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Cost competitive places: shifting fortunes and the closure of Dell’s manufacturing facility in Ireland.

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In the early days of 2009 the city of Limerick in the mid-west region of Ireland was dealt a massive blow by the PC manufacturer Dell. After months, if not years of speculation, the company had finally decided to move all its European manufacturing from Limerick to Lodz in Poland. Amongst the many reasons cited, from the global economic downturn to a shifting market, cost competitiveness became the clear determining factor. The media coverage was extensive with the headline ‘Dell Closes’ bandied about in national and regional press. Though of little consolation to the 1,900 left without a job, the fact remains that Dell has not closed its Limerick operation, where it will continue to employ upwards of 1,000 in sales support and research and development. We use the Dell story as an exemplar of the Irish Foreign Direct Investment (FDI) story. Comparing it to other restructurings by foreign-owned technology companies both in Ireland and beyond we will attempt to uncover the complexity of shifting competitiveness and competencies among branches of global operations. While the case of Dell, among others, may serve to support the political economy view of large multinational corporations, we see the picture as being more complex and rely on literature relating to Global Production Networks (GPNs) in attempting to uncover the shifting spatial dynamics of cost competitiveness.

Territorial Competitiveness  Affiliate Evolution  Europe  Ireland  Dell
Introduction

The opening months of 2009 were cast as the most economically depressed in nearly 70 years. The fall of financial institutions acted as markers of a deepening crisis as a credit crunch evolved into global economic recession. The world economy was beginning to shrink, as was the confidence once placed in the market based solutions that brought economic reform to the global stage. This paper examines the impact of the downturn in Ireland through the lens of one of the country’s largest foreign-owned technology companies. By setting the analysis within the context of shifting networks of global production and their relationship to place, the relative competitive advantage of particular locations comes to the fore. The Irish experience during the economic downturn acts as a case study of the dynamic nature of places and the competitive advantage they offer to multinational corporations.

It should have come as little surprise that an economy as small and as open as that of the Republic of Ireland was hit hard by a global recession. Coupled with domestic factors (notably the hyper-inflation of the property/construction market over the economic boom years) the Irish economy, with its ruined banks and escalating debt to GDP ratio, was brought to international attention. Having been held as one of the major economic success stories at the end of the 20th century, the country was forced to seek a €90 billion bailout package from the European Union and International Monetary Fund in November 2010.

The global fall off in demand brought with it many obvious ramifications for business such as plant closures and corporate bankruptcies. Yet, important lessons can be learned from a period of depressed economic activity. Changing market realities bring with them a new understanding of place based competitiveness. This paper sets out to explore the changing activities of multinationals operating out of Ireland and use their movements as a barometer of Ireland’s competitiveness in an international context. One simple statistic signifies the complexity of the picture: in a six month time period the Irish technology sector lost nearly 10,000 jobs, over 8,000 of which were offshored to different territories.
The concept of territorial competitiveness has come to the fore in theory and policy circles over the last ten years. The two main reasons for that are increasing international mobility of capital and more open markets; according to Turok (2004), globalisation for short. There are differing perspectives on this process: theorists like Camagni (2002), Cooke and Morgan (1998) and Storper (1997) highlight the distinct facets of the local. For them, factor endowments such as quality of labour and local systems of governance are seen as pillars of competitiveness and key attractors to firms investing in the region. A second strand looks at the application of a relational concept of space and place in the Global Production Networks (GPN) literature (Dicken and Malmberg, 2001), in which GPNs are seen as dynamic topologies of practice that link different places and territories (cf. Amin, 2002; Hess, 2004). Here, we attempt to uncover the attributes of place and how they slot into the organization’s dynamic networks of production. Looking at the Irish case will highlight both the changing nature of the Irish economy as a competitive business location, and the evolving nature of the (foreign-owned) companies that operate there. This differs slightly from the political economy perspective that argues that there are inherent exploitative qualities in the spatial organization of capitalism which limits the possibilities for peripheral regions (see Phelps and Raines, 2003).

Following a review of the literature the third section deals with global and European restructuring trends. We then focus on the Irish technology industry during the period from August 2008 to February 2009. In what proved to be a tumultuous six months we chart the inflow and outflow of foreign direct investments. A case study of Dell’s Irish manufacturing facility sheds further light on these processes and the changing nature of Ireland’s competitiveness.

The rationale for focusing on Dell’s Limerick operation as a case study is twofold, the scale and the nature of the operation. The loss of nearly 2,000 jobs in one announcement had serious ramifications not just for the company and those employed in it, but for the ecosystem of sub-suppliers that had grown up around it. The nature of the operation too is of interest. For many the manufacturing facility was emblematic of an initial exogenous development stage in Ireland. Van Egeraat and Jacobson (2004) and others had pointed out that similar types of operations had begun leaving Ireland as many as 15 years ago as the country began to focus on services over
manufacturing. The story of Dell Limerick also illustrates the larger movements of a global technology corporation. The opening up of the Eastern European market and shifting global dynamics (the rise of the China and India) are as much part of the Dell case study as the costs of running an operation in Limerick. Using the case study of Dell Ireland, we trace Ireland’s movement from cost competitiveness to cost centre. Therefore, this case study is as much about national evolution as it is about subsidiary evolution as explicated by Collins and Grimes (2008).

The case study was informed by secondary research work based on UNCTAD and World Bank reports and various competitive indices to elaborate the global and European context. For a more detailed exposition of the European case we have relied on the European Restructuring Monitor. The ERM is a database consisting of major restructurings announced by firms based in Europe. It takes account of all job announcements and lay-offs greater than 100 employees across all member states (http://www.eurofound.europa.eu/emcc/about.htm). The Irish case study is built on primary research consisting of research interviews with representatives from major multinational corporations (MNCs) operating out of Ireland as well as other key stakeholders in policy making and supporting institutions.

This work is part of a larger project which is built on semi structured interviews with 75 representatives of the technology sector in Ireland. We targeted company CEOs in the first instance and managing directors and heads of various sections thereafter. Interviews with supporting institutions (15) followed a similar format of 1.5 hours and targeted practitioners in all the main state and semi-state agencies. Interviews were separated into three parts, the first dealing with the specific remit of the company / subsidiary/institution, the second concerned with place based circumstances (infrastructure, labour force, policy etc) and the third dealing with the global fit (or context). The data presented for the time period of August 2008 to February 2009 was compiled by the authors. Media searches, company websites and government announcements were combined to gain a true reflection of job gains and losses over the period of time concerned. Information such as job type, location and history of operation provides additional background and context. Finally, the Dell case study relies on interviews with company representatives as well as supporting institutions alongside media and company reports.
Territories and firms in global networks of production

In looking at how multinational firms allocate resources across their production networks (from low end production plants to high end research and development units) we take the fact that territories compete for these remits as read. In this sense we can understand territorial competitiveness as explicated by Micheal Storper as: “the ability of an economy to attract and maintain firms with stable or rising market shares in an activity while maintaining or increasing standards of living for those who participate in it” (1997: 20). In what follows we attempt to place our work in the context of the Global Production Networks literature by looking firstly at territory, then at the changing nature of global firms before coming back to what we see as territorial competitiveness. What will become clear is the dynamic nature of both territories and firms.

Economic geography has been concerned with territories and their heterogeneous nature. More recently, this has been innately linked with the attractiveness and ‘stickiness’ of territories for firms (Markusen, 1996). Territories vary in scale, scope and make-up. To borrow from Camagni (2002) territory is:

- A system of localised technological externalities— i.e. an ensemble of material and immaterial factors which, thanks to proximity and the resulting reduction in transaction costs involved, can also become pecuniary externalities;
- A system of economic and social relations, which make up the relational capital (Camagni, 1999) or the social capital (Putnam, 1993; World Bank, 2001) of a certain geographical space; and
- A system of local governance, which brings together a collectivity, an ensemble of private actors and a system of local public administrations.

Our primary unit of analysis here is the production networks of multinational corporations. Taking Ireland as a territory we use a case study of Dell computers to show how the country as a territory competes with other territories for nodes in Dell’s
global production network. As already highlighted, the case of Ireland reflects that of a high cost economy suffering from what Maskell and Malmberg (1999) term ubiquitification. As with many other higher cost regions Ireland has lost investments that are easily replicable in lower cost locations. Enabled by globalization and the codification of knowledge the process of ubiquitification helps to explain much of the restructurings that are the focus of the following sections. This process, however, is not mono-directional, and we attempt to show that there remains a stickiness to certain places. Through this we recognize that attractiveness and local competitiveness depend on factors, which are not only found in physical externalities, accessibility or environmental quality, but also in relational capital and the learning capacity expressed by the territory (Camagni, 2002).

**Global Production Networks**

In line with Dawley et al (2008) we see it necessary to adopt a holistic economic geography which embeds the globalizing corporation within a broad array of economic, social, political and cultural settings shaped by multiple social agents. For some, the concept of global value chains provides a pragmatic way of doing this be analysing the evolution of industries and their geographic location (Sturgeon, 2008; Dean et al, 2007). According to Sturgeon (2008) value chain analysis highlights three features of any industry: “(1) the geography and character of linkages between work tasks, or stages, in the chain of value-added activities, (2) how power is distributed and exerted among firms and other actors in the chain and (3) the role that institutions (e.g. rule making bodies, industry norms and standards) play in structuring business relationships and industrial location” (pg 239). All three help explain how firms and territories evolve and how the ongoing transformation of global organisations feeds into the evolution and shifting competitiveness of territories.

For others the term Global Production Network better describes the complexities of the global economy and they use it as an interpretive framework for analysing the global economy and its impact on territorial development. Coe et al (2008) see production networks as more valuable than value chains because the term ‘network’ better reflects the fundamental structural and relational nature of how the production, distribution and consumption of goods and services are organised. Like firms,
production networks are inherently dynamic. It is this dynamism that provides an interesting insight for us into the changing competitiveness of place, evidenced by investment and divestment decisions by firms across their networks of production.

The work of the Manchester School shows the merit of analysing production through networks (Dicken, 1994, 2004, 2005, 2007; Dicken et al., 2001; Dicken and Malmberg, 2001; Henderson et al., 2002; Coe, 2004; Coe and Hess, 2005; Wrigley et al., 2005; Coe and Lee, 2006; Hess and Coe, 2006; Hess and Yeung, 2006; Johns, 2006; Coe et al, 2008, Hudson 2008). Of particular relevance here is how the nature and articulation of GPNs are influenced by the ‘places’ in which they are embedded, produced and reproduced. The relationships between firms, production networks and territories are complex. There are strong processes of path dependency and a mutually constitutive process of embedding firms and places (Hess, 2004; Dicken, 2004). This refers in part to what Coe et al (2004) refer to as a ‘strategic coupling process’ where a global network is attracted by what a locality has to offer (see also Asheim et al, 2006). As we intend to show, this coupling process is dynamic and from the Irish viewpoint coupling has to some extent been replaced by decoupling over the past two years as firms chose to relocate facets of their production network outside of Ireland.

Divestment business strategies of MNCs are a relatively understudied area (see Benito, 2005 and Horner and Aoyama, 2009 for an Irish case study). The divestment propensities of foreign subsidiaries depend not only on place based issues (costs, labour force potential etc) but on the type of strategy pursued by the corporation. According to industrial organisation literature, the most apparent incentive to divest is low profit which can be due to high costs, or permanent decreases in demand (Siegfried and Evans, 1994). However, impediments to exit also exist, such as interrelatedness between units (Clark and Wrigley, 1997) and other less linear organisational strategies pursued by corporations. A decisive determinant here is the extent to which significant competitive advantages can be gained from integrating activity (economies of scale and scope) as well as how resource conditions in specific locations require local adaptation and responsiveness (see Bartlett and Goshal, 1990).

The link between places and GPNs is also highlighted through the move away from conventional internalisation theory of MNCs. Theorists such as Dunning (1993),
Florida (1997) and Rugman and Verbeke (2001) provide evidence of subsidiaries reaping the benefits of ‘host’ countries’ knowledge systems in their performance of unique value-creating activities within the corporation. These practices reflect a broader organisational shift on behalf of MNCs in their move away from the hierarchical and centralised structures that dominated in the 1960s and 1970s. The importance of the local in the global and network over hierarchy is reflected in the many weaknesses identified in conventional internalisation theory. Chief among these is the lack of attention paid to the adaptation and codification problems involved in the diffusion of innovations within corporations. Capability creation was largely ignored, as was the role played by managers and general entrepreneurship in affiliate operations (see O’Riain, 2004; Rugman, 2000).

From the political economy perspective, writers such as Phelps and Raines (2003) approach the process of organisational change carefully. They cite the corrosive effects of a neoliberal economic environment and the denudation of economic coherence and the distinctiveness of place. Cautious of the notion that MNCs are no longer vertically organised they, in line with Lovering (1999), see the danger of attracting of inward investment as reducing development to a form an FDI beauty contest with diminishing returns. This speaks to much of what David Harvey terms the crises of capitalism. Vertical disintegration sees power move from labour to more mobile capital (Harvey, 2010). This brings with it what we term a treadmill effect that sees certain types of investment move to cheaper locations. The case of Dell in Limerick shows the role of workers in the value dynamics of the company’s production network. As parts of Limerick’s operations began to lose in terms of competitiveness it was forced to redirect its energies to remain attractive to the company.

Bringing this interpretation on further, we see this activity as it relates to recent work that has begun to focus on subsidiary evolution and the importance of entrepreneurship within host country operations (Dunning, 1995; Birkinshaw, 1997; Birkinshaw and Hood, 1998; Taggart, 1998; Rugman, 2000; Sturgeon, 2003; O’Riain, 2004; Zanfei, 2005). Issues of spatio-temporality are seen within the subsidiaries of firms that are parts of evolving GPNs. Our hope is to show firm development through intra-firm activities. The fact is that different subsidiaries of the same corporation
compete against each other for investment (Birkinsahw, 1996). In reality, intra-firm relationships are highly contested, a reflection of the particular internal governance system, including formal and informal power structures and relationships and competing versions of corporate culture (Schoenberger, 1997; O’Neill and Gibson-Graham, 1999). Our aim is to illustrate subsidiary development within the context of inter-form activities. Within firms there are different groups (R&D engineers, sales and marketing etc) pursuing their own agendas. Internal power struggles within a corporation can help explain how certain subsidiaries with strategic intent alter the status quo in GPNs through exploiting the fragility of the power relationships and upgrading to higher value-added (Tokatli and Kizilgun, 2004, p.222).

Below we attempt to show how internal dynamics are matched by external factors in influencing the dynamics of GPNs and competitiveness of places. The increasing complexity brought about by technical determinants (such as decreasing product life-cycle) and demand diversity has left many corporations forced to change the structure of their value added activities. Coe et al (2008) highlight other factors neglected in the GPN literature such as ‘non-firm’ actors within GPNs, the continuing centrality of the nation state and the spatial asymmetries between the state and multinational corporations.

The above has established that subsidiaries within GPNs are subject to pull and push organisational changes. In order to find oneself at the positive end of corporate restructuring two things are primary: first that the traits of the surrounding region match corporate needs (workforce, labour quality, business environment, access to market etc) and second, the subsidiary operation demonstrates the ability to diversify and specialise (integrated in the network of production, innovative traits, nodal significance). As we will see below, the ability to meet the needs of positive subsidiary evolution does not exclude any operation from negative restructuring in terms of job loss (see Dell case study). We use the aggregation of positive and negative corporate adjustments reflecting the evolution of the Irish foreign-owned tech sector to gauge the changing competitiveness of place within their respective networks of global production.
Global restructuring and the changing competitiveness of place

The recent economic crisis has brought with it a significant realignment of how we view competitiveness (O’Leary, 2009). Competitiveness is in a constant state of flux regardless of economic buoyancy or depression. Global flows of foreign direct investment in absolute terms are a good reflection of the state of the global economy. Breaking these figures down and viewing them relatively (between different countries/regions) provides a basic metric for competitiveness regardless of the absolute figure.

The World Investment Report (UNCTAD, 2008) showed that absolute FDI surpassed the previous peak of 2000 to reach $1,833 billion in 2007. The production of goods and services by nearly 80,000 MNCs and their 800,000 foreign affiliates accounted for an FDI stock in excess of $15 trillion in the same year. The geography of these flows is particularly relevant here. In the main, two related events are occurring: inflows to developed countries have peaked, and inflows and outflows from developing countries are on the rise (see table 1). In particular we see a noteworthy rise among countries in South-East Asia.

Insert Table 1 here.

While inflows show signs of stagnating in developed regions, outflows continued to rise. Bringing the level of analysis down to the supranational region we will see similar trends on a smaller scale. Within the European Union, regional inequalities have recently begun to decrease but remain particularly wide between large city regions and between new and old member states (see Perrons, 2009). Divergence in living standards is a reliable metric for noting the heterogeneous nature of the region; GDP per capita in Latvia of €8,234 stands at one third of that enjoyed in Ireland in 2007.

As a result of the current economic crisis, national regulatory changes that favour FDI are likely to be challenged. Over the past few months more and more governments have rolled back on globalisation through policies of nationalisation and protectionism.

China and Hong Kong (China) remain the top two destinations within the region attracting $59 and $83 billion respectively (equating to a doubling and tripling of inward FDI over the previous four years).
A clear pattern emerges from the following figures. Using the movement of job types as an indicator of the changing nature of territorial competition will shed light on the dynamic nature of global production networks. As economies evolve from low specialisation to high specialisation they reflect the treadmill effect alluded to in the previous section. Ireland (the focus on the following section) acts as an ideal case in point; attractive to lower end facets of GPNs in the 1990s, its evolution over 20 years has seen it cede competitiveness to lower cost territories in labour intensive activities. For the purposes of context we wish to trace recent evolutions of jobs and firms among the older and newer countries of Europe. Here ‘Old’ Europe applies to the original EU 15 states, while ‘new’ Europe refers to states that joined the union after 2004.

Broad trends were indicative of a high (value) specialisation focus in old Europe and a low (value) specialisation focus in new Europe. The ERM reports on any significant jobs gains and losses across Europe. This provides a rich dataset on the types of jobs that move into, out of, or across the continent. Figure 1 below shows the number of cases of restructuring (gains and loss announcements) for 2007. In absolute terms the most dominant form of restructuring was business expansion (55%). Expansions were concentrated in ‘new’ member states reflecting the increased level of foreign investment and indigenous business development over the past decade (UNCTAD, 2008). According to the ERM, 80% of all restructuring cases in Bulgaria, Poland and Slovakia were business expansion. The term ‘internal restructuring’ for the most part involved job losses and these were most prevalent in old Europe. For example, over 30% of cases in Belgium, Finland, Germany, Italy, the Netherlands and Sweden involved internal restructuring. A higher incidence of cases involving offshoring or delocalisation, relocation, and mergers and acquisitions was also evident in the EU15 Member States. For instance, over 15% of Dutch cases in 2007 involved offshoring, as did over 10% of cases in Finland, Ireland, Italy and Spain (EFILWC, 2008; 68).

This point is of importance with regard to the GPN literature and ‘internal restructuring’ is reflective of how they exist within the transnational space. A global

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3 On May 1st 2004 Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia, Malta and Cyprus joined the EU. On January 1st 2007 they were joined by Bulgaria and Romania.
space is constituted and structured by transnational institutions and ideologies. Restructuring is symptomatic of the spatio-temporality of production networks where lower specialization entities are those in the weakest position and least embedded in their respective places (for more on the European East / West division of labour, see Jurgens and Krzywdzinski, 2009). These most mobile facets of GPNs are the subject of investigation in the Irish case.

**Insert Figure 1 here.**

While the regional data provides context, the next section will attempt to provide greater clarity on restructuring flows and competitiveness by focusing on Ireland and our case study company. While much of the restructuring referred to in relation to Ireland may be negative in terms of jobs lost, the reality is that Ireland followed a trend already seen in many of its neighboring states.

**A Competitive Ireland in the Global Economy?**

For more than 50 years Ireland had been honing an industrial policy with a significant focus on attracting inward investment (particularly from the US), primarily focused on high technology sectors including ICT and pharmaceutical/health sciences (see Collins and Grimes, 2008; Begley et al 2004, Barry and Curran, 2004). Indeed, owing to the relative length of the exogenous focus by Irish policy makers, the country has been noted by many as a ‘first mover’ in the attraction of FDI (Gal, 2008). Through a targeted industrial policy, including low corporation tax, and aided by industrial development agencies, the Irish state was instrumental in creating a very hospitable climate for foreign investment. O’Riain (2004) sees the agencies of the state as central in the attraction of FDI and the creation of Ireland as an entrepot region. The role of the Industrial Development Agency (IDA) in the creation of a pro-business environment is heralded by many actors in the Irish FDI scene as integral.

Irish state agencies and the environment they created (social partnership, educational standards, industry standards compliance) played what Hudson (2004) termed a critical role in the performance of foreign-owned subsidiaries in Ireland. Part reflecting Coe’s (2004) strategic coupling and part reflective of the neo-liberal tenor
of the state’s economic and industrial policies, Ireland’s relatively long history of hosting nodes of global production networks shows the complex nature of GPNs and their territories and the mutually constitutive process of embeddedness.

The small and open nature of the Irish economy made the exogenous development model an obvious choice. Many have argued that the pursuit of such a model has been integral to the economic success enjoyed there over the previous two decades 4 (IDA, 2008; Enterprise Strategy Group, 2004 and Barry, 2004). The risks involved in the pursuit of such a model become more stark in the midst of a global economic downturn. The following section will show how the current economic crisis has had a significant impact on the competitive position of Ireland. The enforced restructuring of the credit crunch (and analogous fall off in demand) saw many foreign (and Irish-owned) operations take corrective measures. In some cases this involved the restructuring of Irish affiliates, in others, closure.

*August to February 2008: A grim six months*

Such was the scale of the international crisis in the latter half of 2008 that one might be forgiven for thinking that Ireland and the Irish State was an innocent casualty of global misappropriation. The truth makes difficult reading for Irish policy makers. An over-inflated property market, alongside the lack of restraint in the financial sector (notably the supply of 100%+ mortgages to developers) was something of a ticking time bomb in retrospect. The economy-wide effects of both these factors can be seen most clearly through both wage and cost inflation. Ireland’s most recent property bubble can be traced back to 2000, over the proceeding eight years (with the exception of 2004/5) Ireland showed a consistent decline across many different competitiveness rankings (National Competitiveness Council, 2008). Here, following on from previous work, we wish to concentrate on the ramifications on Ireland’s foreign-owned technology industry and analyse how the recent spate of restructuring has affected Ireland’s competitive positioning vis-à-vis the global production networks it hosts.

4 While others have made the case that the focus on endogenous development has been to the detriment of indigenous industry (O’Hearn, 2002; Allen 2004 and Kirby, 2008)
Ireland’s technology sector was hailed as one of the cornerstones of the country’s economic success towards the beginning of this century. Recent figures put employment in the sector at 100,000 with a turnover of over €60 billion (IDA Ireland, 2009). The sector is easily divisible by two; foreign-owned and Irish-owned companies. The latter is demarcated by small operations, averaging 10 employees per firm, while the average employee for the former lies around 175 per firm. The sector accounts for 16% of the total value added for industry and services. In the past 10 years it has evolved from a sector that was focused on manufacturing to one now dedicated to services (ICT Ireland, 2007). Research and Development figures bear this out: over half the expenditure on business R&D was by companies in the technology sector (with the IDA investing €470 million in technology projects in 2006) (IDA Ireland, 2008). The maturation of the sector in Ireland is borne out by productivity figures, with the major companies in the sector revealing slippage in recent years. Thus the sector can be described as one that has moved from low to high specialisation. With it, companies have moved from being characterised as labour intensive to knowledge intensive focusing on markets with higher barriers to entry (Grimes and Collins, 2009).

The following figures are based on media announcements and company reports for the period of August 2008 to February 2009. While these figures are subject to re-interpretation, they can serve as a proxy of the relative performance of the sector and also give some indication of Ireland’s changing competitiveness for these activities. Figure 2 shows the magnitude of restructuring of the Irish technology sector over a relatively short period of time. For context, the figure (just fewer than 10,000 jobs) constitutes nearly 10% of the total employed in the sector. The movement away from lower specialisation reflects the footloose nature of subsidiaries at the lower value added stages of production. In this way, Ireland has suffered from the low barriers to exit that characterises much of the operations that have been forced to restructure.

Insert Figure 2 here.

Over the corresponding period, unemployment figures for the State rose from the relative stagnant rate around 5% to over 9% (CSO, 2009). At first glance, the above chart is significant not just at the rate of attrition (higher than the average of any other
sector in the economy) but for the rate of attrition of a particular sector. The technology sector has been high on the government agenda in Ireland for the last 20 years, so the rate of decline here was of major concern to policy makers (DETE, 2008).

The relatively linear rate of increase in the above graph is broken by three leaps identified as significant announcements of job losses of over 1,000 employees. Restructuring at the Irish affiliates of Seagate, SR Technics and Dell have and will have major impacts on their respective regions. Below, we focus on the Dell restructuring as a particular case study in the changing competitiveness of place and shifting networks of global production.

**Insert Figure 3 here.**

When we look at the types of jobs lost\(^5\), some interesting patterns emerge. Job loss is very much weighted towards the lower value added activities, with 67% of all job losses being in basic manufacturing. 18% of jobs lost were identified as a mixture of low end and high end services (2\(^{nd}\) and 4\(^{th}\) quartiles). The category labelled ‘All’ represents full divestment where an affiliate closed. While the incidence of job loss was high, full divestment accounted for only 4% of all jobs lost.

The 3% of job losses involving R&D, was accounted for in the main by the closure/relocation of Ericsson’s Dublin based R&D operation (loss of 300 jobs) in February 2009. This case garnered a high level of media coverage owing to the fact that the type of jobs lost were those that had been identified as ones in which Ireland remained competitive. The government’s ‘Smart Economy’ document, published two months previously set aside €25 million a year to match funding for corporations engaging in R&D. Ericsson moved parts of the Dublin operation to China, Poland and back to their headquarters in Sweden (Collins, 2009).

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\(^5\) Making use of media reports and research interviews the types of jobs lost/gained were established. Owing to the diversity of the sector generic categories were devised. This involved splitting the job range into quartiles using a similar methodology to that of the ERM database. The first quartile refers to manufacturing, the second to lower end services, such as back office support. The third quartile refers to higher end services such as treasury function, marketing, high end user support etc, the fourth is accounted for by jobs associated with research and development.
The internal geography of job loss in Ireland shows how particularly damning the six months were for the Midwest region in particular. Jobs lost in the technology sector in the six months accounted for nearly 2% of the total number employed in the region. Dell’s decision to cease manufacturing was an obvious contributor, as were the knock-on effects for supporting industries. Relative to any other Irish region or city, the Midwest suffered the largest job losses. This was largely due to the industrial make up of the region, one that under the auspices of its own development agency (Shannon Development) became heavily dependent on manufacturing, with an explicit focus on the technology industry (Andresso-O’Callaghan and Lenihan, 2008).

The external geography of the restructuring of operations located in Ireland showed that Ireland’s loss was Eastern Europe and Asia’s gain. The movement of jobs out of Ireland in what could be described as second derivative offshoring in the easterly direction accounted for nearly three quarters of the jobs lost over the six month period. By far the biggest winners were the new member states of Eastern Europe gaining over half the jobs lost in Ireland, a significant proportion of which was accounted for by one Polish city, Lodz (see Dell case study below). China and Asia accounted for a quarter of jobs relocated out of Ireland, a significant number of jobs lost in Ireland returned to their respective headquarters (primarily located in the US). A relatively small percentage (12%) of jobs lost involved the cessation of activities. The fact that nearly 90% of jobs ‘lost’ in Irish tech sector over the six month period were reinstated in some other location is testament to the changing geography of competitiveness in the global economy. This is reflective both of the dynamic nature of production networks and of the broader ‘internal restructuring’ in Europe referred to in the previous section.

While the six month period showed heavy losses suffered by the Irish technology sector, the previous 20 years had seen it grow at an unprecedented rate. Also true of those six months is the fact that Ireland had also benefited from global restructuring. Figure 4 below shows that over the sustained period of job loss, Ireland also managed to secure a number of significant investments. Among the more significant of these were GOA Software and Houghton Mifflin Harcourt Software, which resulted in 800 new jobs for the Irish tech sector.
While the rate of job creation provides some solace in its own right, the following table shows the precise nature and types of jobs created relative to those being lost. The clear trend is that Ireland has suffered the loss of lower value added (manufacturing and lower end services) jobs while managing to create more higher-end jobs (albeit fewer of them) over the same period time, thus mimicking the trend of a developed economy as outlined earlier.

The case of Ireland then could be simply interpreted from a political economy point of view as that of a territory losing competitiveness. In line with the GPN literature we argue that this reading is too simplistic and lacks sufficient flexibility. Trends that reflect what Maskell and Malmberg (1999) term ubiquitification tell part of the story of a country that is moving up the value chain. Looking at it from a global viewpoint we can see that it is not just a case of companies and the placing of their production networks being ruled by cost alone. While it is a significant factor it would not explain why certain parts of the tech sector in Ireland are growing. Changes in consumer trends, geographic and market focus, the role of the state and labour all play a part in the complex picture of evolving GPNs in Ireland.

**Shifting competitiveness: the case of Dell Limerick**

Dell is one of the world’s largest manufacturers of personal computers engaged in direct-selling model. It designs, develops, manufactures, markets, and services a range of computer systems. The global corporation sees its markets divided into three regions; the Americas; Europe, Middle East and Africa (EMEA); and Asia Pacific-Japan (APJ). It is headquartered in Round Rock, Texas, and has four manufacturing facilities located on the continent with a workforce of 39,500. The EMEA region is headquartered from the UK (Bracknell). It serves its customers from two manufacturing facilities at the moment, Limerick and Lodz, Poland. The recent announcement of the transfer of jobs from the former to the latter will see Lodz existing as the only manufacturing facility in the region by 2010. Dell employs 17,500
between manufacturing, contact and data centres and regional offices in the region. The APJ region is headquartered from Singapore; its supply chain in China alone is valued at $25 billion, with the company Foxconn playing an important role as a contract manufacturer there. Dell also houses manufacturing facilities in Malaysia and India and employs 32,100 in the region, bringing its global employment to 89,100. The company recorded revenues of $45 billion in 2008 with an operating income of $2.7 billion.

Since its inception in 1984, Dell has set itself apart from its competitors through demonstrating the superiority of organizational and marketing innovativeness over technical innovativeness in an industry whose core products have been commoditised. The model of direct selling, or ‘Dellism’ (Sako, 2003) is characterized by the decrease of inventory costs through optimization of the supply chain, modular production and build-to-order practices. This model, termed ‘disruptive’ innovation by Malecki and Morisett (2008) has seen the rethinking of the extended production cycle, including parts supplies, assembly, delivery, and customer support. Design and assembly take a back seat to marketing, logistics and the management of the supply, enabling the company to decrease inventory time and costs. According to Fields (2006) this helped Dell outstrip its competitors in terms of market share and profit by eliminating intermediaries between producer and consumer and cutting the time between production and consumption. The geography of Dell’s manufacturing reveals the importance of distance and delays in their just-in-time model. The IT driven nature model is highly dependent on time and distance to the customer, therefore the geographic imperative equally matters for sub-suppliers as well and consumers. The sub-supplier eco-system that evolves around Dell affiliates becomes as important as Dell itself in terms of economic contribution to the region (see Fields 2006 for a case study on Dell as a global entity).

Kanellos (2006) argued that the Dell model had already reached a threshold. The nature of it alongside a maturation of the desktop market, coinciding with the global economic downturn has seen demand for Dell products decline in recent months. From a historic high of $42 in December 2004, Dell share price decreased to $30 in October 2007 before bottoming out at $8.50 in 2008 (Yahoo Finance, 2009). The decline inspired a major announcement in April 2008 to restructure the company in an
effort to save $3 billion a year up to 2011. Citing competitiveness and the need to cut cost, Michael Dell (chairman and founder) claimed that no part of its global entity would escape scrutiny. Within a week, 900 jobs were cut at the Texas manufacturing facility; rumours regarding the unsteady future of the Limerick operation were rife (Irish Times, 2008).

Dell and its location in Limerick serves as an interesting exemplar in shifting competitiveness and the dynamic nature of GPNs. In 1989, five years after the company’s formation, Dell chose a site on the outskirts of Limerick city as the first affiliate to be set up outside the US. The site was chosen for many reasons; access to the European market was primary, attractive packages from the IDA and Irish government were others. The presence of a qualified and cheap English speaking workforce would have also served as another key attraction. The presence of Intel and Microsoft operating out of Ireland provided a degree of security for what was Micheal Dell’s first venture outside of his home country. The Limerick facility was orientated purely towards manufacturing, serving the extensive EMEA market. By 1996 a Malaysian manufacturing operation was established to serve the APJ region; workers from Limerick were heavily involved in establishing the Malaysian factory.

By 2008 the Raheen Industrial Estate operation, had a workforce of 3,100. Most important in terms of what was to come, was the fact that over 40% of the Limerick workforce was no longer employed in manufacturing. Among the other functions that Limerick had become responsible for over its 20 year history were:

**Insert Table 3 here**

Four years after setting up its first manufacturing site outside of the US, Dell increased its Irish presence through the establishment of a call centre support in Bray, Co. Wicklow (later relocated to Cherrywood, Co. Dublin). Its original remit was to serve the Irish and UK market in the areas of sales and technical support. Much of the original work carried out in Bray/Cherrywood was relocated to Dell’s global contact centre in Hyderabad, India. The Bray/Cherrywood site has shown an evolutionary

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6 Collins and Grimes (2008) point to the importance of being the first affiliate outside the home country to network anchoring.
trajectory similar to its Limerick sister and is now home to the EMEA Enterprise Expert Centre - a knowledge base for high-level enterprise technical support for customers across EMEA. Cherrywood also houses the centralised EMEA marketing team who are responsible for online development, pricing, product marketing, business analysis and the creation, design and production of EMEA-wide advertising and direct mail campaigns.

“While not as closely connected as you might think, our sister plant raises the profile of Ireland in the HQ. The fact that we have world leading competencies in both plants makes them take notice” (PR representative, Interview September, 2006)

Since its location in Ireland in 1989, Dell had risen in prominence to become the second largest company operating out of Ireland. Figures below show the relative size of the revenues accrued by the company since 2003. It shows a turnover per employee that is not only phenomenal in terms of measuring the productivity of Irish workers, but one that has been increasing substantially over the years. That said, a note of warning needs to be heeded in interpreting the figures for turnover. The presence of double counting amongst MNCs located in Ireland (owing to its lucrative tax regime) is noted by other scholars (Collins, 2007; Barry, 2004 and O’Hearn, 2002).

Insert Table 4 here.

Measuring the relative weight of the Irish operation in terms of the above figures shows how Ireland became a very significant node in the production network of Dell. At its peak, the Irish workforce accounted for nearly 8% of the total workforce and was responsible for nearly 25% of the company’s global turnover. Moving beyond these figures, the importance of the Irish operation was noted by many Dell employees with some maintaining that the whole of the EMEA regional entity was dependent on someone in Ireland “doing something first”. The presence of Irish employees located throughout European operations and beyond is testament both to their own acumen and the open nature of the corporation:

“We lose someone like Nicky [Hearty former Irish MD now VP of the EMEA region of Dell] it is a blow. But on the plus side we look at it as having one of our own on the inside” (VP for SME business, Interview April, 2010).
While well connected globally its impact on the Limerick region in terms of spillovers, suppliers and supporting industries is also noteworthy. Local industry groups estimated that every Dell job supports three other jobs in the Limerick area (Duggan, 2009). In total Dell had in the region of 150 suppliers. A little over 10% of who had an Irish base in the vicinity of the Limerick plant. In addition there were major global suppliers with Irish presences, namely Intel and Microsoft. All suppliers needed to maintain hubs in the general area. Beyond product procurement, many more suppliers were dependent on the Limerick operation. In terms of integration of the two Irish operations, there has been little evidence of a connection between the Bray and Limerick plants. Such is the global focus of these that this has become a rule for many firms operating out of Ireland under the same name.

The successful evolution of Dell emulates the models outlined in previous pieces from Dunning (1993; 1995) and Birkinshaw (1997) dedicated to the development of multinational subsidiaries (see Collins and Grimes, 2008). The case is also indicative of the evolution of the Irish economy as a whole. The movement away from manufacturing is an economy wide trend and one that is a result of push and pull processes. The overall success of the economy brought with it rising costs that saw labour cost dependent operations become unsustainable. While the Irish economy evolved so too did the global economy, with markets for certain products maturing while others began to flourish. The decision by Dell management to open a new manufacturing facility in Lodz, Poland to serve the emerging Eastern European market could have been seen as the beginning of the end for manufacturing in Limerick. The tone emerging from Limerick at the time was cautiously optimistic: “Lodz will give the company the opportunity to serve the European market from both the east and the west. We made our name on our supply chain, and this is a way of optimizing that” (HR manager, interview September 2007).

Yet the geography of the picture was quite clear: Lodz was closer to the market, while Limerick was on the west coast of an island. The Polish plant would be built according to a new spec, the market for notebooks was on the increase, and Ireland’s manufacturing facilities were more tailored towards PC and server production. The
global economic downturn and the restructuring of the corporation announced in 2008 hastened what was an inevitable demise of manufacturing of Dell products in Ireland.

On the 9th of January 2009, Dell announced the phased closure of their manufacturing facility in Limerick. Reasons such as company restructuring and fall off in demand were mooted, but costs were cited as the primary reason (Dell, 2009): “At the end of the day Dell served this region for 20 years, but the writing was on the wall since 2006” (Dell representative, Interview April, 2010). The Lodz plant was to cater for production of products for the EMEA region. 1,900 workers at Dell would lose their jobs. The facts emerged quickly amid the media furor: Dell could employ people to carry out the same job in Poland at one-third the costs of employing them in Ireland. Following trends noted above, Ireland had become uncompetitive. Attention turned from the 1,900 to the speculated further 6,900 that would lose their jobs as a result.

Figure 5 is an attempt to depict the fallout of the 2009 Dell announcements for Limerick, its surrounding area and supporting companies. As is the nature of such recent events, a full picture is yet to be drawn. The inclusion of a previous announcement can act as some form of litmus. It is also important to note that only direct suppliers are listed, the two main companies that shut down operations in Limerick followed Dell to Poland. The case of indirect suppliers and those beyond the technology sector are yet to be fully accounted for.

Insert Figure 5 here.

While the Dell Limerick case serves as a grounded example of the shifting of competitiveness of places, it must also be borne out in the context of the larger corporation. As already mentioned the changing nature and geography of the market has been most important. From 1990 (the establishment of the Limerick operation) to 2006 (establishment of the Lodz operation) Dell’s market had moved eastwards. It was inevitable that a production process (while of high technology products) that bore

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7 Interestingly, recent reports filed with the companies registration office in Dublin show that the Limerick plant in the 12 months up to 30th of January 2009 had an operating profit of nearly $17million (Lynch, 2009).
many low specialisation characteristics would follow the customer. Add to that the intra-regional shifts that have seen markets and sites in China and India rise in Dell’s global order. More of the end product contains Chinese hardware and more of the servicing of the products is carried out from India. The Asian influence in this case was made all the more obvious by the announcement in late 2009 that Dell had agreed to sell off its Lodz plant to the Taiwanese electronics company Foxconn (Williams, 2009). The takeover was approved by the European Commission in 2010 and has effectively seen the Taiwanese company act as a contract manufacturer for Dell; the shift eastwards is further marked.

This move can be interpreted as part of Dell’s strategy to subcontract all of the corporations manufacturing. The broad restructuring of the company saw its share price increase slightly to reach $13.50 by the end of 2010. Recent figures also show company revenue up 22% to $15.5 billion for the second quarter of 2010. In the main this was accounted for by commercial business revenues and servers sales. The shift in focus has had ramifications across the corporation, not least in Limerick: “Limerick has concentrated on the business customer, we fly clients in here and let them road test our latest products” (Dell VP for SME business, April, 2010). The new focus in the Limerick plant had seen it advertise for 50 posts in the area of sales and customer contact less than 16 months after the announcement of 1,900 job losses. In June 2010, a list of Ireland’s top 1,000 companies put Dell at the second largest in terms of revenue though these figures will not have accounted for the full effects of restructuring.

Put simply, a production network is at its core, the nexus of interconnected functions, operations and transactions through which a specific product or service is produced, distributed and consumed. Using a GPN lens to examine the Dell case has allowed us to identify the non-firm constituent parts of the Dell Limerick story. While there is a degree of linearity to the movement up the value chain (Sturgeon, 2008) of the Limerick operation which has seen it suffer under the ‘treadmill effect’ of cost competitiveness, there is a great deal more to the story. Dell’s Limerick operation has seen some gains come about from the corporations restructuring by positioning its surrounding region (workforce, business environment, access to market) to match the corporation’s evolving needs. Importantly, the subsidiary’s ability to diversify from
branch plant to marketing node through varying forms of organisational innovation has enabled it to position itself well in terms of the evolving markets for Dell’s produce (Weller, 2008).

We would therefore argue that issues of control and co-ordination typify the above case study as much as cost competitiveness. This has forced us to look beyond the political economy theories that see the Dell example as a case of the exploitative qualities of simple cost competitiveness. The Irish and Dell cases show the complexity of the issues of relational capital and softer infrastructural issues as better explained through the network perspective as espoused by the Manchester School of economic geography. While cost competitiveness is indeed a factor in the shifting patterns of investment, it is only one part of the story of Dell in Ireland. The other part, one that is perhaps of more policy pertinence, is the strategic coupling of subsidiaries and their territories and the business environment created in Limerick relative to the corporation’s global network of production.

**Conclusion**

What is obvious from the above is the dynamic nature of competitiveness. Dell Ireland, Ireland and Western Europe are no longer competitive in certain sectors/activities. While subject to restructuring in terms of jobs lost, all have benefited from different types of jobs gained. The six months of economic depression saw Ireland suffer job loss at an unprecedented rate, calling into question the country’s competitive standing (O’Leary, 2009). Yet the reality is that what happened over that period of time was a speeding up of a process that has been underway in Ireland for the last 20 years. In essence what has taken place is the evolution of subsidiaries involving the loss of lower level jobs, and their replacement with jobs of higher value.

This paper has therefore shown the dynamic nature of global production networks as illustrated by Coe et al (2008). The general trend of production moving from west to east was made explicit at the global and European level. The focus on Ireland helped demonstrate that this dynamic process in part inspires and in part results in many other processes, not least the necessary movement up the value chain of operations.
remaining in the west. The move from manufacturing to services in countries like Ireland is a complex process and general trends are difficult to encapsulate. Yet, key to this evolution is the changing competitiveness of the territories in which the firms are situated. In all cases Camagni’s (2002) three traits of territory remain crucial to explaining investment flows.

Externalities, social/relational capital and governance will add much more value to explaining the full story of global restructuring than simply cost, resource or demand based metrics. Ireland is proof that a territory can only compete on costs for so long. The inevitable indeed, hoped for result, of such competition is the rising of costs and with them living standards (See Storper’s definition above). Competitiveness of place then becomes more dependent on less tangible facets. Firms chose to invest in quality of labour, knowledge, economic/business climate and supporting institutions, all facets that Ireland through the auspices of the IDA have attempted to nurture for the past 20 years.

Accounting for job losses according to type as opposed to quantity or sector makes for a truer reflection of a territory’s evolution. Benito (2005) has classified subsidiaries of MNCs along the lines of likelihood to divest. That work concludes that foreign owned subsidiaries least likely to divest are those that are integrated in the corporation’s production network. To become fully integrated into the production network of any corporation involves what Dunning (1995) would refer to as subsidiary evolution. In both the Irish case and the Dell case study we have shown how evolution has been key, and while the Dell case is marked by the relocation of its manufacturing outlet, it remains true that the subsidiary itself has evolved in a way of sustaining its future viability by moving beyond the original manufacturing remit to become integral in Dell’s global production network.

This work therefore attempts to highlight the dynamic notion of both firms and territories. In reference to the definition of competition put forth by Micheal Storper, we have attempted to show that the ability to ‘attract and maintain firms’ is a non-static goal and that the maintenance of some firms necessitates the loss of parts of those firms. In essence the move up the value chain entails loss at the lower end to gain at the higher end. This is the reality that sees places competing according to ever
changing metrics, from the quantifiable (i.e. costs) to the more qualitative (i.e. social/relational capital) with the rising complexity of the global economy.

Acknowledgements

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BBC News: www.bbc.co.uk

The Economist: www.economist.com

The Irish Times: www.ireland.com
Table 1. FDI inflows and outflows developed and developing countries ($ billion)

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</thead>
<tbody>
<tr>
<td>Developed</td>
<td>403.7</td>
<td>611.3</td>
<td>940.9</td>
<td>1,247.6</td>
<td>786.0</td>
<td>748.9</td>
<td>1,087.2</td>
<td>1,692.1</td>
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<tr>
<td>Developing</td>
<td>283.6</td>
<td>316.4</td>
<td>413.0</td>
<td>499.7</td>
<td>120.0</td>
<td>117.6</td>
<td>212.3</td>
<td>253.3</td>
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Source: UNCTAD (2008)

Table 2: Types of jobs gained and lost August 08 to February 09

<table>
<thead>
<tr>
<th>Jobs Gained</th>
<th>Number</th>
<th>Jobs Lost</th>
<th>Number</th>
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<tbody>
<tr>
<td>Higher end services (HR/Finance)</td>
<td>1,415</td>
<td>Basic Manufacturing</td>
<td>6,275</td>
</tr>
<tr>
<td>Research and Development (R&amp;D)</td>
<td>1,249</td>
<td>Low level services</td>
<td>1,971</td>
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<tr>
<td>R&amp;D and Manufacturing</td>
<td>1,040</td>
<td>Low and High end services</td>
<td>348</td>
</tr>
<tr>
<td>Low level Services (Back Office Support)</td>
<td>538</td>
<td>All</td>
<td>346</td>
</tr>
<tr>
<td>Basic Manufacturing</td>
<td>381</td>
<td>Research and Development</td>
<td>341</td>
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<tr>
<td>R&amp;D and Services</td>
<td>370</td>
<td>Higher end services (HR/Finance)</td>
<td>17</td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
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</tr>
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</table>

Source: Authors’ Calculations

Table 3. Functions carried out at Dell Limerick (2009)

<table>
<thead>
<tr>
<th>EMEA Centre for Communications and Product Development</th>
<th>EMEA Applications Solution Centre</th>
<th>EMEA Enterprise Command Centre</th>
<th>EMEA Treasury Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D centre with a global remit for Dell’s manufacturing facilities.</td>
<td>‘Proof of Concept’ lab and reception/demonstration areas for international corporate customers.</td>
<td>Support for Server and Storage customers in the EMEA.</td>
<td>Controlling bank accounts and financial transactions for the region.</td>
</tr>
</tbody>
</table>

Source: Dell.ie and Research Interviews

Table 4: Turnover and Employment figure for Dell Ireland.

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnover (£m)</th>
<th>Employment</th>
<th>Turnover per employee (£m)</th>
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<tbody>
<tr>
<td>2003</td>
<td>6448</td>
<td>4300</td>
<td>1.49</td>
</tr>
<tr>
<td>2004</td>
<td>8500</td>
<td>4300</td>
<td>1.97</td>
</tr>
<tr>
<td>Year</td>
<td>Cases</td>
<td>Employees</td>
<td>Percentage</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>2005</td>
<td>8300</td>
<td>4300</td>
<td>1.93</td>
</tr>
<tr>
<td>2006</td>
<td>10100</td>
<td>4300</td>
<td>2.34</td>
</tr>
<tr>
<td>2007</td>
<td>10157</td>
<td>4500</td>
<td>2.34</td>
</tr>
<tr>
<td>2008</td>
<td>10000</td>
<td>4250</td>
<td>2.35</td>
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<tr>
<td>2009</td>
<td>11316</td>
<td>4000</td>
<td>2.81</td>
</tr>
</tbody>
</table>

Source: Irish Times Top 1,000 companies (various years)

**Figure 1. Cases by country and type of restructuring, 2007**

Source: ERM (2008: 70)

**Figure 2: Job loss in the Irish Technology Sector**
Source: Various – Media searches

**Figure 3: Job loss by type**

The subsector suffering the greatest losses was electronic manufacturing (26%), followed by Hardware design and manufacturing (23%); the third subsector was medical technologies manufacturing (17%). One obvious trait connecting all three is ‘manufacturing’. Ireland therefore emulates the trends of its west European neighbours, albeit at a relatively steeper rate. Subsectors which suffered relatively fewer job losses include the software and IT services.

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Figure 5: The knock-on effects of Dell relocation

November 2008: Flextronics contract electronics manufacturer lays off 100 employees in Limerick.

November 2008: Flextronics lays off 100 employees in Limerick.

November 2008: Banta Global Turnkey outsourcing providers for tech industry lay off 65 in North Cork plant.

February 2009: Flextronics announces the closure of its Limerick operation (150 jobs – relocated to Lodz) and lays off 130 at its Cork plant.

February 2009: Flextronics announces the closure of its Limerick operation (150 jobs – relocated to Lodz) and lays off 130 at its Cork plant.

February 2009: Alienware (taken over by Dell a year previous) announces a review of 70 jobs in its Athlone plant.

January 2009: Closure of manufacturing over 12 months, 1,900 jobs.

Source: Authors’ Calculations