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Factors Affecting the Sustainability of the Medical Technology FDI Company Base in Ireland

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ABSTRACT

This research study is a timely exploration into the factors affecting the sustainability of the Medical Technology FDI Company base in Ireland, delving into the reasons why FDI chooses to locate and remain in a location. The Medical Technology sector was specifically chosen as it is an important sector for Ireland both in terms of employment and exports and is of primary interest to the authors. Primary and secondary research has been undertaken in executing this investigation with the authors following a qualitative methodology. Following a review of the available literature examining the context of FDI and the issues surrounding sustainability, the authors undertook a series of semi-structured depth interviews with existing FDI Medical Technology based companies. These were further complemented by additional interviews with industry stakeholders and a focus group consisting of Medical Technology team members from the FDI investment promotion agency, IDA Ireland. The results of the research proved interesting in demonstrating that whilst Ireland remains a good place for Medical Technology investment, especially in the higher value areas of manufacturing and R&D for example, there are at least nine potential factors that could affect the sustainability of the FDI base in the country's Medical Technology sector. Of these factors, cost competitiveness and corporate tax retention proved to be of prime importance. The research has also shown that the sector is looking to Government and the IDA to assist in retention strategies, primarily through broader incentive programmes and support.

Keywords: medical technology; Foreign Direct Investment (FDI); Research and Development (R&D); sustainability

INTRODUCTION

Much has been written on Ireland's economic transformation. As Murphy (2000) and the Economist (1988 & 1997) discuss, Ireland went from "easily the poorest country in the rich north-west Europe. [to being]. as prosperous as the European average, and getting richer all the time". Murphy (2000) contends that it was globalisation, i.e. a "process by which economic, political, cultural, social, and other relevant systems of nations are integrating into World Systems" (Clark and Knowles, 2003), that "enabled Ireland to move from the periphery towards the centre of the new global economy" and FDI has been the primary reason behind that success. Few would argue with this reasoning.

According to Barry (2005) Ireland is the "most FDi-intensive of all EU economies". Gray (1997) tells us it is "probably not an exaggeration to say that the growth in foreign investment is at the heart of the Irish economic miracle".

Smyth et al. (2007) talk about Ireland's growth being 'fuelled by a combination of foreign direct investment, low interest rates and the availability of a young and educated workforce'. Ruane & Görg (1999) provide a summary for the evolution of Ireland's FDI policy decisions in three stages: stage 1 saw a policy of attracting FDI in export led industries to create employment and build up a manufacturing base; stage 2 saw the Industrial Development Agency (IDA) shift to a policy of selection and targeting specific industry sectors such as electronics and pharmaceutical companies and finally stage 3 where indigenous and FDI links are promoted and Ireland seeks out additional mandates in R&D and HQ functions, for example. Here the R&D function can be seen as "a series of activities that companies undertake to innovate and introduce new products and services" (Kenton, 2023). The importance of the R&D function is illustrated by the 2019-2020 Business Expenditure on Research and Development survey results which showed that nearly €3.26 billion was spent on R&D activities by companies in Ireland for 2019 (CSO, 2020).

In dissertations carried out over five years, employees at IDA Ireland have also discussed Ireland’s economic success as driven by FDI investment, citing 10% output growth pa during the mid to late 1990s and early 2000s, Ireland's 5th place ranking on the World Competitiveness Table (OECD, 1999), the growth in industrial wage rates, public debt reduction, increased education spending and the dramatic reduction in unemployment from 18% in the 1980's to 4.9% by 2000. According to aggregate figures Ireland’s national income in 2021 was about €230 billion (this was based on modified Gross National Income (GNI)) (IEAAC, 2023). These have been truly the success stories of the so-called Celtic Tiger. Economic conditions in recent times have meant that Ireland has had to adapt to new circumstances as the effects of globalisation have come to bare in a country that is now affected by external and global economic influences, such as financial factors, consumer confidence and high energy costs, etc. Ireland has become the European hub to over a thousand leading multinational companies by providing a capable, educated and skilled workforce. These have been in the areas of finance, ICT, medical technology, pharmaceuticals and social media including companies such as Genzyme, GSK and Pfizer, for example (EII, 2023). In this context medical technologies are defined as “products, services or solutions used to save and improve people’s lives” (Med Tech Europe, 2022). Further to this medical technology “companies develop and implement technologies aimed at bettering the efficiency and capabilities of the medical sector” (Beauhurst, 2023).

With this background in mind, this paper reflects on what the current investment landscape in Ireland is like for Medical Technology FDI, why Ireland has been successful in attracting such investment, the factors that are affecting the sustainability of the Medical Technology FDI company base as it exists today and what the Irish government and its agencies should be doing to help retain this existing base.

LITERATURE REVIEW

Foreign Direct Investment Defined

Foreign direct investment (FDI) can be defined as “an ownership stake in a foreign company or project made by an investor, company, or government from another country” (Hayes, 2023). Chadee & Rose (2003) tell us FDI "occurs when a firm undertakes an investment in an overseas enterprise, in which the foreign investor has both a lasting interest and substantial control". However, the idea of control was actually excluded in the IMF (1993:86) definition of FDI, endorsed by the OECD (1996), as a "category of international investment that reflects the objective of a resident entity in one economy obtaining a lasting interest in an enterprise resident in another economy" (Lipsey, 2001). Hymer (1960) and Caves (1971) take a different approach to a definition by looking at FDI from an investment enterprise angle, proposing FDI as a means for exploiting firm-specific assets in a foreign market (Tierney, 2005; Al-Hasan et al., 2023).

Daniels and Radebaugh (1995) attempt to broaden the FDI definition by calling it "the highest commitment a domestic company can make in international business because it usually involves not only the infusion of capital, but also the transfer of personnel and technology" and this definition permeates this discussion. However, one final dimension needs to be added to the definition in the context of our discussion, the concept of the multinational company (MNC). An MNC can be considered to be “a company that has business operations in at least one country other than its home country. By some definitions, it also generates at least 25% of its revenue outside of its home country” (Chen, 2023). In its definition, the National Competitiveness Council of Ireland defines FDI as "an investment by a multinational company in establishing production, distribution or marketing facilities abroad" (2007). Cherunilam (2005:493) points out that there is no singular definition for an MNC which he says can be defined by using size, structure or performance. However, for the purposes of this work, we shall use the United Nations definition which sees MNCs as "enterprises that have a network of wholly or partially (jointly with one or more foreign partners) owned producing, marketing or R&D affiliates located in a number of countries" (Zekos, 2003). As can be seen, this is similar to the FDI definitions above, which is not surprising, as the literature frequently interchanges the terms MNC, transnational company (TNC), multinational enterprise (MNE) and FDI itself.

Taking the discussion above into account, it is not unreasonable to acquiesce to the fact that MNCs have become the "dominant actors in the internationalisation process" (Ferner & Hyman, 1998).

Determinants of FDI

UNCTAD (1998) talk about the determinants of FDI including "not only economic determinants (e.g. market size, low cost unskilled labour, raw materials and strategic assets and technology) but also business facilitation [determinants] (e.g. investment promotional agency activities, investment incentives, and administrative services)", although Lim (2007) highlights the fact that the literature (Guisinger, 1992; Shah, 1995) tends to argue that business facilitation actually "plays a less crucial role than economic determinants". Despite this, it is clear some governments "regard business facilitation as a significant policy instrument" (Bergman, 1999; Lim, 2005; Morisset & Pirnia, 2000; Wells & Wint, 1990). The Irish government is an example of this, having introduced its investment promotion organisation, the Industrial Development Agency (IDA Ireland) (IDA, 2023), in 1969 and providing a budget to it of c.€130m in 2007, catering for its business, grant support activities and administrative after care services.

Generally, there is no shortage of literature on the determinants of FDI. Lipsey (1999) and Obwona (2001) have talked about good macroeconomic policy attracting in FDI investment, whilst Billington (1999) talks about having access to a free trade area.

Obwona (2001) mentions good public infrastructure whilst Kobrin (1979) and Yamawakai (1993) talk about international market size and market potential influencing the choice of FDI location. A low country risk with an efficiently run bureaucracy is cited by Wei (2000) and Harms and Ursprung (2002), whilst Bengoa and Sanchez-Robles (2003) talk about a highly educated workforce. On this point, Adam & Filippaios (2007) highlight OECD countries where 'human capital emerges as a consistent factor that attracts FDI, mirroring perhaps the higher quality level of US FDI targeting OECD countries'. In other areas, Gilmore et al. (2003) talk about FDI in terms of overcoming some of the trade barriers and transport costs that can be linked with exporting and go on to discuss the importance of other factors such as inflation and the tax structure of the host country. On the softer side, Christodoulou (1996) talks about quality of life issues which can help newly formed subsidiaries attract senior people to a new foreign location. This is evolved by Sassen (1991), Mugerauer (2000) and Yeung et al. (2001) who also discuss the influence that quality of life issues can play in attracting knowledge-based personnel in high tech and services areas.

Culture

In partaking in a new enterprise overseas the host or parent company may well be experiencing a new culture for the first time. Antia et al. (2007) discuss this in the context of cultural distance between the headquarters of the host company and the 'various units of the network'. They talk about this distance having a 'profound impact on the success or failure of the value-seeking process' the host firm is looking to achieve by establishing operations abroad. Antia et al. (2007) go on to discuss intra-firm knowledge transfer and the fact that cultural diversity can impede the flow of technological know-how (Davidson and McFetridge, 1985), impede innovation (Shane, 1995), increase the cost of implementing technology (Klein and Ralls, 1995), and complicate 'organisational transformation processes' (Bartlett, 1986; Beamish et al., 1994). They go on to suggest a cultural orientation programme might be an answer to minimise cultural impact. It should be noted, however, that not everyone shares this cultural impact argument. Gomez-Mejia and Palich (1997) highlight a different view to culture in this context, by proposing that their studies found that there was no significant effect of culture on an MNC's performance. Their study was different however in looking at the broader MNC base between different countries as opposed to the Antia et al. (2007) study of the direct relationship between parent and country subsidiary.

Types of FDI and the Relationship to Growth

Beugelsdijk et al. (2008) provide explanations for two types of FDI; vertical (VFDI) and horizontal (HFDI). VFDI the authors claim; is "traditionally related to the desire of MNEs to carry out unskilled-labour intensive production activities in locations that are relatively abundant with unskilled labour" (Braconier, Norback & Urba, 2005; Markusen, 1995). For HFDI, Beugelsdijk et al. (2008) claim it "arises as a substitute for exporting and a desire to place production close to customers and thereby avoid trade costs", such as transportation and trade barrier costs (Buckley & Casson, 1981). The choice between vertical and horizontal FDI is discussed by Jinjarak (2007) when citing Carr et al. (2001), as depending on country characteristics such as size, endowment and investment costs. However, Wikipedia (2008) adds a third possible type of FDI, i.e. diversified, which takes account of situations where FDI cannot be easily assigned to either a horizontal or vertical orientation and cite the diversity of Microsoft's approach, as an example.

In terms of the relationship of FDI to economic growth, the literature tends to debate the issue taking FDI in its totality, as opposed to the vertical and horizontal breakdown discussed above. In analysing the link between FDI and growth (Al-Hasan et al., 2023), the use of growth theory appears appropriate, emphasising as it does factors of FDI such as technology transfer, skills development and labour sophistication amongst others. Balasubramanyam et al. (1999) propose four hypotheses for this growth to occur (Tierney: 2005):

Hypothesis 1

Growth can be promoted through FDI when a liberal trade regime is applied.

Hypothesis 2

FDI supports existing human capital but a threshold level of human capital advantage is necessary in order to promote growth through FDI.

Hypothesis 3

FDI and investments made in human capital must be co-ordinated.

Hypothesis 4

FDI technology spill-overs have to be engineered through the enactment of effective policies, including effective competition from domestic companies.

One of the issues with this model is its references to the indigenous company base as a driver for growth, as Ireland's experience has been different since it was the FDI base that drove the economy's infrastructural changes and up-skilling of its people.

In general, growth and FDI link studies have tended to show a positive relationship when focused on developed countries (Barry & Bradley, 1997; Caves, 1974; Globerman, 1979; Li & Liu, 2005; Schneider, 2005). Again, this data primarily relates to taking FDI as a whole. However, Beugelsdijk et al. (2008) have looked at the area of growth and FDI using VFDI and HFDI and concluded that both have positive and significant effects in developed countries with the 'growth-effect of HFDI' being 'about 50% larger than the impact of VFDI' in the set of developed countries analysed in their study.

Conceptual Models

Antia et al. (2007) remind us, that multinational corporations develop "geographically diverse networks of operations in search of increased profit and corporate value via the process of internationalisation of costly transactions". This is realised through the use of foreign affiliates. The World Investment Report 2007 (UN, 2007) highlights three types of foreign affiliates, namely; subsidiaries, associates and branches which FDI investing corporations may use as a mechanism or model to enter a region:

- "A subsidiary is an incorporated enterprise in the host country in which another entity directly owns more than half of the shareholder's voting power, and has the right to appoint or remove a majority of the members of the administrative, management or supervisory body".
- "An associate is an incorporated enterprise in the host country in which an investor owns a total of at least 10%, but not more than half, of the shareholder's voting rights".
- "A branch is a wholly or jointly owned unincorporated enterprise in the host country…."

Of these, the subsidiary model is the most common method used by foreign firms coming to Ireland. Following on from work by Porter (1986), Jarillo and Martinez (1990) and White and Poynter (1984), Williams (1998) identifies three types of subsidiary types based on two axes. The first axis includes planning, human resources management, research and development and procurement. The second axis is based on strategic autonomy, which includes overall business objectives and goals, type of product and product ranges, target markets and sales strategies, production processes, choice of suppliers, research initiatives and development of innovations. These axes give rise to the three definitions below:

Type 1 - subsidiaries which carry out less than 3 value adding activities or have been granted autonomy in less than 3 areas of strategic decision making.

Type 2 - subsidiaries which carry out less than 5 value adding activities or have been granted autonomy in less than 5 areas of strategic decision making.

Type 3 - subsidiaries which carry out all 7 value adding activities or have been granted autonomy in all 7 areas of strategic decision making.

Another well-known model is the PLC model developed by Vernon (1966). The PLC model provides a basis for highlighting the role of subsidiaries as they move to higher value-adding activities, from serving the local market to making adaptations for other markets, to exporting product back to the parent's country of origin, to contributing to product development (Vernon, 1979). The model again flows through stages with stage 1 at the basic level with a company manufacturing and selling in its home market and exporting abroad. Stage 2 sees a maturing product with additional foreign competition which requires a lower cost strategy and thus overseas production. Production is targeted primarily to the host country market. Stage 3 sees the host country now become too expensive and loses competitiveness resulting in production being moved to a new cheaper location. Ireland's market size restricts the model's applicability with respect to Stage 2 unless one takes the European market as the potential market but Stage 3 is highly relevant to our sustainability discussion. The model has had its critics, one of which was its author, who wrote a critique of his model in 1979. The model was challenged in its original form by the changes that had occurred in MNC behaviour in the time following its original publication as MNCs reacted quicker to changing market situations.

Amin et al. (1994) have noted that in Ireland there are examples of plants occupying a relatively strategic position within the parent corporation. Anecdotal evidence suggests that one of the models used to try and encourage and assess this success and often used by the FDI Medical Technology base in Ireland, is the Delany (2000) 'eight stage development model for MNC subsidiaries'. Delany (2000) talks about subsidiary managers needing to "change their mindset from one of compliance to head office, to proactive initiative-taking if they are to maximise their subsidiary's value to the parent corporation" and he uses the eight-stage model to demonstrate the development stages for the MNC subsidiary. Stages 1-3 look at the basic mandate of the operation in the country in terms of establishment and performance, stages 4-5 look at the extended mandate (taking on some strategic importance), stages 6-7 is where the subsidiary becomes a product specialist (strategic centre) and stage 8 is where the subsidiary becomes strategically independent. By developing through the model, the subsidiary's roots in Ireland grow deeper and more important.

Other models include; Dunning (1980, 1995) through his Eclectic Paradigm which provides a 'framework' to help explain why and where multinationals invest, classifying investments as resource seeking, market seeking, efficiency seeking and strategic asset seeking (Sethi et al., 2002). There is also the Internationalisation Process of the Firm or Uppsala Model, conceived by Johanson and Vahlne (1977) which looks at the relative importance of psychic (i.e. sum of factors preventing the flow of information from and to the market) distance by claiming that firms will set up operations in countries that are geographically, culturally and economically close to their home country, before setting up operations further afield (Elliot, 2006; Johanson & Vahlne, 1977). However, a potential limiting factor for this model is the quality of the empirical evidence given the reliance on industrial enterprises only and a study consisting of Swedish SMEs.

Summary
Much has been written on the topic of FDI investment with inputs from some of the seminal business authors of the 20th century and as an undoubtedly successful product of one of the globalisation drivers that is FDI, Ireland has received its fair share of attention in the literature. Many commentators have listed the factors that have contributed to the success in attracting investment to this host country but fewer have sought to explain or hypothesise what the factors affecting the sustainability of Ireland's FDI base are in the longer term. On this point, anecdotal evidence from informal industry encounters often revolve around the issue of rising costs as a primary reason for the threat to subsidiary sustainability. The media is perpetuating this view in the light of changed economic circumstances which job losses in the Medical Technology sector have fuelled. This research is being undertaken to get to the heart of what is affecting the sustainability of the FDI base in the Medical Technology sector in Ireland.

RESEARCH METHODOLOGY

A suitable sampling method in line with the data collection methodology undertaken was employed. This was in line with the advice offered by Baker (2002) who talks about the selection of a sampling procedure being "influenced significantly by the preferred method of data collection and vice versa so that both will need to be considered together". Hence, whilst contemplating the data collection methodology from companies, the authors chose to follow a purposive sampling method. This type of sampling is commonly used in business to business contexts and allowed the authors to utilise the in-house IDA client information database as a sampling frame in this research, containing as it does the total addressable population of Medical Technology FDI companies.

In selecting who to sample, Guarte and Barrios (2006) warn, "the selection of the sampling units in purposive sampling is subjective since the researcher relies on his or her experience and judgment". This is indeed also the case here. However, this type of sampling does take account of a wide range of factors in selecting companies to be represented in the final interview selection, including:

- Company size in terms of revenues
- Employee total in the State
- Geographical location
- Activities carried on in the State
  e.g. Manufacturing, R&D and Services
- Status e.g. OEM, contract manufacturer, supplier, other

Utilising this method thirty stakeholders (including twenty-five companies) were chosen and asked to take part in this research based on their experience and industry status. These stakeholders were contacted in an email and asked if they would be willing to participate in an interview. The email contained an introductory piece on the investigation being carried out and the context in which it was taking place.

A total of twenty-two key-informant interviews were completed. Eight stakeholders were unable to take part primarily due to time constraints within their roles. All interviews were carried out on the premises of the interviewee and lasted approximately one hour with each also being recorded. This recording was transcribed on the same day of the interview to enhance accuracy. Confidentiality is an important guarantee provided to all participants given the potential for sensitive information discussed during the interview. To help the interview progress and attain the information required, a number of questions were developed based on themes coming through the literature review and the overall objectives of the research.

Interview Participants

Interview Number	JOB TITLE	DESCRIPTION OF ORGANISATION	REGION
I	General Manager	Large MNC OEM specialising in Cardiovascular Products	West
2	Director of Finance	Large MNC OEM specialising in Cardiovascular Products	West
3	General Manager	Small sub-supplier MNC in wire Solutions to Medtec and Solar OEMs	West
4	Quality Manager	Medium MNC OEM specialising in Vascular Products	Mid-West
5	General Manager	Medium sub-supplier MNC in Tubing Products to OEM Medtec Companies	Mid-West
6	Engineering Manager	Large MNC specialising in Orthopaedic Products	South
7	Operations Director	Large MNC specialising in Orthopaedic Products	South
8	General Manager	Small sub-supplier MNC in wire Technologies to Medtec OEMs	West

Interview Number	JOB TITLE	DESCRIPTION OF ORGANISATION	REGION
9	Finance Director	Small MNC specialising in Optical Solutions	Mid-West
10	Head of Operations	Large MNC specialising in Medical Disposable Products	East
11	General Manager	Small MNC specialising in Filtration Products	Mid-West
12	General Manager	Large MNC specialising in Surgical Products	Midlands
13	General Manager	Large MNC specialising in Medical Disposable Products	Midlands
14	General Manager	Sub supplier MNC in contract Manufacturing Solutions	North West
15	General Manager	Medium sub-supplier MNC in tubing products to OEM Medtec Companies	North West
16	Operations Manager	Medium size MNC specialising in Wound Care Products	North West
17	General Manager	Small MNC specialising in Cardiovascular Products	Midlands
18	General Manager	Large MNC specialising in Optical Solutions	South East
19	FDI Consultant	Private Consultancy	West
20	Executive Director	IDA	East
21	Divisional Manager	IDA	Midlands
22	Director	Irish Medical Device Association	East

This research seeks to obtain views from a broad set of stakeholders where the in-depth semi-structured interview was an appropriate tool for much of the participants. However, it was deemed pertinent to establish a focus group to allow for the testing of theories / themes emerging from the interviews. The focus group took place running for one hour. Seven people were invited to take part and an introduction email by way of background was distributed. Six staff members of the Medical Technologies Division in IDA took part in the focus group.

The nature of this investigation, i.e. into the factors affecting the sustainability of the Medical Technology FDI Company base in Ireland, lends itself particularly well to a qualitative approach utilising qualitative research methods, as there is a need to comprehend the attitudes and understanding of the relevant stakeholders. It is no coincidence then, that it appeared many authors examined in the process of the literature review also used this type of methodology. In the authors' opinion, had an alternative quantitative approach been taken, the resulting data would not have generated the richness of data actually gathered, as suggested by Borg (2006:203).

FINDINGS

Current investment landscape in Ireland for FDI Medical Technology Companies

Both the interviewees and the focus group were similarly upbeat on the economic situation Ireland found itself in. There was consensus that current world markets were not directly impacting the companies. Indeed, one group member cited a fact that "we [Medical Technologies Group] are going to have one of our best ever years as there are a fair few projects in the pipeline". Another thought that medical technology ''products are immune to downturns as people will always get sick", mimicking the previous comment in the interviews also. Perhaps surprisingly though, when asked if Ireland was too reliant on FDI, the unanimous answer was yes, probably. One respondent felt the indigenous base needed to generate more start-up companies but suggested it lacked sufficient venture capital (VC) funding to do this, others agreed and supported this view. Overall, it was felt Ireland was still a good place for FDI investment.

Key factors influencing the sustainability of Multi-National Companies in the Medical Technology Area

The key factors influencing the sustainability of MNCs in the Medical Technology Area were very much in line with those discovered in the literature review and the subsequent research. However, the relative importance attached to the factors was different. Where cost competitiveness was typically the number one factor in the interviews, people was number one with the focus group. The logic was "well you have to start with people first, as without people nothing else gets done". The importance of corporation tax followed with costs coming third. On costs it was energy costs in particular that came through from the focus group discussion, as some group members had been hearing companies raise concerns on the ground. The idea presented as to the potential for energy conservation grants received a positive reply.

The importance of Irish management produced a mixed response. Some felt that with an "ex-pat manager you wouldn't typically get the loyalty you'd expect from an Irish guy". Other comments suggested it made IDA's life easier in dealing with a local manager as informal discussions could be had on how to develop the business further and achieve corporate support, where as a foreign manager may be more formal and "toe the corporate line thinking of his next career move more than the site". However, another person thought that whilst an Irish manager might help, "it wasn't all that crucial". In terms of corporate threats from competitive nations, the focus group was very much in line with the interviewees in citing Puerto Rico, Costa Rica, Mexico and Singapore. India it was felt had some cultural traits that might not work with some companies, whilst China had some intellectual property issues. The focus group was surprised for all the talk over the years on the threat of Eastern Europe that it had not been as big a competitor as believed it would be, a few years back.

There was no major discussion on R&D and currency exchange rates in the focus group as key factors, as a number of respondents preferred to cite the cluster of existing companies, "the cluster is very important especially to US companies". One group member also tied this into culture saying that "we have similar systems to the UK and the US and that makes doing business here easier". This was very close to the "comfort factor" highlighted by companies in the interviews.

However, the importance of quality was missing from the discussion when compared to the research. When raised to test if the factor was important, all agreed it was crucial, as Ireland was going for higher value products and a "reputation in quality was paramount'.

What the Irish government and its agencies should be doing to help retain existing Medical Technology FDI investment

Most of the discussion on retaining FDI investment at the focus group centred on IDA's role and that of incentives. The consensus on the role of Government was that "we should not let the EU push us into submission on issues such as tax"; "there is a real need to reduce waste across the system, rationalisation" and "money was bleeding out as consultants were let take over". Again, this was similar to interviewee feedback. Aside from that, there was some criticism of IDA. One member of the focus group dominated the discussion in this regard saying "IDA should revert to the way it was in the past, the old model with EI and ourselves being all the one". This was a distinct point raised by the interviews as well in the context of allowing IDA companies get access to Enterprise Ireland (EI) grant support programmes. There was also criticism of IDA's grant application and drawdown procedures which a number of the group felt were erroneous and needed reviewing.

With regards to incentives, the focus group accepted that IDA and grant incentives are inextricably linked. One comment related this to Ireland's colonial past where companies may have become used to receiving support. Another respondent claimed that some of the "mature GMs are not as focused on incentives as other GMs" but recognised that "we get access to senior clients especially in the US because of the grants given". This was a distinct point not picked up in the literature or the interviews and is a different take on a benefit of grant incentives since it is being suggested that grants given to a company in Ireland can open the door to senior corporate personnel in the home country allowing for the possibility to play for additional business. The focus group also discussed some alternative grant support including energy conservation grants flagged up earlier in the interviews and the opportunity to introduce a tax break for wealthy individuals who would be willing to support start-up operations in the country. This, it was believed, may enhance the VC environment in the country.

DISCUSSION

The results of the research both from the semi-structured interviews and the subsequent focus group, proved interesting. As anticipated, via pre-research anecdotal discussion and the literature review, cost competitiveness was a significant factor raised by respondents. However, whilst it had been thought labour cost would be the overriding element, it turned out discussions focused more on the total cost of doing business in Ireland today with energy costs often being cited as a greater problem than labour costs. It is clear though, that the primary factors which contribute to a plant locating in Ireland in the first place are still highly relevant to them remaining. Factors such as the competitive corporation tax, a well-educated, English speaking workforce and the importance of a company cluster, for example. However, other factors such as the impact of an Irish manager, the competitive threat from other countries, the significance of developing R&D activities and retaining Ireland's manufacturing competency, and currency fluctuations were also cited as key factors affecting the sustainability of the

FDI base in Ireland. These were also flagged up to varying degrees in the literature. However, a new area also emerged during the research. Whilst quality is well understood in the literature, its importance to an existing FDI base of Medical companies in Ireland is not as well developed. This country has achieved significant kudos for its minimal observations from the IDA and thus has a reputation for quality product in a demanding quality driven area. Interviewees were quick to point out the criticality of quality to their operations.

Interestingly, taking this discussion in the context of economic conditions both globally and locally, a common theme of optimism with respect to the economy was observed. The majority of companies, whilst showing a level of concern, were on the whole, relatively upbeat about Ireland's ability to have good economic growth. Looking at it from their industry viewpoint, they also tended to agree that Medical Technology was pretty much immune to downturns anyway, as people will always suffer ill-health.

Feedback on Government's role proved mixed but on balance perhaps more negative. In the context of the economy this was not too surprising as people start to look retrospectively on the so called "good ol' days" of the Celtic Tiger. The IDA by contrast came out pretty positively as the IDA would have supported a lot of the MNC operations in the country over the years. On incentives, it is evident that they are still regarded as very important despite efforts by the Agency in recent times to shift away the focus on them, as capacity to provide grant support is lessened by EU constraints. Another area not well flagged up prior to the research was the notion that grant support not only helps a country attract FDI but can also be of benefit in helping it gain access to corporate leaders in the host country, thus helping in the pitch for additional investment. In general, three clear messages came out of the research: (i) that the State Agency split is an area that should be looked at again in the future with more of a focus on Ireland Inc as opposed to FDI and indigenous in silos; (ii) that IDA and incentives are still inextricably linked, leading to (iii) that incentives in the guise of grant support are still considered very important.

CONCLUSIONS

In summary, the research has highlighted that Ireland still remains a good place for investment but only in higher value areas. There are nine key factors affecting the sustainability of the Medical Technology FDI company base in the country, of which cost competitiveness and corporation tax are the primary factors. The IDA is on the whole, in tune with its clients but will need to re-examine its relationship with them going forward as to how to address the challenges of lessening incentives versus a client's desire for additional incentives brought out in this research. The primary research question and thus research objectives have been addressed.

Within the given time constraints this research study was necessarily focused on the Medical Technologies Sector. It would be a useful exercise to extend the research into the other sectors of the FDI market such as ICT, Pharmaceuticals, Engineering, Consumer and Financial Services in order to provide a more complete picture of where the country is on sustainability of FDI in each individual sector. However, the value of potentially using a lower cross section of interviews e.g. taking twenty-two interviews across all sectors as opposed to one may be questionable. It should be remembered that by using purposive sampling in this case, companies were chosen based on a series of diversified criteria to ensure good representation and a better overall result.

Another area that could be tapped into would be the IDA Ireland overseas marketing executive network. This group has good access to senior management teams in parent organisations and could investigate corporate views on the sustainability question independent of subsidiary influence. They could also validate the findings of any complete Irish study. Further research could consider how other countries view the question of sustainability and what actions they are taking to address potential issues compared to Ireland's approach.

Ireland has seen its fortunes transformed with economic success driven to a major extent by FDI investment in the country. Its model for attracting MNC investment is a mature product which is currently developing the knowledge led economy (Porter, 1990). The Irish Government and its agencies are changing their strategies to account for this change. It remains important that issues affecting the country's existing base of FDI companies continue to be monitored and addressed.

To continue to secure FDI investment in this sector, the Government must keep good fiscal control during this period of economic activity. Inflation busting rises in controllable costs such as wages must be checked and the National Competitiveness Council's suggestion of a "national programme to restore cost competitiveness", seriously considered. If costs continue to rise too fast, Ireland will be in serious jeopardy of destroying the advances made in recent years.

Education programmes will continue to need supporting and the number of good quality PhDs needs to grow to assist the development of the R&D base in the country. However, whilst the country continues its evolution to a knowledge economy it should not lose sight of the importance of its manufacturing base. This research in conjunction with other reviews has highlighted the continuing importance of manufacturing in Ireland. ''Not everyone can be an R&D engineer" as a research interviewee put it. It is the basis for other activities and a core competency for Ireland Inc especially in a Medical technology sector dominated by manufacturing-based companies. It is important to appreciate that Ireland simply cannot be in lower value products anymore so the Government will be required to continue to support manufacturing improvements in terms of automation and up-skilling of personnel as new mandates in higher value areas are targeted.

Ireland must also ensure its voice is heard in an enlarged Europe and not let undue EU legislation affect its ability to develop the company base further and especially not interfere with the ability to offer a key, some would argue the key, component of the FDI offer, namely, the competitive corporate tax rate. It is important to state that "Ireland still retains a unique selling proposition for FDI which must continue to be exploited - that of experience" (Tierney, 2005; Al-Hasan et al., 2023). Ireland has the capability to ensure it sustains the current FDI medical technology base and indeed grow it further as long as the issues outlined here are acted upon.

Some of the areas highlighted above are in the abstract and big-ticket items as it were requiring national debate and policy focus. However, based on the research undertaken in this study, there were a number of areas the authors felt could be looked at on a more local level which would be of assistance to the existing base, ranging from the very simple and cost effective to the little more complex and expensive, yet achievable. These recommendations/suggestions are highlighted below:

(1) Information exchange

The research pointed to a need for additional information exchange with service providers, information on networking events and obtaining support and marketing information from IDA. A dedicated web portal linking off the agency's main web page containing information relevant to the sector is a good first step to facilitating this at a low cost to the Agency.

(2) Energy Costs

With energy costs proving a significant challenge especially in light of the current economic climate, rising oil prices and currency fluctuations, IDA together with companies and other agencies is looking at ways to encourage future green projects. This research has uncovered a desire for the agency to look closer at the possibility of providing a new range of energy conservation grants in line with ones offered by R&D schemes. These could be tied into efforts being made by Sustainable Energy Ireland (SEI). Although a good payback period might encourage a company to look at this area regardless, a grant support, possibly repayable on payback being achieved, may initiate quicker reviews.

(3) Marketing Initiative

The research highlighted a need for Ireland Inc's development agencies to work closer together in supporting existing companies and marketing Ireland as a whole and not in isolation. As technology transfer becomes less important and R&D more significant to some companies in the existing base and companies need to develop their own businesses, they will need marketing outlets to promote their products and capabilities regardless of where they are from.

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