efficiency, leveraging of government supports, technology and innovation capability, network collaboration opportunities, and skilled technical workforce. This is consistent with Makino's et al. (2002) research which identified acquisition of knowledge for efficient production as a motivation for FDI, and the FDI motivations of lower production and transportation costs is supported by the finding in this research of Operational Efficiency Driving Cost Position and

Leveraging of Government Supports competences which both contribute to better margin for the subsidiary. In turn, an improved financial position for the subsidiary leads to more investment in the plant for next generation technologies and a stronger position for the business to compete in the marketplace. As Firm C parent company director highlighted *'there has been significant investment at the Limerick site over recent years for the business units to conduct R&D, as a result of the strong site financial performance'*.

Equally, for the speed to market aspect of competitive advantage, each of the three subsidiaries identified their Technology and Innovation Capability competence as being a differentiator for the MNC in terms of bringing new designs to the market or placing product on the market. The role of team ethos as a competence was also highlighted in terms of their ability to respond quickly to market demands. Internal competences such as technology and innovation capability and skilled technical workforce enabled the subsidiaries to release new designs to the marketplace, giving first mover advantage in some cases. As Firm B parent company director explained, *'the collaboration and speed in getting a product to the market first are significant differentiators in the competitive market space. First mover will usually dominate 70% of the market. The cycle of concept design to revenue is critical to us.'*

Figure 7 - Subsidiary Competences Contributing to Parent MNC Competitive Advantage (Source: Current research)

	Margin enhancement	Speed to market	Collaboration enabling growth opportunities	Leading innovation	Global project management
Firm A competences	Operational efficiency	Technology & Innovation capability	Collaboration opportunities from networks	Skilled technical workforce	Team ethos
	Driving cost position	Team ethos		Technology & Innovation capability	Skilled technical workforce
	Leveraging Gov't Funding supports			Use of close partnerships with HEIs	
	Collaboration opportunities from networks				
Firm B competences	Technology & Innovation capability	Technology & Innovation capability	Collaboration opportunities from networks	Technology & Innovation capability	Team ethos
	Leveraging Gov't Funding supports	Skilled technical workforce		Skilled technical workforce	Leadership development
	Collaboration opportunities from networks	Team ethos		Team ethos	
Firm C competences	Operational efficiency driving cost position	Team ethos	Collaboration opportunities from networks	Use of close partnerships with HEIs	Team ethos
	Leveraging Gov't Funding supports	Technology & Innovation capability		Technology & Innovation capability	Collaboration opportunities from networks
	Collaboration opportunities from networks			Skilled technical workforce	
	Skilled technical workforce	Collaboration opportunities from networks		Collaboration opportunities from networks	

2.5 Mid-West of Ireland Regional Attributes

The conceptual model for this study in Figure 1 also proposed that attributes of a region can contribute to the competences acquired at MNC subsidiaries operating in this region and having ascertained the subsidiary competences in Section 2.2, one dimension of this research sought to explore the extent to which such competences are derived from attributes of the region in which they operate. Addressing this issue allows the researcher to comment on whether region specific attributes (or endowments) are influencing parent MNC competitive advantage which is the overall aim of this study.

For the purpose of this research, regional attributes are endowments or features that are specific to a region. The attributes of the Mid-West region of Ireland were identified through a combination of documentary analysis and an interview with a former IDA regional development expert. This led to five Mid-West of Ireland regional attributes being determined which are shown below in Table 1. A discussion of these attributes is now provided.

Table 1: Mid-West of Ireland Regional Attributes

Attribute
Talent Availability
Higher Education Institutions
Infrastructure
Market Access
Active Business Networks

(Source: Current research)

2.5.1 Talent Availability

Talent availability as a regional attribute is important in the Mid-West of Ireland region. The interview data from the former IDA regional director revealed the importance of the region's manufacturing history and how its talent-base adapted to industry sector changes in recent decades. He explained how investing MNCs were attracted to the Mid-West owing to the range of talent and skills in the region, extending from dominance in computer manufacturing in 1980s to medical device and biopharma industries in recent years. He noted *'in the manufacturing sector, as an example, there are machine level skills that are being deployed in Medical Device firms in this region that had originally been employed in the computer industry here in the 1980s. Also, if we look at process engineering as a discipline, the skills such as continuous improvement methodologies that employees from computer and electronics firms*

in this region in 1980s developed due to those industry requirements, are now being applied in Medical Device and Semi-conductor industries.’ He also acknowledged the contribution that colleges and government agencies made to this applicability of skills and knowledge to new industries by stating that ‘higher education institutions here see the value that the engagement with industry brings, and tailor their course offerings to meet the needs of those industries. Though student placements such as Co-Op at UL, this talent is developed in an industry-specific way.’

This supports prior research by Demirbag and Glaister (2010) which studied the factors determining off-shore location choice for 1722 R&D projects in developed and emerging economies. They found that the size of the engineering and talent pool in addition to the prior experience of research in host region was an important determinant of location. This is also consistent with Kinkel’s (2018) research on motives for R&D off-shore relocation, which explained how German manufacturing companies seek advantages aligned to innovative knowledge and highly qualified personnel in regional locations. This current research finding supports Rugman’s (1980) view that the capability and effectiveness of a firm’s internal resources can be influenced by MNC subsidiary location, when consideration is given to a region’s location advantages, which may include human resources that contribute to the performance of the company.

2.5.2 Higher Education Institutes

The second regional attribute that this study revealed is the Higher Education Institutes. As the former IDA interviewee stated *‘inward investing MNCs see a collegiate approach in the Mid-West of Ireland, as the government agencies and HEIs are all seen as one team. To the credit of LIT, UL - the educational providers locally, they do partner well with industry and also, they do not compete amongst themselves. In fact, when MNCs come to visit the Mid-West of Ireland, UL and LIT partner well in showcasing how they work closely with industry. The investor perception is that there is a groundswell of support amongst the main stakeholders in the region and that the third level institutions are ‘on the same page’. They see that the HEIs are not in direct competition, which may be different in the investors home country where there may be more direct competition. The feedback is that there is a more collegiate atmosphere in Limerick’.* The importance of Higher Education Institutes, as a regional attribute, supports Kinkel’s (2015) research which found that a strong determinant for off-shore relocation

strategies is to seek innovative knowledge and highly qualified personnel which higher education institutes play a pivotal role in. A similar study by LeBas and Sierra (2002) reviewed the determinants of the foreign location of technological activities of MNCs by reviewing 345 firms with the highest patenting activity in Europe. They confirmed that almost 70% of MNCs locate their activities abroad in technological areas which infers to the researcher that the presence of higher education institutes, as a provider of technological talent, are an important consideration for innovative subsidiary location.

The presence of HEIs in the region offers opportunity for industry - academia collaboration which is extensively leveraged by the firms researched. As stated by the former IDA interviewee, *'the benefit of the institutions in Mid-West, Ireland is that they see the value that the engagement with industry brings. So, for a simple example, the UL Co-op system, which is very important to the University of Limerick needs to provide a pipeline of companies that will give placements to the undergraduate students. The universities take a very collaborative approach.'* As Wohlin *et al.*'s (2012) study on the factors for the successful collaboration between industry and academia, they described their relationship is a symbiotic one, as industry is always seeking new technologies to remain competitive. In their view, collaboration between industry and academia supports improvement and innovation in industry and helps to ensure industrial relevance in academic research. The Mid-West of Ireland firms in this research successfully collaborate with the HEIs and this supports the conclusions by Wohlin *et al.* (2012). Similar studies in emerging economies emphasize the importance of such industry – academia collaboration which is not pervasive in some regions. For example, Gandhi (2014) identified a need for Industry-Academia partnership in India, highlighting that collaboration between academia and industry has been restricted in India, in the past, possibly because of differences in values and attitudes, lack of appreciation of each other's abilities, skills and needs, and the absence of economic compulsions.

2.5.3 Infrastructure

Infrastructure, including Shannon International airport and the road network, is an important attribute to the Mid-West of Ireland region. As noted by the former IDA regional director, *'the airport is one of the most important endowments of the region. All factors on FDI decision making are premised on having good air connectivity to parent companies, in most cases to United States and Europe.'* Examples were also given by the interviewee of FDI decisions that

were declined for the region owing to the absence of direct routes to particular EU countries from Shannon airport. He also emphasized the importance of the airport and road network for freight movement by stating that *'proximity to an airport is also a very important consideration for air freight movement for all exporting firms.'* This finding supports Paul and Jadhav's (2019) study, which used data from sources such as the World Bank, Index of Economic Freedom and UNCTAD, to explore the role of institutional determinants of FDI. Their analysis of data from 24 emerging markets including China, India, Indonesia, Turkey, Thailand, Malaysia and Pakistan, found that infrastructure quality is a significant locational determinant of FDI in emerging markets. While most road infrastructure research has been conducted in emerging economies, there are important findings from such work that have relevance to more developed countries. For example, Hong, Chu and Wang's (2011) study on road infrastructure and regional economic growth used data modelling from 31 Chinese provinces between 1998 and 2007 to conclude that transport infrastructure plays an important role in economic growth by reducing travel time and cost. The Mid-West of Ireland region-based research concurs with this finding as road infrastructure has been highlighted as important for employee travel for work in the region. The interviewee noted that *'one subsidiary MNC in Limerick has employees making daily commutes from 13 counties in Ireland which is enabled by important road infrastructure investment.'*

2.5.4 Market Access

Market Access is an important regional attribute of the Mid-West of Ireland. The interviewee noted that inward FDI sees the region as a strategic location for accessing Europe, Middle East and Asia. He highlighted the presence of international logistics companies in the region and the global markets they access easily from the Mid-West of Ireland as a differentiator. *'The Asia market access is very important to some of our region's firms owing to the types consumer products sold on short lead time and this is successfully serviced by the region's logistics providers.'* He explained that Industrial markets such as Oil and Gas which are accessed easily from the Mid-West of Ireland region were also highlighted by stating *'Access to Europe and the Middle East is relatively easy owing to the relatively short geographical distance and service provided by the freight companies.'* Owing to the easy accessibility of the Middle East for the region's firms, and the relative ease of doing business in a more favourable time zone compared with U.S. based parent companies, the market is relatively accessible to the Mid-West of Ireland. Kinkel's (2015) study also showed that access to new markets is among the

most important motives for the R&D off-shore relocation mode. In conjunction with this, the presence of international logistics provider partnerships in the Mid-West of Ireland is a key enabler for market access, and as Kalafsky and Duggan (2016) noted in their study of small and medium sized exporters from Nova Scotia, these partnerships are a key determinant for exporting to international markets. As the Mid-West of Ireland gives the researched firms market EU advantage, ranging from EU market access, to Middle East countries, and to key Asian markets for the three researched firms, this regional attribute supports the regional attributes identified in these studies.

2.5.5 Active Business Networks

The fifth regional attribute that the research found as important is active business networks. According to the former IDA interviewee, *'Mid-West of Ireland is very strong on networks and they work collaboratively for the good of all participants in my view'*. He elaborated to say how participation in business networks facilitates discussion with policy makers, as one example of the benefits. He highlighted that *'one of the things that Irish subsidiaries can do easily is talk to government and this is remarked upon by the parent organisations. It's not that easy in US. In this region, you can participate in business networks, have conversations and get common ground across the table with government officials and representatives. By being involved with networks such as the American Chamber of Commerce and IBEC, engagement with the right government people can be achieved. This is important when government policy can impact a particular sector.'* The interviewee remarked that the business network activity suggests the region demonstrates attributes consistent with an industrial cluster. This finding also supports Li and Bathelt's (2018) research which demonstrated from a review of 3500 investment cases between Canadian and Chinese firms, that firms in knowledge intensive industrial environments with substantial business experience are inclined to direct their investments to clusters. In the case of the Mid-West of Ireland, the same conclusion can be drawn based on the profile of FDI firms in recent years. The former IDA interviewee highlighted that *'several IDA client companies have located in the region owing to the presence of other MNCs who are either key suppliers or customers. Some client companies have also developed key supplier relationships within the region'*. This finding supports Li and Bathelt (2018) use the term 'cluster-of-origin effects', stating that they are more important than country-of-origin effects in explaining firms' investment choices in clusters. They concluded that their findings support the idea that multi-site firms, particularly MNCs, leverage local

knowledge pools by strategically locating affiliates across clusters. This finding is also supported by the revised Uppsala Model (Vahlne and Johanson, 2013) focusses on the evolution of the multi-national business enterprise (MBE) from operating in a mode of internalisation to one of the co-ordination of networks.

In summary, this study has concluded that the above five regional attributes are present in the Mid-West of Ireland region which may contribute to the attractiveness of this regions for MNCs to locate subsidiaries in. Equally, it is acknowledged that this Mid-West of Ireland region may not have attributes that are available in other regions which are favourable for MNC investment. For example, Paul and Jadhav (2019) in a study of significant locational determinants of FDI found that they included institutional quality, political stability, regulatory quality and control on corruption. These attributes were not identified as regional attributes in this research although it is proposed that the presence of this region within the European Union confers much of these attributes. In short, companies operating in the Mid-West region can avail of the five regional attributes as outlined in this section.

2.6 Contribution of Regional Attributes to Subsidiary MNC Competences

Having examined and identified in Section 2.3 how the five identified areas of parent MNC competitive advantage are derived from the eight subsidiary competences identified across the three subsidiary MNCs (See Figure 2), the author then sought to examine the contribution of the region's five attributes identified in Section 2.4 to these subsidiary competences. This analysis of the data gathered in this study is summarised in Figure 8 below.

Figure 8 Regional attributes contribution to subsidiary MNC competence gain (Source: Current research)

Competences (attributed to region)	Regional attributes				
	Talent availability	Market access	Higher education institutes	Infrastructure (incl. airport, road network)	Active Business networks
Skilled technical workforce	A, B, C		A, B, C	B	
Use of close partnerships with HEIs			A, B, C		A, B, C
Operational efficiency driving cost position	A, C	A, C			
Leveraging government funding					A, B, C
Technology & Innovation capability	A, B, C		A, B, C		A, B, C
Collaboration from network opportunities					B, C
Leadership development	B		B		
Competence (unrelated to region)					
Team ethos (A, B, C)					

This table shows that all three subsidiary MNCs felt that they acquired competences due to the regional attributes in Ireland's Mid-West region. For example, the talent availability regional attribute was shown to contribute to four competences including Skilled Technical Workforce, Operational Cost Efficiency, Technology and Innovation Capability and Leadership Development. This is supported by Firm A's subsidiary director stating that *'our Shannon-based site had a specific technical requirement for our product line, from engineering graduates to skilled machinists and tool makers, that we needed to hire. We didn't have any issue attracting that skillset to work here owing to the availability of those technical skills in the region.'* This is consistent with the former IDA regional director's explanation of how investing MNCs were attracted to the Mid-West owing to the range of talent and skills in the region, extending from sectoral dominance in computer manufacturing in 1980s to medical device and biopharma industries in recent years. This supports prior studies by Demirbag and Glaister (2010) which found that the size of the engineering and talent pool in addition to the prior experience of research in host region was an important determinant of location.

Perhaps surprisingly, Figure 3 shows that the infrastructure attribute contributes to just one subsidiary competence – this contrasts with views expressed in the interviews that the region's infrastructure, including Shannon International airport and the road network, is important to the Mid-West of Ireland region. The author's view on how this leads to just one subsidiary competence being acquired is that infrastructure is largely taken as a given by parent MNCs when choosing regions to invest in and hence while it is a pre-requisite for firms to choose a region in the first place, it may not in itself contribute to subsidiary competences when compared to what is available in other regions. For the one subsidiary competence – Skilled Technical Workforce - derived from the Infrastructure regional attribute, the Firm B subsidiary company director explained the importance of the good road network for transporting employees to its Limerick site. He explained that their technical staff travel between research centres in Cork and the Limerick main site on a routine basis. He acknowledged that improvement in road infrastructure in recent years has assisted the retention of these employees, while there are still some significant roads projects to be addressed.

Not all competences of MNC subsidiaries in the Mid-West of Ireland are linked to the five regional attributes identified in this research. While the author is concluding that the vast majority of the subsidiary competences are connected to attributes of the chosen region, team ethos as a competence was identified by all three subsidiaries. This was explained by Firm C's subsidiary company director when stating that *'knowing the people on your teams personally,*

inside work, outside work, having a good relationship with people... having that relationship and collaboration is very valuable. Its more than just the customer and client relationship. It's a very open team ethos.' Similarly, Firm A subsidiary company director has described *'the ethos has driven our growth in terms of more technically complex project and product offerings to customers'*. In these examples, the ethos is described as something that the author believes is more intrinsic to the way the subsidiaries operate instead of being derived from a regional attribute.

The regional attributes identified in the research and the subsidiary competences derived from these in the three subsidiary MNCs, highlight the Mid-West of Ireland region as a cross-sectoral cluster. Evidence of subsidiaries deriving competences, also termed as benefits or externalities, from being in close proximity to other organisations is consistent with features of a cluster. According to Jacobs (1969), local diversification, as evidenced by high levels of industrial diversity in the Mid-West region of Ireland, gives rise to opportunities for combining knowledge across industries. The research identified several examples of knowledge sharing which supports the author's belief that this region represents a cross-sectoral cluster. Firstly, the Firm C parent company director described the transferability of process engineering skills for solving production problems across industrial sectors in the region. He described production yield improvement issues requiring the same process improvement skills across industrial sectors and the skilled technical workforce in the region can easily apply these skills in new industries. This skilled technical workforce competence, mainly derived from regional attributes including talent availability and higher education institutes, benefits the subsidiaries by providing the process engineering skills required to run their operations. This competence, in turn, contributes to parent MNC competitive advantage in four of the five areas, identified in this research.

More evidence of subsidiaries deriving benefits from being in close proximity to other organisations is provided by the Firm B subsidiary's investment in a customer engagement centre in Limerick. This centre facilitates collaboration amongst industry partners to find technological solutions of interest to their respective companies. According to Firm B's parent company director, the centre incorporates temporary work centres that facilitate collaboration with other firms, including product design and prototype build. He noted a high level of demand for collaborative engagement from wider industry and business stakeholders, ranging from healthcare providers, to medical device companies and non-competing industries. These examples suggest to the author that the Mid-West of Ireland's high level of industrial diversity

gives benefits of knowledge share across industrial sectors which is consistent with industrial cluster externalities. The competences that the participating firms gain by engaging in this collaborative activity in the region, as exemplified by Firm B's customer engagement centre, are derived from the Active Business Network regional attribute. This competence, in turn, contributes to their parent MNC competitive advantage – Collaborative enabling growth opportunities.

2.7 Summary of Research Question

The preceding sections have addressed each of the component parts of the conceptual model – the parent MNC competitive advantage (2.1), the subsidiary competences (2.2) and the region's attributes (2.4) as well as links between these (2.3 and 2.5). This allows the following conclusions to be drawn.

- Regional attributes contribute to competences gained at subsidiary level. The three subsidiaries in this study all indicated that they had acquired competences which, in most cases, can be derived from the five proposed regional attributes.
- The three parent MNCs in this study indicated that they are generating competitive advantage from five key sources which are derived from subsidiary competences.

Based on the above two points, the researcher concludes that parent MNCs can acquire competitive advantage from their foreign-based subsidiaries, through the competences acquired at subsidiary level. This is summarised in the empirical model for this research in Figure 9.

In summary, the research question has been addressed and the study is viewed as supporting the literature findings that subsidiaries can impact on parent MNC competitive advantage. The research supports the finding that the MNC competitive advantage is achieved through the subsidiary competences derived in most cases, from the region's attributes.

Subsidiary MNC Competence Contribution to Parent Firm's Competitive Advantage

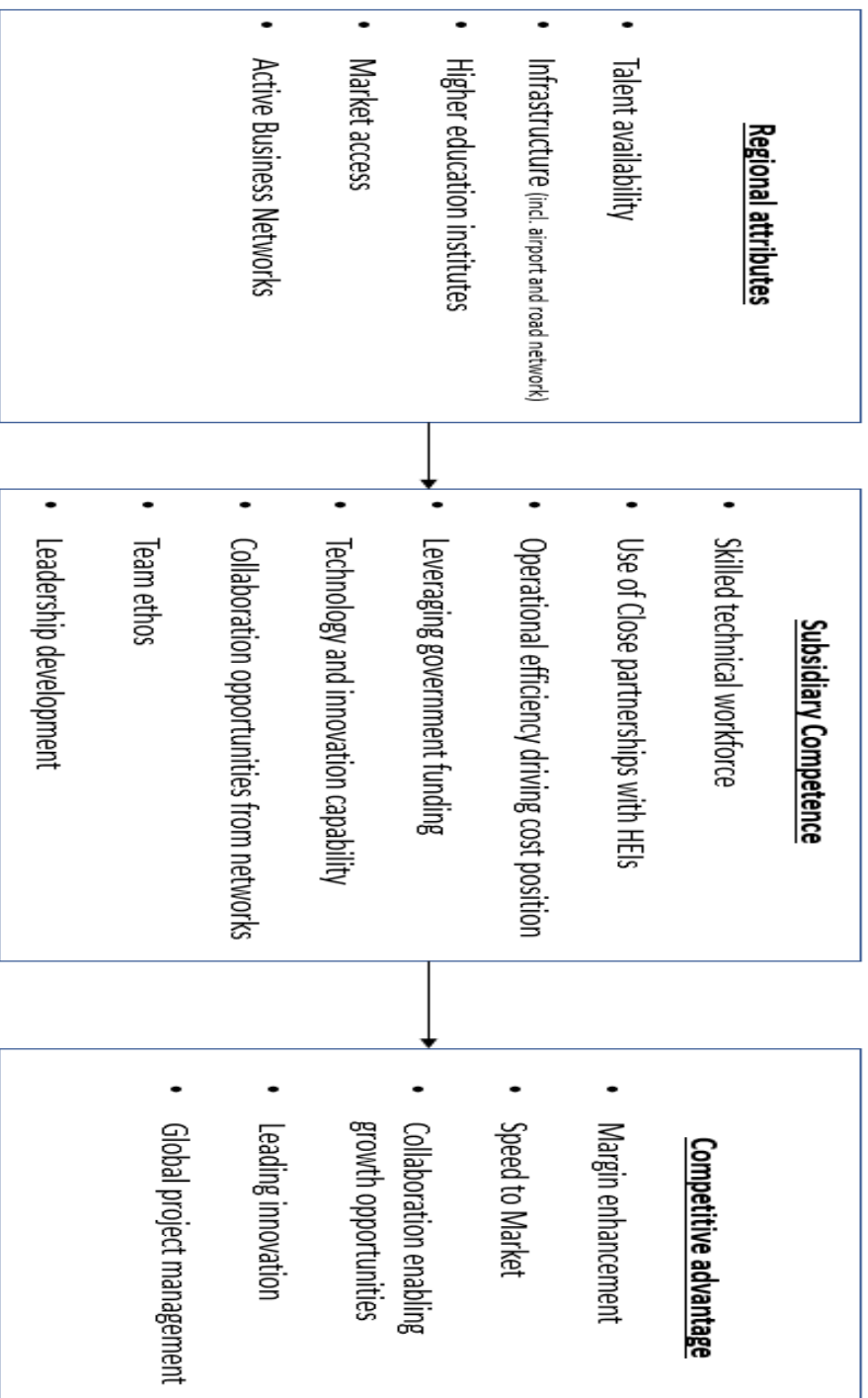


Figure 9 Empirical Model (Source: Current research)

3.0 Contribution of the Study

While there has been a significant amount of literature published regarding competitive advantage of firms and the contribution that a regional choice for a subsidiary can have on the investing parent MNC's competitive advantage, this research has been innovative in terms of the linkage of regional attributes to subsidiary competences and how these contribute to MNC parent company competitive advantage. Moreover, the qualitative methodology used in the data collection gives a deeper understanding of the research domain, as it is a departure from much previous research which is dominated by quantitative studies. In short, this study makes an important contribution to both theory and practice which is elaborated on below.

3.1 Contribution to Theory

In particular, this study makes two major contributions to theory – one related to the linkage of the various elements in the conceptual model and one linked to the methodological approach employed in addressing the research question.

(i) Linkage of parent MNC competitive advantage to subsidiary competences gained and regional attributes.

This study has explored how parent MNCs gain competitive advantage through their off-shore based subsidiaries and has focused on whether the chosen location contributes to MNC parent competitive advantage. In doing so, it has contributed to our knowledge of how subsidiary MNCs can capitalise on location-based factors to generate specific subsidiary competences, and it has also contributed to our knowledge of how these subsidiary competences can lead to competitive advantage for the parent firm. Details of these linkages were highlighted in Figures 2 and 3 of this chapter and this allows the researcher to conclude that location-based factors such as talent availability can help drive specific competences (such as operational cost efficiency) which can drive competitive advantage (such as margin enhancement).

Prior research in this area studied parts of the linkage between parent MNC competitive advantage and its regional attributes. For example, Nell and Andersson's (2012) research on the important influence that environmental characteristics have on subsidiary relational embeddedness, thus yielding competitive advantage to the MNC, examines the business network context to this gain. Their research showed a strong effect of the business network context on the degree of relational embeddedness, leading to competitive advantage. Similarly, Holm, Holmstrom and Sharma (2005) reviewed a part of the linkage when researching the

impact of subsidiary business relationships on MNC competitive advantage. They posited that a network of subsidiary business relationships was a driver of MNC competitive advantage. While the majority of prior studies concurred with the findings of Nell *et al.* (2012) and Holm *et al.* (2005), research by Szalucka (2015) suggested that FDI location did not impact MNC competitive advantage. This current research, however, suggests that subsidiary MNC competences contribute to parent MNC competitive advantage. Additionally, the research findings indicate that regional attributes contribute to subsidiary MNC competence.

(ii) Contribution to methodology – use of qualitative approach

Prior research addressing the contribution of subsidiary competences to MNC competitive advantage has predominantly been quantitative, using data collection methods including questionnaires and surveys on relatively large participant sample sizes. For example, Nell and Andersson's (2012) findings, from their quantitative study on the important influence that environmental characteristics have on subsidiary relational embeddedness, and competitive advantage to the MNC and Szalucka's (2015) research, both used quantitative methodology for data collection. While such approaches can lead to statistically significant conclusions on specific hypotheses, they can fail to explain how regional attributes contribute to subsidiary competences which in turn can contribute to parent MNC competitive advantage. The semi-structured interview approach adopted in this study allowed for rich data to be obtained from the three chosen firms and also addressed validity concerns as the researcher was able to clearly communicate what was meant by competences and competitive advantage to each interviewee prior to asking relevant firm specific questions. In this regard, the approach complements that of previous quantitative studies and confirms that location-based factors do contribute to parent MNC competitive advantage.

3.2 Contribution to Practice

The contributions to practice from this research apply to governmental policy makers, investing MNCs and subsidiary MNCs in a given region. These are elaborated further in this section.

(i) Policy makers understanding the importance of regional attributes contributing to MNC competitiveness

Based on the research findings, the importance of regional attributes to the competitive advantage gain by investing parent MNCs should be understood by government policy makers with responsibility for regional investment strategy. As the research has found that subsidiaries derive competences from regional attributes, and in turn, these competences contribute competitive advantage to the MNC, it is important for government policy makers to invest in regional attributes that will contribute to subsidiary competence gain. For example, it is important for government agencies to invest in regional attributes such as higher education institutes as these attributes will contribute to important areas of subsidiary competence development such as technology and innovation capability. The research has shown how this confers a leading innovation competitive advantage in parent MNCs which is an attractive regional advantage for investing MNCs.

Furthermore, by policy makers understanding the importance of collaboration amongst active business networks, and the growth opportunities this enables for the wider MNC, government policy could be focussed on promoting such business partnerships as a regional development policy that benefits inward FDI. The subsidiary competences gained from engagement in active business networks, and the growth opportunities that this enables was a striking feature of the research data which supports the recommendation that policy makers should foster these collaboration opportunities through structured engagement and investment supports. The benefits of business network collaboration extend to developing partnerships with suppliers which this research has found to be important to the MNC subsidiary's supply chain. As the Mid-West of Ireland industrial cluster demonstrates through its presence of specialist service providers such as logistics, in close proximity to MNC operations, there are significant benefits to investing MNCs by having supporting business locally that partner with the subsidiaries. Government regional agencies should provide investment supports in the locality that encourage the establishment of this important support structure to subsidiary MNCs, owing to the important role they play in subsidiary MNC operations.

Based on this research, market access as a regional attribute has been found to be important for MNCs, and this is enabled by regional and national transport hubs – mainly airports, and logistics service providers in the region. The research has found that investing MNCs gain competitive advantage by having speed to market and this requires transports hubs that give access to strategically important markets. Investment in transport hubs, and in particular

airports, as a means of developing FDI in a region, should be an important part of government policy, based on these research findings.

This research has also highlighted the importance of talent availability in a region and this regional attribute should be invested in, as a government policy, owing to the benefit it gives investing MNCs to a region. While the competitive advantage gain from having higher education institutes in a region is well established through the technical graduate pipeline it provides, the wider area of talent availability for skilled technical workforce, including non-graduate technical levels needs investment and promotion owing to the benefits it brings to investing MNCs.

(ii) Considerations for MNC's locating overseas to boost their competitive advantage

As the research has found, parent MNCs can acquire competitive advantage from their foreign-based subsidiaries implies that parent MNCs can boost their competitive advantage by investing overseas. In this study, the three chosen firms acquired competitive advantage through five means: - margin enhancement, speed to market, leading innovation, collaboration enabling growth opportunities and global project management and each of these areas could be traced to specific competences of the local subsidiary. This implies that when parent MNCs are deciding to establish subsidiaries overseas, they should be aware of the attributes of the target region, to ensure that competitive advantage can be derived from them. For example, if a parent MNC is investing in a subsidiary overseas, and they seek leading innovation as a competitive advantage for their MNC, they should consider the presence of higher education institutes in the region, and equally important, the close partnerships that subsidiaries in the region have with the HEIs. As the research has highlighted, the presence of HEIs in the region, and importantly, the partnerships developed with local industry, has led to partnerships being generated with the three chosen firms and these collaborations in turn helped drive competitive advantage for the parent firm.

It is important for the investing MNC to be knowledgeable of the talent available in the region, as this will have an impact on the skilled technical workforce competence it can derive from this talent. The highly diversified industrial base in the Mid-West of Ireland cluster region has the benefits of skills and knowledge from the various industries available in the region. This research has found that skills and knowledge are transferable across industries which is a

benefit to the subsidiaries in the region. It is important for parent MNCs seeking to invest in a region to understand the history and diversity of its industry base, and how transferable the skills and knowledgeable would be to its industry. Examples were given in the research of how process engineering skills were transferable from electronics subsidiaries in the Mid-West to Medical Device subsidiaries. This demonstrates the importance of investing firms knowing the history and diversity of industry in the region, the skills and knowledge associated with those operations and if, and how they can be leveraged in their subsidiary to develop the technical workforce it needs.

Parent MNCs should also be knowledgeable of the presence of active business networks in regions under review for overseas investment, and how these networks can contribute to development of subsidiary competences ranging from close partnerships with HEIs to the leveraging of government funding. As the research has shown, knowledge share amongst participant companies in active business networks yields benefits to the MNC subsidiaries which should be understood and leveraged to drive competitive advantage to the MNC. The presence of active business networks in a region is a good reflection of the 'business ecosystem' and parent MNC firms seeking to invest in a region should gain a good knowledge of this in their regions of interest owing to the benefits it can give the investing MNC.

(iii) Subsidiary MNCs deriving competences from the region in which they are based

Subsidiary MNCs need to be cognizant of the attributes in their region and how these can be leveraged to contribute competences to the local firm. As subsidiary MNCs seek to give competitive advantage to their parent MNC, this can be achieved by developing competences that deliver on that aim. Subsidiaries should be actively engaging in business networks in their region to leverage the benefits that this can deliver. Collaboration with other local industries, including competitor and non-competitor firms, and other parties such as HEIs and government agencies provides opportunities to build partnerships that benefit the subsidiary. This can range from developing its skilled technical workforce, enhancing its technological and innovative capability, developing specialist supplier relationships and leveraging government funding supports.

Knowledge of how regionally-derived competences benefit the parent MNC competitive advantage is important for the subsidiary managers to know, as they seek to communicate and

leverage the impact of those subsidiary competences on the parent MNC competitive advantage. As subsidiaries across an MNC network seek investment decisions from their parent MNC, as an example, it is important for the subsidiary to be knowledgeable of how regional attributes can be leveraged, to maximize returns on such investments. This research has demonstrated how subsidiary investment has delivered on competitive advantage for the parent MNC through development of competences. It is important for MNC subsidiary managers to be aware of the competences that can be derived from regional attributes and how these can be leveraged to maximise returns on subsidiary MNC investments.

3.3 Limitations of the Study

The limitations of the research are:

- (i) The findings are thus specific to one region in Ireland and care must be taken when seeking to infer possible benefits to locating in other regions where similar regional attributes may not be available.
- (ii) A second limitation of the research is that reliance has been placed on the views and insights of the subsidiary and parent MNC interviewees, which are limited to the extent that they are the individual senior directors' views. While they are key informants for their respective subsidiary and parent MNCs, they are giving individual responses and views, on the semi-structured interview questions. This may introduce some level of bias; however, these directors were carefully selected as key informants on behalf of the MNCs.
- (iii) Manual data analysis has been used for the thematic analysis of the research data collected. While software programs such as NVIVO were considered to assist with the coding of data, the manual approach did allow the researcher to get a strong feel for the data. However, the fact that the analysis was done manually is acknowledged as a limitation.
- (iv) The number of MNCs in the research is three. While this number of MNCs sufficiently yields data to address the research objectives, the number of firms needs to be acknowledged.
- (v) The three subsidiary MNCs that participated in the research are well established in the region, each with long tenure. The limitation is that the research focussed on established companies and not a cross section of new and established companies.

(vi) The potential for bias exists owing to the researcher's localised knowledge of the region and subsidiary MNCs utilised in the study. However, the researcher made every effort to remain impartial and keep an open mind to various opinions regarding the researcher bias. Additionally, any presuppositions held by the author have been acknowledged and consciously set aside during the analysis of the data collected. The steps taken by the researcher to mitigate against research bias during the thematic analysis stage were as follows:

- During the process of coding the interview data, the researcher referred to the conceptual model each time to seek references that were consistent with the data. This involved constantly seeking meaning in the interview data with reference to previous theories and published work. By doing this, the researcher ensured that there was no bias emanating from the analysis based on his localised knowledge of the region.
- By having clear guides prepared in advance for each semi-structured interview, with specific reference to the research objectives and the underpinning theoretical framework, this allowed for unbiased data collection and also mitigated against bias during the thematic analysis stage.
- In arriving at conclusions in the thematic analysis, the researcher mitigated against research bias by reviewing each theme in the thematic map against its associated interview quote data to ensure the conclusions drawn were consistent with the conceptual model. At each stage in this process, the researcher consciously examined the conclusions drawn to ensure they were data driven and were not as a consequence of any prior knowledge the researcher held regarding the region, the MNCs or the interviewees.

3.4 Research analysis rigour

Trustworthiness or rigor of a study refers to the degree of confidence in data, interpretation, and methods used to ensure the quality of a study (Pilot & Beck, 2014). Trustworthiness, in the model for qualitative analysis, incorporates review of the research under the headings of credibility, transferability, auditability and confirmability. Each of these headings is now considered.

3.4.1 Credibility

According to Creswell and Miller (2000), to achieve trustworthiness in qualitative research outcome, it is necessary to employ a systematic process in organising and analysing data. This was achieved in the thematic analysis by the process of applying coding to the interview data and identification of patterns and shared themes which demonstrated a clear rationale in terms of the conceptual model. Additionally, in achieving credibility, the researcher acknowledged his prior experience of the region, MNCs and interviewees and took steps as outlined in Section 3.3 to mitigate against any bias in the thematic analysis. Other measures employed to ensure credibility of the qualitative research outcome involved verification of the semi-structured interview answers with the interviewee by showing the transcript to the interviewee to ensure accuracy of the recorded responses.

3.4.2 Reliability

Lincoln and Guba (2012) argue there are strong bonds between credibility and reliability and that, in practice, the evidence of credibility helps to provide reliability. They explain that in order to make qualitative research more reliable, the study methods must be described in detail, which will enable another researcher to reproduce the work and not necessarily obtain the same results, but to move forward in other contexts and situations. The research design has been documented in detail in Papers 2, 3 and 4 which would enable a researcher to reproduce the research and data collection. The research design has been documented with an operational plan, with accurate records of each stage completed. Within the research methods for each objective, there has been a degree of triangulation inherent within the data collection which was demonstrated in the subsidiary and parent MNC interviews when an understanding of subsidiary competences was sought for objective two. This process involved ascertaining the subsidiary's competences during the subsidiary director interview and subsequently, the parent director's view of the subsidiary's competences, without any reference to the subsidiary director interview. This 'blank sheet' approach in the parent director interview allowed the researcher to elucidate the subsidiary competences from two different perspectives and to evaluate the two sets of responses. For each of the three subsidiary MNCs, there was a high degree of commonality between the competences as provided by the subsidiary and parent directors.

Similarly, there was two sources used to address research objective number one – elucidation of regional attributes. Without reference to the documentary review for this objective, the

former IDA regional director was interviewed to establish the regional attributes. This facilitated a comparison of the attributes as determined from the two sources which demonstrated a high degree of commonality. This demonstrates the approach taken to reliability in the research.

3.4.3 Transferability

According to Houghton, Casey, Shaw and Murphy (2013), transferability in qualitative research suggests that the findings from one study can be applied to other settings or groups of people. Transferability suggests that findings gained in a particular context can offer valuable lessons to other similar settings. To achieve this in the research, a core consideration was the selection of the region, the participant MNCs in the research and the interviewees to ensure it addressed the research objectives. The Mid-West of Ireland region was chosen based on the high representation of subsidiary MNCs there, in addition to the diverse industries represented and the strong level of business networks there. The subsidiary MNCs were selected based on their industry sector, tenure in the Mid-West region and level of business network participation in the region. The interviewees in each case were chosen based on they being senior directors for their respective organisations and key informants. Interview questions, with theoretical basis, were clearly documented in advance with the purpose of addressing the research objectives. The list of interview questions was circulated to the interviewee in each case for review in advance of the interview. Recordings of the interviews were made on iPhone, transcriptions subsequently made and circulated for review for accuracy or clarification to the interviewees

3.4.4 Confirmability

The concept of confirmability is comparable to the qualitative researcher's concern regarding objectivity (Patton, 2014) and he asserts that measures must be taken to ensure that the conclusions derived from the research come from the experiences of the respondents and not from the personal preferences of the researcher. This has been achieved in several ways during this research. Firstly, in addressing the first objective to elucidate the regional attributes, two research methods have been used which offers the opportunity to the researchers triangulate the information revealed from each method. Secondly, the use of a pilot study has afforded the opportunity to the researcher to test the research methods, which have been clearly documented, for suitability in addressing the research objectives. Systematic approach to the coding and

analysis of the data was employed. This was demonstrated by the systematic procedure for collecting, analysing and interpretation of the research data (Daniel, 2019). To achieve this in the study, clarity was provided in the research objectives to the interviewees to ensure they understood the purpose of the research and the overall research question. The process for conducting the research was documented in the Papers 2, 3 and 4. Records were kept of the interviews that were conducted including the location of the interview and the duration. During the thematic analysis, the researcher utilised notes and schematics to develop and record the themes, with repeated reference back to the interview transcripts to ensure consistent application of the coding process throughout.

3.5 Avenues for Future Research

While this research study has highlighted many aspects of how parent MNCs can improve their competitive advantage, it has also opened possibilities for future research in this field. These include:

- (i) Replicate the study in other regions with a view to enhancing the understanding of the role that regional attributes in different regions play in subsidiary competence gain.
- (ii) Expand the sectoral breadth of the research to incorporate a wider number of industries in the region, including a broader cross-section of well-established and recently established subsidiaries in the region.
- (iii) The number of MNCs researched in this study was three firms and while this led to significant amounts of qualitative information at parent and subsidiary level, consideration should be given to extending this study to more firms in the Mid-West of Ireland region. Also, it would be beneficial to examine other sectors in the region, including indigenous firms, to understand the competitive advantage that they gain from their competences. Such benefits may have policy implications for government enterprise support programmes, including skills development, infrastructure investment and funding incentives.
- (iv) This study adopted a qualitative approach through semi-structured interviews with parent and subsidiary MNC directors and while this yielded very good data, consideration should be given to additional interviews both at the subsidiary and

parent level to corroborate the findings given. This would serve as a control for any bias in the interview data based on getting different perspectives from people at different layers in the organisation.

- (v) Further research to explore the wider implications of the Lifestyle Offered finding by Firm B, as it pertains to urbanisation externalities. This firm identified Lifestyle Offered by the subsidiary location in Mid-West of Ireland as a positive feature. In terms of urbanisation, this interesting finding warrants further research owing to the emerging trend in remote working choice and the impact this has on Lifestyle Offered.

3.6 Concluding Remarks

In general, the study of how parent MNCs derive competitive advantage from foreign-based subsidiaries has generated much academic research with many alternative views on this matter. Critically, this study contributes to this debate and proposes that for one region in Ireland, location-based factors do help drive competitive advantage for the parent firm through the subsidiary competences it derives from these factors.

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Appendix I – Extract of subject matter expert interview data with colour coding

PS: Does the Mid-West of Ireland support the development of Firm C growth?

Parent director: Yes, largely, by providing the people with the skills we need for that growth.

PS: Does the Mid-West of Ireland differentiate itself from Firm C's other regions?

Parent director: Yes, and the J&J Plassey site differentiates itself as well. The Mid-West, Ireland is the region you go to for high volume manufacturing, and automation for medical devices as you have an infrastructure in Ireland that understands automation, and understands medical device validation

PS: So, that is what the Mid-West of Ireland would offer?

Parent director: Yes, and that is what the Plassey, Limerick site has leveraged. Because there are a lot of people who can make medical devices and there's a lot of people who can do automation. There's not a lot of people who can marry those two skill sets.

PS: So does the Mid-West Ireland really support that and would it be stand-out against other regions in terms of its development for organisations for doing that?

Parent director: Yes, Firm C is leveraging this in the Mid-West, it in the sense of the pipeline of people who understand these individual things and what the Plassey site does is try to teach them the marriage piece, and be involved in building the infrastructure around it. For example, courses in LIT etc building a talent pipeline. And then, in manufacturing, there is machine level skills, then there is the MES level, the manufacturing execution system, which follows production parts thru the lab and releases it, which gives you full traceability, and then you have your SAP systems. The Plassey site has also built an expertise in the manufacturing execution system, and in the SAP layer above it. By Oct '19, Plassey Limerick will have 200 people in there working software for MES and SAP type systems

PS: Will they support this site only?

Parent director: They will support all of 'Firm C' operations in Europe 5:08

PS: So, that is the what the Mid-West supports?

Parent director: Yes, a marriage of it +automation + validation + mech engineering. Limerick always had a manufacturing heritage and there's always a culture here of working shifts, milling and turning etc. So limerick always was a manufacturing town, Shannon as well, so that's been a good foundation. You can get those types of skills. There's a tradition of that kind of thing. What we are doing is marrying them with medical devices and move it now in to a Factory 4.0 setting

PS: Do you think Mid-West Ireland is better positioned for 'Firm C' than other regions globally

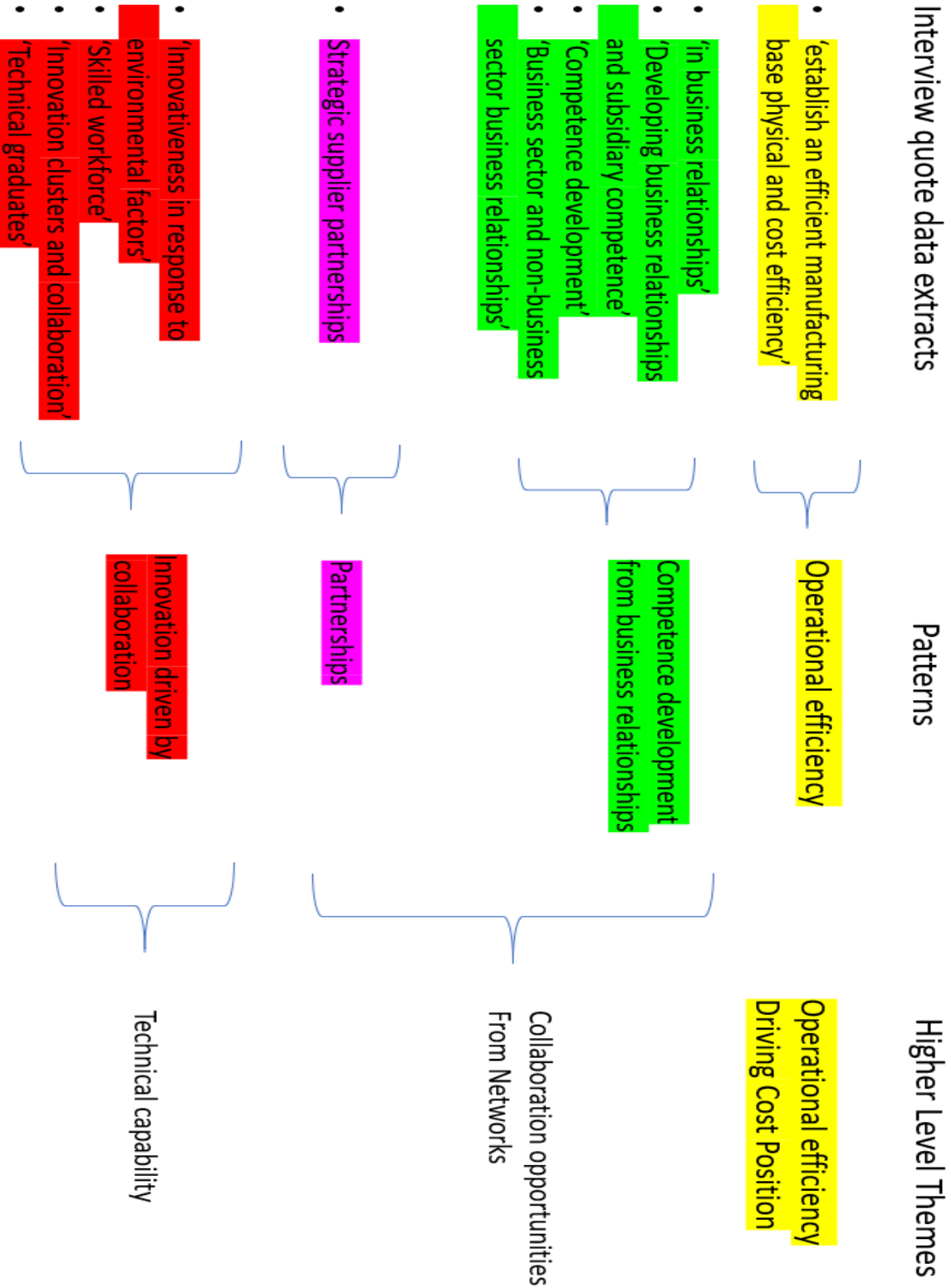
Parent director: In 'Firm C', at the moment, I believe yes but there wouldn't be a whole lot in it now. Other regions are positioned as well. Cork would be one of them for example

PS: What are the specific reasons why the parent company set up in Mid-West Ireland

Parent director: At the time of set up in early 1990s, the target market was Japan and the decisive factors were 1) could you get people at a reasonable cost, engineers and technicians, 2) was there a good site and 3) tax was a factor too... but tax didn't keep the place here, it helped.. tax makes a good business case better, it doesn't make a bad case good. The fundamental of what 'Firm C' tried

to do here was to establish an efficient manufacturing base physical and cost efficiency which was the corner stone for the investment and we have used technology to build on that efficiency ever since. We have more machines with less people

Appendix II – Example of theme development from raw interview data



SECTION FOUR:

REFLECTIVE LOG EXTRACTS

1.0 Introduction

During the initial stages of this research journey, the author's thoughts on the research topic were focussed on the area of regionalisation, and the motivations firms had for expanding their operations overseas. At the early stages of the research, the author's interest in MNC expansion overseas had been piqued by his own work experience within a United States based MNC with considerable overseas investment. As the debates around Brexit and United States-centred protectionist trade policies abounded internationally when this research started, the researcher was curious to examine the drivers of such internationalisation activity which has been growing at pace in recent years.

Initially, as the seminal theories of Internationalisation – Vahlne and Johanson's Uppsala Model (2013) and Location – Dunning's Eclectic Paradigm (1980) and associated published works were studied, the topic of location advantages, and the competitive advantage gain that companies get from these, became an important focus area within the work. This brought focus to the theories of competitive advantage of the firm as it became apparent to the researcher that such international expansion of MNCs was motivated by an expectation by parent MNCs that this would accrue to them by establishing subsidiaries in selected international regions. Several studies established that competitive advantage does accrue to the investing firm based on having internationally-based subsidiaries, but there is a dearth of prior research on the means by which this competitive advantage is gained by the parent MNCs.

This brought focus to the researcher's home-base region, the Mid-West of Ireland, as there is a strong subsidiary MNC presence in that region, with strong technical depth and history. Due to those features of the region, it was decided to explore the researcher's enquiry as to how competitive advantage is gained by investing firms based on their subsidiary's presence in that region.

2.0 Reflective log extract listing

Date: 3 rd October 2016	Internationalisation
Date: 2 nd November 2017	Inputs to Conceptual Framework
Date: 31 st January 2018	Competitive advantage
Date: 30 th June 2018	Mid-West of Ireland regional choice
Date: 21 st July 2018	Features of semi-structured interviews
Date: 2 nd August 2018	Use of documentary review to establish Mid-West Regional Attributes
Date: 13 th August 2018	Pilot study
Date: 12 th December 2018	Choice of firms for remainder of research
Date: 3 rd March 2019	Qualitative approach to research
Date: 11 th September 2019	Collaboration
Date: 4 th February 2020	Mid-West subsidiaries contributing strong technical benefits to parent MNCs
Date: 9 th September 2020	EDBAC Conference Case Western Reserve University, Cleveland, Ohio, U.S

Table 1 Reflective log - Extracts

2.1 Log Extract No. 1 Internationalisation

Dated 3rd October 2016

What is my perspective on Internationalisation?

MNCs (usually) expanding operations to different countries using different modes such as Foreign Direct Investment, distributor agreements, franchising, licensing... But why do firms expand internationally, does it give them competitive advantage and most importantly, how does it give them competitive advantage?

Why am I selecting a research topic around regionalisation strategies for Multi National Enterprises?

I am interested in knowing which MNEs have been successful in adopting a regional strategy to achieve global growth, what their regional strategies have been and what made them successful.

Why am I interested in the period since 2007?

My expectation is that MNEs adopted more definitive strategies for growth at the time of the economic recession to keep survive, maintain or grow market share and to take advantage of markets that maintained good economic performance despite the world economic recession.

Can I leverage my own personal experience and knowledge of large MNE strategies to understand the appropriate level of research question in my dissertation that is new research and will contribute to current strategic management theory?

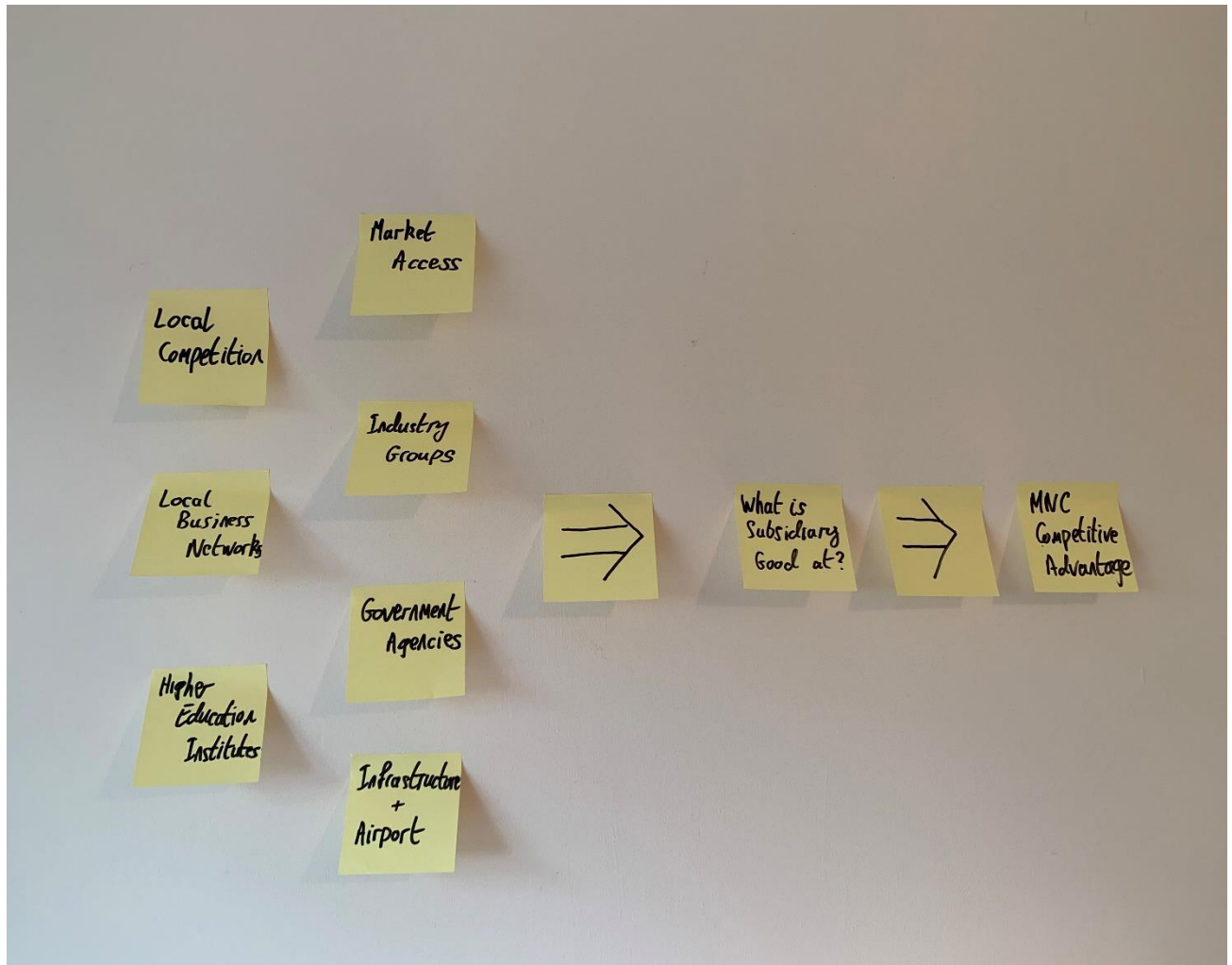
My experience is limited to one organisation and a specific aspect of it: Building regional manufacturing and engineering support capability in India and China to develop a better global cost base and establish an Asia regional presence for success in that pole.

I will take a holistic view of an organisation growth strategy, across a variety of sectors to understand which MNEs have been successful in adopting a regional strategy for global growth outside the home region.

My involvement with industry groups, government agencies and higher education institutes in Ireland, and more specifically the Mid-West region, could possibly be leveraged to collect data in this research area.

2.2 Log Extract No. 2 Inputs to the Conceptual Framework

Dated 24th November 2017



2.3 Log Extract No. 3 Competitive advantage

Dated 31st January 2018

Competence development through business relationships or competitive environment? –
Subsidiary impact on Competitive Advantage. Holm, Holmstrom and Sharma 2005

Results show that the competitive pressure of the subsidiary environment is a strong driver of competence development in business relationships. Subsidiary competence development in business relationships is also involved in the competence development in larger MNC organisation, which strengthens the subsidiary impact on competitive advantage.

My research tests the assumption that the competence development in the subsidiary is built on competitive environment drivers and/ or business relationship drivers, and that these competences impact the competitive advantage and performance of the parent company MNC.

Key question: What are the drivers of competence development in subsidiaries based in Ireland (competitive forces (Porter) or business relationship (relational view of the firm), and do these competences drive higher impact in the parent company MNC.

Why Ireland? Ireland is a small domestic market, open economy, export focussed...

You would expect the subsidiary MNCs are not in a competitive environment in Ireland's small market, except with some sectors such as Pharma and MedTech. So, are business relationships more important than the competitive environment in developing subsidiary competences? If so, are competitive and non-competitive business relationships and networks both successful in developing competences and in both cases, do they translate to MNC competitive advantage?

Research to date has shown that the subsidiary competitive environment drives firms to be innovative to create competitive advantage. Similarly, business relationships drive competence development at subsidiary which translates even more successfully to MNC parent. Yet, the Ireland market is very small and open, with high levels of exports from FDI firms. So, does the competence development from competitiveness in subsidiary environment drive competitive advantage in Ireland's small market? Or, do MNC subsidiaries based in Ireland develop competences from business relationships? If so, are these developed from competitive business sector relationships or from non-competitive business sector networks? And in both cases, are these successfully translated to the parent MNC as competitive advantage?

2.4 Log extract No. 4 Mid-West of Ireland region choice

30th June 2018

Upside to the choice:

- Subsidiary MNCs are accessible because of my involvement in American Chamber of Commerce Ireland and Limerick for Engineering
- There are active networks in the region and collaboration amongst industry players seems strong
- Higher education institutes engage well with industry
- Long established history of FDI in Mid-West of Ireland
- After 26 years working in Shannon, I have good insights in to the MNC cohort
- International airport is high profile
- Logistically, getting interviews done will be uncomplicated

Downside to the choice

- Familiarity with interviewees will need to be managed to avoid steering off the interview questions
- Two centres within the region – Limerick and Shannon – if that is a factor to be considered.

2.5 Log extract No. 5 Features of the semi-structured interview

Date: 21st July 2018

The interviewee is a truth teller in the neo-positivist world, a participant to reveal real life experiences and complex social reality in the romanticist view point. In the localist viewpoint, the interviewee is a person who is not reporting external events but producing situated accounts. The accounts produced in the neo-positivist view point of the research interview is objective data and knowledge transfer. In the romanticist's view point, the interview's account gives a pipeline of knowledge mirroring interior and exterior reality leading to in depth shared understanding. The localist views the interview accounts as situated accounts that must be understood in their own social context.

The localist approach to interviewing gives multiple ways to explore complex issues from different theoretical perspectives. For example, discourse analysis can give a theoretical approach to understanding the interview in the localist view point, considering it as an art of questioning and listening, i.e. conversational. In this view, the concept of knowledge as a mirror of reality is replaced by how social actors interpret and negotiate meaning, a process characterised as the social construction of reality (Berger and Luckmann, 1966). Kvale (1996) and Rubin and Rubin, (1995) also justify interviews as conversation by noting how post-modern researchers lost faith in objective reality mirrored in a scientific model, moving towards discourse and negotiating the meaning of the lived world.

The interviewer seeks to understand central themes in the life of the interviewee in qualitative, open accounts of specific experiences in the subject's life world. In this semi-structured research method, the interviewer focusses on particular themes. The interview is an enriching experience for the interviewees, who through dyadic interplay with the interview, obtain new insights into their life world and the research theme (Kvale, 1996).

2.6 Log Extract No. 6 Use of documentary review to establish Regional Attributes – Mid-West of Ireland

2nd August 18

To address the ‘Establish regional attributes research objective, do a document review to get a profile of the region in terms of attributes... consider what sources to use for this..

Purpose of this documentary review is to characterise the features of the region, based on the publications from acknowledged sources.

Use the output of the documentary review to inform the interview questions with a subject matter expert on regional development

Documentary sources:

IDAireland.ie, Limerick and Shannon chamber websites, Higher Educational Institute websites; Gov.ie publications; Mid-West Action Plans for Jobs.

Interviews

Person – former IDA regional director, with responsibility for enterprise in the Mid-West

Ensure the interview questions directly relate to the research objectives.

Use probing questions... for example, why did your MNC invest in Mid-West?

Depending on the answer, probe to get to lower level of detail, such as ‘what do you mean by... talent pipeline, what do you mean exactly by the cluster you are actively engaged in?’

2.7 Log Extract No. 7 Pilot study

Date: 13th August 2018

“You never test the dept of a river with both feet”

African proverb

Benefits of a Pilot Study

Determine the feasibility of your research design, with a pilot study before you start. A preliminary, small-scale “rehearsal” in which you test the methods you plan to use for your research project.

Use the results to guide the methodology of your large-scale investigation. Pilot studies should be performed for both qualitative and quantitative studies.

Components of a Pilot Study

Whether your research is a clinical trial of a medical treatment or a survey in the form of a questionnaire, you want your study to be informative and add value to your research field.

Help define the research question

Test the proposed study design and process. This could alert you to issues which may negatively affect your project.

Educate yourself on different techniques related to your study.

Test the safety of the medical treatment in preclinical trials on a small number of participants.

This is an essential step in clinical trials.

Determine the feasibility of your study, so you don’t waste resources and time.

Provide preliminary data that you can use to improve your chances for funding and convince stakeholders that you have the necessary skills and expertise to successfully carry out the research.

Do Pilot study with one subsidiary and its parent MNC

2.8 Log Extract No. 8 Choice of firms for the remainder of the research

Date: 12th December 2018

Taking examiner advice at defence of Paper 3 – reduce number of firms from 5 and include Pilot Firm in the main findings

Select two additional firms to Pilot Firm for the main findings.

Firms to meet criteria of being actively involved in industry networks in the region, subsidiary having long tenure, involvement with government agencies, strong technical cohort at subsidiary and large scale in terms of numbers of employees.

Important to protect confidentiality of the participants – follow WIT ethical code of practice and get approval for the study from WIT business school ethics committee.

Consider if access to parent MNC is really achievable before selecting the subsidiary MNC to engage in the study.

How to engage parent MNC senior directors?

- My travel to United States on average 3 times per year gives me this opportunity as the three participant firms are US based.
- Many senior parent MNC directors travel to subsidiary sites – perhaps engage those directors when they visit the Mid-West region
- Use Skype or similar video conferencing methodology

2.9 Log Extract No. 9 Qualitative approach to research

Date: 3rd March 2019

Key consideration – The research is examining **how** competitive advantage is gained by parent MNCs, based on their subsidiary's competences which may, or may not, have been derived from regional attributes.

This requires an in-depth examination.

Previous studies have claimed, in the majority of cases, that subsidiary competences gained from locational advantages do contribute to parent MNC competitive advantage but this research is examining **how** the parent MNC gains that competitive advantage.

Previous research in this area was predominantly quantitative, with larger sample sizes and in many cases, data collection was questionnaire-based.

By adopting a qualitative approach to the study, the researcher has the benefit of using research methods that gain deeper insights into how this competitive advantage is gained by the MNC. This is complex, as it involves review of the subsidiaries competences as viewed by the subsidiary and the parent senior directors. These subsidiary competences may, or may not, be derived from the region's locational advantages. In turn, the parent MNC senior director's view on if, and how, these subsidiary competences contribute to the parent MNC competitive advantage gives the deep level of insight that the research question asks.

The qualitative methodology adopted will involve research methods that include documentary review of literature related to the region's features and strengths. This is supplemented by interviews with key informants to probe the information gathered, to understand how competitive advantage accrues to investing MNCs in the Mid-West of Ireland.

2.10 Log Extract No. 10 Collaboration

Date: 11th September 2019

'Most of the collaborations of technology were done by teams. Collaboration is key to creativity.'

Walter Isaacson

Collaboration between industry players in Mid-West, and with higher education institutes, government agencies

Research paper by Michele O'Dwyer, Lisa O'Malley, Stephen Murphy and Regina McNally published in 2014 in competitiveness review entitled: Insights into the creation of a successful MNE innovation cluster, focussed on Cork based Pharma cluster...

Did these companies develop competence in their competitive business relationship that delivered competitive advantage to their parent MNC?

The cluster responded to challenges in their industry... did they develop competences that delivered competitive advantage at MNC parent and other division level?

Their shared purpose ensures successful collaborative entrepreneurship and innovation.

Irish-based subsidiaries of MNEs in Pharma and Irish universities... emergent, synergistic action, tailored discursive approach for those seeking to innovate thru collaboration, embodied in government strategy, importance of discourse to innovation collaboration, e.g. Ireland inc.

Successful cluster in a highly regulated and insular industry where MNEs closely guard IP and have been slow to collaborate. To sustain performance, discernible shift from competition to collaboration in Irish pharma industry. Creation of a cooperative innovation cluster providing individual and collective benefits. Produces significant advances in knowledge. Innovation clusters important for economic development. Encouraged thru industrial policy. Pre-existence of social capital is an important component as well as government support. Innovation networks

So, do clusters, as business relationship develop subsidiary competences that yield MNC competitive advantage?

2.11 Log Extract No. 11 Mid-West subsidiaries contribute strong technical benefits to parent MNCs

Date: 4th February 2020

Would University of Limerick have prospered in the absence of key industry partners in Mid-West of Ireland? Strong interview data to support the technological benefits that accrue to investing MNCs from their Mid-West subsidiaries. Linkage between 2 of the 3 MNCs interviewed with HEIs, in particular University of Limerick, is very strong historically and partnership and collaboration remains strong to the present day. This too is acknowledged by the parent MNCs in each case. Is it a two way street, a symbiotic relationship between industry and higher education institutes in Mid-West of Ireland?

Reflection: The openness of UL to investing MNCs, at its inception in mid-1970s, and the input that industry had to technology courses, has had a lasting legacy in terms of industrial growth in the region.

- *Government incentives and initiatives that can accrue to the subsidiary at its location, e.g. Science Foundation Ireland, IDA, University collaboration*
- *Industry or business sector that the parent company is involved in*
- *Absorptive capacity of the parent company to benefit from subsidiary embeddedness within its own location, and the advantages that brings*
- Does university collaboration at subsidiary location drive parent company advantage
- How can we identify and measure the drivers at subsidiary location of parent competitive advantage?
 - For example, 20% of Firm B's worldwide patents have the principal inventory with an Irish address? What aspect of Firm B's subsidiary location (Limerick, Ireland) fosters this ability to be the generator of 20% of the parent company. Is it by being involved in collaborations with university and Science Foundation Ireland research institutes? Is the due to the educated talent pipeline that Firm B recruits from Universities in Ireland? Is it enhanced by the business networks that Firm B's employees engage with in Limerick such as American Chamber of Commerce of Ireland, Limerick for Engineering and local Chambers of Commerce? How does this drive parent competitive advantage?

2.12 Log Extract No. 12: Executive DBA conference Case Western Reserve University, Cleveland, Ohio, USA

Date: 9th September 2020

Engaged Management Scholarship and EDBAC conference in Cleveland. Paper submission

20th July 2020

Motivation for doing this?

- Seek feedback from panel of reviewers on the research
- Critique by the panel should inform areas of development in the thesis to improve its presentation
- Interested to get feedback from the United States-based host university – Case Western reserve University – Cleveland, OH, as the title – Gaining competitive advantage from Off-shore manufacturing – Mid West of Ireland, is likely to be of interest due to current US administration’s dictate to industry to ‘bring the jobs home’
- Interested to get a critique on the literature review, conceptual model, the research methodology and findings.
- A virtually-hosted conference is an interesting concept – perhaps its an advantage as attendees can cover more presentations remotely instead of on campus.

24th August 2020

- Selected as a Best Paper finalist by the review panel, in a double-blind panel review

6th September 2020

- Presentation completed.
- Good feedback from panel and attendees.
- A lot of interest in the subject and in the island of Ireland

8th September 2020

Received communication from Engaged Management Scholarship panel that we won the Best Paper Prize.

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BEST PAPER AWARD FOR DEPARTMENT OF GRADUATE BUSINESS STUDENT

DBA student Paul Sheahan's research paper provides insights in to how multinational companies investing in Ireland can gain competitive advantage

Waterford Institute of Technology DBA (Doctor of Business Administration) scholar Paul Sheahan has won Best Paper Award (sponsored by Business Horizons) at the global Engaged Management Scholarship 2020 Conference.

Testimonials