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Title	Sustaining multi-national subsidiaries operations in the electronics industry in Ireland
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Publication Date	2010-09
Publication Information	Walsh, N. and Cormican, K. (2010) Sustaining multi-national subsidiaries operations in the electronics industry in Ireland Proceedings of the 27th International Manufacturing Conference Galway, Ireland, 2010-09-01- 2010-09-03
Item record	http://hdl.handle.net/10379/3901

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Walsh, N. and Cormican, K. (2010) Sustaining multi-national subsidiaries operations in the electronics industry in Ireland. Proceedings of the 27th International Manufacturing Conference 1st – 3rd September, Galway, Ireland

SUSTAINING US MULTI-NATIONAL SUBSIDIARIES MANUFACTURING OPERATIONS IN THE ELECTRONICS INDUSTRY IN IRELAND

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ABSTRACT

US multi-national corporations' (MNC) subsidiaries operating in the electronics industry represent a significant and important grouping of the high tech manufacturing sector in Ireland based on the number of people employed, turnover, innovative activities, contribution to Irish gross domestic product (GDP) and the smart economy. The sustainability of such operations in Ireland is dependent on the embeddedness of these organisations in the Irish economy. Sustaining such operations in the Irish economy has become increasingly difficult given the current challenging economic times and dynamics at play in global markets. This paper seeks to understand the nature of MNC subsidiaries in Ireland operating in the electronics industry. To do this an exploratory qualitative study was undertaken. This involved conducting a number of structured interviews with senior managers in the three largest US MNC subsidiaries operating in the electronics industry in Ireland. The findings from the study show that US MNC subsidiary operations are sustainable and that they are embedded in the Irish economy and as a consequence play a key role in terms of their respective contributions towards the 'smart' economy. However there are significant challenges that remain. The internal challenges facing subsidiaries centre on the continuous efforts of management to implement initiatives geared toward increasing subsidiary embeddedness through a process of innovation and renewed investment. The external challenges that can directly impact subsidiary operations include the possible harmonisation of corporation tax rates across Europe and the increasing cost of doing business in Ireland. These issues are explored in more detail in this paper.

KEYWORDS: Subsidiary; Sustainability; Case-study.

1. INTRODUCTION

In the first quarter of 2009, Ireland was ranked 9th in the world as a source country for imports to the US [1]. Of the 1,025 foreign companies with facilities in Ireland, 489 (48%) are American. Of the 127,578 people employed by foreign companies, 89,158 (70%) work for American companies. Of the \$68 billion 2003 sales revenue from exports by Irish subsidiaries, 75% came from American companies [2]. The US accounts for 15% of total direct investment in Ireland, with Ireland ranking 10th in the world as a destination for US foreign direct investment

(FDI) [1]. The share of host-country gross domestic product (GDP) accounted for by the value added of subsidiaries reflects the country's attractiveness to the US MNCs as a location for production. In 2007 Ireland was ranked first in a global index of the share of GDP accounted for by US MNCs at 20.8%, [3]. These figures suggest that Ireland has a strong trading relationship with the US. In particular, Ireland has long been a major centre in the area of electronics manufacturing in Europe, particularly in the area of computer hardware production. This industry is dominated by four US MNC subsidiaries. These four organisations account for the largest number of people employed in the electronics industry in Ireland. However, the industry is inherently footloose [4]. In other words, subsidiaries of MNCs can react almost instantaneously to adverse changes in the host country and shift their production facilities or parts thereof to another country if the present environment changes to their disadvantage. Gorg and Strobl [4] found that '*multinational companies located in Ireland have lower survival rates than indigenous plants.*' The growth and continuous development of the subsidiary is fundamental to the sustainability of the subsidiary operations. However, Bradley [5] found that the forces that drive innovation in products and manufacturing processes tend to originate in the US rather than in Ireland. He notes that this is the most serious threat to the sustainability of such operations in Ireland. The sustainability of US MNC subsidiaries in the Irish electronics industry has profound implications for the Irish economy, in terms of employment, tax and export revenues.

The cost of competitiveness in Ireland is continually cited by economists and various working groups such as the National Competitiveness Council as a factor that impacts foreign direct investment (FDI) by US MNCs in Ireland. In recent years the competitiveness of the Irish electronics industry has continuously eroded. Between 2000 and 2006, Ireland experienced a loss of 15% in international price competitiveness [6]. Factors such as the cost of energy, waste, local authority charges and professional services have a major impact on MNCs operating in the electronics sector [6]. Furthermore, inflation in Ireland has exceeded the EU average for the past 6 years [6]. Other salient factors that are regarded as primary incentives in attracting investment from US MNCs and so are likely to have a significant impact on the sustainability of US MNC subsidiaries operating in the electronics industry in Ireland are the rate of corporation tax and government initiatives. This rate is currently 12.5%. However, recent proposals surrounding the possible introduction of a common consolidated corporation tax base (CCCTB) would effectively lead to the harmonisation of corporation taxes across EU member states. At the same time, other European Union (EU) member states along with Asian countries have sought to replicate the policy initiatives of the Irish government state enterprise agencies that proved successful in the past.

2. AIMS AND OBJECTIVES

Research suggests that the role and status of the subsidiary within the MNC can be directly aligned to its degree of embeddedness [7, 8]. This paper attempts to understand the nature of multinational subsidiaries in the electronics industry in Ireland and establish the salient factors that contribute to maintaining subsidiary operations in the country. This involves an examination of the strategic importance of the subsidiary to the MNC and the various initiatives undertaken by subsidiary managers that fulfil a prescribed mandate necessary to maintain the subsidiary operations. The paper also attempts to highlight some of the operational challenges facing the subsidiaries. These challenges are analysed in terms of internal and external initiatives. Internal initiatives are managerial efforts that strengthen the subsidiary mandate within the MNC network by means of value-adding activities. This can lead to greater autonomy for the subsidiary

resulting in control over the development of new products, manufacturing process, penetration of new markets or simply the generation of new ideas that have applications for other parts of the global organisation. External initiatives comprise policies and decisions that are made outside the influence and control of the organisation. They include initiatives such as government policies, price, tax and inflation rates. To do this an exploratory case-study research methodology was adopted. This involved conducting a number of structured interviews with senior managers in the three largest US Multinational Corporations (MNCs) operating in the electronics industry in Ireland. Interviews were conducted during a period between January and March 2009. The central focus of the interviews was to establish information relating to the following three areas:

- Understand the nature of the industry and the subsidiary in question,
- Strategic and operational initiatives being undertaken,
- External factors that impact the subsidiary.

3. UNDERSTANDING MULTINATIONAL CORPORATION (MNC) SUBSIDIARIES

The choice of subsidiary type by the MNC is dependent on the technological characteristics of the industry (for example, to what degree the value chain can be divided into separate components); the strategic objectives of the MNC; cost considerations (tariffs, transport costs, differences in factor prices); entry mode (greenfield investment or acquisition), and host country characteristics, such as market size and development level [9]. The MNC is frequently modelled as a network of semiautonomous subsidiary units located in different countries throughout the world [10]. Indeed, the concept of the foreign subsidiary as a subordinate entity within the MNC has been the subject of a continuing debate in management literature [11]. In many cases the foreign subsidiary assumes a more prominent place, as a semiautonomous actor with its own distinctive environment and resources, capable of making its own strategic choices within certain constraints [8]. Factors such as power influence and dependency, directly impact the operations of the subsidiary [8].

Managing a subsidiary effectively is not simply about carrying out the narrow mandate prescribed by the parent; it is about fulfilling the current mandate in a superior way and taking strategic initiatives which add new value to the corporation [12]. This may include the generation of new knowledge and skills in the area of product and process technologies as well as management and marketing [7]. The key challenge in the sustaining operations for US MNCs operating in the electronics industry centres on their ability to:

- Continue to lead the MNC in product and process development;
- Lead the MNC in the development of next generation technology through local R&D;
- Maintain high levels of innovative activity;
- Manage operational costs effectively.

Consequently, the survival of US MNC subsidiaries operating in the electronics industry in Ireland hinges on their ability to implement their existing mandate coupled with both operational and strategic initiatives which incorporate value adding activities.

4. INCREASING SUBSIDIARY EMBEDDEDNESS

Subsidiary initiatives are by definition entrepreneurial activities carried out by the foreign subsidiaries of MNCs [11]. Contemporary successful organisations are flexible, operationally integrated, customer focused and value driven [13]. They seek to develop in revolutionary ways that are not easily leap-frogged or imitated by others [13]. According to Delany [12] subsidiary

initiative taking is only a successful long-term strategy for the subsidiary if it actually results in value-added activities contributing to the operations of the parent MNC. Consequently many progressive subsidiaries focus on sustainability strategies that centre on initiative taking and profile building. These involve working to change the internal dynamics of MNC strategy to the benefit of the subsidiary.

Internal initiatives are managerial efforts that strengthen the subsidiary mandate within the MNC network by means of value-adding activities. This can lead to greater autonomy for the subsidiary resulting in control over the development of new products, manufacturing process, penetration of new markets or simply the generation of new ideas that have applications for other parts of the global organisation. Suggested approaches to increasing the legitimacy of the subsidiary include [8, 9, 14]:

- profile building (improving credibility, image and reputation) within the MNC and showcasing the unique factors of the subsidiary
- identifying and pursuing new opportunities such as developing new products and processes, moving into strategically important markets and establishing collaborative partnerships with other peer subsidiaries.

Subsidiaries must pursue a particular strategy to increase their embeddedness within the MNC. Increasing the degree of autonomy and capability of the subsidiary operations can help contribute to this. Factors such as R&D activity and the technological and managerial skills embodied in employees can help to obtain greater autonomy for the subsidiary [15]. Birkinshaw et al [9] identify the concept of parent-driven investment (PDI) as a mechanism to develop capabilities that result in a more strategic role. It is feasible to conclude that a subsidiary that has delivered on its existing mandate and has succeeded in achieving legitimacy within the MNC, can expect to attract investment from the parent. Other commentators, mention factors such as ‘*local embeddedness*’ [16, 17, 18, 19]. Local embeddedness refers to the ability of foreign subsidiaries to integrate and interact with local organisations. Strong regional systems must be in place if the subsidiary wishes to leverage higher value-added activities.

External Initiatives such as host country characteristics also contribute to the development of MNC subsidiaries. Market structure, infrastructure and education, government policy such as subsidies and tax concessions are important determinants in upgrading the role of subsidiaries in the MNC [9, 20]. Devereux [21] concludes that the tax rate offered by a particular country represents the most significant factor in influencing MNC decisions to locate their operations in a particular country. Killian [22] points out that the combination of low corporate tax rate and an extensive network of over forty favourable double tax treaties led directly to the successful promotion of Ireland as a destination for US MNC investment. Sullivan [23] reports Ireland to be the most profitable location for US firms globally. Ultimately, the sustainability of the US MNC subsidiary operations in Ireland is dependent on the successful implementation of both internal and external initiatives.

5. UNDERSTANDING THE CONTEXT

5.1 Profile of the industry

A brief analysis of the competitive challenges prevalent in the Irish electronics industry is presented in table 1.

Table 1 SWOT analysis of the electronics industry in Ireland

	Strategic Issues	Implications
Strengths	<p>Corporation tax rate</p> <p>Increasing embeddedness</p> <p>Education standards</p> <p>Links between US MNCs and third level institutions</p>	<p>The current rate of corporation tax is 12.5% the lowest in the EU</p> <p>Can lead to an increase in the strategic importance of the subsidiary in terms of value added activities such as R&D, Supply Chain and marketing operations.</p> <p>Highly educated and skilled English speaking labour force</p> <p>Partnerships continue to result in new product developments and innovation</p>
Weaknesses	<p>Current fiscal deficit</p> <p>Little or no indigenous Irish manufacturing operations involved in electronics</p> <p>Inflation</p>	<p>Will directly impact the funding available to state enterprise agencies involved in attempting to sustain and attract further investment by US MNCs</p> <p>Over dependence on US MNCs as a source of employment in the electronics</p> <p>The high rates of inflation in Ireland in recent years have led to a decline in the cost competitiveness of Ireland</p>
Opportunities	<p>Promotion of 'smart' economy</p> <p>Increased focus on value adding operations</p>	<p>Attraction of increased levels of investment in areas of R&D and innovation</p> <p>Can lead to the establishment of establishment of centres of excellence and innovation and increase embeddedness as a result</p>
Threats	<p>Euro</p> <p>Low cost competitors in new EU member states pose a threat to existing operations in Ireland</p> <p>Replication of industrial policy</p> <p>Ireland is no longer a recipient of EU structural/cohesion funds</p>	<p>The strength of the Euro against the dollar has increased the cost of US MNC subsidiary operations in Ireland</p> <p>Can pursue several strategies along various points of the value chain and rarely focus on just one area</p> <p>Other EU countries are adopting investment policies similar to the Irish model in attempting to attract MNC investment</p> <p>Now a net contributor to the EU</p>

5.2 Profile of the participating organisations

The following analysis explores the nature of subsidiary operations. The information obtained from the interviews allows us to draw some conclusions about the sustainability of subsidiary operations in Ireland. A brief profile of the cases is shown in table 1 below.

Table 2 Company Profiles

Company	Product	Strategic Focus	Level of Innovation	Manufacturing Typology
A	Advanced integrated digital technology products and integrated circuits	Product and process innovation	Significant focus on R&D has led to the company being 1 st to market with the newest and most innovative products in the industry	Varied production lines operating at the Irish site
B	Analog, Digital and mixed signal integrated circuits	Product and process innovation	Innovation, collaboration and technology leadership central element of company operations	Large and varied product lines coupled with core technologies not replicated by any competitor
C	Personal computing, imaging and printing devices	Process innovation	Innovation is regarded as being important element of the company operations however the level of innovative activities has been limited due to the reduction in funding allocated to such initiatives	Single production line operating at the Irish site

6. RESEARCH FINDINGS

6.1 Overview

It was noted that each subsidiary specialised in a unique technical area and/or product line that is not replicated at any other subsidiary. The fact that each of the subsidiaries specialises in a unique technical area and/or product line not replicated at any other subsidiary would suggest that each of the subsidiaries in question is embedded in the MNC network and are sustainable.

The provision of products and services at the lowest possible price was not considered as an important factor for the MNC subsidiary when differentiating their operations compared with a sister subsidiary in another country. Instead, differentiating products and services compared with other subsidiaries along with emphasising one or more factors such a price, quality and innovation were the factors reported by the representatives. The representative from company B, noted that the subsidiary is responsible for “*making a strategic contribution in terms of product development and advanced manufacturing*”, due to having “*Irish representation at senior levels of management in the organisation*”. The emphasis placed on innovation, quality and price coupled with the technical areas and products that are not replicated would suggest that all subsidiaries in question add value to the MNC as a whole. Each of subsidiaries exhibit in question displayed sustainable characteristics.

The perception of the subsidiary by the MNC headquarters can be used to formulate a strategy to redress any potential concerns regarding operations at the subsidiary. The representatives are asked how the subsidiary is perceived by MNC headquarters. Both company A and company B reported that their subsidiary is considered to be highly innovative in both process and product development. Company C reported that none of the above categories applied to their subsidiary. It is important to note that the perception of the subsidiary by MNC

headquarters is taken from the subsidiary representatives view point. Furthermore this view may not actually align with the actual view of the subsidiary at headquarters, which only the parent company could really reveal. The representative from company C reported that looking to future opportunities the subsidiary aims to position itself based on a strategic mandate that satisfies the demands of a particular group of customers. Both company A and B reported that looking to the future each subsidiary aims position itself based on being a leader in terms of next generation technology along with a strategy centred on generating the greatest return on investment.

6.2 Strategic and operations initiatives

Managing a subsidiary effectively is not simply about carrying out the narrow mandate prescribed by the parent; it also requires operational and strategic initiatives by management which add new value to the corporation. By adding value to the MNC through various management initiatives the subsidiary can increase its embeddedness and sustainability within the MNC. This section focuses on the actual operational and strategic initiatives being undertaken.

Table 3 Strategic and Operational Initiatives

Criteria	Description
Autonomy	The degree of autonomy enjoyed by subsidiaries is considered by some commentators [7, 8, 15] to be an important element in evaluating the importance of the subsidiary within the MNC network. Both Company A and C reported that their respective subsidiaries enjoyed limited autonomy in both operational and strategic decisions While company B reported that the subsidiary enjoyed complete control over strategic and operational decisions.
Subsidiary initiatives	All three representatives indicated that MNC headquarters would be strongly supportive of subsidiary initiatives. The representative from Company B noted that although the company had initially begun its operations in Ireland as a subsidiary of the parent MNC, this position has evolved. Now <i>“senior management for the corporation are based in Ireland and make strategic decisions which impact the activity in Ireland among other sites”</i> .
Decision Making	Both companies A and C reported that decisions regarding strategy are made primarily by MNC headquarters, after consultation or counsel from the local MNC subsidiary. The representative from company B reported that decisions are made primarily by the subsidiary without consultation or counsel from MNC headquarters. This correlates with the previously expressed view regarding strategic decisions being made at the Irish site which impacts other sites within the MNC.
Competition	Each of the representatives reported that it is increasingly difficult for subsidiary operations based in Ireland to compete with other subsidiaries within the MNC. The representative from company B cited a number of factors relating to competition such as <i>“increasing cost of doing business, reduction in quantity and quality of engineering talent”</i> .

Process Innovation	All three representatives reported that their respective subsidiary was engaged in activities centred on innovation efficiency and customer orientation. The representative from company A cited initiatives focused on <i>'lean manufacturing, cost and energy efficiency'</i> . The representative from company B reported: <i>"Over half the activity in Ireland is geared towards Research and Development to release world leading electronic components"</i> . The representative from company B also reported that: <i>"innovation is the key to everything we do"</i> .
Product Innovation	Company C suggested that a limited to minimal level of product specification development was coordinated at the subsidiary. In contrast, the representative from company B suggested that substantial product specifications were developed and coordinated by this subsidiary. The representative from company A suggested that a limited level of product specification development was being coordinated at the subsidiary.
Value added activities	All three representatives indicated that concerted efforts geared toward value-added activity were being undertaken. The representative from Company B reported <i>"senior management based in Ireland make corporate decisions for this and other sites where they have responsibility"</i> . Company C reported that MNC headquarters were <i>"looking for subsidiaries to stand out"</i> with respect to their value-added activities. All three subsidiaries reported R&D activity.. Company B reported R&D was viewed as <i>"critical"</i> to the subsidiary operations, and company C reported R&D was viewed as a <i>"path forward"</i> for the subsidiary. Both companies B and C reported that the R&D partnerships had led to improvements.

6.3 External issues

The third and final section of the case-study interviews sought to establish the representatives' views on issues external to the subsidiary that directly affect their operations. Each representative reported that they had received assistance from state enterprise agencies in relation to funding for training, R&D and other activities. The significance of the involvement of the various state enterprise agencies in assisting the subsidiary operations was reported as being very important by all three representatives. Representatives from each of the companies were next asked for their response in relation to the report on manufacturing commissioned by the Irish governments' High Level Group, which highlighted Ireland's decline in price competitiveness. Both company A and company B viewed Ireland's loss in international price competitiveness as being very significant for the subsidiary operations. The representative from company B made the following comments: *"Cost is always significant and it does reflect badly on Ireland"*. The representative also notes: *"Irish managers are responsible for profit and margin so rising costs in one site over another is a very significant development"*. It is clear that the continued erosion of cost competitiveness will directly impact the sustainability of US MNC subsidiary operations in Ireland, despite the evidence shown by the subsidiaries in relation to value-added activities being carried out by their operations.

We sought to establish the representative's views on corporation tax in Ireland. Both company B and C representatives reported that any possible harmonisation of corporation taxation among European Union (EU) member states would have a significant bearing on their subsidiary operations in Ireland. The representative from company B made an additional comment regarding the significance of any possible harmonisation. The representative noted that although the level of corporation tax "*does have a bearing*" on subsidiary operations, "*recent changes in US tax law mean that companies must pay the balance between corporation tax in the host country and that in the US on repatriating profits so it is less important than it once was*".

7. CONCLUSIONS

Based on the results obtained from the case-study interviews, it is clear that each of the subsidiaries exhibits the organisational dynamics conducive to the sustainability of their respective subsidiary operations. Each of the three subsidiaries enjoys varying degrees of autonomy from the parent MNC. Each of the subsidiaries was actively involved in undertaking various subsidiary initiatives leading to value-added activity. Such initiatives are regarded as fundamental to subsidiary sustainability. R&D initiatives are being undertaken in each of the three subsidiaries: also each of the subsidiaries has established strategic partnerships with third level institutions in Ireland. These factors combined would suggest that each of the subsidiaries in question is embedded both internally within the MNC network and externally within the Irish economy. Maintaining the subsidiary operations requires continuous managerial effort. Despite the positive conclusions drawn regarding the sustainability of US MNC subsidiary operations, there are significant external factors that have the potential to negatively impact each of the subsidiary operations. The principal external factors that can directly impact US MNC subsidiary operations in the Irish electronics industry include:

- The possible harmonisation of corporation tax rates across Europe.
- The increasing cost of doing business in Ireland.

Any attempt to increase the rate of corporation tax paid by US MNC subsidiaries in the Irish electronics sector could prove detrimental to the sustainability of their existing operations. It is unlikely that the level of direct grant aid provided to US MNC subsidiaries in the past can continue given the current financial difficulties facing the Irish exchequer. Smyth (2005) [24], estimates Ireland's direct grant aid to Intel since its establishment in Ireland at 218 million euros. The involvement of state enterprise agencies in supporting US MNC subsidiaries is even more critical now following the recent announcement by Dell regarding the closure of its manufacturing operations. Resources in state agencies could be directed toward assisting subsidiaries in developing value-added developments.

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