Forfás

Services Innovation in Ireland

– Options for innovation policy

PROMOTING ENTERPRISE, TRADE AND SCIENCE, TECHNOLOGY AND INNOVATION FOR ECONOMIC AND SOCIAL DEVELOPMENT

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– Options for innovation policy

A report commissioned by Forfás from
CM International

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Preface

The services sector in Ireland, in common with other OECD economies, constitutes an increasing proportion of value-added reaching almost 60% in 2004. Between 1995 and 2004 employment in services grew by 58.1% in contrast with manufacturing employment growth of 5.6%. Ireland's share of global services trade reached 2.2% in 2004 and this compares with global share of the world economy which stands at 0.32%.

This trend towards a service economy is mirrored by other advanced economies and the likelihood is that this will continue in coming years. Despite these output growth patterns, the comparable data from measurements of innovation in services' offerings and services production suggest shortcomings in this area and point towards the need for a review of the key drivers in services innovation.

Reviews of policy in this area have concentrated on attempts to match manufacturing innovation approaches to services industries. There is however a significant body of thought which suggests that there are fundamental differences in policy approach to manufacturing and services industries.

To examine this, Forfás commissioned this study to examine and suggest approaches to policy in this area. This report represents the output of this work including the results of research, global and national consultations and case studies of services companies in Ireland. The findings of the work are brought together in a set of conclusions which serve as a focus to these findings.

The aim of this report is to highlight the key issues and to stimulate debate in this area. Feedback is welcome and readers are invited to respond to the conclusions particularly falling under the following headings:

1. What benefit would the development of a dedicated policy bring to the support of services innovation in your company, aimed at creating new and/or improved services?
2. Do you agree that the Conclusions proposed in this report, if translated into national policy, can promote and support innovation in services in enterprise?
3. Does the Services Innovation Typology developed in this report, provide your company with a business model by which you can promote services innovation in your company?
4. Other remarks and observations.

I look forward to your comments.

Martin Cronin
Chief Executive, Forfás
September, 2006

Feedback can be send to Dr Jos Evertsen, Forfás, Wilton Park House, Wilton Place. Dublin 2; or by e-mail to jos.evertsen@forfas.ie

Closing date 27th October 2006.

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Executive Summary

Ireland like many other developed economies is experiencing strong growth in the services sector. For example, the employment in services in Ireland increased by 58% in the decade to 2004[1]. This compares with growth in employment of 5.6% in the Irish manufacturing sector[2]. And while the number employed in manufacturing was 5.6% higher in 2004 than in 1995, manufacturing employment declined by 10% from 2000 to 2004. At the same time, service exports from Ireland increased by 95.7% from 2000 while services imports rose to over 52% of total Irish imports[3]. The significance of services to the Irish economy was recently underlined by Ireland's share of global services exports reaching 2.2% of all global services exports in 2004[4]. In the context of the Irish economy's 0.32% share of the world economy, this is a significant achievement[5].

There are signs however that productivity and innovation in services in Ireland lags behind manufacturing. In respect of innovation, the Community Innovation Survey reported by Forfás in 2002 indicates that the proportion of services firms that engaged in continuous research and development at 13% was only half of the proportion of manufacturing companies similarly engaged. In terms of productivity, a recent report indicates that productivity growth in services in Ireland in the decade to 2004 was only 9.1% compared to over 60% in manufacturing[6]. The recent and significant growth in services in Ireland therefore may be related to volume rather than to efficiency measures such as productivity and innovation.

It must be recognised however that the statistical indicators used to measure productivity and particularly innovation are strongly affected by the historically dominant position of manufacturing in providing the performance indicators. The policy and supports that are in place for innovation in most countries, including Ireland, are also mostly informed by the experience of the manufacturing sector rather than services. As new models of economic activity emerge in a globalised market place, new thinking on services innovation is required if policy and supports favouring services innovation are to be matched to the new models.

A recently published OECD global study of knowledge intensive business services innovation shows that only a few countries are focusing their attention on innovation in the services economy[7]. Consequently only a few countries have begun to consider policies and programmes for promoting services innovation.

This means that Ireland cannot copy existing policies but needs to develop truly innovative policies.

While, researchers have begun to address gaps in our understanding of services innovation, in Ireland, Forfás has initiated research to identify and develop innovative policy thinking on services innovation, including the Review of Product, Process and Services Innovation carried out in 2003 and the Services Innovation Scoping Study that followed in 2004. Both studies identified the need for better understanding of services innovation, including a new 'vocabulary' for discussion and debate on policy that matches the reality of innovation for services. Furthermore there is a need for a robust and validated set of innovation models that can be used to create new services innovation policy.

1 *OECD. 2006. OECD Annual Labour Force Statistics OECD.Stat (online database) Referenced August 2006.*

2 *CSO.2006. Employment in Manufacturing by Year: Database Direct Referenced August 2006. Manufacturing classification NACE 15-37.*

3 *CSO. 2006. International. Balance of Payments: Database Direct Referenced August 2006.*

4 *WTO Trade Statistics 2005.*

5 *Forfás. 2006. 'International Trade and Investment Report 2005'.*

6 *Tansey, P. 2005. 'Productivity: Ireland's Economic Imperative'. A study of Ireland's productivity performance and implications for Ireland's future economic success. Commissioned by Microsoft, Dublin.*

7 *OECD. 2006. 'Innovation and Knowledge-Intensive Service activities'. ISBN 92-64-02273-2.*

Objectives and the Methodology for the Study

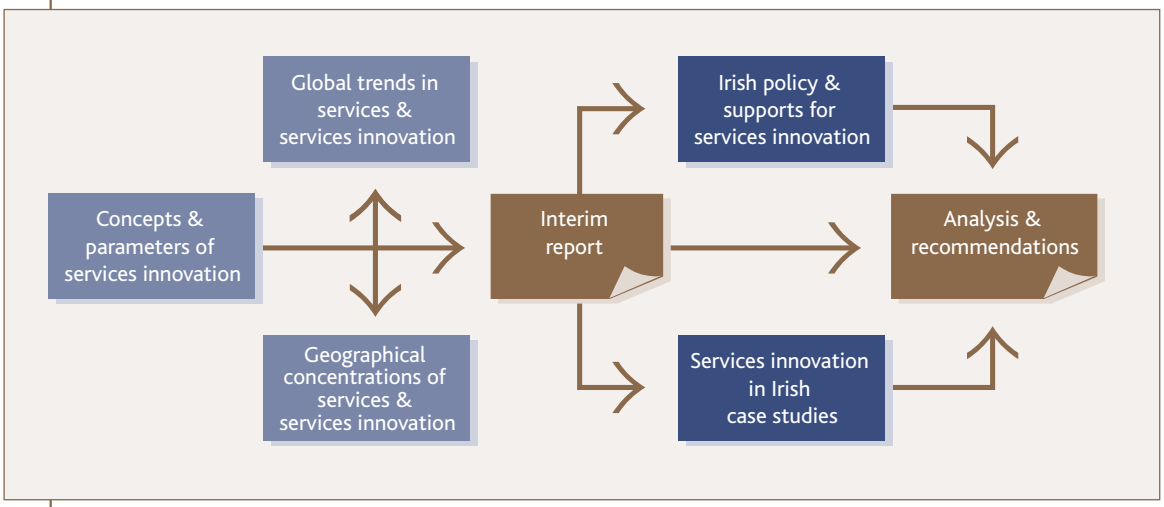
The objectives of the Study were set out in terms of reference:

1. To review and examine innovation in services in Ireland.
2. To identify the main barriers to and drivers of innovation in services.
3. To develop innovation policy and measures to stimulate innovation in services.

Throughout the Study there was a concern to ensure that the global and international context for services should be considered and used as a benchmark to inform and validate the research and assist in forming Conclusions.

An important point to note is that whereas the objectives set out in the terms of reference for the Study referred to "*service sector innovation*", it was quickly realised that since services are frequently provided by manufacturing companies or as part of the manufacturing process, the more inclusive term *'services innovation'* would be more appropriate for this study and is employed throughout the report.

The methodology used in the Study was developed in collaboration between the Study team assembled for the project, led by the consultants CM International, and the Steering Committee for the Study brought together by Forfás. The methodology was based on a combination of desk research, global services expert interviews and inputs, followed by an interview programme with policy makers and 30 Irish or Ireland-based companies operating in six sectors. The key dimensions of the methodological approach are set out in the diagram shown below.



Key Findings

Innovation in Irish Services

While the Community Innovation Survey (CIS) suggests that higher levels of innovation are found in manufacturing, compared to the services sector, services innovation in the Irish sectors studied does not necessarily follow traditional innovation metrics such as R&D. *In fact, the case studies of leading Irish services companies show that service companies in Ireland are evolving and innovating on a constant basis.*

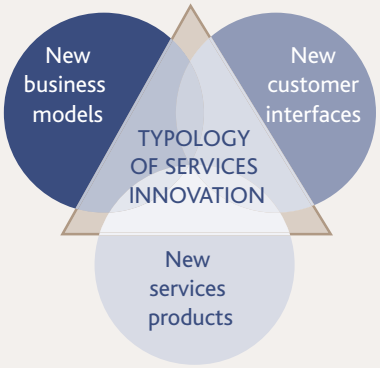
The conceptual framework used in this Study demonstrates a rich pattern of innovation activity in relation to the typology of services innovation (see diagram below). Strong examples of innovation activity in relation to business models, customer interfaces and new services were revealed through the case study approach.

Services Innovation – Typology and Models

Innovation within the services sector is now the subject of growing interest among policymakers. Currently services innovation policies are relatively underdeveloped. This may be due to a growing realisation that innovation itself is an economic rather than a technological process that is not limited to technology-based innovations. Services innovation also requires different ways of thinking, which need to be reflected in the development of policies and supports that are appropriate. The concepts that underpin services innovation need to take into account a number of important features of services such as:

- Services are intangible processes.
- Services are interactive, with several parties, participating in the innovation process.
- Services are extremely diverse in nature.
- Services innovation can operate at different levels, the economy, business strategy, operations and even individuals.

Based on a review of the literature and by adapting existing tools and concepts, the Study developed a *Typology of Services Innovation*. This typology was used throughout the Study, validated against global sectors and concentrations of services innovation and finally tested against leading companies operating in services in Ireland.



- **New Business Models/Concepts**

  A complete or substantial change in the way in which revenues and profits are earned.

- **New Customer/Delivery Interfaces**

  Improving the dynamic exchange of information between the customer and a service provider.

- **New Service-Product Offerings**

  Analogous to traditional manufacturing based innovation activity.

The three types of services innovation identified in the Services Innovation Typology, can each be developed by any of three methods including:

- **Traditional R&D** (sequential service development).
- **Fast Market Entry** (an emphasis on speed and cutting down time to market).
- **Incremental Innovation** (formalising existing practices of service delivery).

Services Innovation – Typology Examples

Typology Types	Examples
Business Models	• Outsourcing and internationalisation of services. • Developing services from a manufacturing base. • Finance and insurance services offered by supermarkets.
Customer Interfaces	• Electronic forms of interface as service delivery mechanism including ATM's and on-line purchasing. • Shift towards more flexible opening hours. • E-tracking of orders and deliveries.
Service-Products	• New services built around complementary enabling technologies e.g. e-Banking. • Bespoke new services developed for individual customers. • Development of e-training courses by educational establishments.

Most Irish companies appear to follow a systematic approach to services innovation complemented by more incremental changes rather than utilise a fast track approach, which is viewed as overly risky.

While services companies recognise that public agencies have a valid role in seeking to support their service innovation efforts, support was felt to be best positioned in relation to either financial supports for innovation activities and structures or advice. However indirect supports such as networks are equally valued to create a supportive and conducive environment.

Irish Policy in the Area of Services Innovation

Innovation is a key priority for the achievement of future economic growth in Ireland and clearly widely recognised as such in policy statements and in practice. However, while innovation policy and priorities in most policy documents are largely technology based, there are some emerging priorities particularly those associated with enterprise, that could, with development, provide the basis for support to other, non-technological, dimensions of services innovation.

At the same time it is clear that while the key agencies have responded to the challenge of services innovation they have done so with a generally implicit and an essentially technologically based approach utilising traditional manufacturing-based concepts and understanding of innovation. The design of services innovation policies will need to take account of the varied policy requirements of services which are described by the Typology of Services Innovation developed in this Study.

The issue for policy makers and the key agencies in Ireland is whether more will need to be done and more explicitly stated, to broaden the concept of innovation in order to remain relevant to the rapidly changing needs of services companies in Ireland.

A Rationale for Services Innovation Policy

The scale and speed of the challenge presented by the emerging knowledge based economy means that Ireland will need to continue to adjust policy. Any substantive innovation policy development should however be based on a thorough understanding of the different types and processes of innovation, particularly those that are distinctive to services companies.

A visible policy favouring innovation in services is required to deliver a strong message to business, education and government that services innovation is as vital as technological innovation. The adoption of a specific services innovation policy will encourage a sharper focus on the barriers that prevent services companies from innovating as well as alerting policymakers to the importance of specific drivers of services innovation.

The Study has shown that services innovation is distinct and different to the types of innovation that are prevalent in manufacturing and process activities. Consequently merely re-branding or repackaging of policy and supports will not be enough. Although it must be understood that many of the national supports do in fact have the "potential" to be re-oriented and expanded to be more effective but through a new and distinctive national services innovation policy.

Ireland's leading companies in the Internationally Traded Services sector are already exploiting services innovation to increase their competitive advantage and these companies need to be showcased. A consistent message regarding the importance of services innovation will be necessary throughout the entire policy process and a single coherent message capable of reaching those service companies that have not expressed an interest in innovation to date will be essential.

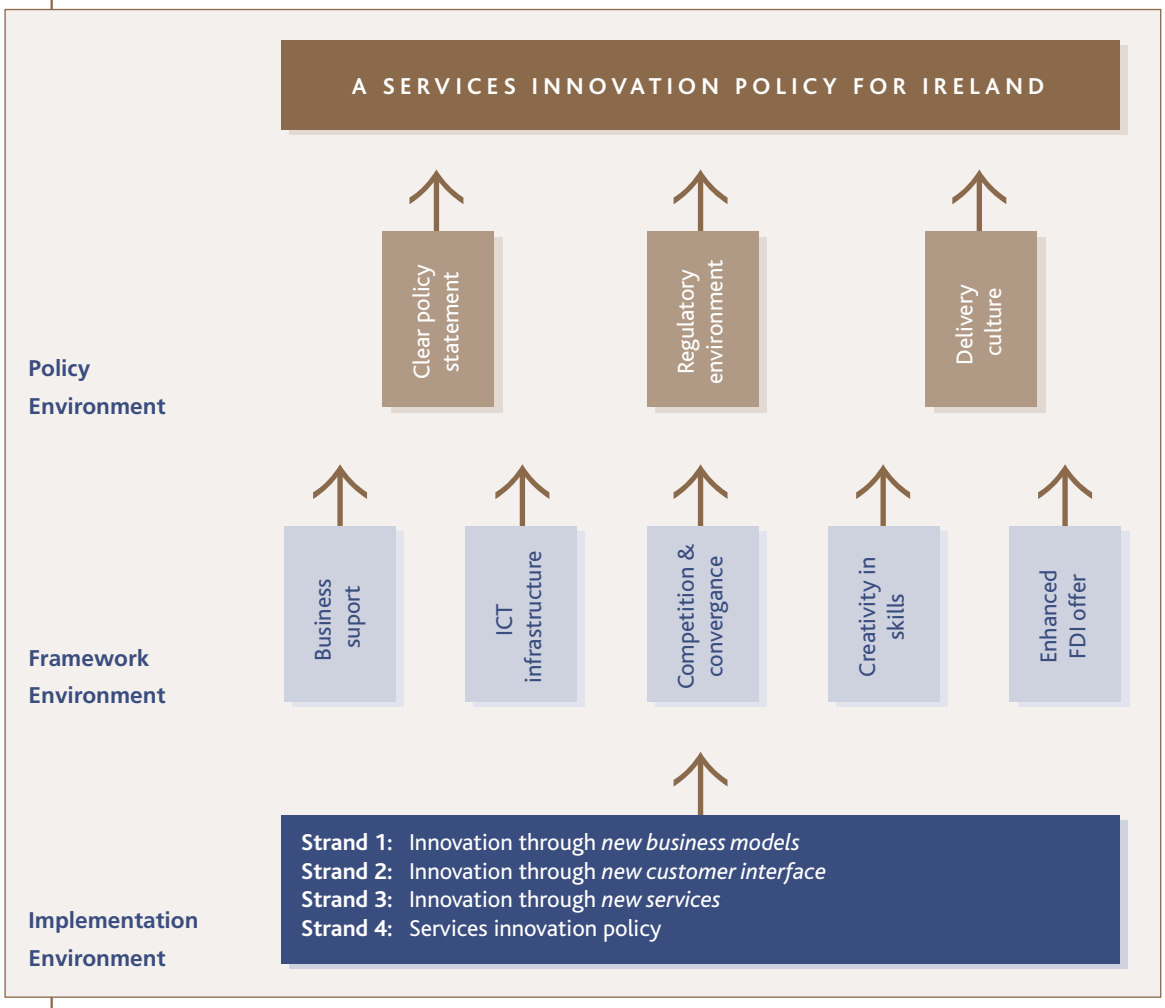
Service activities have an increasingly important role to play in value chains of all types – services innovations are therefore important for a wide range of industries, including manufacturing industries. Although Internationally Traded Service companies will be a particular focus, other service activities involved in the service value chain will be equally affected and targeted. In particular Irish services firms need to realise the importance of non-technological innovation through the development of new business models, customer-interfaces and service-products, as an invaluable source of business, as well as, national competitiveness. Finally, the profile of Ireland's offering to international services companies, by focusing on services innovation within the Internationally Traded Service sector, will be raised through a distinct services innovation policy.

Conclusions

The conclusions from this Study are presented as three levels of action necessary to create the requisite environment within which services innovation can be embedded and flourish:

- A policy environment.
- An enabling environment – providing and enabling framework for the development of services innovation.
- An implementation environment - that uses the Typology of Services Innovation to shape the implementation of services innovation policy and supports for services innovation in companies.

The diagram shown below describes the conclusions in terms of the three levels of environment required.



Policy Environment Conclusions

1. A Statement on Services Innovation Policy

The research of international 'hot spots' suggests that, as a minimum, public policy needs to be clear and transparent and demonstrate that the sector is valued and that innovation in services is encouraged.

There needs to be an explicit statement by Government to provide the foundation for a distinctive services innovation policy for Ireland. It should outline the reasoning behind the policy and the key themes that it will cover. This policy needs to demonstrate that government and its agencies recognise that services innovation in Ireland is vital and needs to be acknowledged, supported and promoted in its own right and with equivalent success as has been achieved in traditional innovation policy.

2. A Supportive and Flexible Regulatory Environment

Regulation and deregulation exercise a significant influence upon the service innovation process, creating an impetus for change in some respects while hindering change in other cases. The Study suggests that, to support services innovation, flexibility and sensitivity is a key requirement among regulatory authorities, including local government, central government departments, state agencies, revenue authorities and the regulators for an industry or sector. The regulators can offer proactive support to the development of new services and business models beyond their traditional watchdog role. Such support needs to enable services innovation among companies while protecting the rights of consumers.

3. A Services Innovation Culture

Services innovation poses a significant challenge to the traditional attitudes and approaches of policymakers who are responsible for delivering innovation and enterprise support. State agencies will therefore need to find approaches that will allow them to balance their industry supports and monitoring against the need for increased risk taking and flexibility, so as to encourage service innovation.

Framework Environment Conclusions

4. A New and Distinct Business Support Framework for Services Innovation

A distinct framework of business support is needed that is dedicated towards the specific needs of services companies and their adoption of services innovation. Such a framework should focus on the drivers and barriers that impact upon services innovation activities. 'Service Proofing' of existing support mechanisms may not fully address the policy needs of services innovation within the Irish economy. Hence, new policy measures will need to be developed.

5. Services Oriented Support for Telecoms and Broadband Investment and Infrastructure

Advanced telecoms and broadband requirements are inherent in services innovation activity and contribute as an enabler of services innovation and future competitiveness of the services sector in Ireland. While telecoms and broadband investment and transport infrastructure have both received considerable levels of public investment, information technology penetration in Ireland is significantly below the EU average and the EU lead-countries in innovation. Rapid and sustained investment in infrastructure, such as broadband and other advanced communication technologies, is a pre-requisite for a highly innovative services economy.

The requirement to accelerate the development of an ICT and broadband infrastructure were highlighted in a recent Forfás report on *'Benchmarking Ireland's Broadband performance'*.[8]

6. **Competitiveness and Convergence through Networks, Clusters and Centres of Excellence**

   Clusters and concentrations of activity have a positive impact on services innovation activity. Concentrations or 'hot spots', allow world-class companies to prosper and innovate alongside locally based service innovators. In such concentrations vibrant competition seems to be at least as important as collaboration and services innovation requires this element of competition for ideas, customers and skills to be able to prosper.

7. **Innovation and Creativity through Education and Skills Development**

   Services innovation relies heavily upon human capital particularly the talent and creative skills of individuals and teams. Creativity is a vital ingredient in the innovation process and an invaluable source of competitive advantage to services companies. It therefore needs to be cultivated, from an early age, in school learning curricula through to vocational college and university teaching and lifelong learning. This requires a partnership approach between those agencies involved in delivering both the skills agenda and the new services innovation policy framework.

8. **Services Innovation Policy and an International Economic Image**

   A service innovation policy represents an important opportunity to market Ireland's services sector and delivery agencies as global leaders in the area of services innovation. It also presents an opportunity to incorporate a new, state of the art, services innovation support framework within IDA Ireland's offering to FDI. Ireland's emerging role as a global leader in services innovation can become a key theme in the branding of the Irish economy, complementary to the message that *'knowledge is in our nature'*.

Implementation Environment Conclusions

The typology of services innovation that was developed and used throughout this Study, has been tested and verified in a range of sectors and circumstances. The typology provides the basis for shaping the structure and content of a services innovation policy and framework programmes. The typology is sufficiently robust to allow an Implementation Environment to be proposed using the three types of services innovation.

9. **The Typology of Services Innovation and the Development of Support Measures**

   A number of the existing innovation support measures in place in Ireland can be implemented within services innovation policy. However, simply integrating services innovation into RTD innovation policy would not possess the impact that is required to successfully reach those services companies that traditional RTD innovation policy has not.

   Therefore a distinctive services innovation policy will enable policymakers in Ireland to build upon past successes while realigning overall innovation support according to the growing importance of services innovation for the Irish economy.

   In order to articulate how a services innovation policy could be developed and implemented, examples of activities around which a services innovation policy could be formed are presented in the main Study report. These have been extensively based on the evidence and experience of the global sectors and concentrations studied and the existing experiences of leading services companies in Ireland.

[8] *Forfás report – Benchmarking Ireland's Broadband performance. November 2005. http://www.forfas.ie/publications/forfas051205/webopt/forfas051205_broadband_webopt.pdf*

The above conclusions are designed to create an environment conducive to enabling and promoting services innovation. Further inclusive dialogue and participation are required to develop a novel and distinctive services innovation policy for Ireland.

Concluding Comments

Ireland has an excellent opportunity to position itself as a world leader in the area of services innovation policy. Ireland has already made considerable impact from its policy in favour of internationally traded services and few countries to date have policies and programmes for promoting service innovation. Pioneering countries such as Ireland cannot copy existing policies but need to develop truly innovative policies.

Policymakers in Ireland must continue to demonstrate their commitment to an important economic sector that, across the OECD economies, has to date been minimally sustained by traditional innovation policy support.

Ireland requires new thinking on the economic and business models that have traditionally underpinned success. Ireland's development agencies need to consider whether they can deliver appropriate and effective services innovation support to Irish companies using a support framework and portfolio that relies substantially on a relatively narrow technological concept of innovation. While the innovation support that is made available for innovation generally in Ireland is comprehensive and vital, this Study suggests that it may not be as efficient or effective in addressing the specific character and challenges associated with services innovation generally.

The supports available and offered to services businesses for their innovation activities by the economic development agencies in Ireland may need to be re-thought and realigned in order to continue to be relevant and effective. Novel thinking and renewed policy and support approaches may now be necessary.

Service companies in Ireland are evolving and innovating on a constant basis with a rich pattern of innovation activity in relation to business models, customer interfaces and new services. In addition, Ireland's leading companies in the Internationally Traded Services sector are already exploiting services innovation to increase their competitive advantage.

Services companies in Ireland need to increase their innovation efforts and emphasise the importance to them of non-technological innovation through the development of new business models, customer-interfaces and service-products. In particular, these companies need to be willing to be 'showcased' in Ireland in order to convince less innovative services companies of the value of services innovation to company performance and competitiveness.

1 Background

Chapter 1 sets out both the terms of reference for this study and the background to it. It highlights the study structure, the approach and the methodology of the research carried out. An outline description is also given of the topics addressed in each of the chapters.

Ireland, in common with other OECD countries, is experiencing growth in the services sector. Between 1995 and 2004, for example, employment in the service sector increased by 58%[9] compared to 5.6% in the manufacturing sector[10]. At the same time, the importance of Ireland's services sector is significantly greater, in global impact terms, than the overall size of the Irish economy would predict. For example, Ireland's share of global services exports was 2.2% in 2004[11] compared to its share of the world economy of just 0.32%[12]. While Ireland's service exports increased by 95.7% from 2000[13], in contrast manufacturing exports declined over the same period.[14]

Such trends are not unique to Ireland, and evidence from other advanced economies suggests the trend is likely to continue in the coming years. Yet despite these trends a number of indicators suggest concern for the future. Measures of innovation such as new product and processes, and research and development, for example, point towards lower levels of activity within the service sector[15]. Recent analysis further suggests that productivity in the services sector, for example, increasingly lags behind that of manufacturers[16]. These factors combined, suggest the need for urgent policy responses.

Addressing the challenge of service innovation requires a clear understanding of its concepts and dimensions. It is generally recognised, however, that knowledge of services innovation has largely been informed by studies of the manufacturing sector. While this approach is not wholly redundant, given the close connection in modern economic activity between manufacturing and services, there is a wide consensus that advanced global economies such as Ireland are entering new waters as far as economic and business models are concerned. Consequently new thinking on innovation is required if policy and supports favouring services innovation are to be matched to the new models.

The future competitiveness of the Irish economy will rely to a large extent upon the ability of the services sector and most notably the Internationally Traded Services (ITS) sector to continue to innovate in its services. The question that confronts Ireland's policymakers in the field of innovation is whether they can continue to deliver innovation support to Irish companies through a support framework that views innovation in relatively narrow technological terms, while simultaneously looking to the Internationally Traded Services (ITS) sector as a major source of economic growth and employment[17]. This is not to diminish the importance of the support that is made available for innovation generally, rather it is to emphasise the specific character of, and challenges associated with, services innovation.

Innovation policymakers in Ireland must continue to demonstrate their commitment to the important services industry sector that has to date been undervalued by traditional innovation policy support. This policy development process in Ireland is also an opportunity to raise the profile of Ireland's offering to FDI companies by focusing on services innovation within the Internationally Traded Services (ITS) sector.

9 *OECD. 2006. OECD Annual Labour Force Statistics OECD.Stat (online database) Referenced August 2006.*

10 *CSO. 2006. Employment in Manufacturing by Year: Database Direct. Referenced August 2006. Manufacturing classification NACE 15-37.*

11 *WTO Trade Statistics 2005.*

12 *Forfás. 2006. 'International Trade and Investment Report 2005'.*

13 *CSO. 2006. International. Balance of Payments: Database Direct Referenced August 2006.*

14 *The Irish Times, Dr Dan McLaughlin, Chief Economist at the Bank of Ireland, The Irish Times 22 April 2005, 'Services now driving growth in foreign trade'; The Irish Times, Jim O'Leary, 15 April 2005. 'Manufacturing sector is in terminal decline'.*

15 *See Annex 6.*

16 *Tansey, P. 2005. 'Productivity: Ireland's Economic Imperative'. A study of Ireland's productivity performance and implications for Ireland's future economic success. Commissioned by Microsoft, Dublin.*

16 *See, for example, recent reports such as Enterprise Strategy Group (2004) 'Ahead of the curve: Ireland's Place in the Global Economy'; and FitzGerald, D. et al (2005) 'Medium Term Review 2005-2012', ESRI.*

Only a few countries have begun to consider policies and programmes for promoting services innovation. This means that pioneering countries such as Ireland cannot copy existing policies but need to develop truly innovative policies. Ireland has already made considerable impact with its policy in favour of internationally traded service sectors. However, as the focus on services innovation increases globally, it is recognised in Ireland that fresh thinking and renewed policy approaches may now be necessary. The supports available and offered to services businesses for their innovation activities by the economic development agencies in Ireland may need to be significantly re-thought and realigned in order to continue to be relevant and effective.

Researchers have begun to address the gaps in the understanding of services innovation, as have important EU surveys such as the Community Innovation Survey (CIS). This has revealed that far from lagging behind their manufacturing counterparts, innovation is at the heart of successful service sector activities. This innovation, however, is not necessarily technological, nor always based on activities such as R&D. This Study explores the precise characteristics of services innovation, and identifies a research framework based around a number of specific service innovation types and models.

Alongside the conceptual and empirical research undertaken on services innovation, policy makers in Ireland have begun to address the issue of services innovation. Ireland, through the work of Forfás, has been at the forefront of these moves, beginning with its Review of Product, Process and Services Innovation[18] and the more recent Services innovation Scoping Study[19] that preceded this Study. The Scoping Study in particular, made a significant contribution to the rationale for this Study.

The objectives of the current Study were set out in Terms of Reference[20] as follows:

- To review and examine innovation[21] in services sector in Ireland.
- To identify the main barriers to and drivers of innovation in services.
- To develop innovation policy and measures to stimulate innovation in services.

A key element in the Terms of Reference was to ensure that, at all stages of the Study, there was recognition of the global and international context including using global comparisons to the Irish context as a means of validating and forming study conclusions.

The Forfás Study was carried out between May and November 2005 and was guided by a Steering Group brought together by Forfás[22]. A full outline of the research methodology is included at Annex 2. In short, the methodology was based on a combination of desk research, global services expert interviews and inputs, followed by an interview programme with policy makers and 30 Irish or Ireland-based companies operating in six sectors[23].

The industry sectors were selected in conjunction with the Steering Group and include: Financial Services, Creative Industries, Supply Chain Management & Logistics, Education Traded Services, IT & Computer Services and Healthcare Services. These six services sectors were chosen because they demonstrate high export potential and reflect different models of innovation. They have also been targeted by policymakers in Ireland as emerging sectors that may require more focused innovation support. Whereas three sectors were chosen for the global sector innovation research (including Financial Services, Creative Industries, and Supply Chain Management and Logistics), all six sectors were analysed for their current performance and innovation in Ireland.

[18] *Product, Process and Services Innovation Study, Ireland. 2003. CM International for Forfás.*

[19] *Innovation in Services Sector in Ireland – Scoping Study Final Report 2004. InnovationLab Ireland Ltd, for Forfás.*

[20] *Forfas 2004. 'Invitation to Tender', Version 7th December, 2005.*

[21] *The ToR refers to "service sector innovation"; however, as discussed later (in Chapter 2), services are frequently provided by manufacturing companies or as part of the manufacturing process, therefore for this Study, the more inclusive term 'services innovation' is employed as a general rule.*

[22] *See Annex 1 for details of the Steering Group.*

[23] *Education-traded services, healthcare-traded services, supply chain and logistics, information technology, financial services, creative industries.*

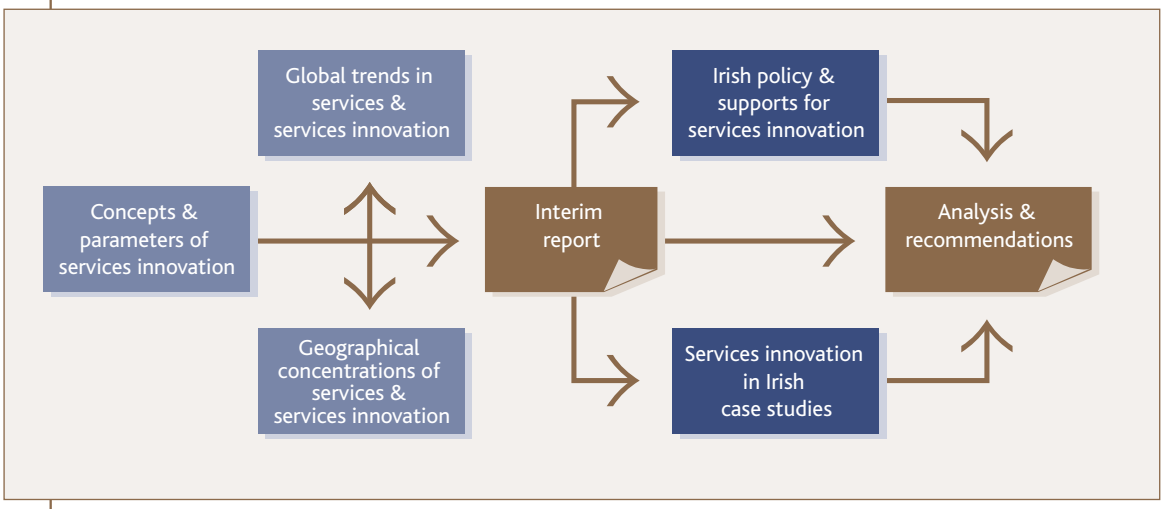
The ICT sector, as a leading component of the international traded services sector in Ireland, was initially considered for inclusion in this Study as one of three global services sectors. However, it was decided that it should not be included on the basis that a detailed study of this sector in Ireland[24] has recently been published. It was considered that greater added value, in terms of knowledge and understanding, could be achieved in this Study through the selection of three other important sectors.

The global context and conditions that have encouraged 'hot spots' of services and services innovation to develop were examined through six geographical concentrations of services activity in the sectors chosen for the Study. In order to provide geographical illustrations of the three global sector studies, two examples of dynamic sector concentrations for each of the three sectors were selected. A selective 'case study' approach to the understanding of the geographical concentrations was chosen due to the paucity of data and indicators on services innovation generally and in key concentrations specifically. A flexible definitional approach was taken to the selection of these dynamic sector concentrations encompassing countries, states, regions and cities, while maintaining a concern of their overall comparability.

Despite the attention given to these concentrations or 'hot spots' it was always clear that the environmental factors or policy conditions that have enabled the concentrations to develop should not be seen as directly transferable policy prescriptions for Ireland notwithstanding that some of the environmental factors distinguishable in the hot spots may be particularly interesting and relevant for Ireland.

The key dimensions of the methodological approach are set out in the diagram shown below (Figure 1).

Figure 1 *Study Methodology*



A key element of this methodology is the exploration, in Chapter 2, of the concept of services and services innovation that can be derived from both the literature and wider global studies on the topic. Throughout this report, the underlying typology for services innovation established in Chapter 2 is used as the framework for description and analysis. The robustness of this typology allows the conceptual framework to be applied throughout the conclusions emanating from the Study.

[24] *IBEC/ICT Ireland 2002. 'R & D: Securing the Future of ICT in Ireland', September.*

This report is structured in accordance with the research phases described in Figure 1. It begins by exploring the concepts surrounding innovation in services and identifying key types and models of services innovation. Drivers, barriers and environmental factors favouring innovation in services are also identified. The conceptual framework described in Chapters 2 is then, in Chapter 3, operationalised in the context of understanding services innovation occurring in the three 'global' services sectors identified and further illustrated by reference to features of innovation within a number of important geographical concentrations of the service sectors.

In Chapter 4, the current state of services innovation in Ireland is examined and further described through a case-study based analysis of the types and models of innovation prevalent in the Irish economy. Chapter 4 also brings the drivers, barriers and environmental factors affecting services innovation in Ireland into focus. The policy and programme environment for services innovation in Ireland is considered in Chapter 5 with further reference to the typology and models of services innovation from the earlier discussion.

Chapter 6 completes the report by bringing together the key conclusions from the study and developing policy and programme conclusions.

A considerable amount of data and information was generated, synthesised and analysed in the conduct of this Study. It is difficult to detail this fully in the main body of the report however much of it is included in the series of Annexes that accompany this Report.

2 Conceptualising Services Innovation

Chapter 2 explores the concept of services and services innovation through both the literature and wider global studies on the topic. The underlying typology for services innovation is developed and is used as the framework for description and analysis. The robustness of this typology allows the conceptual framework to be applied throughout the policy conclusions emanating from the Study.

2.1 Key Concepts and Definitions

Innovation is widely recognised as a major driver of economic growth and has become an established theme within the economic policies of the European Union, national governments and sub-national authorities. By contrast, although the more specific focus on innovation within the services sector is now the subject of growing interest among policymakers in OECD economies[25], services innovation policies are relatively under developed. The increasing salience of services innovation can be attributed to a growing realisation that innovation itself is fundamentally an economic process that is not limited to technology-based innovations. It is also a product of the rising dominance of the services sector in developed economies and their reliance on this sector as a source of employment and economic growth.

However, for a number of reasons, the conceptual nature of services innovation is less straightforward to explain than its growing profile in policymaking discussions. First of all, services are intangible processes that have specific features. Secondly, services are interactive, with several parties, typically the service provider and customer, participating in the innovation process. Thirdly, services are extremely diverse in nature. Finally, services innovation can be linked to several different levels, the economy, business strategy, operations and even individuals[26]. The following sections begin by discussing some key concepts: namely, innovation, services and, in particular, services innovation.

Innovation

In economic terms, innovation can be considered to be the successful application and commercialisation of new ideas emanating from new business processes, markets, products or services. Ultimately, innovation serves to create wealth through the fulfilment of customer needs. This definition of innovation can be traced back to Schumpeter[27] who distinguished between five different types of innovation: New products, methods of production, sources of supply, exploration of new markets and new ways to organise business.

Notably, early definitions of innovation do not mention services, or technology explicitly, but they could be included under the categories of product and methods of production. To be an innovation, a new or significantly improved idea, good, service, process or practice which is intended to be useful, also needs to be implemented.

[25] *Pilat, D. 2005. 'Enhancing the performance of the services sector – Some implications for Japan', Directorate for Science, Technology and Industry, OECD, Paris.*

[26] *Gallouj, F. 2002. 'Innovation in the service economy – The new wealth of nations', Edward Elgar, Cheltenham, UK.*

[27] *Schumpeter, J. 1934. 'The Theory of Economic Development', Harvard University Press, Cambridge, Mass.*

Rapidly developing technology has become a very important, and often dominant, element in innovation discussion. For instance, R&D and innovation, as set out in the OECD's Frascati and Oslo manuals[28], have been highly technologically oriented. The more recent Oslo manual, however, expands the innovation concept significantly and services innovation is recognised as a significant and legitimate aspect of innovation[29]. Yet this wider definition of innovation is less specific about what are the key dimensions and criteria of innovation. This underlines the need for more specific conceptual development on services innovation.

Service Sector

Services represent a large range of highly heterogeneous non-manufacturing activities, and as a result there is no universally accepted definition[30]. Service industries consist of enterprises in which the final commodity, service or product is in some way intangible or immaterial, and which contains a labour force made up of both service and non-service occupations[31].

Services may involve the transport, distribution and sale of goods from producer to a consumer as may happen in wholesaling and retailing, or may involve the provision of a service, such as in tourism or entertainment. The goods may be transformed in the process of providing the service, as happens in the restaurant sector, alternatively, there may not be any goods involved, as in the consulting sector. However the focus in services is on people interacting with people and serving the customer rather than transforming physical goods.

For the last 20 years there has been a substantial shift to the tertiary sector in industrialised countries[32]. Services now account for around 70% of GDP and employment in OECD countries and represent a large spectrum of high and low skilled jobs. Service functions are activities that cut across the economy. The key features of service functions are that they are present in, integrated into, and thus add value to every stage of the value chain. They underpin the existence of all enterprises, whether in manufacturing or services, micro or large enterprise[33].

Recent research by the OECD characterises the development of services in several countries over the past decade as resulting primarily from the strong performance of certain market services, notably telecommunications, transport, wholesale and retail trade, finance, insurance and business services[34]. Over the past decade these services have accounted for approximately 60% of all employment created in the OECD area[35]. Community, social and personal services, including health and education, accounted for the remaining 40% of employment creation in the OECD area.

The North American Industrial Classification (NAICS) presents a more detailed breakdown of the service sector than its predecessor Standard Industrial Classification (SIC). NAICS is structured around five largely goods-producing industries (NAICS 11 to 31-33), and fifteen service-producing industries (NAICS 41 to 91). The 15 economic sectors specified by the NAICS (2002) as services-producing industries are listed below (Table 1).

[28] *OECD 1995. 'The Measurement of Scientific and Technological Activities. Proposed Guidelines for Collecting and Interpreting Technological Innovation Data. Oslo Manual', 2nd edition, DSTI, OECD/European Commission Eurostat.*

[29] *OECD 2005. 'Oslo Manual The Measurement of Scientific and Technological Activities: Proposed Guidelines for Collecting and Interpreting Technological Innovation Data'. http:llwww.oecd.org accessed 9 March 2005, pp. 31-37.*

[30] *Bryson, J., Daniels, P., and Warf, B. (2004. 'Service worlds – People, organisations, technologies', Routledge, London, UK.*

[31] *Bryson, J., Daniels, P., and Warf, B (2004. 'Service worlds – People, organisations, technologies', Routledge, London, UK.*

[32] *Encyclopedia 2005. 'The service sector', http:llencyclopedia.laborlawtalk.com/Service_sector, accessed 14.10.2005.; Wölfl, A (2005. 'The Service Economy in OECD Countries: Enhancing the Performance of the Services Sector, Chapter 2', OECD, Paris.*

[33] *EFBRS 2005. 'European Forum on Business Related Services 2005 report', European Commission DG MARKT, Brussels, Belgium.*

[34] *Pilat, D. 2005. 'Enhancing the performance of the services sector – Some implications for Japan', Directorate for Science, Technology and Industry, OECD, Paris.*

[35] *Wölf, A. 2005., 'The Service Economy in OECD Countries: Enhancing the Performance of the Services Sector, Chapter 2', OECD, Paris.*

Table 1 *Services-Producing Industries*[36]

Wholesale Trade (NAICS 41)	Administrative and Support, Waste Management and Remediation Services (NAICS 56)
Retail Trade (NAICS 44-45)	Educational Services (NAICS 61)
Transportation and Warehousing (NAICS 48-49)	Health Care and Social Assistance (NAICS 62)
Information and Cultural Industries (NAICS 51)	Arts, Entertainment and Recreation (NAICS 71)
Finance and Insurance (NAICS 52)	Accommodation and Food Services (NAICS 72)
Real Estate and Rental and Leasing (NAICS 53)	Other Services – except Public Administration (NAICS 81)
Professional, Scientific and Technical Services (NAICS 54)	Public Administration (NAICS 91)
Management of Companies and Enterprises (NAICS 55)	

2.2 Characteristics of Service Activities

A number of key features are characteristic of services:

- Intangible in nature and more performance than object based.
- Production and consumption occur simultaneously in interaction between the client and service provider – inseparability.
- Unlike goods, services cannot be stored and inventoried because of their perishability.

Rather than develop a 'universal' definition for services, it is more useful to focus on grounded definitions that do more justice to the highly heterogeneous nature of services.

Key questions that help to shed light on the characteristics of services include[37]:

- What is the nature of the service interaction?
- What is the use value of interrelated good and services to the customer?
- What type of relationship does the organisation have with its customers?
- How much room there is for customisation and judgement on part of the service provider or consumer?
- What is the nature of demand and supply for the service?
- How is the service delivered?

These questions are significant from a services innovation perspective and will be discussed below.

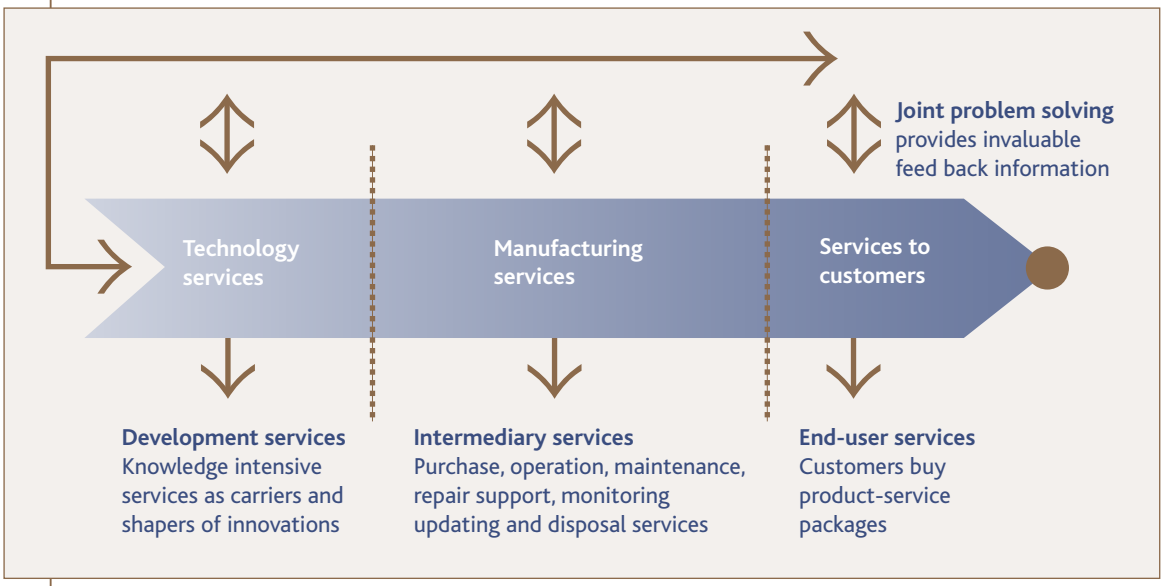
An expanding share of manufacturing companies have also become service providers due to the growing importance of services in the value added creation of all sectors of the economy[38]. Consequently manufacturing and services are increasingly intertwined: with the distinction between manufacturing and services becoming increasingly blurred and in some cases outdated.

[36] *Industry Canada, 2005., 'North American Industrial Classification', Ottawa, Canada. http://strategis.ic.gc.ca/sc_ecnmy/sio/cis41-91defe.html, accessed 15.09.2005.*

[37] *Kuusisto, J. 2000. 'The determinants of service capability in small manufacturing firms. An international study analysing services value adding potential in different product-market combinations in the printing industry', Doctoral dissertation, Kingston University, London, UK.*

[38] *EFBRS 2005. 'European Forum on Business Related Services 2005 report', European Commission DG MARKT, Brussels, Belgium.*

Figure 2 *Examples of Services Located in Various Parts of the Value Chain*[39]



A core element of services is illustrated by the large dot in Figure 2, which represents the customer interface. Services offer close interaction with customers, providing opportunities to capture their tacit knowledge from customers. The capability of a business to diffuse insightful customer information within its organisation and then initiate effective action including product, service and organisational development provides a strong basis for improving business performance.

2.3 Defining Services Innovation

Service supplier businesses pursue services innovation in order to retain or improve their competitive position in the market place. Services innovation refers to new or considerably changed service concepts or service delivery processes that deliver added value to the client by means of new or improved solutions to a problem[40]; methods of improving performance; a desired opportunity for consumption or consumer services. For a novel feature to constitute innovation it needs to be both repeatable and scalable. Scalability can be related to the novel service concept or service delivery process, for instance, franchising.

The key dimensions of services, discussed earlier, provide a basis for a more specific definition of services innovation:

A new or considerably changed service concept, client interaction channel, service delivery system or technological concept that individually, but most likely in combination leads to one or more (re)new(ed) service functions that are new to the firm and do change the service/good offered on the market and do require structurally new technological, human or organisational capabilities of the service organisation.[41]

The definition emphasises the interactive and multidimensional nature of service innovation. It also recognises that service innovations are often incremental improvements rather than radical innovations (Table 2).

[39] *Adapted from: Kuusisto, J. and Meyer, M. 2003. 'Insights into Services and Innovation in the Knowledge Intensive Economy'. TEKES – Technology Review. 134.*

[40] *Tidd, J.; Hull, F. 2003. (eds) 'Service Innovation: Organizational Responses to Technological Opportunities and Market Imperatives', London: Imperial College Press.*

[41] *van Ark, B. and den Hertog, P. 2003. 'Service Innovation, Performance and policy: A review', Ministry of Economic Affairs, The Hague, Netherlands.*

Table 2 *Examples of the Dimensions of Service Innovation*

Dimension of Service Innovation	Examples of an Innovative Service Concepts
New network, business model and value chain configurations	• Financing, insurance and phone services offered by supermarkets, e.g. Tesco Finance. • Open source software development and distribution.
Delivery system innovation	• ATMs, telephone and internet banking. • Amazon.com internet bookshop that originally offered new electronic customer interface. Now the scale of delivery system and availability of extensive customer profile data facilitate further innovation, e.g. introduction of totally new product categories, such as gardening tools.
Organisational innovation	• First Direct's purpose built organisation, office buildings and location facilitating call centre functions of telephone banking. • Turnaround of Yellow Roadway Corporation to customer value driven service provider required fundamental change of the entire organisation.
Customer interface innovation	• Global tracking of deliveries via purpose built internet site. Followed by introduction of eShipping Tools for automated shipping process, eCommerce Solutions enabling online trading integrated with FedEx shipping capabilities. • eSupply Chain Solutions enabling improvements in global supply chain performance.
Technology and product based innovation	• Internet and on-line services. • Mobile phone based tracking. • GPS location identification services, e.g., in the case of a road accident or theft of a car. • Radio frequency identification (RFID), electronic toll collection at toll booths, library book or bookstore tracking, pallet tracking, building access control, airline baggage tracking, and apparel item. • Nanotechnology based developments.

As Table 2 illustrates, services innovation can include dimensions that have new features, for example new knowledge, new technology, organisational change, or new type of delivery channel. Perhaps even more typical are new combinations of existing knowledge, technology and concepts. These can include such combinations as:

- Combining existing service elements, e.g. full service health holiday packages.
- Splitting up service elements, e.g., budget airlines.
- Development of service products – modularisation & branding of services, e.g., Amex, Virgin group's brand proliferation from records to train service etc.

- Customer specific application – tailor-made innovations, e.g., solutions selling by mobile network suppliers.
- Close co-operation – e.g., ad hoc innovation by consultant and client during the assignment.
- Adding features to service – incremental innovation, e.g., contracts with mobile operator are continuously upgraded.
- Change in delivery mode – formalisation of new features, e.g., the flow of new services by Tesco.

As manufacturing and services functions are becoming increasingly intertwined most business activities are now made up of different mixes of both manufacturing and service functions[42]. Thus, many of the peculiarities associated with services innovation, such as a strong presence of organisational innovation, involvement of multiple actors in the process of innovation and the codification of knowledge for innovation also apply to manufacturing[43]. Hence, the traditional technological approach to innovation is too narrow and the need for a new synthesis approach to innovation is underlined.

2.4 Global Trends Influencing Services and Services Innovation

The growing importance of services companies and services innovation activities in modern developed economies means that they are affected by the dominant trends that are affecting these economies and the global economy as a whole. The main trends are well known to most observers of the global economy but are worth rehearsing at this stage of the Study since the effect of these trends can be discerned at a global and Irish level in the services sectors studied. Further detailed descriptions are included at Annex 3.

Globalisation

Globalisation of the market economy in services is a driving force for services innovation. This may result from the effect of globalisation on market expansion, increasing external competition at the local and national level or the impact of international drives towards greater openness and transparency in internationally traded markets. This has taken place alongside the advent of supra-national regulation of service provision as a commonplace feature across the global economy as well as across regional trading blocs such as the European Union.

Service sectors have generally been quick to seize opportunities arising from globalisation effects. For example, increasing globalisation has created opportunities for leading companies to access new markets and to create significant operating efficiencies for its customers.

The impact of globalisation is not, however, universally applied. Globalisation has caused significantly increased competition and market transparency for services industries. However, intensified competition frequently has the effect of eroding traditional margins and has driven companies to innovate in order to remain competitive. The rise to global prominence of major multi-national conglomerates that no longer regards any one national economy as its 'home' market is a further feature of globalised markets in services.

[42] *van Ark, B. and den Hertog,, P. 2003. 'Service Innovation, Performance and policy: A review', Ministry of Economic Affairs, The Hague, Netherlands.*

[43] *Drejer, I. 2004. 'Identifying innovation in surveys of services: a Schumpeterian perspective', Research Policy 33, 551-562, Elsevier B. V., Netherlands.*

Transition to the Knowledge Economy

The much-heralded transition to a Knowledge Economy is in many respects most clearly seen as a trend in the services sector of the economy. A knowledge economy places a premium on the high skill levels. A number of influential commentators such as Richard Florida[44] and Charles Landry have created fresh 'conceptual models' of economic development in the global economy based largely on the importance of high skills, talent and creativity to major economic conglomerations and urban societies.

One key characteristic for services innovation in this respect is the trend towards greater use of external specialist skills amongst services companies. This provides the employer with specific expertise on demand and a specialised but flexible portfolio of talent. A further knowledge economy trend relevant here is the premium that is placed on the development of specific centres of expertise adjacent to but not tied to a key cluster of service companies.

Decomposition and Re-composition

The shape and structure of services sectors changes rapidly. In particular, the services sectors are characterised by the forming and re-forming of companies, networks and working arrangements. This trend may be described as *de-composition* or the breaking down of previous business models and *re-composition* or the formation of new business models and working arrangements. This process has been notable in producing growth in specialist 'third party' services within services sectors. A further important trend that derives from decomposition and re-composition is the growth of *outsourcing*.

Technology Enabling New Service Innovations

Technology development has a dual role in services innovation; it is both a driver of innovations and an enabler of innovations. The precise effect of technology is difficult to discern since its pervasive influence can be detected in many of the trends identified here. For example, technology enables services companies to offshore their activities but its competitive impact is also partly behind the drive for lower costs and so on. To try to disentangle these complex and sometimes arcane influences would be counter-productive and distracting; we concentrate here on the end result of technology development rather than its precise operation within the sector.

In essence, technology enables the creation of new service delivery mechanisms and in the process tends to create much shorter 'product' life cycles than have hitherto been common in services businesses. With comparatively limited investment required in capital assets, technology has enabled services sectors to continually and rapidly refresh their product ranges producing new ways of dealing with customers and offering a fresh range of services on an almost continual basis.

Changing Market Dynamics Caused by Demographic Change

A final evident global trend affecting innovation in services is the demographic shifts that are, to one degree or another, affecting the global economy. The so-called 'demographic time-bomb' of a generally ageing population, while not being universally experienced[45] is nevertheless a trend that has impacts for global services sectors. In particular, a global economy where significant parts of the economy is experiencing a generally ageing population alongside other newly developed members of the economy with a much younger population not only provides opportunities for new services offerings but also new ways of delivering those services.

[44] *Florida, R. 2002. 'The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community and Everyday Life'.*

[45] *For example in Ireland, over 52% of the population is aged less than 35 (Central Statistics Office, 2005, 'Population and Migration Estimates – April 2005', p. 2).*

2.5 A Typology of the Services Innovation Process

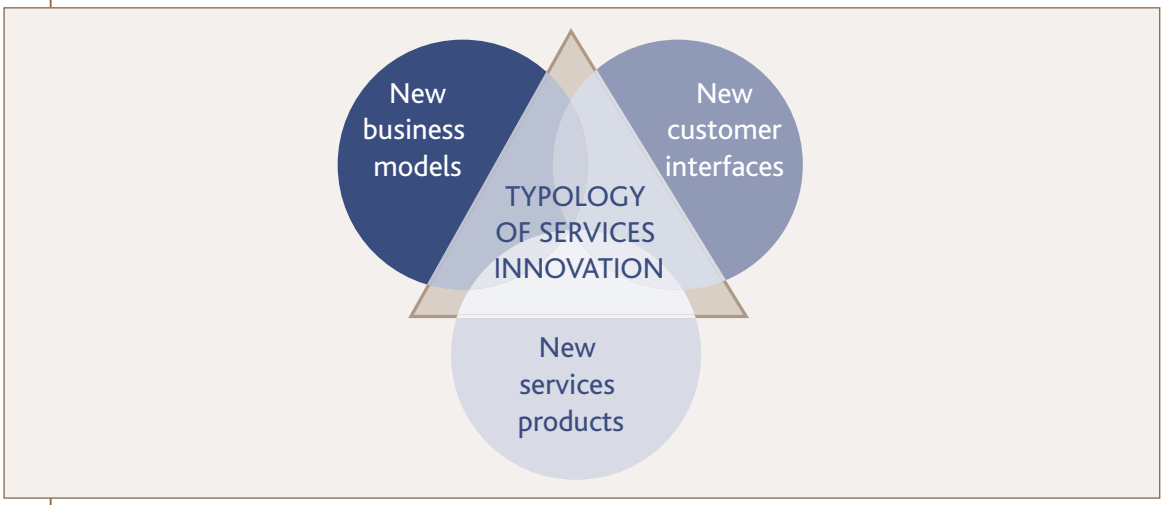
Innovation involves incremental improvements to productivity, efficiency, quality and features of service[46]. In many cases the innovation is not necessarily a brand new idea. It is more likely that organisations will continually innovate to maintain a competitive edge, develop new markets or reduce the cost of production through innovative processes. The services innovation process is, therefore, typically multidimensional, often incremental, based on an informal and interactive process and can be difficult to simplify as a universal form. Service innovation takes numerous different forms not only because of its multidimensional nature but also because of the enormous number of different types of services that exist on the markets.

As described in Table 2, service innovations can be related to technology and products, the customer interface, delivery systems, organisational changes, new types of value chains and network configurations. Innovation in services can also be viewed in relation to either the technological or non-technological dimension.[47]

The technological dimension of services innovation tends to evolve around ICT developments, such as the installation of new computer hardware or the adoption of a customised software package. The non-technological dimension concerns the introduction of a new service concept, a new client interface or a new service delivery system.

In order to operationalise these concepts, this Study of services innovation simplifies this theoretical analysis as a three-fold typology of services innovation as shown in Figure 3.

Figure 3 *A Typology of Services Innovation*



The typology set out in Figure 3 is used throughout this Study in order to aid consistency and allow a structured development of findings and conclusions.

New Business Models/Concepts

Services businesses, partly due to the speed and immediacy with which they are able to address new opportunities, demonstrate a type of innovation that involves a complete or substantial change in the way in which revenues and profits are earned. Business model innovations can give a firm a strong and sustainable competitive advantage, however, companies must typically continuously rethink their organisational arrangements in order to accommodate new business models as value migrates within and between sectors or players in a sector.[48]

[46] *Sundbo, J. 2002. 'Innovation and learning in services – Involvement of employees, Presentation at the 1st International Symposium on Service Engineering and Management', DL '02 Fraunhofer IAO, Stuttgart, 26 November 2002.*

[47] *van Ark, B; Broersma, L; den Hertog, P. 2003. 'Services Innovation, Performance and Policy: A review'; and den Hertog, P; Broersma, L; van Ark, B. 2003. 'On the soft side of innovation: Services innovation and its policy implications', De Economist, 151, 4, p. 433.*

[48] *The advent of low cost or budget airlines in the 1990's was a typical innovation through business models.*

New Customer/Delivery Interfaces

Innovating in the customer interface implies improving the dynamic exchange of information in services that occurs between the customer and a service provider and which is a key element of any service function. The interface may be face-to-face; distant or entirely electronic and in all cases requires a heavily reliance on the staff employed, the technology that is mobilised and the timing of the exchanges. Technology may be a key enabler of such innovations although it is rarely a driver in its own right.[49]

New Service-Product Offerings

This type of services innovation is the most analogous to traditional manufacturing based innovation activity. Services companies need to introduce new services in order to respond to customer demand or competitor pressure as much as a manufacturing company. However, even here there are significant features that characterise services innovation. Potentially the most important of these is the relative speed with which new services can be brought to the customer compared to manufactured products.

The above typology assumes that each of these three types of services innovation can involve both technological and non-technological dimensions.

2.6 Different Approaches in Service Innovation

Innovation in business is achieved in many ways with much attention now given to formal research and development for "breakthrough innovations." However, innovations may be developed through less formal on-the-job modifications of practice, exchange and combination of professional experience and by many other routes[50]. Typically, although radical and revolutionary innovations tend to stem from R&D, new applications of technology or from regulatory changes, more incremental innovations often emerge from practice and customer interaction. However, there are many exceptions to each of these trends.

Furthermore, the innovation process is neither linear nor rigid and may involve a variety of stages, or only a few, in different order. Incremental improvements often take place with the client and are then simply incorporated into the process. Often the launch of a radical innovation will be followed by incremental improvements. Hence, one particular service innovation may display different types of innovation process during its life cycle. Consequently, the type of innovation will influence the process followed and the way the innovation is measured and applied.[51]

Businesses can adopt numerous different approaches to service innovation development. The following approaches are relatively generic in nature, but emphasise different priorities that can drive service innovation.

Traditional R&D – Sequential Service Development

In this model, services are developed through a series of stages before entering the market: market research, service ideas, development of initial concept, testing of the concept, formulation of the final product, launching on the markets. The successful launch of service innovation requires simultaneous development of a service concept and revenue logic; enabling technologies and organisation that can deliver the new solution.

[49] *The innovation of Internet banking is a good example of innovation in the customer interface.*

[50] *Sundbo, J. 2002. 'Innovation and learning in services – Involvement of employees, Presentation at the 1st International Symposium on Service Engineering and Management', DL '02 Fraunhofer IAO, Stuttgart, 26 November 2002.*

[51] *The Western Australian Innovation Centre. 2002., 'Innovation Guide', http://www.innovation.wa.gov.au/Innovation/Innovation_Guide, The Department of Industry and Resources, East Perth, accessed 14th September 2005.*

Fast Market Entry – Emphasis on Speed And Cutting Down Time to Market

This approach to the innovation process is typical for situations where the first mover advantages are considered important. The process starts with a service idea, which will be launched quickly on the markets. Further development is based on feedback from the customers. This is a risky approach which can easily backfire. It is more suitable for services where speed is important and 'fixed' costs are reasonable, e.g., new type of cellular phone contract.

Incremental – Formalising Existing Practices of Service Delivery

Service innovations can be incremental and hard to discover and as result evolving practice builds up gradually to an 'accidental innovation'. Discovery of the service 'evolution' leads into more formal service concept development and marketing.

The models of service innovation set out above highlight the multidimensional and interactive nature of service innovation. They also indicate that traditional type R&D is only one possible source of innovation. Service innovations often involve incremental changes while radical innovations can be quite rare. There are also many occasions where individual customer solutions are not repeated and consequently potential service innovations are not realised.

The relationship between innovation and organisational learning is important in this context since it is a crucial enabler of service innovation. Both employees and managers play a core role in innovation processes in services and many new service innovations can be realised only after the organisation as a whole has gone through a change in behaviour. In addition, employees may create many individual solutions for clients, which should be diffused to the wider organisation.[52] The importance of support for organisational learning in the services innovation process is considered further in drawing conclusions for support programmes in Chapter 6.

2.7 Summary

The conceptual findings, outlined in this Chapter, indicate that the traditional models of innovation do not provide a sufficient basis for understanding the complexity and distinctiveness of services innovation. In this respect the findings suggest that current models owe more to manufacturing/ technological innovation, than they do to services innovation which is an intangible process involving often complex interactions between the service provider and customer. This, it is argued, means that traditional measures of (technological) innovation such as R&D, patents and so on are not adequate.

In addressing the limitations of existing models of innovation, the Chapter considers the recent findings of services innovation researchers, and outlines an emerging typology of innovations based around three dominant types from previous studies: *new business models, new customer interfaces, and new services*. These types of innovation it is argued are not exclusive to the services sector, as such, but they do enable a broader spectrum of innovative activities to be considered.

Different models or approaches to the innovation process are also considered in the Study. Here, research suggests that companies can adopt a number of approaches towards services innovation. These approaches include: *fast-track; systematic and incremental*. As such, the approaches seek to provide a wider range of approaches to innovation than is typically found in the manufacturing sector (which has largely concentrated on more systematic, staged-based approaches linked to technical R&D). The role of technology was also considered in this Chapter. Here, it was noted that these types of services innovation do not exclude technological changes or adaptations. Indeed, research suggests that technological development represents an important enabler of the services innovation types.

[52] *Sundbo, J. 2002. 'Innovation and learning in services – Involvement of employees', Presentation at the 1st International Symposium on Service Engineering and Management', DL '02 Fraunhofer IAO, Stuttgart, 26 November 2002.*

The conceptual framework outlined above provides the basic building blocks for the subsequent stages of the research. The Study uses these types and approaches of Services innovation as a framework with which to structure and interpret the state of services innovation both at a global level through three key services sectors and in Ireland through a series of case studies of services innovation as well through a review of policy and supports favouring innovation in Ireland.

3 Global Sectors and Services Innovation

In Chapter 3 the conceptual framework described in Chapter 2 is operationalised in the context of understanding services innovation occurring in the three 'global' services sectors examined in this study and are further illustrated by reference to features of innovation within a number of important geographical concentrations or 'Hot Spots' of the service sectors.

3.1 Introduction

The aim of this Chapter is to explain the importance of services innovation within an international services sector context by operationalising the conceptual understanding of services innovation outlined in Chapter 2 and in particular the three types and three approaches of services innovation developed there.

A number of global services sectors were selected together with a range of dynamic sector concentrations in order to provide a focused context for this international research. This research was conducted through a combination of desk-based research alongside interviews with international experts on these dynamic sector concentrations. By integrating this globally oriented and geographically based sector research, on the basis of our conceptual framework for services innovation, it has been possible to identify a number of important developments and factors, which have contributed towards the relative success of these examples.

From the outset of this Study the Steering Group expressed a strong interest in selecting a number of international comparators that displayed particular spatial and environmental factors of interest, such as education, entrepreneurship and networks. It is important to note, however, that this Study is not intended to provide a rigorous benchmarking analysis of services innovation in Ireland against these international comparators. Rather, this Chapter identifies a range of lessons that are of potential relevance to innovation within the services sector in Ireland.

An additional challenge for this Study, and indeed with international comparative analysis in general, concerns the need to exercise caution when seeking to transfer policy lessons across time and space in view of the constraints posed by contextual specificity. Whilst this Chapter identifies a number of lessons from this global research, an assessment of their relevance to the Irish context is attended to in subsequent Chapters on services innovation within Ireland and the Irish policy support framework. This is because such an assessment should not precede analysis of services innovation within Ireland.

This Chapter examines services innovation in three key 'global' services sectors, which were chosen in conjunction with the Steering Group and include: Financial services, creative industries, and supply chain management and logistics.

These three services sectors were chosen because they demonstrate high export potential and reflect different models of innovation. They have also been targeted by policy in Ireland as emerging sectors that may require more focused innovation support[53]. Descriptions of services innovation in the three global sectors are included in Annex 4 as are brief portraits of the six sector concentrations in Annex 5.

In order to provide geographical illustrations of these global sector studies, two examples of dynamic sector concentrations ("Hot Spots") for each of the three sectors were selected. A flexible definitional approach was taken to the selection of these dynamic sector concentrations encompassing countries, states, regions and cities, while maintaining a concern of their overall comparability (Table 3).

[53] *It is worth noting that the ICT services sector was not included because a detailed study has already been conducted on this sector.*

Table 3 *Sectors and Locations Selected for the Global Sector 'Hot Spot' Study*

Creative Industries	Financial Services	SCM & Logistics
Scotland (UK)	London (UK)	Amsterdam (NL)
Stockholm (SWE)	North Carolina (USA)	Memphis (USA)

The selection of appropriate geographical case studies for this Study emerged from initial discussions between the Steering Group and the CMI consortium.[54] Descriptions of services innovation in the six sector concentrations are given in Annex 5.

This Chapter examines the importance of services innovation to the three global services sectors and provides specific illustrations taken from the six geographically based case studies. This description draws upon the conceptual framework developed in Chapter 2 and considers the various types, approaches, drivers and barriers of services innovation. It also identifies a number of environmental attributes that favour or support services innovation.

3.2 Testing the Typology of Services Innovation

Chapter 2 of this study set out a number of important concepts and a typology that underpins our understanding of services innovation. Amongst these was the distinction between different types of services innovation that can be observed to be at work in service companies or sectors.

In this section, the aim is to explore this typology and to illustrate them with reference to the three global sectors studied.

3.2.1 New Business Concepts and Models

The preceding Chapter identified a number of global trends affecting the services sector that create or drive opportunities to create fresh models of doing business in the services sectors. A key feature that was identified is the trend toward de-composition and re-composition of businesses and in particular the influence of outsourcing of activities.

De-composition of services can be clearly seen in the trend towards 'offshoring' of services notably in the financial sector. Offshoring of financial services is a form of outsourcing that is taking place at a fast rate with some estimates suggesting that offshore functions may cover around 70% of staff, while the remaining 30% will be retained onshore.

New business models emerging from de-composition of the financial services sector are also evident. With an increasing push towards both globalisation and convergence, a number of international financial service providers with strong links to their customer base are beginning to consider the benefits of 'owning' the customer and leaving financial product manufacture or service provision to others. This shift is evidence of a move towards smaller hubs of organisations within wider networks and strategic alliances along supply and distribution lines. This will also have the effect of creating numerous areas of professionalisation and new specialisations[55]. Financial services may, at one extreme, display growing similarities with the automotive sector, with its efficient supply chain of parts providers.

In the creative industries, the outsourcing of activities from big studios to specialist suppliers of editing, lighting, recording, and sound has made the major creative industries companies little more than bankers. Content creation is now typically outsourced from large corporations to SMEs, consequently, creative content production is often held up as a model for new knowledge economy

[54] *The final selection by the Steering Group followed preliminary research into approximately ten potential case studies. Each was assessed in order to ascertain their relative level of interest and relevance to the Irish context as well as their overall feasibility at a research level.*

[55] *Financial Services Education Agency Australia (FSEAA). 2004., 'Financial Industry – Future Growth and Challenges', Sydney, Australia.*

business models including not only in terms of outsourcing but also the 'temporary company' and 'just-in-time' employees. A recent study of the European logistics sector has indicated that some 94% of European companies have already outsourced their warehousing functions to outside companies. Outsourcing is partly driven by 'lean' or 'agile' manufacturing techniques, and the associated reduction in inventory levels, while the growth of 3PL and 4PL services businesses providing supply chain services once undertaken 'in house' by manufacturers, is evidence of the impact of de-composition in the sector. Another example of the development of new business models in the logistics sector is the current emergence in the Memphis logistics hub of the bio-logistics industry, which involves the packaging and shipping of cell tissues.

At the same time as de-composition, new business models are also emerging as a result of the 're-composition' of services. In the financial services sector examples of this include the commoditisation of insurance, savings and loan services through individual 'one stop shop' companies, providing 'risk free choice' based on well known brands such as 'Virgin'. Re-composition can be expected to change monolithic financial institutions into dynamic, loosely coupled service based organisations focusing on customer service. In SCM-logistics, services previously unassociated with logistics, such as call centre management, warranty and repair work etc are being re-combined with transport services under the 4PL 'brand'. This involves services that represent non-traditional service areas such as assembly and repair for example. Also, digital technology has resulted in the reconfiguration of the creative industries sector, for example in Scotland's computer games development, music, film, TV and radio, publishing, design, and advertising industries. In turn, this has increased the potential size of the customer base, by-passed intermediaries in the value chain and integrated different services and sectors within the creative industries. Another trend in creative industries business model development has been the merging of production and publishing companies in the Stockholm music industry. This has resulted in the creation of small networks oriented to the identification and development of new talent.

3.2.2 New Service Delivery/Customer Interface

In Chapter 2, it was noted that one of the key differences between services innovation and product innovation is the frequency with which innovation in services revolves around the interface with the customer and the means of delivering the service to the customer. Most notably, the impact of new electronic channels of service delivery is apparent in all services sectors.

In the creative industries sector for example, electronic distribution channels such as provided by the Internet are the enabling mechanisms for new services based on creative content, particularly in music, games and short films. The recent and rapid rise of downloadable music, as a significant mode of distribution for music tracks, is one obvious example of new service delivery and customer interface innovation. In financial services online technologies are enabling financial services to be provided to customers through innovative interfaces, such as internet banking which is rapidly replacing telephone banking. In order to compete effectively financial institutions need to invest constantly in technology to improve their customer services. These new delivery interfaces and models allow financial services institutions to remain flexible to client needs and to bring new products to market quickly.

In SCM-logistics the growing use of the Internet as an interface with customers has seen the rapid growth of e-logistics as a service delivery mechanism. These services enable the provision of services such as online ordering, tracking and tracing of shipments, and account management, for both business-to-business, and business to customer interfaces. Innovative uses of the Internet as a customer interface are also evident in the emergence of online auctions of spare logistics capacity. Such services emerged strongly during the so-called dot-com boom, but a number have continued.

Freight Traders, for example, was established in 2000 and is said to have 4,500 users from 1,000 companies[56]. In the Memphis logistics sector, Blue tooth and GPRS PowerBooks have been developed for the courier market, achieving estimated savings of $20m per annum. In addition, client demand from large corporations such as Wall Mart and Microsoft has helped to drive the adoption of RFID throughout Memphis. FedEx is considering introducing RFID to the tracking of value added items that may have specific requirements such as temperature control and the life cycle of produce, meat and other time sensitive items. New technologies such as wireless networking therefore play an important role by enabling companies to develop new and faster methods of interacting with suppliers and clients.

New customer interfaces are also an important form of innovation in services. In financial services for example, the emergence of supermarkets as finance providers opens up a field where banks and insurance companies can re-organise and develop their product portfolios. The back office functions in these new finance services providers are being offered by established banks, with the front end interface being provided by an established retailer such as a supermarket. SCM-logistics companies have also begun to experiment with innovation in customer interfaces through existing resources such as courier agents. FedEx, for example, are responding to opportunities presented by this customer interface by developing 'look-up' and 'retrieval systems' that enable couriers to answer questions at the customer site on packaging rules or export regulations, as well as order supplies.

3.2.3 New Services Products

Services sectors are typically in a constant state of change with a rapid introduction of new products and services. Shorter life cycles of services products are facilitated by strong competition, limitations on IP protection, and the relatively low cost of new service launches, at least compared to major new manufactured product introductions. Greater specialisation in new services is also driven by competition with demand for cross-border services that offer greater volumes and economies of scale. This is evident in the European financial services sectors because, although the European market is a reality for the 'wholesale' financial markets the opportunity for innovation in cross-border consumer banking is still limited. Consequently, innovative services providers who can obtain the benefits of scale while effectively tailoring their services or financial products to different national markets will be in a strong position to maximise their profit. Constant and rapid development of new services is also necessary because copying is easy and product life cycles are becoming shorter.

An instrumental factor behind the development of the SCM-logistics sector in Memphis was the decision by FedEx to launch a service offering the latest possible daily drop-off times to customers using airfreight. This has helped to attract many businesses to the Memphis region. FedEx has been engaged in a 'battle' with its rival UPS to introduce services products around new wireless technologies. One of the most notable innovations in logistics services in recent years has been the growing emphasis placed on tracking and tracing services. Such services allow on-line information on shipment location on a real time basis and allow SCM-logistics companies opportunities to offer clients new and easily introduced products and services in relation to stock control, warehouse automation and control systems, order-picking, and fleet-management. In the context of the Netherlands SCM-logistics hub the prominence of the 4PL logistics industry would appear to confirm the shift to developing services that are more responsive to client demands.

As noted in Chapter 2, technology can be both an enabler and driver of services innovation providing new customer interfaces but also providing a fresh ingredient in the services offered to the client. Technology based electronic channels and services are particularly important in the case of financial services since the product is immaterial and closely linked with information processing

[56] *http://www.freight-traders.com/*

by the customer and supplier. The development of sophisticated software and increasingly powerful hardware has facilitated the development of many new products in London's financial services sector, in particular, derivatives, hedge funds and public-private partnerships. New technology has increased the range and sophistication of financial instruments and associated risk management tools. Advanced telecommunications are enabling financial firms to manage their activities across continents. New products also reflect this globalisation and are increasingly managed along global product lines. New technology can help to maximise efficiency and financial markets can now be accessed 'remotely'. The picture is not always straightforward however. Suppliers of financial services are also seeking closer customer contact, for example, by building new branches in shopping malls and other suitable places.

In the creative industries sector new services have been developed through integrated mobile platforms, which rely on the development of new service combinations. Innovation involves the tailoring of digital content production according to specific cultural norms and new markets. Real Time and Denki are two examples of companies based in Dundee's computer games development cluster, which are engaging in new service-product development. At the same time, the growth of the digital media sector has raised concerns over intellectual property infringement. This is leading companies involved in the creative industries to consider new technological solutions to piracy such as digital rights management (DRM) a technological solution to IP infringement and piracy.

3.3 Testing the Approaches of the Services Innovation Process

Chapter 2 identified three dominant approaches that are typical of innovation processes in services. Within the three global sectors studied the models of services innovation are sufficiently evident to be useful in further analysis although not always completely discernable.

3.3.1 Systematic 'R&D' Type Innovation

This model of services innovation is based on services developed and delivered through a series of systematic stages before introduction to the market. This is most evident in the larger companies/ concentrations within the sectors/case studies examined. For example, in financial services companies 'R&D' activity is closely linked to new 'product' offerings in areas requiring systematic investigations such as market research, software development, new training. In the key sector centres studied, notably London, R&D is very systematic and large corporations especially have resources that enable systematic new service development and launch on the market.

In SCM-logistics, the results of the Community Innovation Survey (CIS2) indicate that some 71% of companies in 'transport and logistics' do not undertake R&D, however innovation amongst the larger companies within this sector appears to be a carefully thought out process, based on a series of stages of development and testing. Statistical sources may not reveal the true picture in this respect. The development of 'RFID' for example, highlights the systematic and lengthy development process that underpins such innovations. For example, Memphis is the global home of FedEx's technology and innovation activities and the company prides itself on being at the forefront of new technologies and follows a rigorous process of service product development and design.

Further away from large concentrations, it is evident that the 'R&D' intensity in services innovation decreases due to lower levels of competition and sparser concentrations of talented staff.

3.3.2 Fast Market Entry of Services Innovations

This approach to innovation is based on launching an idea onto the market quickly with further development based on feedback from markets. Fast market entry provides potential 'first mover' advantages over competitors; however, it is also a risky strategy. Fast market entry does not appear typical of any one of the sectors studied, although it is probably most evident in the creative industries. Electronic publishing, for example, is a services innovation that is based, in part, on the objective of shortening the 'time to market' for information provision.

In the finance sector companies cannot afford to introduce products without full testing, as they may fall foul of the Regulator. This can be made to work to the competitive advantage in some cases. For example, in London the financial services regulators are said to be sympathetic to the needs of innovation, thus making it 'faster' than most. Fast track launch of services is not a dominant approach to innovation in the SCM-logistics sector. Indeed, such an approach would appear to be both difficult and risky in sectors such as SC-logistics where service reliability is crucial. Research has however, indicated that the pace of innovation does vary between key companies in the sector, with some willing to take more risks in terms of gaining first mover advantage in relation to particular SCM-logistics services such as track and trace for example[57].

3.3.3 Innovation Through Formalising Existing Practices

Services innovations can be incremental or 'ad hoc' and later formalised. This appears to be a common approach across each of the sectors studied, particularly in the smaller companies, and reflects the everyday changes and adaptations made through experience; so called 'learning by doing'. This form of innovation is typical of many SCM-logistics companies notably in the area of customer interface innovations. For example, in the innovations of wireless or web-based delivery services or the re-design of packages to improve delivery performance, UPS views itself as both a systematic and cautious adopter of new technological innovation.

3.4 Drivers and Barriers to Services Innovation

The drivers and barriers to services innovation in the global sectors studied are important to identify since, while the precise conditions for services innovation identified in this Chapter may not be transferable between sectors or locations, the drivers, barriers and environmental conditions that promote or hinder services innovation may provide useful parallels for policy.

3.4.1 Drivers of Innovation

The motivations and drivers of innovation are largely shared across the three global sectors studied and are related in many respects to the global trends identified in Chapter 2.

Client and Consumer Demand

The customer and client have a strong influence on services innovation, particularly in competitive markets, as found for example, in the strongly clustered global market places evident in the three sectors studied.

In creative industries services, innovation is often driven by client relations that are characterised by interactivity, convergence, customisation, collaboration and networks, notably the sharing of resources amongst large and small companies often working in networks in the sector that also represent the sharing of risks.

[57] *http://www.cio.com/archive/060104/ups.html*

In SCM-logistics sectors customer demand demonstrated as the demand for new services or products has been a central driver to some of the sectors key innovations in areas such as the greater provision of information on packages location (e.g. track and trace technologies).

The drivers of services innovation in financial services have traditionally been the suppliers themselves where they have developed products and offered them to customers. This traditional model is changing as consumers move to understand more of the financial options available to them and as brand loyalty erodes[58].

Competition

In an increasingly global market service companies are typically faced with new competitors on a regular basis. Dynamic and innovative geographical concentrations of the SCM-logistics sector, such as Memphis and the Netherlands, are driven by the competition that derives from cluster effects. For example in Memphis, FedEx is involved in a technology 'battle' with its main competitor UPS, which is based on wireless technologies, thus driving the pace of innovation. Similarly in financial services concentrations, competition drives innovation not only through competition for customers but skilled staff as well.

Regulatory Pressure

Regulation and deregulation provides a driver for new services and products in all sectors. For example, in the creative industries telecommunications deregulation has provided the basis for new service providers and products and in the North Carolina banking sector, deregulation was a key driver for interstate banking activities.

The financial services sector is possibly most sensitive to regulation as a driver of services innovation. International financial integration requires for firm governance and solid institutional foundations and policies. Global financial markets mean that EU and global level regulation has become increasingly important. Clear and transparent regulatory regime provides a fertile ground for innovation in financing sector activities. Skilled and sympathetic regulation can encourage businesses to develop new types of innovative services; this is particularly evident in the USA and UK. Financial services regulation in the UK is favourable to innovation, partly because of the presence of a highly skilled single regulatory institution, the Financial Services Authority, that welcomes rather than obstructs financial innovation (Lascelles, 2003), but also because of its emphasis on principles rather than rules.

Regulation and deregulation can also have an indirect effect in driving innovation. For example, in SCM-logistics regulation is currently responsible for driving many environmental innovations being developed by the sector, such as the development of the 'reverse logistics' business model based on the requirement for manufacturers to recover and recycle products at the end of their useful lives. Deregulation, on the other hand, has been at the heart of growth of the logistics sectors in many countries. In the US for example, deregulation in airfreight allowing the use of larger aircraft for freight transport is cited as the main driver of the global airfreight sector since the late 1970s.

Innovative Clusters

A critical mass of end users, companies, suppliers, research and training organisations can provide the basis for strong competition, collaboration and service innovation and is a clear feature of each of the global services sectors studied and in particular of the concentrations that were studied to complement the global trends.

[58] *Financial Services Education Agency Australia (FSEAA). 2004. 'Financial Industry – Future Growth and Challenges', Sydney, Australia.*

There is a considerable literature and agreement on the importance of clusters or concentrations of activity for driving innovation and economic growth. For example, the development of milieu and clusters within the creative industries is widely recognised as increasing awareness of new opportunities and aiding fast and flexible responses to new opportunities. Clusters are able to provide personnel and entrepreneurs with high-end facilities and typically contain networks of individuals and companies with complementary skills. For example, in Sweden, Stockholm has over 50% of Sweden's creative industry companies based in the city.

In the financial services sector the importance of concentration is also self-evident in London, New York, Frankfurt, Singapore etc. The reality 'on the ground' is illustrated by the fact that London has virtually all major international, EU and UK institutions with operations in London, many of which are HQs.

Effective Use of Technology

As discussed earlier, technology is both a driver and an enabler of services innovation. Increasing technological sophistication in areas such as wireless technologies, converging delivery platforms is providing the opportunity for innovation in service delivery and service 'products' in each of the sectors studied but is also driving customers and suppliers to seek more innovative technology based services.

In the SCM-logistics sector for example, the availability of Radio Frequency Devices (RFID) is not only enabling the logistics sector with the ability to track products through the supply chain but is causing an increasing number of customers to drive innovation by demanding such technology based service innovations. Similarly, the rapid take-up of the internet by consumers both enables and drives financial services companies to seek varied and immediate innovation in the way that they deliver and manage financial services.

The impact of technological development varies according to how intensively technology is used across the sector. However, it has tended to increase overall consumption and innovation within the creative industries and it is important to note that here too there is a 'reverse' or 'circular' flow of this relationship between technological development and innovation within the creative industries. The creative industries provide an important source of content and applications for ICT industries, resulting in the development of new ICT services or delivery/customer interfaces, and increasing demand for digital content and applications.[59]

3.4.2 Barriers to Innovation

A recent report on the Scottish Creative Industries sector identified a range of innovation barriers within Scotland's creative industries.[60] These barriers can be observed across the three sectors studied here and are worthy of repetition. They include a resistance to innovative changes in the business model; the retention and attraction of highly skilled and experienced workers; a general wariness of businesses towards collaboration and cultural attitudes towards innovation.

A Weak Culture of Services Innovation

This is frequently cited as a key barrier in innovation studies generally and may include negative attitudes towards risk taking and uncertainty by individuals and companies and limited trust in forming collaborations and networking. This was evident in the creative industries sector in Scotland where there was a wariness of micro-businesses in creative industries sector in Scotland with regard to collaboration and a reluctance of academics to commercialise research. Cultural attitudes to risk and uncertainty are underpinned by social, cultural and institutional norms.[61]

[59] *Department of Communications, Information Technology and the Arts and the National Office for the Information Economy. 2002. 'Creative Industries Cluster Study: Stage One Report'.*

[60] *Cultural Commission. 2005. 'Our Next Major Enterprise' – Final Report.*

[61] *Department of Communications, Information Technology and the Arts and the National Office for the Information Economy. 2002. 'Creative Industries Cluster Study: Stage One Report', p. 6.*

A culture of innovation in financial services, or lack of it has a significant influence on the success of the location and is closely related to the nature of regulatory regime. The financial services sector is very dependent on being able to gain the confidence of the sector and markets. For innovative launches of new financial products financial institutions must offer the customers trust and reputation. Risk free choices are valued and this emphasises that when financial services innovations are being launched the power of well-known brands in financial services is vital.

Regulation

As previously noted regulation can be both a driver and a potential barrier to services innovation. Overall, the need for regulation needs to be balanced so that too rigid practices do not prevent innovation. This is particularly evident in the financial services sector but also in the creative services sector where regulations regarding intellectual property (IP) infringement and piracy may hinder or preclude the commercialisation of innovative services.

Intellectual Property and research issues can restrict the innovative process in a variety of different ways. Poor knowledge among SMEs of IP protection and limited supporting resources can prevent businesses from undertaking innovations. The manner in which the intellectual property of a creative business is sometimes embodied within people rather than products or services can act as a barrier to seed and venture capital funding.

Skills Shortages

A general or specific inability to recruit and retain skilled and creative employees limits the development of a knowledge base needed to underpin innovation. For example, in the logistics services sector the complexity and speed of introduction of new SCM-logistics techniques provides significant challenges for training skilled operators, hence the importance, noted earlier of enterprise led centres of expertise in key locations.

Industry and Organisational Structures

The global trend towards consolidation in some services sectors can potentially reduce competition, increase rigidity, reduce risk taking and therefore hinder services innovation. For example, in the financial services sector consolidation creates strong businesses but can be harmful for competition and ultimately innovation.

3.5 Environmental Attributes of Services Concentrations

Identifying the environmental attributes that favour innovation in services is not a simple linear process. One of the key difficulties is the need to disentangle the attributes that favour location and growth of the sectors per se from those that specifically favour innovation in services in the sectors. A definitive analysis is therefore not possible here; however, it is possible to discern attributes that are likely to favour services innovation.

It is not feasible or even useful to seek to characterise the environmental factors or policy conditions that have enabled the concentrations to develop as a 'silver bullet' for services innovation policy in Ireland. Although it is clearly the case that some of the environmental factors distinguishable in the hot spots may be particularly interesting and relevant for Ireland. The following section is illustrated with reference to the evidence from the research on global concentrations or hot spots.

Three key attributes that are common to the geographical concentrations studied are identified. These are: a critical mass of companies, suppliers and customers; access to excellent knowledge resources; and a public policy environment that may not be directly supportive but is, at least, sympathetic to innovation in services. These attributes are explored in more detail below.

Critical Mass of Companies, Suppliers, Customers

As discussed in the earlier section on drivers of innovation, an innovative cluster, concentration or milieu is regarded as an environmental attribute that will tend to increase and support services innovation.

London for example has virtually all major international, EU and UK institutions located in the City of London and the financial services employ some 317,000 people, which accounts for over 5% of employment.

The manner in which this attribute is described may vary according to the nature of the sector. For example, in the highly competitive environment of the financial services sector, a strong concentration of leading global companies will create strong competition for customers, staff and access to regulators. As a result, the concentration can be expected to support strong innovation impulses.

Memphis ranks as the number one location in the US according to logistics employment (100, 400), and is the global HQ of one of the largest logistics service providers in the world. Alongside this company a surrounding dense network of competitors and suppliers, also based around the region's cargo airport, has become established. The resultant expertise and knowledge about the sector has, arguably, contributed greatly to the SCM-logistics services innovation that has emerged from the city. The area around Amsterdam in the Netherlands demonstrates similar attributes where concentration tends to support innovation activity.

In other circumstances, a concentration of sector companies will attract other 'downstream' suppliers that will act as enablers and stimulators for services innovation.

By contrast, the importance of concentrations to innovation in the creative services sector seems to operate in a different way through collaboration, creative individuals and the urban environment. For example, Landry (2000) identified a number of preconditions for the '*creative city*', firstly, '*creative individuals*' form the basis of creative organisations and are characterised by their ability to "*think resourcefully, openly and flexibly… to take intellectual risks, to think problems afresh and to be reflexive*".[62] The growing importance of this type of individual has been described by Florida as '*the rise of the creative class*'.[63]

In the creative industries sector very strong concentrations can typically be created as in Stockholm with over 50% of Sweden's creative industry companies, accounting for 52,000 jobs, and 10,000 limited companies.

Innovation and Knowledge Resources

A second important environmental attribute that will tend to favour services innovation is the existence of a strong and supportive educational infrastructure. This infrastructure seems to need to work at a number of levels including universities but also vocational colleges and private centres of expertise and research.

The concentrations studied in this respect present a number of clear and compelling examples. In the SCM-logistics sector, both the Netherlands[64] and Memphis have strong knowledge infrastructures dedicated to the sector.

[62] *Landry, C. 2000, 'The Creative City: A Toolkit for Urban Innovators', p. 107.*
[63] *Florida, R. 2002. 'The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community and Everyday Life'.*
[64] *CONNEKT – 'The Innovation Network for Traffic and Transport' [http://www.connekt.nl]*

For example, Netherlands's Connekt Innovation network provides a public-private partnership approach to innovative technology development in the transport sector and Memphis' Centre of Excellence, the FedEx Institute of Technology, provides research and business training services for the SCM-logistics sector.

In Financial Services, London clearly has a strong private sector infrastructure coupled with good access to technology and IT infrastructure while Stockholm's creative sector benefits from a strong international educational infrastructure in architecture, design and the arts[65]. Finally, Scotland has promoted an increasing involvement of Scottish universities and colleges in the games development sector and training, and has established a research base in technologies and skill areas that are important for creative industries.

Public Policy

From the evidence of the sectors studied and their associated concentrations the relationship between public policy and services innovation may be described as strongly desirable but is neither necessary nor sufficient.

The geographical concentrations studied in this Chapter suggest that, as a minimum, public policy needs to be able to clearly and transparently demonstrate that the sector is valued and that innovation in the services is encouraged. This may be achieved in a number of ways ranging from investment in specific supporting infrastructure, through tax incentives for growth and innovation, to a sympathetic regulatory environment for the sector.

A £25m programme has been established by Scottish Enterprise and channelled through a number of funding bodies with a focus on content industries. The overall strategic framework for Scotland's creative industries has set a 5-year target to: achieve sector growth of 30%; increase exports by 15%; and create up to 2000 new jobs.

For the creative industries sector in Scotland, there is a public commitment to a creative industries strategy providing businesses and individuals access to support from a broad range of policy initiatives[66]. Stockholm has supported a similar, although more modest, regional cluster initiative targeting the creative industries.

The public policy attitude towards regulation in London and North Carolina has favoured the financial services sector and can be said to provide a regulatory framework and tax system that broadly favours innovation in financial services. In addition, in North Carolina, five out of eight financial incentive programmes in the State are equally available to financial services sector as other manufacturing sectors that are traditionally targeted with such incentives[67].

In both the Netherlands and Memphis, public policy for the SCM-logistics sector has been evident in key areas such as incentives for inward investment including tax breaks, and infrastructure grants, and the development of SCM-logistics parks. Despite this, it is not possible to go so far as to claim that public policy towards services innovation has been solely responsible for creating the environmental factors that have acted as drivers or enablers of services innovation in the concentrations. It is possible however to identify that a favourable public policy towards services and services innovation has implicitly contributed toward helping to create a conducive environment.

[65] *Hallencreutz, D and Lundequist, P. Intersecta. 2005. 'Stockholm case study – the creative industries'.*

[66] *Tibbets, M. Creative Industries Cluster Team. 'The Creative Industries Cluster Initiative in Scotland'; Presentation to 'Community Colleges in Creative Economies' conference, North Carolina, Nov 4-5, 2004.*

[67] *Duke University. 2005. 'North Carolina in the Global Economy project – Banks and Finance', http://www.soc.duke.edu/NC_GlobalEconomy/about.php, accessed 17.09.2005.*

The public sector in the Netherlands, for example, has been particularly active in developing a network of logistics parks whereas in Memphis, the private sector has largely responded to such requirements. Memphis does, however, benefit from the presence and support of a strong Regional Chamber of Commerce, with a strong focus on the sector.

3.6 Summary

This Chapter has explained the importance of services innovation to the Creative Industries, Financial services and SCM & Logistics sectors at the global ("Hot Spot") level as well as at a more geographically focused level. This integration of globally oriented and geographically based services sector research has demonstrated that the typology and models of services innovation outlined in Chapters 2 offers a comprehensive explanation of the contribution of innovation to the competitiveness and growth of these sectors. The following summary identifies a range of the more pertinent findings or lessons that emerged when operationalising this conceptual approach to services innovation.

Types of Services Innovation

This international research demonstrated that all three types of services innovation are evident in the three sectors. The development of new business models and concepts can be seen in the growing trends towards decomposition and recomposition. In the Creative Industries decomposition occurs through the outsourcing of activities from large companies to specialist suppliers; creation of 'temporary companies' and contracting of 'just-in-time' employees. Decomposition in Financial Services takes the form of: the off-shoring of functions; separation of CRM from financial product manufacture and service provision; and a shift towards smaller hubs of organisation within wider networks and strategic alliances along supply and distribution lines. Recomposition in financial services is manifest through the commoditisation of insurance, savings and loan services in one-stop shop companies. In Supply Chain Management and Logistics decomposition can be observed through the outsourcing of warehouse functions and emergence of 3PL and 4PL services businesses. Recomposition in the Supply Chain Management and Logistics sector has involved call centre management, warranty and repair work being combined with transport services under 4PL.

The development of new service delivery/customer interfaces tend to centre around the impact of new electronic channels of service delivery. For example, in the Creative Industries electronic distribution channels facilitate the delivery of new services based on creative content, for example, downloadable music. In Financial Services on-line technologies provide innovative interfaces for the delivery of financial services to customers, for example, internet banking. Similarly supermarkets have emerged as front-end finance providers for banks and insurance companies. Examples of the development of new service delivery/customer interfaces in Supply Chain Management and Logistics can be observed in the way in which the rapid growth of e-logistics has facilitated on-line ordering, tracking and tracing and account management. Other examples include the emergence of online auctions of spare logistics capacity; and the development of look up and retrieval systems to enable couriers to answer customer questions on site.

The development of new service products is in many ways a response to shorter service product lifecycles and demand for greater specialisation and new cross border services. For example, in the Creative Industries new technological solutions to IP infringement have been developed such as Digital Rights Management. The development of new service products in Financial Services includes

the limited emergence of cross-border consumer banking and the establishment of new branches in shopping malls. Notable examples in Supply Chain Management and Logistics are the development of new wireless technologies, for instance track and trace services.

Approaches to Services Innovation

The services innovation processes observed in the three sector generally tended to display greater evidence of systematic 'R&D' and innovation through the formalising of existing practices. The fast market entry model of the services innovation process does not appear to be particularly prominent in the three global sectors selected with a number of exceptions in the Creative industries, for example, electronic publishing. This relative aversion to fast market entry can be attributed to the importance of rigorous service-product testing, especially in Financial services and SCM-logistics services.

Drivers and Barriers to Services Innovation

Innovation within these three services sectors tends to be driven by the combined influence of: client and consumer demand; competition; regulatory pressure; innovative clusters; and the effective use of technology. Similarly, there are a number of barriers to innovation that are common to most services sectors, including: a weak culture of services innovation; regulation; skills shortages; and enterprise and organisational structures.

Environmental Attributes of Services Innovation

This Study identifies three major environmental attributes that are important for services innovation: A critical mass of companies, suppliers and customers; Innovation and knowledge resources; and public policy. Firstly, with regards to the importance of a critical mass of companies, suppliers and customers to services innovation, the presence of innovative clusters, concentrations or milieu will tend to favour services innovation in a variety of ways. For example, a high concentration of financial services companies will create competition for customers, staff and access to regulators, in turn resulting in innovation. The clustering of SCM&L companies has attracted a range of downstream suppliers that act as enablers and stimulators of innovation. Clusters of creative businesses can also engender important collaboration between creative individuals and businesses.

Secondly, with respect to Innovation and knowledge resources, the existence of a strong and supportive educational infrastructure, in the form of universities, vocational colleges and centres of expertise and research, represent an important environmental attribute for services innovation. Examples in the SCM&L sector include the Connekt Innovation Network in the Netherlands and the FedEx Institute of Technology in Memphis. Similarly, educational infrastructure is an important feature of the Creative industries sectors in Stockholm and Scotland.

Thirdly, this Study reveals that supports favouring services innovation are identifiable in the case study concentrations. For example, policy support for the creative industries is, however, comparatively well established in Scotland encompassing: Proof of concept funds; co-investment funds; digital campuses; electronic IPR exchange platforms; international exchange programme (for professionals) and placement scheme (for students); and Intermediary Technology Institutes etc. Public policy for the Financial services tends to assume the form of a favourable regulatory framework and financial incentive programmes. Supply Chain Management and Logistics policy support includes: Inward investment incentives (e.g. tax breaks), infrastructure grants, and SCM & Logistics parks.

However, there is limited evidence of *explicit* policy in favour of services innovation among these dynamic sector concentrations of services innovation outlined in Chapters 2. While public policy is clearly desirable and important for highlighting the value of a sector and demonstrating support for innovation it is an *implicit* driver in creating a conducive environment within which services innovation can flourish.

The relevance of these findings from the global research to services innovation within Ireland and the corresponding policy support framework is addressed in the following Chapters.

4 Current Position of Services Innovation in Ireland

In Chapter 4 the current state of services innovation in Ireland examines and further describes through a case-study based analysis the types and models of innovation prevalent in the Irish economy. This chapter also brings the drivers, barriers and environmental factors affecting services innovation in Ireland into focus.

4.1 Ireland's Performance Against Service Innovation Indicators

The Irish economy has been characterised by the growing contribution made by the services sector in recent years. This growing importance of the services sectors is also evident in innovation indicators, with the service sectors accounting for an increasing contribution towards business R&D and patent rates. Yet despite these developments it is generally recognised that Indicators of service innovation have tended to lag behind measures of more technological activity. This, in part, is linked to the low priority given to services innovation by policy makers. It is also closely connected to the complexity of service innovation concepts and the difficulties of operationalising these in a way that is relevant to such a diverse sector.

Despite these challenges researchers across Europe are increasingly developing more sophisticated instruments to survey services innovation. Ireland has responded to this through its implementation of the Community Innovation Survey (CIS), however, the level and quality of the data obtained is not particularly high, given the low response rates experienced.[68]

Using the data that is currently available, the review of current Irish innovation indicators suggests the following picture:

- Service sectors, most notably software and computing, account for a significant proportion of business R&D although manufacturing sectors account for a higher proportion than services.[69] This position is also given some confirmation by the CIS.
- Larger service companies report higher R&D levels (Community Innovation Survey) and specific product and process innovations than smaller companies (Community Innovation Survey and Irish Innovation Panel 4[70]).
- In relation to patents the position largely mirrors the BERD data, with Software and computer services account for a significant proportion of patent applications (21% of all applications in 2003).

In comparison against other countries the European TrendChart data indicates that Ireland (0.76% of GDP in 2003) falls some way behind the EU25 averages for business R&D expenditure (1.25% of GDP in 2003), and substantially below EU leading performers such as Finland (2.40% of GDP in 2003). Detailed breakdown of country performance in the CIS were not available at the time of the study. In this respect the EU TrendChart's strengths and weaknesses analysis indicates that the results reported are someway below the average[71] Indeed Irish data is missing for all seven CIS based indicators used in the annual Innovation Scoreboard – thus limiting Irish performance on the scoreboard (11th out of 25 EU Member States). Further information and analysis is included in Annex 6.

[68] *European Commission TrendChart analysis indicates that a large number of general innovation indicators are missing for Ireland. Moreover, CIS indicators, it reports, appear to be relatively low.*

[69] *Forfás. 2005. Business Expenditure on Research and Development (R&D) Ireland 2003/4, Science and Technology Indicators Unit, Forfás, April.*

[70] *Although innovation rates reported by Irish Innovation Panel 4, while not directly comparable, appear higher.*

[71] *http://trendchart.cordis.lu/scoreboards/scoreboard2005/Ireland.cfm*

While the findings reviewed above provide a useful snapshot of innovation in Ireland's service sector, they do not shed strong light on the important conceptual framework that forms the backbone of this Study such as Business Models, Customer Interface and Service Innovations. These concepts are difficult to operationalise as survey instruments, however, it is recognised that existing service innovation instruments could do more to utilise such concepts, and some examples have been identified in this respect, as suggested in Table 4.

Table 4 *Measuring Service Innovation using the Services Innovation Typology*

Service Development Efforts in Place
• Availability/number of skilled staff.
• Number of multi-skilled personnel.
• Level of job satisfaction.
• How staff is motivated.
• What incentives there are for idea generation.
• Turnover of staff.
• Customer feed back, to what extent it is collected and distributed within the firm.
• Formal and informal networking with suppliers, clients, R&D organisations.
• Horizontal links within the industry/cluster.
• Services related R&D activities – formal & informal.
Business Models and Value Chain Development
• Outsourcing & offshoring.
• Changes in delivery channels, e.g., electronic delivery.
• Changes in customer interface.
• New product-service combinations.
• No. of new/significantly improved services launched on the markets over the last two years.
• Resources (time, staff, money) allocated to the development of new products & services, marketing and delivery channels.
Customer Interface & Feedback Information
• Type of customer relationships – long-term vs. short-term.
• Repeat sales vs. new customers.
• Focus on the life-time value of the customer.
• Utilisation of customer data base information.
• Idea generation and processing.
• Systematic collection of ideas.
• Process in place to further develop collected ideas.
• Dissemination and formalisation of new process features.
• Identification of steps for commercialisation of new ideas.

Source: Kuusisto and Meyer (2003) [72]

[72] *Kuusisto, J. and Meyer, M.. 2003. 'Insights into services and innovation in the knowledge-intensive economy'. National Technology Agency TEKES. Technology Review 134/2003. Helsinki.*

In order to build on both the findings from the surveys discussed above, and the measures identified for business models, customer interfaces and service innovations, the next section provides results from case-study research of service sector innovation.

4.2 Case Studies of Services Innovation in Ireland

This section presents the results of case study interviews undertaken with some 29 services companies in Ireland. The case study companies were drawn from the following sectors:

- Supply chain and logistics services.
- Financial services.
- Creative industries.
- Healthcare traded services.
- Education traded services.
- Computer and IT services.

The listing of companies selected for interviewing is set out in Annex 7.

The aim of these interviews was to complement the statistical data sources with qualitative data on the current state and character of services innovation in Ireland. The case study approach adopted here has allowed further use to be made of the types and models of services innovation identified in Chapter 2. This analysis of the case study interviews is presented largely on a cross sectoral basis. Where relevant, however, sectoral issues are highlighted in order to inform the analysis.

4.3 Types of Innovation Revealed by the Case Studies

Table 5 provides a summary of the main examples of innovation revealed by the case studies analysed according to the typology of services innovation defined in Chapter 2. These are first of all described using strong examples from the case studies of Irish services companies to illustrate the lesson or type of innovation revealed.

4.3.1 Business Models and Concepts

Box 1 Switch from manufacturing to a service model

Flextronics Logistics recognised that pure contract manufacturing was unlikely to prove successful in the future, given the increase in competition from Asia and low cost/tax based alternatives. While Flextronics Logistics continues to have manufacturing sites throughout Eastern Europe, South America and Asia it recognised that there was little value added in simple subcontract manufacturing. Flextronics has therefore sought to refocus the business from "manufacturing" to "service" through acquisitions. The company now considers itself as a "service" business with manufacturing as one of a number of services, alongside Design Services, fulfilment and reverse logistics.

Innovation in the underlying business model or concept was evident in a wide range of the cases study companies. Such innovations have typically been driven by external market pressures such as the transition of companies from manufacturing to service activities, or the need to diversify during difficult trading conditions. For example one e-Learning company noted how the global technology downturn in the early part of the decade has pushed it to restructure its business model

from one based on private sector clients, towards one with a greater focus on public sector contracts necessitating changes throughout the operating environment of the company.

Other case studies noted that they had innovated in respect of their business model by shifting from an essentially manufacturing model to one where the service content was dominant, in other cases innovation in the business model had led to a greater focus on niche activities and content.

The increasing ubiquity of the Internet had, for many of the companies studied, become a pivotal force driving innovation in the business model. For example, the emergence of e-businesses with little or no physical presence. At the same time business models akin to 'temporary companies', as noted in Chapter 3, were also evident as companies introduce virtual, project team-based approaches. Here, the role of the internet as a means not only of interfacing with customers, but also as a central feature of innovative 'ebusiness' models was revealed.

The case studies also revealed that new combinations of services through acquisition were an important feature of business model innovation. Such recombination strategies appeared to be an important means by which either expertise or geographical/market presence was developed. Combining services, however, is not without challenges. As one company noted, generating synergies between existing and new parts of a service business require a strategic approach to innovation.

Box 2 Recombination of services

eTeams is a specialist translation service provider to businesses, governments and private clients. The company has very few permanent employees but builds global e-working teams for each new project on a case by case basis. In this respect the company is able to maintain cost competitive, while accessing different skill sets as required and developing new services quickly as opportunities arise. This organisational model underpins all other innovation initiatives within the company.

Outsourcing of activities was evident for a wide range of the companies studied in Ireland. Companies from the logistics sector and e-Learning sector, for example, noted that they were actively considering outsourcing some of their activities overseas. The larger financial services companies should also be noted in this context. Company C, for example, described how they see outsourcing of activities to Ireland, in some cases from elsewhere in the wider global group, as a means of strengthening their base for bringing in new clients and suppliers alongside them in Ireland. In this respect the parallel interests of the company and IDA Ireland were noted to be particularly strong.

Box 3 Outsourcing and internationalisation of services

The Royal College of Surgeons in Ireland has sought to expand the reach of its services in recent years. This has seen the establishment of Medical University of Bahrain; launched in 2004. The first intake included 30 students, and this is anticipated that future annual intake will amount to 100 students. The Medical University will be paid for from the revenue generated by managing the sites on the health oasis (over 5msq feet), which will include six centres of expertise, a spa centre, a hotel, shopping mall, ciniplex, residential units etc. There is potential for bringing back skills in the provision of e-learning courses to Ireland from this project.

In the related area of internationalisation of services activities several case studies revealed this to be an increasingly important innovation. In the education traded service providers, for example, a number of organisations have begun to set up operations or joint ventures outside Ireland to deliver

and develop their services. This approach, it was pointed out, was a vital element of 'survival' in a particularly competitive market, providing new opportunities for student recruitment and so on.

4.3.2 Customer Interface

As noted above, the internet represents an important enabler of service innovations. One key area, here, has been the use of the internet as a new and innovative form of customer interface. Indeed, in many respects companies no longer see such relatively recent changes as a form of innovation, given its pervasiveness.

Box 4 New internet-based customer interfaces

Electric Paper is one of Ireland's leading e-learning service provider. Since its establishment in 1998 it has increasingly moved towards the provision of its software products through internet downloads and licenses. This has not replaced more traditional boxed products, but is a key area of growth.

The case studies revealed that almost all companies are seeking to use electronic forms of interface as a mechanism for the delivery of services. Examples here included the increasing sophistication of the internet as a means of:

- Customer account management.
- Tracking and tracing.
- Delivery of online education and training via the internet/videoconferencing.
- Use of the internet as part of a 'blended delivery' approach to education, utilising e-learning and traditional classroom based learning approaches.

Innovation in the telephone interface was also evident. A key innovation in relation to telephone services for the Irish based companies interviewed for this study has been the growing functionality of voice activated response systems. It is important to note, however, that such electronic interfaces were often complementary to, rather than replacing, existing face to face interactions.

Box 5 New voice based customer interfaces

Chorus installed its Interactive Voice Recognition switch as part of their call centre operation. This system allows customer calls to be automatically recognised, and an immediate display of their account displayed to the call answering representative. This helps to improve the level of customer service. It also means that automated message can be targeted to particular geographic areas. Such features are particularly useful when outages occurred.

The Irish case studies also revealed innovations in traditional customer interfaces. Organisations in both the financial services and the education traded services, for example, described a shift towards more flexible branch/campus 'opening hours' in order to meet the requirements of customers/ students. Axa, for example, identified the requirement for different opening hours via a structured service innovation process known as 'Madhouse', discussed below.

A related strategy noted in a number of case studies was one of a greater focus on customer relationship management. A focus on customer relationships is not necessarily innovative, but CRM strategies that are highly reliant on human resource development and skills seem to provide the basis for a more systematic innovation approach, facilitated by software technologies.

4.3.3 New Services/Service Products

Innovation in services and service products was, as noted above, an area where case study companies felt they 'couldn't stand still'. Indeed, with the exception of one financial company that that was seeking stability rather than innovative change, all companies studied reported that they had introduced new services over the previous three years. It should be noted also that in a significant sample of the case studies the services innovation reported had a strong role of technology as an enabler.

In these cases, the service innovation was frequently built around complementary technologies, the innovative aspect, however, relates to the added value services that are being offered to the customer namely, a service allowing young male motorists to reduce motor premiums, and a personalised iPod etching service.

Box 6 Innovation through new services/products

Through AXA's Madhouse initiative the company has produced service innovations across the company. These innovations have been driven by individuals within the team, in areas such as claims services, IT, finance and insurance.

One of the company's innovation projects, for example, was completely new to the Irish market and focused on increasing safety and reducing motor insurance premiums. The project uses satellite and mobile communications technology in order to monitor driving speeds and is focused on young male drivers by encouraging them to have special equipment fitted to their cars that will monitor speed and position of the car every 10 seconds. In return for fitting a device, customers are able to received reduced motor insurance rates.

In other cases the role of technology as an enabler was less evident. The educational establishments interviewed, for example, pointed to their development of courses in response to market requirements. This factor could also be seen in the development of new services focusing on the provision of research capabilities and capacities (Table 5).

In a number of case studies, particularly those based around some form of consultancy, or indeed those companies where new products were developed for each customer it was difficult to distinguish between everyday activities and services innovations. An example of this was given by an animation company that pointed out that each new film was developed from concept upwards.

Table 5 *Services Innovations Identified in Case Studies of Irish Companies*

Types	Examples
Business Models	• Recombination of services. • Outsourcing and internationalisation of services. • Switch from manufacturing to service model. • Focus on niche activities/content. • E-businesses and temporary companies (virtual project team-based approaches). • Development of new public-private client balance.

Customer Interfaces	• Use of electronic forms of interface (e.g. internet) as service delivery mechanism for:
	  ○ Customer account management.
	  ○ Tracking and tracing.
	  ○ Delivery of online education and training via internet/video conferencing.
	  ○ Blended delivery approach to education utilising e-learning and traditional classroom based learning approaches.
	• Telephone interface – growing functionality of voice activated response systems.
	• Shift towards more flexible branch/campus 'opening hours'.
	• Greater focus on customer relationship management.

Service-Products	• Frequently built around complementary technologies, which act as an enabler e.g. a personalised iPod etching service. • Development of new services focusing on provision of research capabilities and capacities. • Bespoke new services developed for individual customers. • Development of courses by educational establishments in response to market requirements.

4.3.4 Models of Services Innovation

The case studies also sought to identify the processes typically being used in Irish services companies to effect services innovation. This part of the study considered the three 'models' of services innovation processes that were identified in Chapter 2 and tested in the global concentrations considered in Chapter 3, namely R&D/systematic, fast track and incremental.

In addition the case studies reveal variations in the organisational expression of the services innovation process operating in the companies studied. For example, the extensive reliance on innovation champions, the scale and location of R&D departments and so on.

The main finding from this part of the research is that few of the case study companies consider the *fast track* approach to services innovation, in which services are launched on to the market quickly in

order to gain first mover advantage, to be appropriate for their circumstances. Companies in all of the sectors reported that a much slower and systematic approach to innovation in services was required.

Education traded service companies and organisations, for example, pointed out that validation processes for education and training courses precluded a particularly 'fast' approach to new service developments. While ensuring a high quality learning experience, this emphasis on validation and the slow speed of the process can hamper the ability of the system to respond to external trends and sector needs.

Similarly the case studies from the financial services sector also pointed to the important role of the regulator in limiting the pace of change. This is by contrast to the global financial services concentrations described in Chapter 3 and most typically represented by London where the regulator is more likely to be seen as sympathetic and supportive of services innovation. A number of companies, here, suggested that the Irish regulatory bodies could adopt a more dynamic approach to innovations in financial services.

Examples of 'faster pace' service innovations were noted, indeed a number of companies reported that the increasing pace of technological change meant that they were having to responds more quickly than in the past. Other examples of 'faster pace' service innovation were noted in the animation sector. Here, one company pointed out that a key feature of the sector was the 'pitching' of concepts to a forum of potential investors and collaborators. This was a process, by nature, that relied on the innovative idea being in a very early stage of development.

The majority of the case studies, however, felt their approach to services innovation was split between the *systematic* and incremental approaches. Systematic approaches to innovation were described in a number of ways, for example a pipeline from identification of an initial idea or through to service launch.

Box 7 R&D/systematic model of services innovation

Enterprise IG, an international branding/strategic consulting agency operates an innovation process based around three principles: Focus – Ignite – Act.

The main characteristic of this approach to service innovation is a considered, and stage based process, with in built feedback loops, including regular customer feedback. As one case study company from the healthcare sector put it: '*interaction with the customer is vital and much better than locking oneself in a dark room and spending £1 million*'.

Box 8 Incremental service innovation

Chorus… introduced Interactive Voice Response (IVR) to solve a particular problem of high call support costs. In doing this, however, it also paved the way for some genuine innovations in its service offering. For example, at an internal workshop organised to plan for the introduction of the new system, one of the participants suggested that caller ID facilities offered by telephony networks might be integrated within the system. Based on the fact that all telephone numbers in certain geographical areas commence with the same two digits, caller ID would allow the IVR system to identify which area of a particular city or county calls are coming from. It would also allow breaks in service to be communicated to callers with the corresponding ID, by routing them to a special message explaining the reason for the service break.

Alongside the systematic approach to innovation, companies also tended towards *incremental service innovations*. This was often complemented by more incremental forms of change in services based around 'learning by doing'. A good example of such incremental change 'in action' was provided by Chorus.

For some of the case studies this form of service innovation was described in terms of generating 'efficiencies'.

The organisational processes at play in services innovation were also revealed by the case studies. Notably, the findings from the case studies suggest that services innovation is typically driven by '*innovation champions*'. Innovation Champions could come primarily from the senior management team of the company or the founders of the company. In such cases the role of champions was one of both identifying innovative opportunities, as well as steering the company and its workforce towards implementation.

Within this overall approach, innovation champions were also observed in terms of project teams. Such teams, the case studies demonstrated, consist primarily of informal project-based approaches, where the project team was assembled from within the wider workforce in order to address a particular issue.

Box 9 Champion-driven service innovation

The development of Orbis' own software products was undertaken by a small development team (two persons) on its most recent product – Sample Manager Millennium. This worked better from the earlier project, by which no fixed development team was employed. The company will also bring in outside consultancy or contractors where they do not have sufficient skills or expertise – and this approach has been undertaken on a number of occasions.

In contrast to the team-based 'innovation champion' model, a number of companies have begun to explore the potential of building a 'cadre of innovation champions' through workforce empowerment; Thirdforce, Axa, MBNA, RCSI were perhaps the most explicit examples. This was most developed in relation to innovation, at AXA, although other case study companies had also begun to focus on developing their workplace environment in a way that delivered worker satisfaction, alongside customer benefits. Both MBNA and Thirdforce, for example, have won awards the quality of their workplaces.

By building innovation champions across the company this approach can ultimately be seen as one aimed at embedding a 'culture of innovation' amongst employees.

This contrasts with the more formal R&D structure, however, that was only evident in a small number of cases, notably the larger companies such as MBNA and Company C, and companies with a high IT/software content. The apparent paucity of formal R&D departments among the sectors sampled and their evident concentration in large companies and the software sector is in accordance with that predicted from the statistical evidence.

However, services innovation does not simply rely on organisational structures and staff empowerment processes. Processes that capture 'the voice of the customer' are clearly important and this was highlighted in many examples of companies monitoring customer feedback on services. As one company described it: '*the voice of the customer is central to developing of our services*' (Qumas).

Box 10 Workforce as champions of innovation

AXA ….launched its first innovation programme in 2000, designed to bring people together to develop new ideas, break barriers, promote new ways of thinking and learning. Known as 'Madhouse' teams of seven employees across different grades, were brought together for a period of two months, with the objective of developing two customer focused innovation proposals. The teams worked in a dedicated room set up to encourage fun and innovation, and received self-guidance material to enable them to challenge their ideas, filter them and ultimately present their ideas to senior Director team. On the basis of Director feedback ideas were then selected for implementation (with the best ideas entered into a completion. Madhouse's success was evident in the 174 ideas produced to conceptual stage in the first year, and of these some 50% were felt to have some form of technological content.

Axa has subsequently built on this Madhouse through a programme – 'Taskmasters' designed to empower and encourage each employee to engage in innovation on an everyday basis, and an 'Innovation Corridor' to promote successes and raise the profile of innovation within the company

A key factor in encouraging staff input into the programme was the link created between active participation in the innovation programme, linked directly to some 20% of employees' bonuses. Overall AXA estimate that these innovation activities produced some €5 million benefit to the company over a three year period.

Other features noted from the case studies included the role of the internal team in keeping abreast of trends and emerging opportunities and capturing insights participation in networks, focus groups, trade shows and so on, and feedback/guidance from an external advisory board.

Box 11 Services innovation through customer feedback

SerCom Solutions, the international supply chain management and logistics company conducts quarterly business reviews with customers to review both the past and future. Due to the volumes involved, this exercise is carried out on a weekly basis with Dell along with the daily interaction that occurs at all levels between the two organisations. The various IT systems are used to capture issues.

4.4 Drivers and Barriers

The case study results provide evidence of a wide range of internal and external drivers of services innovation. These are not dissimilar to the drivers and barriers to innovation that are frequently cited for technological innovation in the manufacturing sectors. However there are subtle but significant features that distinguish the experience of the drivers and barriers in the context of service innovation.

Box 12 Services innovation through diverse intelligence gathering activities

QUMAS monitors developments in services through a variety of activities including building on customer relationships, training courses, regular meetings with clients, monitoring the strategies of their clients, attending trade shows and seminars, speaking to the press, and hiring experienced analysts.

Customer demand as a driver of services innovation was identified by the majority of companies. It was noted that such demands are not static, but are evolving constantly. As one creative industries company noted, consumer and demands have evolved in a way that has lead them to continually develop their core product, in their case, hand drawn animations, to reflect tastes and trends towards other more automated styles of animation. This trend in itself has driven the company to acquire new skills and capabilities in order to remain competitive.

Box 13 Customer driven service innovation

Cartoon Saloon is a growing animation company based in Kilkenny. It has evolved as a start up by graduates with skills in hand drawn animation techniques. Over the years this approach has fallen in an out of fashion, driving the company to diversify into alternative animation techniques, including new technological approaches using computer aided line drawing to manipulate drawings and give a more 'up to date feel'. The company has acquired these new skills through self learning.

For many of the case study companies, customers were primarily other companies. Here, the role of the customer driving innovation was evident in a number of themes such as the trend noted, often in strongly competitive sectors, as a pressure to reduce costs, through to demands for newer and more sophisticated services.

Competition was identified as a similarly strong driver of innovation. In particular, it was linked in the minds of the case study companies to strongly demanding customers via a dynamic business environment. One of the most common expressions used by the case studies in this respect was innovation as a response to the need to survive in competitive environments. This, for example, was seen as a particularly acute pressure in sectors characterised by global players and competition such as IT and logistics.

The education traded services sector, excluding the e-learning element of the sector, was a further sector that appeared to be facing particularly stark challenges in relation to competition. This was evident, for example, in terms of competition for students and lifelong learners. As one education traded services organisation put it '*we can't afford to stand still*' a surprisingly large number of case study companies reported *internal* drivers to services innovation. Here several companies reported innovation to be a cornerstone of the company's strategy. This, it was argued, provided the most tangible guiding force for services innovation. It is clearly difficult for such companies to distinguish between this strategic aspiration and the factors underlying it such as the evolving competitive environment.

Box 14 Competition as a driver of innovation

DCC – Without a strong need to compete, DCC does not believe that innovation would be an imperative. Historically for example, the fact that Irish Multichannel did not operate in a highly competitive environment meant that it faced a challenge when it comes to developing a capacity for innovation. The competitive imperative for innovation was absent when the company had a monopoly on the provision of multi-channel TV. In those days the company relied on the innovative capability of its suppliers for the introduction of new products and services, rather than developing its own internal capabilities.

The important role of internal drivers of innovation appeared to be particularly common for companies operating in a Group context. Here, a number of companies pointed out that the Irish operations did not have a particular strategic remit in terms of driving innovation in services. In this respect such innovation was felt to be primarily driven by the parent company and 'headquarter' function with the Irish operation largely a recipient of such innovation. On probing further, however, it was clear that while in many cases companies operating in a group context were not instigating and driving services innovation, they were innovating in how such innovations are applied in the Irish context.

Box 15 Service innovation in a multinational group context

MBNA is a multinational financial services company headquartered in the US, with offices in Ireland and the UK. The company sees itself as primarily implementing services that have been innovated in other parts of the Group. It has, however, innovated in the Irish market-context and was the first to introduce 24 hour/365 day, first to offer a chequeing facility with a credit card, and first to make the gold card more accessible. These innovations, while not 'made in Ireland' have in fact provided a strong driver of for competition and innovation in the Irish credit card market.

In many cases it is likely that companies were pointing to drivers of technological innovation. This was not always the case. Axa, for example, is currently rolling out Six-Sigma on a group wide basis. While this development is being driven from outside of the Irish operation, its introduction is leading to completely new ways of innovating in Ireland.

Box 16 Innovation driven by cost reduction requirements

Flextronics – While much of the service development work undertaken by Flextronics Logistics is governed by the frameworks and takes place within a strong contractual setting in which clauses outline a commitment for the company to work with the client to reduce cost. This commitment is a strong driver for the company to innovate provide a structure for facilitating innovation within the more rigid contractual setting.

Technology change clearly plays an important role in the service innovation process as evident from a large number of examples. The role of technology in relation to driving innovation, however, is not a straightforward one. In particular, technological developments appeared from the case studies to be primarily enabling services innovations to take place. The ubiquity of the internet, for example, has offered almost all companies' alternative ways of interacting with customers and delivering services, as described in Chapter 3 above. Indeed, in the case of one company the business model was based entirely around the internet.

Box 17 Service innovation based on new technologies

eTeams is an example of leading edge business model innovation whereby the entire business model and approach to service provision is based on maintaining a very flexible structure and cost base. The company has very few permanent employees but builds global e-working teams for each new project on a case by case basis. This means the company can be extremely cost competitive, access different skill sets as required and develop new services quickly as opportunities arise while at the same time maintaining a consistent and structured customer interface. The organisational model underpins all other innovation initiatives within the company.

In the case of RFID technologies common in the logistics sector the case studies from the Irish SCM-logistics sector suggests that this technology is allowing companies such as UPS to sell new services based on tracking. However, the origins of the technology in the US had actually preceded market demand to a certain extent. Such forms of innovation are particularly powerful in that they open up the possibility of new markets.

One example of this phenomenon, albeit on a small scale was noted in the IT software sector where developments in the product were said to proceed at a faster pace than customers' expressed needs, requiring a degree of selling of the service to the customer.

Other drivers of service innovation noted in the case studies were regulations. The primary view here was that changes in this area, although not always welcomed, do cause companies to react in an innovative manner. Examples cited by case study companies include the role of the Irish Language Act in opening up possibilities for translation services, and airline security requirements providing the basis for new staff training courses in relation to shipping air freight.

Regulations can, however, also represent barriers to innovation. In the education traded services sector for example, innovation in course content was felt to be an increasingly vital part of meeting the needs of enterprises and society. One educational establishment, for example, pointed out that the requirements associated with validating courses had the potential to limit changes made necessary in fast moving technological sectors or courses such as IT.

Finally, a number of specific *barriers* were noted during the course of the case studies. The main theme to emerge from the case studies was one of limited resources and working capital for innovative projects. Other barriers were identified but no particularly strong themes emerged. These barriers are set out below, however, to give a flavour of potential barriers to services innovation:

- Psychological barriers such as those that derive from inertia, or winning a big project – stretching resources and limiting time for more innovative service development thinking.
- Limiting work practices can potentially slow down innovative workforce-based strategies for services innovation.
- Finding reputable partners in overseas locations.

4.5 Use of Business Support by Case Study Companies

The case studies revealed wide ranging use of business support mechanisms[73]. Of those companies that were clients of either IDA Ireland or Enterprise Ireland a relatively high level of satisfaction with supports for innovation was evident. Indeed, in several cases companies had availed themselves of a wide range of supports. Examples of 'innovation programmes' noted in this respect include:

- Feasibility Studies.
- RTI Grants.
- Innovation Partnerships.
- High Potential Start Ups (HPSU).
- European Framework Programmes.

The case studies further revealed that where companies are using these supports they are being used for projects with a relatively high level of technological content, for example, development of new software products. However there were examples where companies were making use of 'non technological' supports in areas such as overseas marketing support and HRD support.

[73] *This, in part, derived from the fact that the companies were largely identified by public sector agencies.*

Box 18 Service innovation through intercompany learning

Within the wider Flextronics corporate, IT Development for the corporate logistics function is carried out in Dublin and the Irish operation also retains some responsibility for a number of key strategic customers such as Dell. The Irish operation drives such initiatives as the implementation of 6 Sigma Quality System and Flexfactory Best Practice programme. Therefore corporately the Irish operation remains important and the wider corporate is dependent on the skills available here.

Further, case study companies were not exclusively reliant on public business support mechanisms. Participation in informal networks and contact groups were evident as well as participation in more formal networks such as the IBEC groups.

The role of intra-company learning was also evident, particularly in those cases where the company is part of a wider group. Here, the transfer of knowledge and good practices was evident. In some cases, the Irish Operation acted as a 'knowledge hub', while in others knowledge centres were said to be outside of Ireland, and typically linked to company headquarter functions.

Overall, a clear divide was evident from the case studies suggesting that clients of Enterprise Ireland and IDA Ireland were on the whole satisfied with existing provision of innovation support. Companies that were less well connected to the agencies, however, tended to feel that the innovation needs of the services sector were less well catered for.

When the case study companies were asked about areas of future support need in relation to services innovation, on the whole companies replied that the role of the agencies was important. However, it appears that the role for the agencies should not necessarily be one of direct financial support. For example, almost all companies surveyed recognised and prioritised the importance of indirect supports such as networking opportunities, strategic advice and so on[74]. As one company put it '*agencies such as EI and IDA are best placed to act as a facilitator or enabler*' (Enterprise IG).

This view, however, was not universally shared. For example, larger companies in the sample, across all sectors, tend to perceive a limited role of the public sector with respect to service innovation. Indeed, as one large financial services company indicated, services innovation was not an obvious area of 'need' in the sense that this area is too complex for outside agencies to make a real contribution.

In relation to specific services innovation support, companies' views were further divided as to whether the existing supports were sufficiently focused. Some, particularly those currently clients of either Enterprise Ireland or IDA Ireland argued that current supports are sufficiently focused. Others felt that the services sector in particular was less well catered for and suggested the need for agency staff to keep updated with service sector innovation needs and trends. Mechanisms identified for addressing this issue included secondments from the agencies to service companies and the creation of shared fora of enterprises and the agencies to discuss such issues.

One company, however, suggested that the problem here was not necessarily one resting with the agency. The service sector itself was also said to '*have a weak ability to describe and package what they do so that non-sectoral people can appreciate their offerings and make decisions around giving…support*' (PulseLearning). This particular criticism was not one that was commonly made by the case-study companies, however, the premise that companies need to articulate their innovation needs more precisely may also be true.

The case study companies identified a number of specific areas of support need in relation to services innovation. One of the most common/cross sectoral areas of support need was networks. This area, as identified in the most recent Enterprise Ireland Strategy, is an area that will be receiving more

[74] *For example, Chorus, DCC, PulseLearning, Emerald Cultural Institute.*

attention. In the context of the case studies, sectoral networks (both national and international) were identified as important mechanisms to share knowledge, particularly amongst non-competitors. Again, the enabling approach was felt to be most appropriate.

R&D was also highlighted in the case studies. Here, a number of companies in sectors such as IT and traded e-learning services were already active in systematic R&D. For most of the case study companies, however, R&D was viewed as a largely alien concept. For some companies, this was an issue of better educating service companies on the availability of such forms of support and its applicability and availability for service innovation projects. For others, however, it was viewed as suggesting the need for more specific service research projects, with a sectoral focus.

Other examples of support were identified by single companies and are not discussed in detail here due to lack of corresponding evidence. For example suggestions focusing on the role and contribution of the education sector to services innovation, including the role of schools in raising a culture of innovation from a young age were made. While this is not a specific services innovation issue, the notion that a more effective culture of innovation can benefit from a focus on issues such as flexibility and innovativeness at an early stages of education. At the same time co-operative placements between universities and enterprises were also noted as a means of facilitating more relevant curriculum developments to the needs of the service sector.

These findings do not provide a strongly or coherently argued case. This could be taken to imply that such companies do not have a strong need for services innovation supports, as may indeed be the case for the larger companies studied, or it may correspond to the services innovation literature which stresses that the dominant language of innovation revolves around technological concepts such as R&D and may therefore be fundamentally incompatible with discussion around the needs of services innovation.

4.6 Summary

The main evidence base for service innovation activity in Ireland is currently provided by the CIS[75]. Data from the most recent published CIS3 (2003) suggests that higher levels of innovation are found in manufacturing, compared to the services sector. The case studies, however, do not paint a picture of a laggard sector; indeed they suggest that that service companies in Ireland are evolving and innovating on a constant basis, in each of the different sectors examined. Such innovation, however, with the exception of IT based service sectors, does not necessarily follow traditional innovation metrics such as R&D. Instead, the framework that was outlined in Chapter 2 helps to reveal a rich pattern of innovation activity in relation to business models, customer interfaces and new services.

In relation to the innovation models, while examples were found of each model, the case studies suggest that relatively few companies utilise a fast track approach, which is viewed as overly risky, instead preferring a combined approach built on systematic service development, complemented by more incremental changes once implemented.

The case studies also revealed different organisational models of innovation. In this respect the main approach in evidence was one based on innovation champions. This was not necessarily a formalised approach based on job titles and so on. In most cases champions were self selected from senior management teams. More formal approaches were, however, in evidence particularly in larger companies and software driven sectors, where organised innovation teams were in evidence – often coalescing around a particular project requirement. These relatively 'elite' approaches to innovation did, however, contrast with more 'democratic' approaches based around empowerment of the entire workforce that was evident in a small number of case studies.

[75] *Other surveys such as the annual Forfás BERD survey provide a useful complement, but does not provide a detailed breakdown of the service sector.*

Drivers of service innovation were also considered. Here, the findings did not reveal drivers that were significantly different to those reported in more traditional surveys of innovation. The most common drivers cited in the case studies were: customer demand, competition, technology change and regulatory requirements. These drivers were largely shared across the company and sectors studied. Similarly a range of internal barriers to service innovation were also identified. These were noted in relation to the lack of resources including skilled and creative people and money.

In relation to the case study companies' use of business supports, a mixed picture was revealed by the case studies. A significant number of companies in the IT and financial services sector, for example, found to be using technological innovation support measures (RTI grants, for example). This contrasts with the often expressed view that these types of support are of less relevance to services innovation or service sector companies. It should be noted, however, that companies were using this technological support largely to facilitate the delivery of new or improved services, customer interfaces and so on.

The case studies also indicate that companies felt that the agencies had a valid role in seeking to support their service innovation efforts. Some of the larger company case studies did, however, suggest that agencies are thought not to be well placed to understand and support specialised internal service processes. Support for such companies was felt to be best positioned in relation to either financial supports for innovation activities and structures or advice. This corresponds with the view of most case studies that while financial supports are useful, indirect supports in areas such as networks and research are equally valued.

5 Irish Policy Support for Services Innovation

Chapter 5 describes the policy and programme environment for services innovation in Ireland and provides further reference to the typology and models of services innovation developed in the study.

5.1 Introduction

Recent analysis of innovation policy confirms that few countries are addressing the challenge of supporting innovation in the services sector.[76] Analysis of the national innovation policy framework indicates that more support activity in this area may exist than is necessarily recognised by the current policy discourse in Ireland. This is partly an issue of perception, which may be attributed to the relative infancy of services innovation policy development among OECD economies. For example, the OECD has recently commented:

"To date, service sector firms have only limited participation in government innovation programmes and are less likely than manufacturing firms to receive public funding. Despite the growing importance of service sector firms in OECD economies, few governments have developed innovation programmes specifically tailored to their needs. Greater efforts could be made, for example, to strengthen links between services firms and public research institutions, improve worker training, direct research to needs of particular service industries or help service firms make better use of ICT. Several countries, including Denmark, Finland, Ireland and Norway, are making steps in these directions that could point the way to for other countries to follow."[77]

This statement confirms that Ireland, along with a number of Nordic countries, is viewed by the international innovation policy community as a pioneer in this area of policy development. This further underlines the opportunity that is currently facing Ireland's policymakers and delivery agencies with respect to the development of policy support for services innovation and Ireland's international reputation as a leading European economy in the 21st Century. It also places a certain pressure of expectation upon Ireland's policymakers. For these expectations to be met Ireland's policymakers will need to demonstrate their commitment to a judicious combination of rigorous empirical research with bold and incisive policy development.

This Chapter analyses the Irish policy context for innovation and focuses, in particular, on policy support for innovation taking place in the services sector. The Chapter also considers whether different types of service sector innovations are addressed by these supports.

In Chapter 2, the Services Innovation Typology outlined three broad types of services innovation, namely, the development of new business models and concepts; customer and delivery interfaces; and new products and services.

This Chapter reviews the Irish national innovation policy support framework from the perspective of these three different types of innovation. However, as noted earlier, the development of new business models, customer interfaces and services may also be relevant to innovative practices within the manufacturing sector. Recognising this factor is important for a number of reasons, not least to allow a 'cross-reference' of policy areas to take place as part of this review.

The Study has considered a wide range of existing support programmes in light of the typology identified in Chapter 2 and the transparency of the supports for services innovation activity. While it is obvious that a number of the existing supports are relevant and potentially applicable to services innovation, we have not sought to propose a re-orientation of them, rather, we have taken them into

[76] *OECD, 2004, 'Science, Technology and Industry Outlook'.*
[77] *OECD, 2004, 'Science, Technology and Industry Outlook', p. 8.*

account in reaching conclusions and drawing conclusions towards the policy rather than programme implementation level.

5.2 National Policy for Innovation

Recognition of innovation as an important driver and enabler of competitiveness is clearly identified in a range of national economic development policies active in Ireland.

The current National Development Plan (2000-2006) (NDP), for example, identifies Research, Technological Development and Innovation (RTDI) expenditure, among other policy areas, as priorities during this period and introduces a range of sub-measures in this area, including: basic research; research and development supports; research infrastructure; and collaborative and strategic applied research funds. This support is intended, in part, to contribute towards the development of new innovative products, processes and services and is largely technological in focus.

However, the NDP also identifies support in other areas, which are relevant to the two additional types of services innovation adopted in this study:

- **Business Models** – for example, the development of in-company strategy, feasibility supports and access to advice in the form of mentors as well as the financial incentives to develop other forms of capability.
- **Customer Interfaces** – for example, marketing support across all sectors for the purpose of 'Increasing the level of exports in the indigenous sector'.

Other contributions towards the national policy agenda particularly highlight the importance of Research and Development. A key report for example is Forfás' 2004 strategic report, 'Building Ireland's Knowledge Economy – the Irish Action Plan for Increasing Research and Development to 2010'.

The Forfás Action Plan proposes an increase in R&D investment by businesses from €917m in 2001 to €2.5bn by 2010. It recommends a number of strategies, which will, "*re-orient the enterprise support budget to R&D and develop a new and less bureaucratic approach to R&D support that encourages a systematic and continuous approach to R&D within enterprises.*"[78]

The Action Plan further recommends that R&D "*funding should increasingly be allocated to programmes directed to groups of firms rather than individual enterprises*" and affirms the importance of support for sales and marketing functions[79]. It calls for greater innovation in the provision of state support with the removal of barriers to innovation and the adoption of a more client-oriented approach.

The Forfás Action Plan also makes the case for the development of specific support initiatives by IDA Ireland and Enterprise Ireland for companies at different stages of R&D activities, such as: top R&D performers; enterprises with minimum scale R&D activity; non-R&D performers; and mobile enterprise R&D.

Alongside R&D, the Irish policy regarding enterprise has attracted significant attention in recent years and is relevant to this study because of the often overlapping notions of innovation and enterprise at least at an individual and institutional level. The most influential statement on enterprise and enterprise support in Ireland in recent years is the report of the Enterprise Strategy Group (ESG) in 'Ahead of the Curve'.[80]

[78] *Forfás. 2004. 'Building Ireland's Knowledge Economy – the Irish Action Plan for Increasing Research and Development to 2010', p. 3.*

[79] *Forfás. 2004. 'Building Ireland's Knowledge Economy – the Irish Action Plan for Increasing Research and Development to 2010', p. 24.*

[80] *Enterprise Strategy Group. 2004. 'Ahead of the curve: Ireland's Place in the Global Economy'. And Department of Enterprise, Trade & Employment, Enterprise Strategy Group Recommendations' Action Plan. 2005.*

This report sets out an agenda for the growth of enterprise in Ireland and highlights the importance of the Internationally Traded Services sector to the Irish economy arguing that the sector "*will be a growing source of high skilled, knowledge intensive jobs and competitive advantage over the next decade.*"[81] 'Ahead of the Curve' further states that the future competitive advantage of the Irish economy will depend upon, amongst other things, "*…building technological and applied research and development (R&D) capability, to support the development of high value products and services.*"[82]

'Ahead of the Curve' also makes an important contribution to recognising the role of non-technological innovation as a driver for economic growth, in particular, for high value added services. Non-technological innovation, it argues, "*… is of particular relevance in services, and achieving a competitive advantage in this area would enable success in knowledge-based services in Ireland.*"[83] Forms of non-technological innovation that are identified by 'Ahead of the Curve' include process improvements; design enhancement; changes in the composition and delivery of a product; brand management; marketing; monitoring of markets; supply chains; networks; customer relations; attitudes to cooperation and competition in financial and business models; management, recruitment and human resources policies, new financial instruments, new sales concepts and formats, organisational restructuring and the bundling of new services with existing products.

These types of service sector innovation largely correspond to the different categories of services innovation identified in Chapter 2, notably new business models and concepts, customer interfaces and service delivery, plus the introduction of new services and service products.

Despite a growing awareness of the importance of services, 'Ahead of the curve' argues that the "*importance and scope of innovation in services is relatively unchartered*" and it is critical of the preoccupation of R&D funding with science and technology.[84] The authors of the report call for "*a better understanding of innovation in service markets and of how it can be facilitated.*"[85]

Although 'Ahead of the Curve' stops short of making explicit recommendations on non-technological innovation, a number of recommendations found elsewhere in the report, relate directly to some types of non-technological innovation.

For example, the ESG report calls for a more focused approach to market intelligence for exporting and promotional activities or the placement of 1000 graduates and internationally experienced professionals in Irish firms, both of which would, arguably, support non-technological innovation within client companies through new methods of marketing or monitoring markets. Likewise, the ESG's recommendation for a €20m five year programme to support the creation of enterprise led networks can be interpreted as a further example of a policy that could potentially encourage non-technological innovation in the supply chain or production/distribution process.[86]

In summary therefore, the RTDI priorities contained in documents such as the National Development Plan and Building Ireland's Knowledge Economy suggest that there remains a largely technological focus in support for new product and service innovations. This, it could be argued, is reflective of a continuing emphasis on traditional innovation concepts and models such as found typically in a manufacturing context.

[81] *Enterprise Strategy Group (2004), p. 14.*

[82] *Enterprise Strategy Group (2004), p. xii.*

[83] *Enterprise Strategy Group (2004). p. xvi.*

[84] *Enterprise Strategy Group. 2004. 'Ahead of the curve: Ireland's Place in the Global Economy', p. 69.*

[85] *Enterprise Strategy Group (2004), p. 70.*

[86] *In the case of these wider conclusions the Government explains that it is currently re-engineering Enterprise Ireland's overseas and marketing support Division as well as establishing pilot programmes for industrial placements and enterprise led networks Enterprise Action Plan (2005).*

However, it is important to recognise that technological innovation, particularly in the use and development of ICT, may also be highly relevant to the types of services innovation identified in earlier Chapters, particularly to the development of new customer interfaces. Furthermore, analysis of the support mechanisms and priorities put into place reveals that the NDP support for enterprises, marketing and FDI implicitly supports services innovation such as the development of new business models and concepts and service delivery and customer interfaces. Similarly, 'Ahead of the Curve' makes an important contribution in its recognition of the multifaceted nature of services innovation.

5.3 National Agency Innovation Strategy and Support

The importance of innovation in the knowledge economy has been similarly recognised in the strategies of Irish national agencies notably, IDA Ireland and Enterprise Ireland. For example, IDA Ireland's strategy for attracting foreign direct investment has, in recent years, increasingly focused on its role in developing Ireland as a knowledge economy, in particular the IT and Biopharmaceutical sectors. As part of this strategy IDA Ireland provides a number of services to client companies that support their investment in R&D and innovation in Ireland. This includes introducing potential investors to local enterprises, government, service providers and research institutions, as well as the provision of specific innovation supports such as Research and Capability grants (similar to Enterprise Ireland), the Innovation Partnership initiative and the RTI initiative. These may be used to help services companies develop new services or new business models particularly where this involves collaboration with Irish universities or Institutes of Technology. In addition, IDA Ireland also works with niche companies and innovators with a unique product or service offering.

In all these areas, according to IDA personnel, both manufacturing and internationally traded service companies are well represented. IDA Ireland managers indicate that, in their view, its flexible, client centred approach is able to cater for innovation needs of all types, within both manufacturing companies and internationally traded services sectors. IDA Ireland is continuing to develop its thinking in this area as highlighted by its response to a recent OECD survey:

"IDA is aware that the process of technology development and innovation within services companies is generally less compartmentalised than in manufacturing where dedicated R&D units often play a leading role. In services, technology development is more heavily focused on the customer interface and shaped by quite rapid product/service life cycles and a strong emphasis on design. The appropriate way in which to encourage innovation in the internationally-traded services sector is the subject of on-going work within IDA."[87]

This recognition of the differences between innovation processes in manufacturing and services helps to elucidate the value of this Forfás study to future policy development in the area of services innovation.

Enterprise Ireland is charged with a mission to 'accelerate the development of world-class companies to achieve strong positions in global markets resulting in increased and regional prosperity. This is based around three broad strands of activity (Figure 4).

[87] *OECD 'Science, Technology and Industry Outlook 2004 country response to policy questionnaire: Ireland', p. 7.*

Figure 4 *Enterprise Ireland Innovation Strategy*

Source: Transforming Irish Industry: Enterprise Ireland Strategy 2005-2007.

The innovation agenda of Enterprise Ireland is primarily delivered through its 'Market led R&D and Innovation' strand.

This seeks to:

- Drive in-company R&D activity to higher and sustained levels.
- Enable industry led technology collaboration between companies and colleges.
- Pilot the development of Technology Centres linked to third level focused on working with industry on medium term research and technology issues.
- Fund on a pilot basis led cluster based research agendas.
- Maximise the commercialisation opportunities for industry arising from publicly funded research in third level institutions or hospitals.
- Work closely with Institutes of Technology and relevant Universities to strengthen their ability to support industry at a regional level.
- Facilitate the participation of Irish industry in international science and technology initiatives such as EU framework programmes.[88]

Enterprise Ireland managers suggest that internationally traded service companies are well represented in key support programmes focused in largely technological, innovation, for example, the RTI Grants programme and the Framework programme. It was noted, however, that the Innovation Management Programme tends to have a lower level of service sector participation.[89]

[88] *Enterprise Ireland. 2005. 'Transforming Irish Industry: Enterprise Ireland Strategy 2005-2007'.*
[89] *Interview with Enterprise Ireland programme manager (21st August 2005).*

In addition to the Enterprise Ireland innovation agenda, the Enterprise Ireland Strategic Plan sets out a complementary sectoral agenda as part of its 'Client Targets' strand. This includes a major division focusing on 'Software, Services and Emerging Sectors' with a particular focus on companies targeting the global software markets in financial services, public sector, e-learning, telecommunications, e-commerce, digital media, middleware and tools. The main focus of support in this area is through sector specific strategies, plus tailored programmes of activities in sales, marketing, R&D, competitiveness and management development.[90]

Enterprise Ireland managers indicated that innovation projects within this sector will need to demonstrate important features such as:

- Intellectual property.
- Unique selling points.
- Replicability.[91]
- Scaleability.

The agendas noted above represent the more explicit innovation support elements of the Enterprise Ireland strategy. However, other elements of the strategy are also relevant to services innovation[92]. In particular, the 'capability agenda' represents a series of supports that are designed to build the skills and capacity of companies to innovate. Therefore while there are a number of EI support initiatives, which are relevant to the three types of services innovation used in the Study, it is not immediately apparent that they are being systematically applied to services innovation.

Other national or cross border bodies are also relevant in the context of a review of services innovation policy. Science Foundation Ireland (SFI), for example, was launched in 2003 charged with the mission of promoting Ireland as a global centre of excellence in nationally significant economic areas of research through investments in the people, ideas and partnerships. To meet this vision SFI is focusing its activities on biotechnology and information and communication technologies. As with the other national agencies reviewed, SFI's focus is not strongly sectorally focused although its focus on science in areas such as ICT is of potential relevance to a wide range of service sectors. It could be argued, however, that such research is likely to be of direct relevance to companies with a high technological content in their services or their suppliers.

InterTradeIreland is the cross-border trade and business development body, which 'delivers business solutions that enhance company competitiveness through collaborative all-island initiatives'. InterTradeIreland supports a number of initiatives that can be said to support the three different types of services innovation identified in the earlier Chapters. As with Enterprise Ireland, analysis suggests that InterTradeIreland provides a wide range of support to companies with regards to the development of new business models and customer/delivery interfaces as well as the development of new products and services.

5.4 The Challenge for Ireland's Policy Makers

There is a growing awareness among officials in Ireland's delivery agencies that Ireland will need to rise to the challenge of sharpening, and perhaps reconfiguring, its strategic focus with regards to policy support for innovation in the services sector. In particular the Irish policy framework could be more supportive of the different types of services innovation.

[90] *This area of activity builds on the earlier Enterprise Ireland (2000) 'ITS Strategy: Opportunities for Ireland's High-tech Internationally Traded Services Sector to 2007'. This proposed the creation of Technology Hubs (Webworks) across Ireland to generate a critical mass of high potential start ups based investing in R&D, and trading internationally.*

[91] *Replicability is viewed as one of the defining features of true service innovations (see Chapter 2).*

[92] *In a similar way to that identified in the NDP.*

Key agencies have responded to the challenge of services innovation but generally implicitly and with an essentially technologically based approach. Consequently, types of services innovation identified in this study, including innovation through new customer interfaces and the development of new business models, are only implicitly receiving policy and programme support.

One of the potential weaknesses of this approach to service sector innovation, in which supports for new services or products focus on technological innovation, is that the development of new services may receive less support than the development of new manufacturing products.

Although many of the Enterprise Ireland and IDA Ireland supports, in general terms, have the "potential" to be re-oriented and expanded with the service sector in mind, it is arguable whether they would, as a result, be as effective as they need to be. In fact, seeking to broaden innovation policy to 'embrace' services innovation could dilute existing innovation policy to such an extent that its current clear messages and relevance to the manufacturing sectors and those services companies with capital investment plans would be significantly damaged. A distinct services innovation policy will therefore also help to protect the integrity and visibility of the traditional RTD innovation brand.

Our research on the role of public policy in the six dynamic sector concentrations indicates that no explicit services innovation policies have been delivered to services companies, although a number of the sector concentrations have developed important innovation and enterprise policy support initiatives, while others have adopted a light touch regulatory approach that is sympathetic to innovative activity. However, the OECD research emphasises the relative scarcity of national innovation policies that are designed around the needs of services companies.

In addition to the traditional preoccupation with research and technological development it would appear that a major obstacle to the development of services innovation policies is the diversity that characterises the policy needs of different services sectors, once again underlining the heterogeneous nature of services innovation. Other barriers that are likely to be encountered in developing services innovation policy include the technical constraints posed by EU regulation as well as more the attitudional constraints associated with culture change among businesses and across delivery agencies.

5.5 Summary

Ireland is increasingly being viewed as a pioneer in the area of policy development for services innovation. Ireland's policy makers therefore have the opportunity to enhance Ireland's international reputation as a leading European economy in the 21st Century. In the Irish policy context it is clear that innovation is a key priority for the achievement of future economic growth in Ireland. National policy documents, such as the NDP, highlight the importance of support for research, development and innovation within the manufacturing and internationally traded services sectors.

Policy support for innovation is largely sectorally 'neutral' in the sense that manufacturing and internationally traded services are viewed alongside each other in relation to support. This approach is fairly typical of most countries. The policy and economic context of Ireland, however, is changing as evidenced by the growing significance of the services sector.

Recent policy debate in Ireland has considered the challenges posed by a service-based economy. 'Ahead of the Curve', for example, concluded that the traditional policy approach to innovation is dominated by a largely technological view of innovation, notably one based around technological R&D and so on. However, innovation in the service sector is characterised by both technological and non-technological innovation in areas such as the development of new business models, customer interfaces and new services. Other policy priorities, particularly those associated with enterprise, provide the basis for support to other, non technological, dimensions of services innovation.

The types of services innovation identified in this study, including innovation through new customer interfaces and the development of new business models, are only implicitly receiving policy and programme support. Consequently the development of new services may receive less support than the development of new manufacturing products. Although where support for new forms of services or service products is available it can be equally relevant to the manufacturing sector in light of the transition of many manufacturing companies towards service offerings alongside their more traditional products.

As the role of services innovations arising from service sectors become increasingly important to Ireland, more will need to be done, and more explicitly stated, to broaden the concept of innovation in order for support to remain relevant to the rapidly changing needs of companies in Ireland. Services innovation policies will need to take account of the heterogeneous policy requirements of different services sectors and the different way in which the types of services innovation identified globally and in Ireland can relate across sectors and across different types and sizes of company.

6 Policy and Programme Conclusions

Chapter 6 concludes the report by bringing together the key conclusions from the study and articulating policy and programme topics.

6.1 Introduction

A final requirement of the terms of Reference for this Study is to:

"To develop innovation policy and measures to stimulate innovation in services"

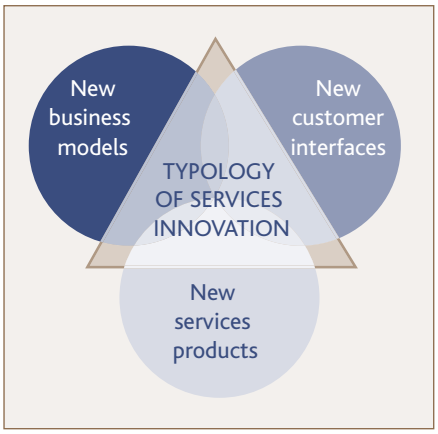
In developing these conclusions we have taken into account the potential approaches that are already under discussion amongst academics, policy makers and practitioners. We have also considered Ireland's growing international status as a pioneer among OECD economies in developing a services innovation policy that can contribute towards improving the competitiveness of the Internationally Traded Services (ITS) sector as well as the indigenous services sectors. However, the rationale for services innovation policy must ultimately be derived from evidence that is based upon rigorous empirical research and identifies the underlying factors that explain the environmental conditions that enable services innovation to take place.

In this Chapter, we first of all summarise some of the main findings and conclusions from the empirical research carried out; forming the rationale for a distinctive services innovation policy for Ireland. The key themes that are likely to be needed to create a policy, framework and implementation environment that is supportive of services innovation are then discussed and finally, the key activities around which a services innovation policy could be formed are set out (Figure 5). At each stage, specific conclusions are clearly outlined.

Figure 5 *Flow of Policy & Programme Conclusions*

The Irish economy is undergoing a period of transformation towards services activities. While this trend is evident other advanced economies, it is not simply a phenomenon associated with the services sector – manufacturers are also developing a greater service component to their businesses. In order for the Irish economy to remain competitive this Study suggests that it is vital that services are able to adapt and innovate. This will require the policy and support environment to consider carefully the needs of services.

The conceptual research, as outlined in Chapter 2, indicates that the traditional models of innovation do not provide a sufficient basis for understanding the complexity and distinctiveness of services innovation. In addressing the limitations of existing models of innovation, the Study has set out a typology of innovations based around three dominant types: *new business models, new customer interfaces, and new services*. These types of services innovation do not exclude technological changes or adaptations indeed, research suggests that technological development represents an important enabler of the services innovation types.



Companies adopt a number of approaches towards services innovation, including: *fast-track; systematic and incremental*. These models provide a wider range of approaches to innovation than is typically found in the manufacturing sector which has largely concentrated on more systematic, staged-based approaches linked to technical R&D.

6.1.1 Lessons from the Global Sectors and International 'Hot Spots'

The conceptual framework outlined in Chapter 2 provides the basic building blocks for the understanding of Irish services innovation validated against internationally important services sectors and a number of service innovation hotspots. The findings from the international comparators, while not providing conclusive evidence on specific services innovation policies, suggest important preconditions or implicit factors for dynamic concentrations such as those that could benefit Ireland (see Chapter 3 for an overview of these preconditions, and Annex 5 for detailed case studies).

A number of important 'environmental' conditions seem to provide an important basis for the success of such hotspots. In particular, the following factors were identified:

Critical Mass of Companies, Suppliers, Customers

Clusters, concentration or milieu will tend to increase and support services innovation, providing strong competition for customers, staff and access to regulators. Concentrations are also a strong magnet to attract other 'downstream' suppliers that will act as enablers and stimulators for services innovation. In some clusters, competitive impulses exist alongside collaboration and creative individuals.

Innovation and Knowledge Resources

The existence of a strong and supportive educational infrastructure will also tend to favour a concentration of services innovation. This infrastructure needs to work at a number of levels including universities but also vocational colleges and private centres of expertise and research.

Public Policy

The 'hot spots' studied in Chapter 3 suggest that, as a minimum, public policy needs to be clear and transparent and demonstrate that the sector is valued and that innovation in the services is encouraged. Therefore while the evidence suggests that implicit policy may, in certain conditions, be sufficient to create a conducive environment for services innovation, an explicit public policy in favour of services innovation would seem to be clearly desirable.

6.1.2 Innovation in Irish Services

Statistical evidence from the CIS suggests that higher levels of innovation are found in manufacturing, compared to the services sector (Annex 6). The case studies of services innovation in Ireland do not, however, paint a picture of a laggard sector; indeed they suggest that that service companies in Ireland are evolving and innovating on a constant basis, in each of the different sectors examined. With the possible exception of IT-based service sectors, services innovation in the Irish sectors studied does not necessarily follow traditional innovation metrics such as R&D, but rather through the conceptual framework used in this Study, demonstrate a rich pattern of innovation activity in relation to business models, customer interfaces and new services (Chapter 4).

The company case studies suggest that relatively few companies utilise a fast track approach, which is viewed as overly risky, instead preferring a combined approach built on systematic service development, complemented by more incremental changes once implemented.

The case studies also indicate that companies felt that the public agencies had a valid role in seeking to support their service innovation efforts. Some of the larger company case studies did, however, suggest that agencies are thought not to be well placed to understand and support specialised internal service processes. Support for such companies was felt to be best positioned in relation to either financial supports for innovation activities and structures or advice. However indirect supports such as networks are equally valued, creating a supportive and conducive environment.

6.1.3 Irish Policy in the Area of Services Innovation

It is clear that innovation is a key priority for the achievement of future economic growth in Ireland. Recent policy debate in Ireland has considered the challenges posed by a service-based economy. While the innovation agendas set out in policy documents such as the NDP are largely technology based, some priorities, particularly those associated with enterprise, provide the basis for support to other, non technological, dimensions of services innovation. Consequently, at issue is whether this support is sufficiently explicit and co-ordinated to deliver a robust response to this important area of innovation (Chapter 5).

The key agencies have sought to respond to the challenge of services innovation but generally implicitly and with an essentially technologically based approach. One of the potential weaknesses of this approach to services innovation is that the development of new services may receive less support than the development of new manufacturing products.

As the role of services innovations arising from service sectors (or related manufacturing sectors) become increasingly important in the transition to a knowledge economy, the issue is whether more will need to be done, and more explicitly stated, to broaden the concept of innovation in order for support to remain relevant to the rapidly changing needs of companies in Ireland.

A particular challenge will be the design of services innovation policies that adequately take account of the heterogeneous policy requirements of different services sectors, as illustrated in this Study.

6.2 The Rationale for a Services Innovation Policy

There are a number of important factors arising from the Study that need to be taken into account when determining the policy approach that needs to be taken.

The scale of the challenge faced by countries in adjusting to the rapidly emerging knowledge based economy is one that Ireland will need to address, thereby acknowledging that services innovation is distinct and different to the types of innovation that are prevalent in manufacturing and process

activities. In this respect a policy that merely re-brands or repackages existing innovation policies and programmes will not be enough. A visible policy favouring innovation in services is required to deliver a strong message to business, education and government that services innovation is as vital as technological innovation.

If policymakers want service companies to understand the importance of services innovation, as distinct from RTD, they will need to ensure a consistent message throughout the entire policy process. Raising awareness of services innovation in Ireland will require a single coherent message that is capable of reaching those service companies that have not expressed an interest in innovation to date. Irish policymakers have a unique opportunity to demonstrate the value of services innovation by developing a new service offering through more integrated and focused support for non-technological innovation in client companies.

Services innovation requires a substantive policy development that is based upon a thorough understanding of the different types and processes of innovation that are distinctive to services companies. The adoption of a specific services innovation policy will encourage a sharper focus on the barriers that prevent services companies from innovating as well as alerting policymakers to the importance of specific drivers of services innovation. Ireland therefore needs to encourage services firms to realise the importance of non-technological innovation through the development of new business models, customer-interfaces and service-products, as an invaluable source of competitiveness in the global market.

The Study reveals that Ireland's leading companies in the Internationally Traded Services sector are already exploiting services innovation to increase their competitive advantage. These companies need to be showcased to business in Ireland in order to convince less innovative services companies of the value of services innovation to company performance.

A services innovation policy development in Ireland is also a valuable opportunity to raise the profile of Ireland's offering to international services companies by focusing on services innovation within the ITS sector as an important component of that offer. This in turn will make a significant contribution towards the embedding of FDI in Ireland. The emerging services innovation support framework could itself also form an important part of IDA Ireland's offering to FDI companies.

As the Study findings indicate, service activities have an increasingly important role to play in value chains of all types. Services innovations are therefore important for a wide range of industries, including manufacturing industries. Although ITS companies have inevitably been a focus for this Study, other services activities involved in the service value chain will be equally affected and targeted. Likewise, the public services sector has not been specifically examined in this Study, however it is clear that the important conclusions from this Study will have relevance across public services also notably in respect of the potential influence that public procurement may play in driving services innovation[93].

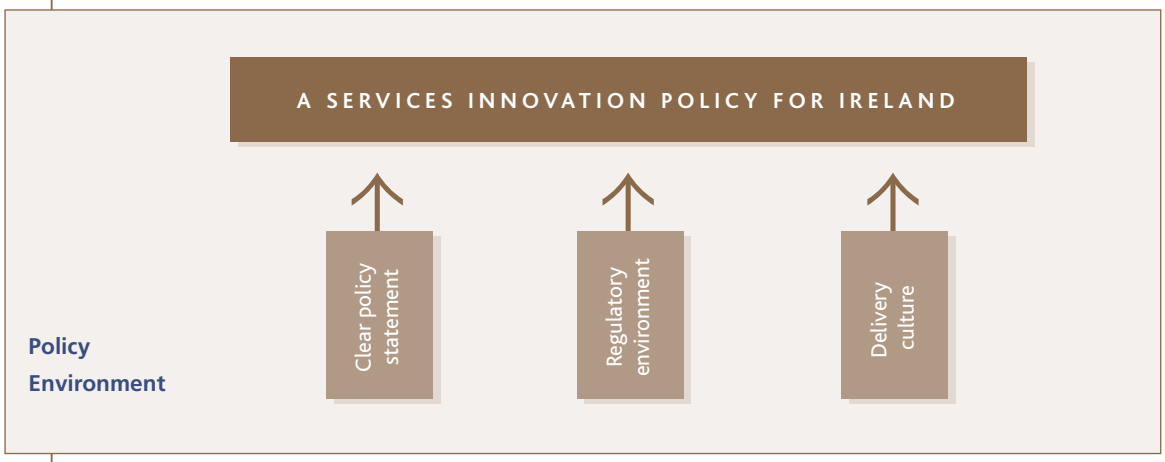
Finally, although the Study clearly indicates that many of the Enterprise Ireland and IDA Ireland supports in general have the "potential" to be re-oriented and expanded with the service sector in mind, it is arguable whether they would, as a result, be as effective as they would need to be given the changed focus.

[93] *However, the conclusions outlined below do not relate explicitly to the public services sector.*

6.3 A Policy Environment for Services Innovation

The following conclusions represent the basic framework for a services innovation policy that will be needed to create the policy environment within which a services innovation policy can be embedded and flourish (Figure 6). The emphasis here on a conducive policy environment is based on the evidence derived from the case studies of the global services concentration. In these examples, although explicit services innovation policy was not present, public policy had provided sufficient implicit support to create an environment in which the development of services activities in general and services innovation in particular could be achieved.

Figure 6 *Creating a Policy Environment for Services Innovation*



Conclusion 1 – A Statement on Services Innovation Policy

If a discrete but complementary services innovation policy is required, it follows that there needs to be an explicit statement of the policy. This should outline the reasoning behind the policy and the key themes that it will cover.

A new services innovation policy for Ireland will need to combine existing and newly developed support measures around the specific needs of services companies in Ireland. This policy support should be available to companies in 'pure' services sectors as well as those that are providing services in manufacturing as an integral part of the 'offer' to the customer.

Whilst it is important that this new policy framework should be distinct from traditional RTD policies, both in practice and appearance, the current international policy trend towards integrated policymaking requires the new services innovation policy to combine support across a number of policy domains, which are also relevant to traditional RTD policies.

A distinct services innovation policy needs to demonstrate that government and its agencies recognise that services innovation in Ireland is vital and needs to be acknowledged, supported and promoted in its own right and with equivalent success as has been achieved in traditional innovation policy.

Conclusion 2 – A Supportive and Flexible Regulatory Environment

The evidence drawn from the global services sectors and the concentrations in this Study shows that regulation and deregulation exercise a significant influence upon the service innovation process, creating an impetus for change in some respects while hindering change in other cases. For example, services companies adopt innovative responses to regulation over competition rules, intellectual

property rights, taxation, employment laws as well as quality assessment, standardisation and certification. They will also provide services to other companies and organisation that will help them comply with new regulations.

Consideration needs also to be given to removing fiscal distortions to services growth and innovation. Most Irish professional and educational service companies are subject to higher corporation tax than trading or manufacturing companies when they retain their entire profits for innovation requiring capital reinvestment.[94] The effect is likely to be discouragement to capital reinvestment in service companies. These distortions relatively disfavouring investment in service companies date back to the 1970's and 1980's when export services were not the significant drivers of the Irish economy that they are today.

Competition laws, and the effect of State Aids regulations, play an important part in encouraging companies to develop a competitive advantage through services innovation, rather than rely on monopolistic control of markets and service delivery. Similarly the attitudes displayed within public procurement processes may hinder or encourage services innovation by valuing or discouraging innovative offers. Technology transfer services affected by IPR regulation and the knowledge transfer process can, on the hand, provide companies with an incentive to innovate but, on the other hand, prevent companies from undertaking services innovation. This could also hinder the licensing of technology and knowledge between Universities and companies. Conversely, deregulation in services sectors such as financial services and telecommunications has encouraged greater services innovation.

The conclusions of the Study suggest that flexibility and sensitivity is a key requirement among regulatory authorities, including local government, central government departments, state agencies, revenue authorities and the regulators for an industry or sector. Regulation and deregulation cannot, of course, be decided solely upon the basis of how they will impact services innovation, however due consideration should be given to the impact upon services companies when initiating changes in the regulatory environment and frameworks. Furthermore, this Study shows that a regulator can offer proactive support to the development of new services and business models, beyond their traditional watchdog role and protecting the rights of consumers.

Conclusion 3 – A Services Innovation Culture

Services innovation poses a significant challenge to the traditional attitudes and approaches of policymakers who are responsible for delivering innovation and enterprise support. The traditional approach to technological innovation policy is to subsidise, either directly or indirectly, expenditure on innovation activities. However in services innovation policy the support may need to be provided against circumstances where tangible investment or expenditure is difficult to achieve and the monitoring of that expenditure even more difficult since it may not lead to capital assets being acquired or systematic development expenditure being undertaken.

State agencies will therefore need to find approaches that will allow them to balance their need for control and monitoring against the need for increased risk taking and flexibility in pursuit of a service innovation. The task of delivering service innovation policy will therefore require appropriate staff training and development and greater clarity over the criteria to be used for selecting service innovation projects to benefit from support.

Similarly, the monitoring of the delivery of services innovation support, will contribute towards the effectiveness of delivery and support policy learning but it will also help to ensure that services innovation remains 'on the agenda'. It is anticipated that this will contribute towards the gradual development of a widespread consensus and understanding of the importance of this policy as has been achieved, over the past twenty years, in the case of technological innovation.

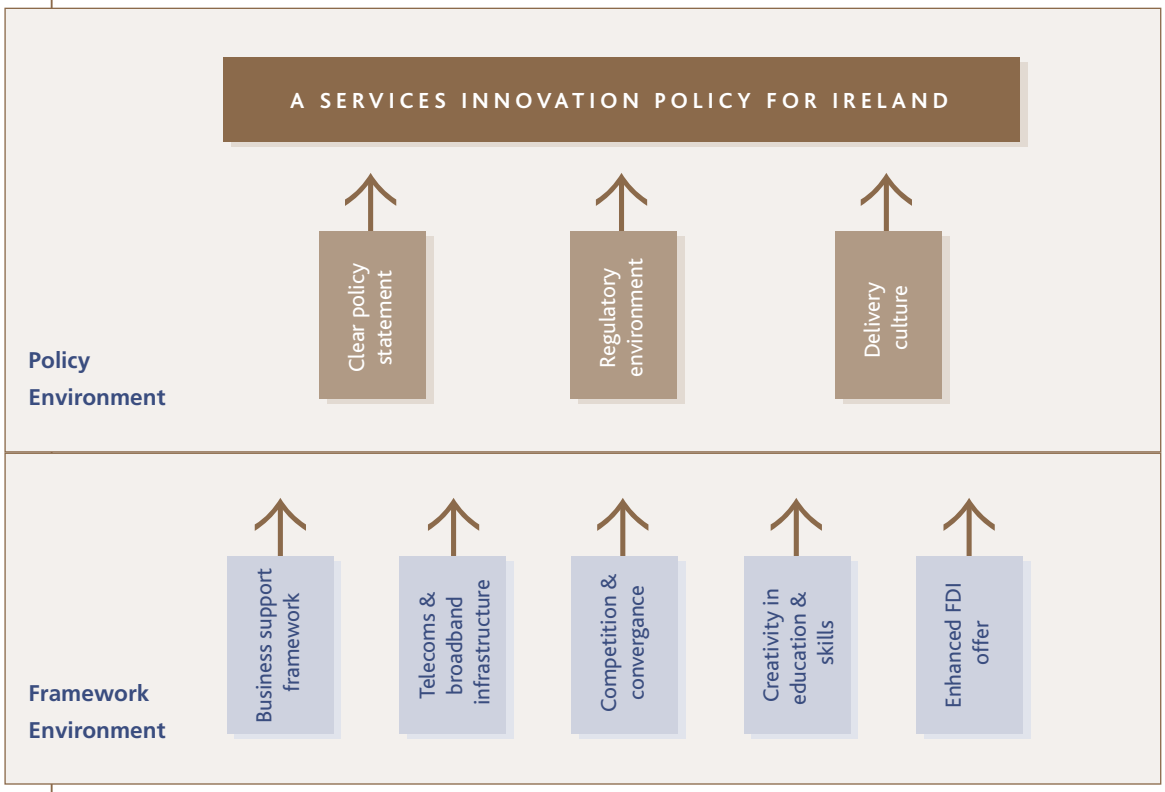
[94] *In such cases a corporation tax surcharge (referred to as the service income surcharge) under Section 441 of the Consolidated Taxes Act 1997 is levied as to 15% of half of the retained profits.*

The promotion of a services innovation culture with those delivering the services innovation policy and supports, should ensure that they are supported to deliver and monitor the policy with an appropriate emphasis on allowing them to balance risk with effectiveness in providing 'non-traditional' forms of support and expenditures.

6.4 A Framework Environment for Services Innovation

In order to support the Policy Environment recommended in the previous section, it is appropriate to propose the framework that would be needed in order to implement a Services innovation programme (Figure 7).

Figure 7 *Creating a Framework Environment for Services Innovation*



Conclusion 4 – A New and Distinct Business Support Framework for Services Innovation

A distinct framework of business support that is dedicated towards the specific needs of services companies and their adoption of services innovation is needed. This support should address:

- the drivers and barriers that impact upon the development of new business models, customer interfaces and service-products, and
- take account of the variety of different innovation processes that service companies may utilise such as: systematic R&D, fast-track or incremental innovation.

New policy measures will need to be developed where current support does not fully address the policy needs of services innovation within the Irish economy. However, existing business support for non-technological innovation[95] could be adapted and more specifically attuned to the nuances and challenges involved in undertaking services innovation. This will require development agencies to

[95] *For example in relation to sales and marketing, competitiveness and best practice, international sales, export sales, management skills and productivity.*

facilitate non-technological innovation[96] and the bundling of new services with existing products. Such an initiative may suitably be accommodated by developing a new and distinct business support framework for services innovation, including a review and 'Service Proofing' of existing and future support mechanisms.

Conclusion 5 – Services Oriented Support for Telecoms and Broadband Investment and Infrastructure

Information technology infrastructure and investment such as telecommunications, wireless and broadband, are key enablers of services innovation as the evidence from the Study of the global concentrations confirms. In particular, the SCM-Logistics sector in Memphis and London in financial services, where technology is effective in achieving services innovation, it is an enabler of an innovatory impulse that is already in train rather than the driving impulse for the innovation itself.

However, while Irish telecoms and broadband investment and transport infrastructure have both received considerable levels of public investment under the National Development Plan and from other State programmes and agencies, information technology penetration in Ireland is significantly below the EU average.

Rapid and sustained investment in infrastructure, such as broadband and other advanced communication technologies, is a pre-requisite for a highly innovative services economy. Similarly, transport infrastructure to allow services to be globally delivered and companies to concentrate spatially also helps to support services innovation.

It is recognised that advanced telecoms and broadband requirements are inherent in services innovation activity and contributes as an enabler of services innovation and future competitiveness of the services sector in Ireland. As indicated in the Forfás report on 'Benchmarking Ireland's Broadband performance'[97], an acceleration in the ICT and telecommunications investment and infrastructure, including broadband access, is now urgently required.

Conclusion 6 – Competitiveness and Convergence Through Networks, Clusters and Centres of Excellence

The Study has revealed the important role that clusters and concentrations of similar types of activity have on services innovation activity. This factor can be observed in concentrations as diverse as Stockholm, London, N Carolina and Netherlands and in sectors including the creative industries, financial services and SCM-logistics. These concentrations allow world-class companies to prosper and innovate alongside locally based service innovators. In such concentrations vibrant competition seems to be at least as important as collaboration and services innovation requires this element of competition for ideas, customers and skills to be able to prosper.

Similarly, services innovation is stimulated by centres of excellence that assist in the emergence of new business models and services delivery concepts. This was evident in the SCM-Logistics concentrations in Memphis and the Netherlands. A key feature of these centres is their ability to promote and support flexibility and creativity and as a result to foster convergence and collaboration between technology and service areas.

Hence the development of concentrations and 'hot spots' of services innovation with high value specialisation, collaboration and competitiveness between companies and individuals, can ensure healthy competition among companies for customers, skills and skilled staff.

[96] *For example: process improvements; design enhancement; changes in the composition and delivery of a product; brand management; marketing; monitoring of markets; supply chains; networks; customer relations; attitudes to cooperation and competition in financial and business models; management, recruitment and human resources policies, new financial instruments, new sales concepts and formats, organisational restructuring.*

[97] *Forfás report – Benchmarking Ireland's Broadband performance. November 2005. http://www.forfas.ie/publications/forfas051205/webopt/forfas051205_broadband_webopt.pdf*

These activities should aim to foster services innovation through the process of creative and 'lateral' thinking in directing new technologies to the challenge of service delivery to customers.

Conclusion 7 – Innovation and Creativity Through Education and Skills Development

The evidence contained in this Study is that services innovation relies heavily upon human capital particularly ass seen in the talent and creative skills of individuals and teams. This was noted not only in the global sectors and concentrations but also in the leading Irish services companies featured in the case studies reviewed in Chapter 4.

Creativity has been heralded as a vital ingredient in the innovation process and as an invaluable source of competitive advantage to services companies. It therefore needs to be cultivated, from an early age, in school learning curricula through to university teaching and lifelong learning. This requires a partnership approach between those agencies involved in delivering both the skills agenda and the new services innovation policy framework.

The integration of these two policy areas must be driven in part by the services innovation skills requirements of Irish enterprise and FDI as well as current and emerging global trends. This will necessitate a broad portfolio of skills provision at a variety of levels and across different occupational roles within services companies.

Conclusion 8 – Services Innovation Policy and an International Economic Image

Services innovation is already a strategic priority and an operational reality for Ireland's leading service companies and this Study has identified the potential for services innovation in attracting and embedding FDI.

A service innovation policy represents an important opportunity to market Ireland's services sector and delivery agencies as global leaders in the area of services innovation. Company success stories of the development of new business models, customer interfaces and service-products can be woven into IDA Ireland marketing of the Irish service-sector supply base to potential inward investors. It also presents an opportunity to incorporate a new, state of the art, services innovation support framework within IDA Ireland's offering to FDI, which can contributes towards the embedding and expansion of FDI within the Irish economy.

In this sense, Ireland's emerging role as a global leader in services innovation can become a key theme in the branding of the Irish economy, complementary to the message that '*knowledge is in our nature*'. Furthermore, Ireland's adoption of a services innovation policy will reflect very favourably against the recent OECD and EU interest in services innovation as a potential driver of global competitiveness.[98]

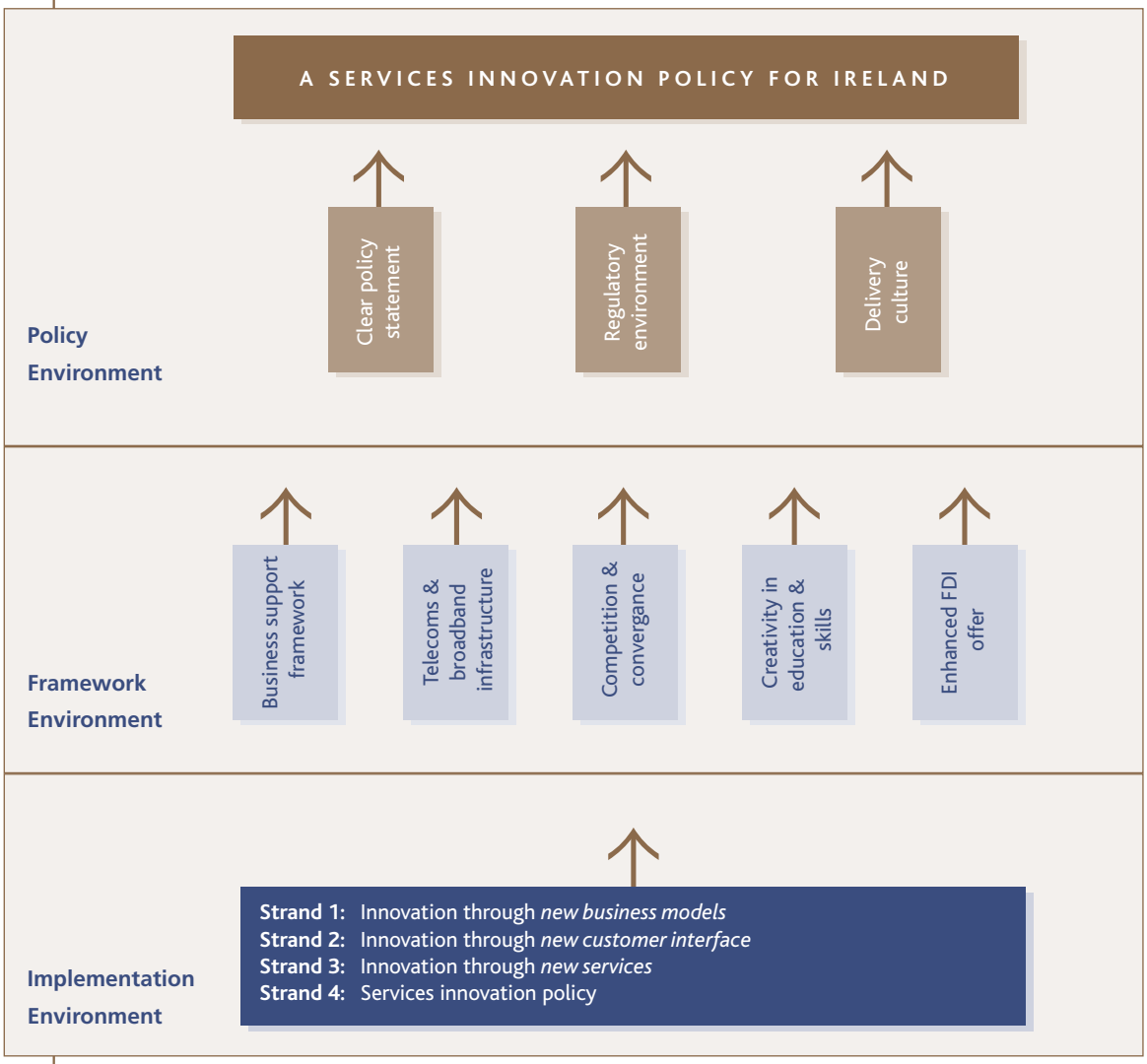
6.5 An Implementation Environment for a Services Innovation policy

The typology of services innovation that was established in Chapter 2 and used throughout this Study has been tested and verified in a range of sectors and circumstances. The typology provides the basis for shaping the structure and content of a services innovation policy and framework programmes (Figure 8: Levels 1 and 2).

Crucially the typology is sufficiently robust to allow an *Implementation Environment* to be proposed using the three types of services innovation (Figure 8: Level 3). This is set out below and puts forward, as examples of possible actions, a range of potential services innovation programmes and supports that would complement existing support measures.

[98] *OECD. 2006. 'Innovation and Knowledge-Intensive Service Activities'.*

Figure 8 *Creating an Implementation Environment for Services Innovation*



Conclusion 9 – The Typology of Services Innovation and the Development of Policy and Support Measures

It is accepted that while a number of the existing innovation support measures in place in Ireland can be implemented within a services innovation policy, simply integrating services into RTD innovation policy would not possess the impact that is required to successfully reach those services companies that traditional RTD innovation policy has not.

A distinctive services innovation policy will bring cohesion and clarity to the different types of services innovation and enable policymakers in Ireland to build upon past successes while realigning overall innovation support according to the growing importance of services innovation for the Irish economy. In this sense, the national innovation policy framework will offer a substantive programme of services innovation support in addition to existing RTD support activities.

In order to articulate how a services innovation policy could possibly be implemented, we have identified below examples of activities around which a services innovation policy could be formed. These are based on the Services Innovation Typology developed in this study, including New Business Models, Service Delivery and New Customer Interfaces, and New Services. The examples provided below, have been extensively based on the evidence and experience of the global sectors and concentrations studied and the existing experiences of leading services companies in Ireland.

Strand 1 Innovation Through New Business Models	
1. Promote a *culture shift* to allow new thinking regarding services and the relationship between customer value and profit opportunities.	Broad awareness and education programme using case studies and role models but emphasising that there are new ways of creating value and profit in services.
2. Improved *futures, foresight and competitive intelligence* capacity and capabilities.	Create new centres of excellence in futures thinking and leading edge competitive intelligence approaches. Encourage investment by government, education institutions and private 'Think Tanks' to lead the way.
3. Increased emphasis on strategic planning and evaluation of possible futures for businesses and organisations.	Direct and indirect support provided for companies and other organisations with a specific and well argued approach to determine a new 'future' and the strategic planning to realise the future.
4. Increased *capacity and capability for creativity* at all levels including from schools, Institutes of Technology and locations where businesses can be trained and supported.	Embedding of creativity techniques into education and lifelong learning courses – linked to centres of excellence where businesses can be trained or facilitated in creative thinking regarding innovative services, customer interfaces or business models.
5. *Flexibility* in workforce conditions.	Work with enterprise organisations and trade unions to increase understanding of the drivers and barriers to innovation in services and facilitate the creation of reciprocal agreements that will allow employers and employees to adapt to new business models equitably and efficiently.
6. Specific *encouragement for the adoption of new business models* involving temporary companies; part time collaborations; portable employment portfolios etc.	A review of barriers to such employment patterns and constant oversight of a range of positive supports to increase such opportunities in the services sectors.

Strand 2 Innovation in Service Delivery and New Customer Interfaces	
7. *Investment in new, speculative ICT applications* at sector, company and research centre level.	Increase the rate of new ICT and software applications being researched and developed in Ireland with focus on those with high potential to create innovative services opportunities for Irish services companies – as 'first movers'.
8. Support for *acquisition and implementation of ICT* (without employment criteria).	Direct support for Irish services companies seeking to create innovative customer interfaces or services delivery approaches by acquiring and adapting ICT but recognising that conventional job creation criteria are not likely to be helpful.
9. *Improved ICT infrastructure conditions* throughout Ireland.	Maintain, and where necessary, step up existing plans to create a 21st century ICT infrastructure across the whole country.

Strand 3 Innovation through New Services	
10. *Futures, foresight and competitive intelligence* capacity and capabilities.	As above, create new centres of excellence in futures thinking and leading edge competitive intelligence approaches. Encourage investment by government, education institutions and private 'think tanks' to lead the way.
11. Centres of excellence in *convergent thinking*.	Alongside existing supports for centres specialising in R&D in key technology areas, support convergence centres where opportunities for the creation of new services can be identified and developed as opportunities for new services etc.
12. Feasibility supports for *new service launches*.	Direct support for companies and organisations intending to launch new services but without the depth of resource necessary to properly check the feasibility of their plans. Aimed at indigenous services companies with high growth potential to become ITS companies.

Strand 4 An Innovative Services Innovation Policy	
13. Services innovation *awareness raising and showcasing.*	A wide ranging and persistent programme that will raise awareness of 'innovation champions' in Ireland and Irish companies involving showcasing of company success stories and embedding a creative and flexible 'mind-set' as far as services is concerned.
14. '*Ireland's services innovation offer*' to FDI marketing campaign.	Supporting and complementing the above awareness programme, the policy emphasis being given to services innovation and the work underway to create an environment that supports innovation in services should become a key part of IDA Ireland's services sector marketing covering company success stories and policy support available particularly regarding services innovation in the supply base.
15. *Supportive and flexible regulatory arrangements.*	An examination of regulatory practices and regimes across Irish public administration to identify barriers to services innovation and propose supportive arrangements that will encourage services innovators including taxation administration to allow businesses to form and re-form easily.
16. *Services innovation web portal.*	Complementing the FDI campaign and aimed at supporting and facilitating services innovation amongst indigenous companies and individuals, the portal could contain a services innovation directory, and information on supports, events, networks etc.
17. Services innovation *diagnostic tools and benchmarking* techniques.	The creation and dissemination of diagnostic and benchmarking tools and techniques to allow even the smallest services company to understand where and how they could innovate for profitable results.
18. '*Intellectual Property Rights protection*' events programme and advice service.	Regular presentations by agency personnel and business professionals on generic and sector specific IPR protection topics; complemented by signposted provision of free legal information and paid legal advice.

7 Concluding Comments

Ireland's services sector economy is growing in importance in both absolute and relevant terms. Employment and exports from the Irish services sector have significantly outpaced growth in manufacturing in the last decade while Ireland's services economy 'punches well above its weight' in global exporting terms. However, there are a number of concerns emerging for the future. These can be related to the relatively poor levels of innovation activity in the services economy as a whole, with consequent impact for the long term productivity of this growing part of the Irish economy.

Few countries to date have begun to consider policies and programmes for promoting service innovation, although the OECD published the results of a major services innovation study in March 2006. This means that pioneering countries such as Ireland cannot copy existing policies but need to develop truly innovative policies. Ireland has an excellent opportunity to position itself as a world leader in the area of services innovation policy although the 'window of opportunity' is undoubtedly narrowing. Ireland has already made considerable impact, both internally and externally, from its policy in favour of internationally traded service sectors. In this respect it is well placed to be at the forefront of future global policy developments in this area.

Policymakers in Ireland must continue to demonstrate their commitment to an important economic sector that, across the OECD economies, has to date been minimally sustained by traditional innovation policy support.

Advanced economies such as Ireland's require new thinking on the economic and business models that have traditionally underpinned success. On innovation, the policy and supports favouring services innovation need to be cognisant of, and matched to, the new models.

For example, while the future competitiveness of the Irish economy will clearly continue to rely to a large extent upon its successful Internationally Traded Services sector, it needs to continue to innovate in the services it offers its global customers. Ireland's development agencies need to consider whether they can deliver appropriate and effective services innovation support to Irish companies using a support framework and portfolio that relies substantially on a relatively narrow technological concept of innovation.

The innovation support that is made available for innovation generally in Ireland is comprehensive and vital. This Study suggests, however, that it may not be as efficient or effective in addressing the specific character and challenges associated with services innovation generally.

The supports available and offered to services businesses for their innovation activities by the economic development agencies in Ireland may need to be re-thought and realigned in order to continue to be relevant and effective. Novel thinking and renewed policy and support approaches may now be necessary.

The Study reveals that service companies in Ireland are evolving and innovating on a constant basis. The conceptual framework used in this Study demonstrates a rich pattern of innovation activity in relation to business models, customer interfaces and new services. In addition, Ireland's leading companies in the Internationally Traded Services sector are already exploiting services innovation to increase their competitive advantage.

Services companies in Ireland need to increase their innovation efforts and emphasise the importance to them of non-technological innovation through the development of new business models, customer-interfaces and service-products. In particular these companies need to be willing to be 'showcased' in Ireland in order to convince less innovative services companies of the value of services innovation to company performance and competitiveness.

Acknowledgement

This Forfás study on Services Innovation was developed from an earlier scoping study. The Scoping Study[99] provided the basis for the current in-depth policy study on innovation in service innovation, with the aim to identify policy requirements to underpin and stimulate services innovation in companies in Ireland.

We extend our gratitude to all the participants and contributors to this study, particularly CM International consultants[100], the study Steering Group and those companies who participated in the case studies.

A full list is presented in Annexes 1 and 7.

[99] *Innovation in Services Sector in Ireland, Scoping Study. November 2004. Stephen Roper and Nola Hewitt-Dundas, InnovationLab Ireland Ltd.*

[100] *CM International, Cardiff Business Technology Centre, Senghenydd Road. Cardiff, CF24 4AY. UK. Tel: 00 44 29 2037 0950; Fax: 00 44 29 2037 0655. cmi.ukltd@btclick.com; www.cm-intl.com/en*

Annex 1 – Steering Group Members

Name	Organisation
Seamus Bannon	Forfás
Jos Evertsen	Forfás
Maria Ginnity	Forfás
Michael Bannon	UCD Business School
Jim Cuddy	Enterprise Ireland, Technology Transfer
David Deighan	Shannon Development
Patricia Cronin	IDA
Michael Flood	IDA
Jim Whelan	IDA
Aidan Gough	InterTradeIreland
Dermot O'Doherty	InterTradeIreland
David Hedigan	Enterprise Ireland, Policy
Gerry Monks	DETE (Department of Enterprise, Trade and Employment)
Patrick Munden	BICs – Business Innovation Centre, Waterford
Jim Dunne	Enterprise IG (Representing the Creative Industries sector)
Michael Ryan	Merrill Lynch (Representing the Financial Services sector)
Martin Curley	Intel (Representing the ICT sector)
John Carr	Flextronics (Representing the Logistics & Supply Chain sector)
Diarmuid Hegarty	Griffith College (Representing the Traded Education & Research sector)

CM International – Consultant Consortium

Meirion Thomas	Project director
Dylan Henderson	Project manager
Greg Rogers	Consultant
Jari Kuusisto	European Ltd
Ken Stockil	Innovation Exchange

Annex 2 – Research Method

Introduction

The Study, 'Innovation in the Services Sector in Ireland', was commissioned by Forfás in May 2005 with the following objectives:

- To review and examine innovation in services in Ireland.
- To identify the main barriers to and drivers of innovation in services.
- To develop innovation policy and measures to stimulate innovation in services.

The Study builds on several previous reports commissioned by Forfás including a Study of 'Product, Process and Services Innovation'[101], and a more recent 'Scoping Study'[102] setting out the principle research framework for this Study. In view of the requirements of the Invitation to Tender, and subsequent dialogue with the Steering Group, the following methodological approach was adopted based around four work packages (WPs):

Work Package 1: Parameters and Drivers Analysis

WP 1 developed and refined the research framework by identifying concepts and parameters for innovation in the services sector. The work, here, was led by Prof. Jari Kuusisto and focused on setting out the conceptual framework for the research. It began by considering definitional questions associated with the service sector(s) and different types and models of innovation in the service sector. It also considered drivers and barriers, as well as global trends influencing innovation in the services sectors.

A further element to this WP was the identification of indicators of innovation in the services sector, as well as the consideration of their strengths and weaknesses. The research undertaken in this phase was based around a review of the literature, including recent EU surveys and research on service sector innovation. These indicators were used to inform the fieldwork undertaken in both Ireland and the international case study concentrations/global sector analysis (WP 2).

Work Package 2: Global Sector Innovation Analysis

WP 2 sought to test out innovation concepts through an examination of innovation in three global service sectors: Financial Services; Creative Industries; and Supply Chain Management and Logistics. The CMI consortium selected these sectors, with input from the Steering Group. The selection process assessed a list of potential sectors against three key criteria:

- Service sectors with high export potential to Ireland.
- Service sectors that reflect different models of innovation.
- Service sectors that have been targeted by policy in Ireland as emerging sectors.

In order to inform the selection process initial desk research was undertaken on a 'long list' of potential concentrations. The results of this research were then discussed with the Steering Group and final selections agreed (Table 6).

[101] *CM International (2003) 'Product, Process and Services Innovation Study'.*
[102] *Innovation Lab (2004) 'Innovation in the Services Sector in Ireland - Scoping Study'.*

The aim of this WP was to understand leading service sector innovation developments and success factors – including 'environmental' factors and policy/supports that could be associated with these sectors from a global perspective.

To further enhance understanding of sector innovation developments and success factors the Study also explored case-studies of dynamic geographical concentrations in the sectors noted above. The CMI consortium identified the precise case-study areas/concentrations and the subsequent research was co-ordinated by Professor Jari Kuusisto.

Table 6 *Global Innovation Hot Spots Selected*

Creative Industries	Financial Services	SCM & Logistics
Scotland (UK)	London (UK)	Amsterdam (NL)
Stockholm (SWE)	North Carolina (USA)	Memphis (USA)

In each case-study concentration the research utilised the main concepts and models identified in WP 1 to identify the key characteristics of innovation in the sector. This included a sector description, supported by evidence of its scale and scope, leading companies and developments/trends. This analysis was further complemented by an assessment of the dimensions and role of innovation in the sector. The aim here was to 'get under the skin' of services innovation in the respective sector concentrations and identify the 'environmental' factors that support and contribute towards success.

In order to draw robust conclusions from the case-studies the research examined two examples of dynamic sector concentrations for each of the three sectors noted above. This international fieldwork was undertaken by members of the CMI Consortium who, where possible, accessed networks of international experts including local public policy and company experts.

Work Package 3: Irish Service Sectors Innovation Analysis

WP 3 addressed the current level of performance and innovation in the six case-study service sectors in Ireland. This included the three sectors chosen for global sector innovation research, plus: Education Traded Services; IT & Computer Services; Healthcare Services. These sectors were selected by the Steering Committee using the criteria that were applied to the global sector/concentration case studies (see WP 2).

In building a complete picture, reference was made to existing research and indicators. Use was also made of current data sources provided by the CSO, as well as Forfás' own datasets from the annual BERD[103] survey, CIS3[104] and appropriate research studies[105].

The findings from the review of existing research sources provided an important baseline of (statistical) information. The main task of this phase, however, was a series of detailed interviews with companies in the selected service sectors. All case study interviews used the typologies and models of services innovation identified in WP 1, and were designed to identify key characteristics of service innovation in each sector, success and failures, drivers and barriers. Emphasis was also placed on assessing each company's current use of, and experiences of support mechanisms, as well as areas of support 'need'.

In securing access to case-study companies the research drew on both Enterprise Ireland and IDA Ireland company databases. Companies were initially approached through a letter from Forfás. This letter was followed up and face-to-face interviews arranged. The length of interviews ranged between one to two hours, with follow up discussions where appropriate.

[103] *Business Expenditure on R&D.*

[104] *Community Innovation Survey.*

[105] *Although it is important to recognise the limitations of these datasets individually (e.g. the low response rate to CIS3), they provide useful and comparable benchmarks.*

A total of 29 company interviews were interviewed across the sectors. Details of the companies interviewed can be found in Annex 7. The sampling approach, here, emphasised 'depth' rather than 'breadth' in understanding service sector innovation processes. Indeed, this approach recognised (as highlighted in the Scoping Study) that a large-scale survey could potentially harm forthcoming projects such as CIS4.

The Irish service sector innovation analysis was further complemented by an assessment of the policy and supports context. In particular, the research comprised a detailed review of important policy statements such as the Enterprise Strategy Group's 'Ahead of the Curve' (2004), as well as the strategies of departments/agencies such as Forfás, Enterprise Ireland, IDA Ireland, and so on. This helped to determine where the strategic priorities lie in terms of innovation in the services sectors. Face-to-face or telephone interviews with selected managers from Enterprise Ireland and IDA Ireland were also carried out to add further detail, particularly in terms of future plans for the services sector (see Annex 7).

A support mechanism review was also undertaken to gain an understanding of supports available, and potential gaps. It should be noted that the intention here was not to re-create the detailed database of all innovation supports, but rather to identify those initiatives of most relevance to services innovation. This research also complemented the 'demand side' perspectives gained from the in-depth company interviews.

Work Package 4: Policy and Study Conclusions

WP 4 brought together the findings of previous work packages to consider the potential for changes or modifications to innovation policy and support mechanisms for services innovation in Ireland. The research applied an open-minded approach to forming its conclusions, informed by the Irish fieldwork, as well as comparative evidence from the global trends and case studies of dynamic sector concentrations.

It was agreed during the course of the Study that the results should be presented in a cross sector format. In particular, it was felt that the policy implications of the study would benefit from being expressed in the form of common trends and policy requirements.

Annex 3 – Global Trends in Services Sectors

Common Global Trends for the Sectors

One of the criteria used in selecting the global sectors for the international services innovation research was the extent to which they were felt to reflect important and prevalent trends in the global services economy. These trends were initially identified from a review of literature on futures and the global economy and confirmed by examination of the three sectors selected by the Forfás Steering Group.

Globalisation

Globalisation of the market economy in services is a driving force for services innovation. This may result from the effect of globalisation on market expansion, increasing external competition at the local and national level or the impact of international drives towards greater openness and transparency in internationally traded markets. This has taken place alongside the advent of supra-national regulation of service provision as a commonplace feature across the global economy as well as across regional trading blocs such as the European Union.

Service sectors have generally been quick to seize opportunities for the creation of new business models arising from globalisation effects. For example, in SCM-logistics, increasing globalisation has created opportunities for leading companies to access new markets and to create significant operating efficiencies for its customers.

The impact of globalisation is not, however, universally applied. In the financial services industry although there is significant degree of change as a result of globalisation, the degree of globalisation may be segmented between the sub-sectors and between different types of services. For instance, some banking services, such as relationship lending to small businesses, typically continue to be provided primarily by small, local institutions headquartered in the nation in which the services are demanded.

Globalisation has caused significantly increased competition and market transparency for services industries. Financial services have, arguably, been most affected by this trend worldwide and in recent years there has been a drastic reduction in global barriers to competition. The resulting international financial integration is one of the most powerful aspects of globalisation. However, integrating markets in financial services has intensified competition, eroded traditional margins and driven companies to innovate in order to remain competitive. The same drive is also clearly evident in the SCM-logistics sector, as well as in the rise to global prominence of major multi-national creative industries conglomerates that no longer regards any one national economy as its 'home' market.

Increasingly, globalisation trends are subject to, and often driven by regulation or governance arrangements, particularly at a supra-national level. The increased competition evident in the financial services sector has partly resulted from, but has also prompted, global level regulation for the industry. At the same time regulatory 'overkill' is seen as a major risk facing the sector and has a significant impact on innovation in the financial services sector as a well as other internationally traded services sectors.

Transition to the Knowledge Economy

The much-heralded transition to a Knowledge Economy is in many respects most clearly seen as a trend in the services sector of the economy. A knowledge economy places a premium on the high skill levels that are evident in the global sectors reviewed in this Annex. A number of influential commentators such as Richard Florida[106] have created new models of economic development in the global economy based largely on the importance of high skills, talent and creativity to major economic conglomerations and urban societies.

One key characteristic for services innovation in this respect is the trend towards greater use of external specialist skills amongst services companies. For example, in the creative industries the recruitment of creative personnel on a short-term basis, often called the 'just-in-time person', is increasingly common[107]. This provides the employer with specific expertise on demand and a specialised but flexible portfolio of talent. 'Just in time' personnel typically retain autonomy over their own time allocation and may work for a number of different companies simultaneously.

A further knowledge economy trend relevant here is the premium that is placed on the development of specific centres of expertise adjacent to but not tied to a key cluster of service companies. For example, in the SCM-logistics sector FedEx has sponsored the FedEx Institute of Technology in Memphis, a public-private collaboration between the University of Memphis and FedEx. Similar investments are evident in the Netherlands SCM-logistics concentration, as well as in many creative industries concentrations.

Decomposition and Re-composition

The shape and structure of service sectors change rapidly. In particular, services sectors are characterised by the forming and re-forming of companies, networks and working arrangements. This trend may be described as de-composition, or the breaking down of previous business models, and re-composition, or the formation of new business models and working arrangements.

This process has been notable in producing growth in specialist 'third party' services within services sectors. For example in SCM-logistics one of the most prominent trends to emerge in recent years has been so-called Third Party Logistics or 3PL. A defining feature of 3PL[108] logistics providers is the provision of value added logistics services, with 4PL services rapidly becoming a new phenomenon in the sector based on strategic co-ordination and planning of 3PL activities.

In the creative services sector, the 'temporary company', has also become increasingly prominent. Temporary companies have been described as "a 'minimalist' company, focusing on the raw ingredients of work: objective, people and jobs-as-things-to be done. Its lifetime is generally less than a year. It is well suited to the post-industrial, post-employment job, since the workers can more easily retain ownership of their skills and their own intellectual capital."[109]

A further important trend that derives from decomposition and re-composition is the growth of outsourcing. The SCM-logistics sector is itself an example of outsourcing. Logistics management has traditionally been treated as an internal function within a business, outsourcing has emerged as a dominant trend in the sector as companies seek to reduce costs, gain access to specialised skills and capabilities, and geographical coverage. In the creative sector the outsourcing of content creation from large corporations to SMEs is increasingly important. OECD research on value chain trends within the content creation process of large media companies, for example, suggests that,

[106] *Florida, R. 2002. 'The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community and Everyday Life'.*

[107] *Howkins, J. 2001. 'The Creative Economy: How People Make Money from Ideas', Penguin, London.*

[108] *3PL refers to the provision of external contract logistic services by a specialist provider (the third party) to manufacturers (the second party), with customers being the 1st party.*

[109] *Howkins, J. 2001., pp. 136-137.*

"… content creation for large media companies is already often outsourced to small and medium enterprises (SMEs)… SMEs are in a number of instances becoming the seedbeds of innovative content creation in digital technologies….".[110]

By contrast, re-composition of business models in the services sector has created new models, and with them new service offerings. For example, one of the most visible changes in the banking industry over the past quarter-century is consolidation among banks. Consolidation within the finance services sector is a key driver of change and offer opportunities for innovative business strategies and services. The United States provides a recent example of consolidation process. There are about 7,600 commercial banks today, a significant reduction from the approximately 13,000 banks that were operating in 1980[111] reflecting banks' efforts to operate more efficiently and improve their market penetration.

Technology Development Providing Opportunity for New Service Innovations

Technology development has a dual role in services innovation; it is both a driver of innovations and an enabler of innovations. The precise effect of technology is also difficult to discern since its pervasive influence can be detected in many of the trends identified here. For example, technology enables financial services companies to offshore their activities, but it is not simply a tool since its competitive impact is also partly behind the drive for lower costs and so on. To try to disentangle these complex and sometimes arcane influences is not the main focus of this Study – we concentrate here on the end result of technology development rather than its precise operation within the sector.

In essence, technology stimulates the creation of new service delivery mechanisms and in the process tends to create much shorter 'product' life cycles than have hitherto been common in services businesses. With comparatively limited investment required in capital assets, technology has enabled most services sectors to continually and rapidly refresh their product ranges producing new ways of dealing with customers and offering a fresh range of services on an almost continual basis.

For example in financial services, technology has enabled the lowering of costs in information processing and telecommunications. This has allowed financial institutions to gain greater geographic reach by allowing them to manage larger information flows from more locations, and to evaluate and manage risks at lower cost without being geographically close to the customer. Similarly, the application of new media technologies throughout the creative industries sector has blurred the boundaries between different stages of the creative business, for example among the content creation, manufacture, distribution and delivery of the service[112], thus significantly changing the mechanisms by which services are provided and the point in the value chain of the sector from which they are provided. Finally, the growing use of the internet in SCM-logistics has seen new services enabling the provision of services such as online ordering, tracking and tracing of shipments, and account management, for both business to business, and business to customer interfaces.

Changing Market Dynamics Caused by Demographic Change

A final evident global trend affecting innovation in services are the demographic shifts that are, to one degree or another, affecting the global economy. The so-called 'demographic time-bomb' of a generally ageing population, while not being universally experienced, for example in Ireland, is nevertheless a trend that has impacts for global services sectors. In particular, a global economy where significant parts of the economy is experiencing a generally ageing population alongside other newly developed members of the economy with a much younger population not only provides opportunities for new services offerings but also new ways of delivering those services.

[110] *Flew, T. 2002. 'Beyond ad hocery: Defining Creative Industries: Paper presented to Cultural Sites', Cultural Theory, Cultural Policy, The Second International Conference on Cultural Policy Research, Te Papa, Wellington, New Zealand, 23-26 January, p. 18.*

[111] *Latter, T. (ed).. 1997. 'The Causes and Management of Banking Crisis – Handbooks of Central banking No.12', the Centre for Central Banking Studies, Bank of England, London.*

[112] *Flew, T. 2002.*

It is probably in financial services that this impact is most easily detected. Demographic change, especially a wealthy ageing population in developed countries, is providing a demand for innovations in terms of new types of financial services, for example, retirement related products. At the same time the demographics of the global economy allows the ability to offshore activities to countries with a younger population able to acquire IT skills and work to exacting service standards. The business model necessary for such activities to be provided requires the sector to innovate at an institutional level[113]. In the creative sector, increased leisure time and changes in global consumer tastes partly caused by demographic changes is a significant driver of demand in the sector.

These trends, and others, are helping to shape innovation within the three sectors. Their impact is by no means even across the three sectors, but the sectors themselves are sufficiently representative, global and leaders in innovation to offer important lessons for other services sectors and the innovation in services that is taking place.

[113] *Berger, A., Dai, Q., Ongena, S. and Smith, D. 2002. 'To What Extent Will the Banking Industry be Globalized? A Study of Bank Nationality and Reach in 20 European Nations', Federal Reserve System Washington DC, U.S.A.*

Annex 4 – Global Sector Definitions and Descriptions

In Annex 4 each of the global sectors studied is profiled briefly and some of the main characteristics pertinent to services innovation in the sectors are outlined.

1. Creative Industries

Generally speaking the UK Creative Industries Task Force definition is the most frequently agreed definition internationally.[114] The taskforce defined the creative industries sector as those, "*industries that have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property*".

This definition encompasses thirteen sub-sectors including advertising, architecture, art, antiques, crafts, design, fashion, film and video, computer games, music, performing arts, publishing, software and computer services, TV and radio. In addition, the sector also generally includes: music and toys and games[115].

The global creative industries sector has displayed remarkable levels of growth with a global market value estimated to be $2.2 trillion in 1999, accounting for more than 7% of world GDP.[116] The annual growth rate of the creative industries sector in OECD countries is estimated to be between 5 and 20%[117], which was twice that of other service industries and four times greater than manufacturing during the 1990s.[118]

The creative industries are considered to be of significant importance in terms of employment creation and export potential, economic multipliers and make important contributions to national innovation systems and as a source of national competitiveness in the knowledge based economy. The labour market in creative industries is characterised by, "a preponderance of part-time workers and multiple job-holders…; extreme differences in income distributions…"; a comparatively high level of risk attached to expected rewards; and the motivation of 'art-for-art's-sake' associated with non-pecuniary rewards.[119]

Large international corporations in the sector tend to be vertically integrated and there is a growing trend towards the concentration of creative producers and distributors in line with the current oligarchic structure of the market, for example, film distribution, record industry, book publishing and toys and games. Conversely, however, large corporations often outsource production to SMEs that operate as scouts, promoters and gatekeepers for new talent.

There is a strong non-profit seeking sub-sector of the creative industries sector that generally focus on high culture areas and high quality goods and services. These organisations are typically concentrated in performing arts and book publishing. Their non-profit status enables these organisations to access voluntary donations and public funding and subsidies.

However, in this study, the main focus is the profit-seeking sector of the creative industries sector.

[114] *The Creative Industries Task Force was established in 1997 and reported in 1998 and 2001.*

[115] *Howkins, J. 2001. 'The Creative Economy'. Penguin. London.*

[116] *UNCTAD XI, 'High Level Panel on Creative Industries and Development'; 13 June 2004.*

[117] *Marcus, C. 2005. 'Future of Creative Industries: Implications for Research Policy, Foresight Working Documents', Directorate General for Research, European Commission, Belgium.*

[118] *Howkins, J (2001).*

[119] *Marcus, C (2005).*

2. Financial Services

Financial services cover a wide variety of activities targeted for consumers and businesses. Banking, asset management, securities industry and insurance services are among the main activities of the sector. This sector comprises establishments primarily engaged in financial transactions, that is, transactions involving the creation, liquidation, or change in ownership of financial assets or in facilitating financial transactions. They raise funds by taking deposits and/or issuing securities, and, in the process, incur liabilities, which they use to acquire financial assets by making loans and/or purchasing securities. Putting themselves at risk, they channel funds from lenders to borrowers and transform or repackage the funds with respect to maturity, scale and risk.

Similarly, the insurance sub-sector is primarily engaged in the pooling of risk by underwriting annuities and insurance. They collect premiums or annuity considerations, build up reserves, invest those reserves and make contractual payments. Fees are based on the expected incidence of the insured risk and the expected return on investment.

The Finance and Insurance (NAICS 52) sector is comprised of the following sub-sectors:

- Monetary Authorities – Central Bank (NAICS 521).
- Credit Intermediation and Related Activities (NAICS 522).
- Securities, Commodity Contracts, and Other Financial Investment and Related Activities (NAICS 523).
- Insurance Carriers and Related Activities (NAICS 524).
- Funds and Other Financial Vehicles (NAICS 526).

The financial services sector is said to be the largest industry sector in the world with a total market capitalisation in the region of $2,300 billion. Globally there are estimated to be approximately 15,000 financial services institutions employing in excess of 10 million people.

3. SCM-logistics

Supply chain management can be defined[120] as the process of:

"…managing the physical flow of product and related information flow through the whole organisation from procurement of raw materials, through manufacturing to delivery to customer, in an integrated way to provide better service at lower cost".

By contrast, the logistics sector has traditionally been associated with the physical distribution of materials and information within the supply chain, from inputs, through to finished products but while logistics can be viewed as a relatively narrower concept than supply chain management, the sector is rapidly evolving from the position of a support activity to business functions such as manufacturing and marketing, towards an integrated service offering covering areas such as warehousing and transportation activities, purchasing, distribution, inventory management, packaging, manufacturing, and customer services. In this respect, the boundaries between supply chain management and logistics (SCM-logistics) are increasingly blurred.

While many supply chain and logistics activities are undertaken 'in house' by companies, an external sector based around the provision of such services has grown significantly. This sector broadly incorporates:

- International, integrated logistics providers.
- National transport/logistics providers.

[120] *IBEC-CBI. 2002. 'Supply Chain Logistics and Transport on the Island of Ireland: an Integrated Study', Report prepared for InterTradeIreland.*

- Supply chain management services/consultancy – e.g. Accenture.
- Supply chain IT/software providers – e.g. SAP, I2.

International SCM-logistics service providers have evolved, in part, through the acquisition of the national providers, and partnerships with other elements of the sector, notably IT and software providers. Indeed, this part of the sector is currently characterised by high levels of mergers and acquisitions[121], driven by the demand for one-stop solutions and the need to access leading edge technologies.

The SCM-logistics sector can also be segmented according to different modes of transport, for example, road, rail, sea and air. Such a distinction can be applied to SCM-logistics service providers to reflect the primary orientation of the business. The growth of so-called inter-modalism, however, is also blurring the distinction in some cases. Many of the larger international companies, for example, will provide services across different modes of transport.

The diverse nature of the SCM-logistics sector makes it difficult to produce fully accurate data on its performance. EuroStat data on transportation services[122] does, however, provide a useful 'proxy'. This suggests that transport services contribute an estimated 4% of EU GNP, with some 800,000 firms and 6.3 million employees within this sector or up to 4.1% of the EU workforce. Of these companies, some 60% are estimated to be in the road freight sector, and road transport is said to account for the most significant proportion of goods transport across the EU accounting for 74% of land based goods transfer. By contrast, rail transport has declined as a mode of goods transport and while air transport is growing it only accounts for relatively small volume and is generally focused on either high value or perishable goods.

[121] *See, for example, Duetsche Posts' recent acquisition of Exel PLC for €5.5.*

[122] *Eurostat. 2003. 'Panorama of Transport Statistics' Statistical Overview of Transport in the European Union', European Commission.*

Annex 5 – Global Sector Concentrations

1. Scotland's Creative Industries Sector

Brief Description of Scotland's Creative Industries Sector

Scotland's creative industries sector is developing an international reputation as a vibrant cluster, which is building on its traditional strengths of cultural expression, creativity and innovation to support the application of new technologies, in particular, digital content production. These represent important sources of economic growth and employment. The sector employs 100,000 people representing a significant proportion of Scottish employment. Scotland's digital content production sub-sector employs a quarter of the entire creative industries workforce and has been forecast annual growth of up to 20%. Key creative industries sub sectors include: television, film, music, advertising, design, designer fashion, publishing, architecture, crafts etc. One of the most notable early successes for Scotland's creative industries sector is in the computer games industry. The Scottish computer games industry includes companies such as Visual Science, Real Time Worlds, Denki and Rockstar North, which have developed commercial successes such as: State of Emergency, Grand Theft Auto, Roller Coaster Tycoon and Harry Potter.

Scotland is viewed by companies within the global creative industries sector as offering a low-cost alternative to London, New York and Los Angeles. Other sectoral strengths include: Good telecommunications; strong academic sector (responsive to market needs); collaboration and co-investment potential with Scottish companies; access to a skilled and talented workforce; ideal footprint for European and US markets; broadcaster presence in Scotland; access to investment; and public sector support. The United States, Canada, Japan, and Northern Europe have been identified as key markets of growth potential for Scotland's creative industries, although niche opportunities also exist in other markets where potential exists for specific Scottish offerings.

Services Innovation Within Scotland's Creative Industries Cluster

The growth of Scotland's creative industries sector can be attributed to a wide range of environmental factors. For instance, Scotland's internationally acclaimed education system and research base with its strengths in advanced technologies, such as biotechnology and electronics, provides an important source of knowledge and highly skilled labour. In addition to its indigenous talent, Scotland has attracted talent with niche strengths in computer games, animation, TV, film and digital content. There is an increasing level of collaboration between industry and academia through the provision of courses, spinout businesses and incubators. The sector has also developed its technical expertise and collaborative infrastructure through international partnerships in order to ensure a rapid reaction to market trends. These sources of knowledge and technical expertise are further complemented by the availability of high quality, affordable commercial premises in Scotland's major towns and cities.

Digital technology is impacting upon Scotland's creative industries sector in a variety of ways. Digital technology is reconfiguring business models in the computer games development, music, film, TV and radio, publishing, design and advertising industries by: increasing the potential size of the customer base, by-passing intermediaries in the value-chain, integrating different services and becoming

integrated with other creative industries sectors. In addition to these opportunities for the sector, digital technology has also presented traditional business models with certain threats that require innovative responses if creative businesses are to continue to be profitable.

Digital technology is enabling these sub sectors to transform the customer/delivery interface and cut costs, for example, e-business processes in the publishing and music industries. Digital technology is also leading to the development of new service-products, for example, through integrated mobile platforms, which rely on the development of new service combinations. The high growth potential of the creative industries, in particular digital content production rests on close integration between product and service innovation. This in turn reflects a blurred distinction between manufacturing and services. Innovation may concern the position or context, for example through the tailoring of digital content production according to specific cultural norms and new markets. Service innovation may also occur at strategic, operational and personal service interaction levels and rely upon internal and collaborative R&D. Real Time Worlds and Denki are examples of software companies in Dundee's computer games development cluster, which are engaging in new service-product development.

In practice, these different types of services innovation may display characteristics that are common with all three models of services innovation, i.e. systematic, fast-track and incremental. However, the rapid pace of technological development and market trends impacting upon the content of production may require creative businesses to continually innovate and experiment with and fast track new service-products on the market.

A broad framework of policy initiatives has been established in support of this important Scottish economic sector. Policy initiatives to support the sector include: A proof of concept fund; recruitment fairs; Intermediary Technology Institutes; new sector skills agenda; "Dare to be Digital" programme (also in Dublin); Co-investment Fund for Creative Projects; Digital Media Project Co-investment Fund; Venture capital 'Fund4Games'; Cultural Enterprise Offices, Creative Entrepreneurs Club; Screen Industries Strategy Group; London and New York centres for creative businesses; Electronic IPR exchange platform for creative industries; International exchange programme for creative industries professionals; Pacific Quay (Glasgow-digital media businesses); Seabraes Yards (Dundee-creative media district) etc.[123]

Summary

Scotland's creative industries sector is characterised by a diverse mix of industry sub-sectors, a highly skilled workforce, a growing export market, good, international partnerships and access to good telecommunications and a strong academic/research base, in particular, biotechnology and ICT. Digital content production represents an important sub sector with high growth potential and has fostered growing collaboration between sectors, resulting in the reconfiguration of business models, transformation of the customer delivery interface and development of new service-products through integrated mobile platforms, which rely on the development of new service combinations.

2. Stockholm Creative Industries Sector

Brief Description of Stockholm Creative Industries Sector

Stockholm is the leading location for companies in the creative industries, particularly media, music, fashion and the arts with almost 10,000 limited companies located in the area. The sector has experienced significant growth for employment and average income although the sector growth rate is lower than other sectors. It has a 52,000 strong workforce and employs more than half of

[123] *Tibbets, M. Creative Industries Cluster Team. 'The Creative Industries Cluster Initiative in Scotland'; Presentation to 'Community Colleges in Creative Economies' conference, North Carolina, Nov 4-5, 2004.*

Sweden's artists and performers with higher education qualifications. It also has a high level of self-employment as well as under employment.[124]

Services Innovation in the Stockholm Creative Industries Sector

There is a long tradition of innovation within Stockholm's creative industries (e.g. film, media, industrial design). This can be attributed to a range of environmental factors such as openness to new influences and a large pool of skilled labour. Stockholm also enjoys an established educational infrastructure (e.g. architecture, design, the arts). Other important environmental factors include Stockholm's proactive city council, chambers of commerce and industry organisations; alongside regional cluster initiatives that are targeted at the creative industries (e.g. Roda Linjen in Botkyrka, IDEA Plant, Kista Science City). There is also a long tradition of industrial links to other sectors.

Two notable examples of services innovation within the Stockholm creative industries sector concern the development of new service-products and business models. Service-product development in the sector is illustrated by the merging of media, advertising and distribution. For example, the free daily morning newspaper Metro is the largest and fastest growing international newspaper in the world. It is financed by ads and distributed in locations where people commute, travel etc. In addition, the development of new business models within the sector can be seen in the merging of production and publishing companies in the music industry, which results in the creation of small networks oriented to the identification and development of new talent (e.g. Cheiron, Murlyn Music).[125]

Drivers of services innovation include those factors that impact upon firm strategy, structure and rivalry such as: Government incentives and regulation; new business practices and organisational structures (e.g. virtual teams); and the ability of companies to capture and capitalise on IP. Factor conditions also represent an important set of drivers of services innovation, for example, new and hybrid platforms for distribution; the complementary nature of different platforms; infrastructure; skills, experience and creative flair; and a multicultural and multilingual workforce. Demand conditions that drive services innovation include: The increasing size and reach of the market; affordable and easy access to online facilities; and increasing demand for more (and more timely) information. These demand conditions are of course common to many related and supporting industries.

Similarly, barriers to services innovation within the Stockholm creative industries sector can be viewed on the same basis. For instance, certain factors related to firm strategy, structure and rivalry may hinder services innovation. These include: A lack of experience in managing IP; poorly developed business model; and the inability of SMEs to internationalise. Whereas, factor conditions that may hinder services innovation include: An inadequate combination of appropriate skills, talent and experience in some sub sectors; and a lack of access to financing. Demand conditions that hinder services innovation include: Consumers still not adequately educated in new media capabilities; and a lack of understanding of industry needs among recruitment agencies. Further barriers to services innovation concerning interaction between the creative industries and related and supporting industries include: Lack of communication and underdeveloped relationships between firms; and an absence of a common commercial language to foster collaboration.

An interesting example of public sector support is the RITTS Stockholm project (1999-2000), which aimed to strengthen the TIME sector by encouraging collaboration between the entertainment, leisure and technology sectors. Entertainment companies were generally located in the city centre, while technology companies were based on the outskirts. As a consequence of this geographical separation, the two sub sectors had limited interaction. The RITTS project facilitated interaction between representatives from telecoms and IT with film, fashion, music and arts. Another RITTS outcome was the introduction of innovation support e.g. university-based incubators.

[124] *Hallencreutz, D and Lundequist, P. Intersecta. 2005. 'Stockholm case study – the creative industries'.*
[125] *Hallencreutz, D and Lundequist, P. Intersecta. (2005).*

For example, Kista Innovation and Growth is a science park offering mentoring programmes, support for accessing capital, and premises for projects from both universities and industry. Kista sponsored projects involve a combination of IT and the creative sector, in particular, music. Another project involving cooperation between art schools, business organisations and another municipality is supporting entrepreneurship and business competence within the creative industries through incubator facilities, advice and access to business networks. This will support entrepreneurs in music, arts and crafts, and young entrepreneurs with multicultural backgrounds. The Stockholm School of Entrepreneurship is also providing training programmes in business skills, which are to be linked with all university courses and art schools.

Summary

The Stockholm creative industries sector has experienced significant growth and is characterised by a high concentration of media, music, fashion and arts creative businesses; a large supply of artists, performers and creative workers; and growing interdependence between sub-sectors. There is a strong innovative tradition within the sector due to its openness to new ideas and critical mass combined with an established educational infrastructure and strong support from organisations such as the chamber of commerce, city council and various regional cluster initiatives. The RITTS project highlights efforts to encourage greater collaboration between sub sectors and led to the introduction of important innovation support services such as: university incubators, business advice and networking between art schools, business organisations and the city authorities.

3. London Financial Services Sector

Brief Description of London's Financial Services Sector

London is Europe's financial capital and along with New York and Tokyo is one of the world's three largest financial centres.[126] The scale of London's financial services centre is reinforced by its role as Europe's largest stock market and the size of its foreign exchange turnover, which is greater than New York and Tokyo combined. It has a dominant role in several international financial markets for example, cross border bank lending, international bond issuance and trading, hedge funds, over-the-counter derivatives, fund management and foreign equities trading. It is the world's largest insurance market, the leading exchange for dealing in non-precious metals, the largest spot gold and gold lending markets, the largest ship broking market, and has more foreign banks and investment houses than any other centre.[127]

Financial services are also part of the wider finance and related business services cluster including professions such as law, accountancy, regulation, business education and others. London's financial services enjoy a strong competitive advantage due to London's expertise in business, the size and flexibility of the workforce and an adaptive regulatory framework, which has balanced its concern for accountability and transparency with innovation and risk-taking. London also enjoys the advantage of English as the language of international business. Examples of employers in the City include: Deutsche Bank which has made London its base for international operations with a 7,400 strong workforce; and Fidelity, the world largest fund management organisation, which has located key European operations in London and employs 2,000 staff.[128]

[126] *The London financial services sector employs 317,000 people and contributes to 13% to London's GDP and 3% to the UK GDP.*

[127] *Economist Intelligence Unit (2005) Views wire: 2005 – UK: Country fact sheet, Economy background, www.viewswire.com/, accessed 19.10.2005; Malcolm Cooper, Head of research, Corporation of London, October 17th, 2005.*

[128] *Lascelles, D., Lapotko, D. and Pitcher, M. 2003. Sizing up the City: London's Ranking as a Financial Centre, the Centre for the Study of Financial Innovation, for the Corporation of London, London, UK.*

Services Innovation in London's Financial Services Sector

London's financial services sector is a complex, high value added industry. It attracts the world's brightest talent, providing a constant flow of new ideas leading to the frequent launch of new financial products, new ways of protecting business against risk and new technology to make business more cost-effective and capable of reacting to a fast-changing world.[129] The sector accounts for a high proportion of innovative activity in European financial services including investments, trading, structured finance, mergers and acquisitions. Recent examples of innovation include telephone based banking e.g. First Direct, automated trading systems, energy markets and evolving Islamic banking. The venture capital industry is closely linked to demand for financial innovations. The dot.com bubble has also encouraged the development of innovative new ventures. Ad hoc innovation is very common and tends to be characterised by the tailoring of services to client requirements rather than formal sequential processes. However, systematic development is still important for markets such as the pensions industry.

New technology has encouraged innovation, increasing the range and sophistication of financial instruments and associated risk management tools. Advanced telecommunications are enabling financial firms to manage their activities across continents. New products also reflect this globalisation and are increasingly managed along global product lines. New technology can help to maximise efficiency and financial markets can now be accessed 'remotely'. The development of sophisticated software and increasingly powerful hardware has facilitated the development of many new financial products, in particular, derivatives, hedge funds and public private partnerships.[130] Innovation in the financial services sector can be viewed in relation to both the structure of the business and product offering. Structural innovations are typically driven by aggressive cost reduction, involving automation, process re-design, out-sourcing, near-shoring and off-shoring.

Important drivers of innovation within London's financial services sector include changing client demands, technological developments, a skilled and flexible workforce, cost pressures, integration with European markets, international competition and so on. The continuous development of new financial instruments is typical of London's highly skilled 'financial engineers'. US banks also represent a key source of financial services innovation. Financial services regulation in the UK is favourable to innovation, partly because of the presence of a highly skilled single regulatory institution, the Financial Services Authority (FSA), but also because of its emphasis on principles rather than rules. The taxation regime for London's financial services is also favourable to entrepreneurial areas of finance as can be seen in the venture capital industry. However, regulation may also hinder innovation, for example, the growing framework of EU and other international regulations tend to increase compliance pressures. Other barriers to the growth of the sector include: London's deteriorating infrastructure and limited office space, high property prices, cost of living, and childcare arrangements.

Summary

The London financial services sector is a strong, dynamic and well-established cluster with a large supply of highly skilled and flexible labour. Companies innovate by launching new services on the market. The FSA applies a light regulatory touch and is supportive of innovation within the sector. Legislation is more favourable than in most other European countries. Drivers of innovation include the presence of large and highly competitive markets with sufficient rewards for successful innovations. The integration and globalisation of markets also provide new opportunities for City based businesses. New technologies and the financial engineering skills of City workers have played a key role in supporting innovation within the sector.

[129] *Halushka, A., McCrone, A., McWilliams, D., Pragnell, M., Walley, D. and Ward, L. 2005. The City's Importance to the EU Economy, The centre for economics and business research ltd for the Corporation of London, London, UK.*

[130] *Duncan McKenzie, International Financial Services London, September 30th, 2005.*

4. North Carolina financial Services Sector

Brief Description of the North Carolina Financial Services Sector

North Carolina (NC) is a major financial hub for national banking activity in the US. The largest interstate banks from North Carolina include: Wachovia, Bank of America and BB&T. Finance is the third largest economic sector in NC after manufacturing and real estate.[131] North Carolina specialises in deposit and credit intermediation activities at the national level, and has recently seen increases in investment management activities. The strengths of the NC financial services sector include: Banking, asset based banking, real estate business and low quality loans. One of the industry's key strengths is the cooperation that exists between the public sector, private firms and universities (private and public sector run).[132] As the main players in NC banking expand in size, opportunities arise for smaller banks to fill in local rolls that larger banks leave behind in order to grow nationally. NC's finance industry has recently experienced a fairly significant and rapid shift of focus from financial products aimed at the manufacturing industry to the information technology industry. Of the 42 banks that operate in NC and other states, 22 are headquartered in North Carolina, of which thirteen are headquartered in one of the four major NC financial centres: Asheville, Charlotte, Greensboro and Raleigh-Durham-Chapel Hill. In the 1980s Charlotte developed into the second largest U.S. banking centre after New York. Since then banking and related businesses have flourished in the area. Five of the nation's top 150 financial institutions are headquartered in Charlotte.

Services Innovation in the North Carolina Financial Services Sector

Unprecedented deregulation in the US banking industry in 1997 led to a flurry of large interstate banking mergers, which NC exploited through proactive regulation that allowed mergers to occur faster than in other states. NC based banks now have global reach and have expanded their service offer to cover a comprehensive range of financial services for retail and business customers. Since deregulation, acquisitions have become another line of business for the leading NC banks, developing considerable knowledge and expertise in this area. Research and technology organisations and municipalities promote merger and acquisitions skills development.

As products become more refined the relationship between supply chain sections becomes increasingly blurred, leading to vertical and horizontal integration and specialisation in high value added sectors of the financial value chain. Only large banks have the capability to launch innovations to major national and international markets. In larger financial services firms, innovations are more typically driven by systematic development & analysis resulting in the launch and marketing of highly complex products. Typically large banks not only have the resources to produce new services but also the advantage of name recognition and market influence to offer new and complimentary products. Wachovia and Bank of America, as large suppliers of financial services, are clearly in a position to innovate and launch new services. Examples of innovation by Bank of America include expanded product offerings beyond retail banking, especially to corporate and investment banking; and the development of global back office transaction processing and software development through subsidiaries in India. Similarly, examples of innovation by Wachovia include a major expansion into online banking; a focus on consumer and small-business clients; and the provision of financial services to East Coast retail, brokerage, and corporate customers.

ICT has created opportunities for developing new electronic delivery channels for financial services e.g. ATMs, telephone banking and the internet. Rapid processing and flow of information are increasingly important in the financial services. The growth of IT related business in the NC area has created opportunities for finance firms to enter new markets. NC's finance industry has recently

[131] *Between 1990-2004 finance industry jobs increased from 137,000 to 199,600 representing the highest employment growth rates of any sector in the NC economy.*

[132] *For example, hedge funds have been based on research studies by the University of Chapel Hill and The Chartered Financial Analyst (CFA) Institute plays an important role in linking together universities and banks (Nordan, C. 2005, Triangle Capital Partners, Raleigh, NC, interview 12.07.2005).*

experienced a fairly significant and rapid shift of focus from financial products aimed at the manufacturing industry to the IT industry. However, NC based financial services tend to be 'fast followers' rather than developers of innovations.[133] Innovation within financial services is also increasingly concerned with wealth management, for instance retail consumption; the management of retirement accounts; and the international movement of capital. These customers demand tailor made services. Smaller financial firms are often more likely to take risks and tend to be more innovative introducing new service concepts focused on specialised market segments. In addition to risk aversion, other barriers to innovation include rigid regulation, interest rate volatility, off-shoring and skills shortages.

The economic development strategy for NC places a strong emphasis upon an attractive business climate (e.g. fair taxes and regulation), a globally competitive workforce and science and technology, university outreach and the commercialisation of research. Direct and indirect NC financial incentives that seek to promote innovation and growth encompass: tax breaks, grants and loans; infrastructure expansion or improvement; human capital training and attraction; and tax credit rewards for job creation, investment, worker training, and research & development activity.[134]

Summary

The success of the NC financial services cluster is based on a number of factors including a critical mass of strong locally based businesses that have pursued a range of aggressive development strategies aided by deregulation and ICT. This cluster effect has attracted new financial business in the area assisted by an effective policy portfolio and use of financial incentives that are tailored to local conditions. Additional environmental attributes of the North Carolina financial services sector include: favourable infrastructure, a skilled labour supply, and the systematic development of high quality living environment, specific attention attractions that appeal professional work force. The attractiveness of the sector to financial services is reflected in the decision of corporations to retain their corporate headquarters in Charlotte.

5. Memphis Supply Chain and Logistics Sector

Brief Description of the Memphis Supply Chain and Logistics Sector

Memphis is one of the world's leading distribution, logistics and transportation centres and it offers companies an important point of connection with the global economy. The development of the Memphis distribution centre has been heavily influenced by the region's supporting infrastructure and strategic position within the US economy. The sector boasts a variety of important infrastructural assets including: the world's busiest cargo airport (Memphis International); the third largest rail hub in the US; the fourth largest US inland port; and the 1-40 and 1-55 interstate highways. Historically Memphis has been characterised as an east-west crossroads but growing economic integration between the US, Canada and Mexico, in particular, integration of the continental transportation grid has provided Memphis with the opportunity to become an important player in the Canada to Mexico NAFTA highway.

The growth of the Memphis distribution sector during the period 1995-2003 was demonstrated by an increase in investment levels of over $2,676 million, the expansion of 153 companies already operating in the Memphis region and the attraction of 96 relocated companies[135]. A key factor in Memphis' evolution into a world-class transportation, distribution and logistics hub is the rapid growth of the FedEx "Express SuperHub", which is based at Memphis International Airport. The scale of the FedEx hub is demonstrated by its transportation of over one million packages each night

[133] *Nordan, C. 2005. Triangle Capital Partners, Raleigh, NC, interview 12.07.2005.*

[134] *Duke University. 2005. North Carolina in the Global Economy project – Banks and Finance, http://www.soc.duke.edu/NC_GlobalEconomy/about.php, accessed 17.09.2005.*

[135] *There was also a substantial expansion in workspace by more than 56 million square feet.*

and the daily flights of its two hundred aircraft, which also help to connect Latin America and the Caribbean with the global FedEx network that serves over 210 countries. FedEx provides the latest possible daily drop-off times for companies using airfreight[136]. FedEx is the largest employer in the sector with a 30,000 strong workforce, followed by: North West Airlines with a comparatively smaller workforce of 2,400; Swift Transportation (2,100 employees), Technicolor Home Entertainment (2,100), Nike (1,470), United Parcel Services (1,400), Hewlett Packard (1,385) and Schneider National Carriers (1,300). Another example of a leading logistics service provider in the Memphis distribution centre is Flextronics, which offers: postponement, configuration, packout, distribution and a variety of reverse logistics capabilities. Memphis also boasts a vast range of logistics options, service providers and trained logistics industry workers, which engender a competitive market environment that favours cost stability and high standards. It is anticipated that the future development of the Memphis region will encompass a variety of communications activities linking different sectors. However, Memphis is experiencing skills shortages highlighting the need to develop a highly skilled workforce capable of attracting more diverse, and higher paying, industries.

Services Innovation in the Memphis Supply Chain and Logistics Sector

The growth of the Memphis distribution sector has therefore been heavily influenced by the development of the FedEx hub and its innovative offer of the latest possible daily drop-off times to customers using airfreight. The importance of this service innovation extends far beyond the profit line of FedEx to the wider regional economy. Companies that FedEx has helped to attract to Memphis include: Barnesandnoble.com, Inc,; Hewlett-Packard Co.; Ingram Micro, Inc.; Pfizer, Inc.; Inca Computer Corp and Toys "R" Us."[137]

Technological innovation in the customer delivery interface and in the form of new service products has contributed significantly to cost reduction within the Memphis distribution centre. For example, the replacement of the 'FedEx Letter' with the 'FedEx envelope', which is made with higher recycled content and is easier to recycle, has enabled FedEx to eliminate 7 million pounds of solid waste and reduce greenhouse gas emissions by 9,700,000 pounds. Blue tooth and GPRS PowerBooks have also been developed for the courier market, achieving estimated savings of $20m per annum. In addition, client demand from large corporations such as Wall Mart and Microsoft has helped to drive the adoption of RFID throughout Memphis. Other areas where FedEx is considering the introduction of RFID include the tracking of value added items that may have specific requirements such as temperature control and the life cycle of produce, meat and other time sensitive items. New technologies such as wireless networking therefore play an important role by enabling companies to develop new and faster methods of interacting with suppliers and clients. RFID is indicative of FedEx's experimentation with, and rapid adoption of, technological innovation to enable the company to improve the delivery of its existing services and develop new services.

The contribution of FedEx to the Memphis distribution centre also displays evidence of a formal, structured approach to R&D. For example, the FedEx Institute of Technology was established to undertake research and ensure its successful dissemination to the public and private sectors. The FedEx Institute incorporates partners and collaborators into its research agenda, which ranges from artificial intelligence, geospatial analysis, sustainable design and nanotech to biotech. A recent example of research at the FedEx Institute of Technology was the development of a new convergent communications system called the Multimedia communications server (MCS 5100), which will help the FedEx Institute to create symbiotic global relationships between corporations, academia, students and researchers. Nortel Networks provided the MCS 5100 and it will enable the delivery of data intensive

[136] *Each day FedEx delivers over three million packages between countries representing 90% of the world's gross domestic product (FedEx Express, 29 July 2003, 'FedEx Superhub Site Ranks as World's Largest Cargo Airport in 2002'.*

[137] *Paulk, M. (30 June 2000) 'The lure of FedEx: Hub presence continues to lure companies to Memphis area'. Memphis Business Journal.*

files through various channels such as handheld devices and desktop computers and will include video conferencing, instant messaging, co-web browsing and instant file transfer.

Services innovation within the sector can be observed through the development of new business models. For example, an emerging area of growth within the Memphis economy is the biologistics industry, which involves the packaging and shipping of cell tissues. Memphis offers potential companies a substantial cost advantage over other research-rich areas combined with its highly competitive infrastructure system.

Summary

The Memphis supply chain and logistics sector can be largely attributed to its infrastructure system, strategic position within North America and the wider global economy, and the competitiveness of logistics service providers, such as FedEx. It would appear that all three types of services innovation are important to the sector as expressed through a combination of formal and rapid innovation processes.

6. Netherlands Supply Chain and Logistics Sector

Brief Description of Netherlands Supply Chain and Logistics Sector

The Netherlands supply chain and logistics sector benefits from a number of strategic advantages, including the geographical location of the country in relation to mainland Europe and the country's extensive transport infrastructure.[138] Rotterdam has developed into the world's second largest trading port and offers excellent Hinterland connections by water, road, rail and pipeline. The Port's three Distriparks provide space for warehousing and forwarding facilities to facilitate Just-In-Time type logistics services. Amsterdam's Schiphol airport forms a key hub for European, Trans-Atlantic and worldwide chartered passenger flights and cargo trade from Europe. With over 150 international logistics service providers, hauliers, forwarding agents and integrators located at the Airport, the Amsterdam Airport Area integrates dedicated services and logistics focused activities in one central location.

The country has attracted a large number of logistics services companies, which offer specialist services to manufacturers and retailers that will add particular value to the supply chain process and improve efficiency. These services are termed contract logistics as the company "takes over the entire distribution process from the manufacturer or the retailer"[139] providing services such as warehousing; 'pick and pack'; tracking, tracing and invoicing; stock planning; re-labelling; testing and quality control; order entry; fiscal representation; and product assembly and repairs. These companies are referred to as Fourth Party Logistics providers. There is also an increasingly wide base of international companies establishing their European Distribution Centres (EDCs) in the Netherlands.[140,141] A large number of logistics companies have bases within the country, namely: Christian Salvesen; DHL; Exel Logistics; Frans Maas; Kühne & Nagel; Schenker; TNT; and ABX Logistics.

Services Innovation in Netherlands Supply Chain and Logistics Sector

Dutch logistics firms innovate primarily through non-technological processes relating to business strategy, marketing and management methods over and above technological innovation. The current prominence of the contract (4PL) logistics industry in the Netherlands confirms the shift to developing

[138] *Approximately half of the Continent's major markets lie within a 400m radius of the Netherlands and up to 95% of these major markets can be reached within one day's travel by road from Amsterdam or Rotterdam. Similarly, the country's transport infrastructure offers 1,800 miles of railways, over 3,000 miles of internal waterways, 13 major seaports including Rotterdam and Amsterdam, and 28 airports including Schiphol, Maastricht and Eindhoven.*

[139] *Broersma, L., and Segers, J. 2003. Innovative Behaviour and Productivity in Dutch Logistics Industries', p. 4.*

[140] *HIDC, established in 2003.*

[141] *Netherlands has 51% of the European market of EDCs located with easy access to its major strategic infrastructure around Amsterdam and Rotterdam.*

services in response to client demands.[142] Innovation in the logistics sector in the Netherlands does not appear to be a structured, systematic process, rather it relies more on a rapid innovation cycle that facilitates market feedback. The Netherlands is seen as a key location to implement new innovative solutions by large multi-nationals. However, the Netherlands based company Frans Maas represents an important exception to this trend with its R&D facilities located in the country.

The importance of the logistics sector for the Netherlands economy is reflected by the existence of a number of organisations, fora and knowledge bases that support and coordinate innovation in the logistics and transport sectors. For example, the CONNEKT innovation network is a public private partnership, which encourages cooperation between public research resources and large logistics service providers. It seeks to stimulate innovation within the transport and traffic sectors. As a result, the Transumo project was established to focus on more strategic long-term issues for the Netherlands transport and traffic networks. Transumo is a consortium of partners who have established an innovative programme to develop projects seeking to ensure that mobility and transport in the Netherlands remains sustainable. Also, the Netherlands Research School for Transport, Infrastructure and Logistics (TRAIL) encourages researchers to contribute to the solution of scientific, business and societal problems in the field of transport, infrastructure and logistics using innovative methods and ideas.[143]

Services innovation within the Netherlands supply chain and logistics sector is driven by a range of factors including: corporate concern over economic competition from larger European countries and impact of European enlargement and possible emergence of cheaper markets; the liberalisation by the European Union of the trucking legislation and regulations; compliance with environmental legislation and regulation at the national and the supranational level; corporate social responsibility trends; and policy intervention. These factors combine to encourage companies to increase efficiency and add value to their services in order to remain or become more competitive.

Logistics services companies in the Netherlands face two particular barriers to innovation. Firstly, environmental legislation and regulation can also hinder innovation as the need to meet EU regulations and government regulation can be particularly costly in terms of legal matters. Regulatory compliance and pressure from the green lobby also lengthens the innovation process and increases costs. Secondly, the globalised structure of many of the leading logistics firms in the Netherlands means that the R&D departments responsible for innovation are not based in the Netherlands and therefore the country's logistics sector becomes an implementation location and not necessarily a location for primary research and innovation.

Summary

The Netherlands supply chain and logistics sector enjoys close proximity to many European markets and access to a well-developed transport infrastructure, most notably in the form of the Port of Rotterdam and Schiphol airport. The sector represents a strong critical mass of contract logistics services companies (including Fourth Party Logistics providers) offering specialist services to manufacturers and retailers together with an growing number of international companies with European Distribution Centres in the Netherlands. Services innovation within the sector is characterised by trends towards non-technological innovation processes, client driven innovation and a rapid innovation cycle. The sector has also become an important location for the implementation of new innovative solutions by large multinationals. There are also a number of public/private support organisations that play an active role in facilitating innovation and knowledge transfer across the sector.

[142] *ibid.*

[143] *TRAIL Mission Statement [http://www.rstrail.nl/main_new.htm]*

Annex 6 – Indicators of Services Innovation Activity

Indicators for services innovation are still largely in the developmental phase. The EU, for example, has included a number of service innovation related indicators in the recent Community Innovation Survey (CIS). However, it is very hard to capture a complex process like services innovation with these types of survey instruments.

The OECD has also launched several sectoral case studies in innovation, including the recent Knowledge Intensive Service Activities (KISA) project[144]. This sectoral work has focused on case studies as a means of providing the basic knowledge for indicator development. Business measures gathered in balanced scorecards can be viewed from an innovation perspective, for example, new product revenue, time to market, customer and employee perception and satisfaction. Organisational capabilities can also be evaluated by using, for example, a European Foundation for Quality Management-model (EFQM).

The European Commission has been similarly active in commissioning research on services innovation. Howells and Tether, for example, have conducted a recent survey[145] based on CIS data, seeking to capture more information on the services innovation. By combining this work with other sources[146], we can derive a number of indicators and issues that can be proposed as measures of services innovation (Table 7).

[144] *OECD. 2005. 'Sectoral Case Studies in Innovation: Knowledge Intensive Service Activities (KISA)', http://www.oecd.org/document/43/0,2340,en_2649_34273_15709675_1_1_1_1,00.html, accessed 14th October 2005.*

[145] *Howells, J and Tether, B. 2004. 'Innovation in Services: Issues at stake and trends'. Report for DG Enterprise of the European Commission.*

[146] *Kuusisto, J. and Meyer, M. 2003. 'Insights into services and innovation in the knowledge-intensive economy'. National Technology Agency TEKES. Technology Review 134/2003. Helsinki.*

Table 7 *Measuring Service Innovation*

	Service Innovation Indicators
Considering your activities and compared with three years ago, to what extent have the following changed? *Howells and Tether (2004)*	• The products or services that your business provides? • The ways in which the services you provide are produced? • The ways in which the services you provide are delivered? • The technologies you use to produce or deliver services? • The skills of the workforce used to produce or deliver services? • The organisational structure of your business? • The way in which you inter-relate with your customers? (e.g. through the formation of collaborative partnerships, etc.) • The way in which you inter-relate with other businesses? (e.g. through the formation of collaborative partnerships, etc.)
Other indicators e.g. *Kuusisto and Meyer (2003)*	**Service Development Efforts in Place** • Availability/number of skilled staff. • Number of multi-skilled personnel. • Level of job satisfaction. • How staff is motivated. • What incentives there are for idea generation. • Turnover of staff. • Customer feed back, to what extent it is collected and distributed within the firm. • Formal and informal networking with suppliers, clients, R&D organisations. • Horizontal links within the industry/cluster. • Services related R&D activities – formal & informal. **Business Concept and Value Chain Development** • Outsourcing & offshoring. • Changes in delivery channels, e.g. electronic delivery. • Changes in customer interface. • New product-service combinations. • No. of new/significantly improved services launched on the markets over the last two years. • Resources (time, staff, money) allocated to the development of new products & services, marketing and delivery channels. **Customer Interface & Feedback Information** • Type of customer relationships – long-term vs. short-term. • Repeat sales vs. new customers. • Focus on the life-time value of the customer. • Utilisation of customer data base information. • Idea generation and processing. • Systematic collection of ideas. • Process in place to further develop collected ideas. • Dissemination and formalisation of new process features. • Identification of steps for commercialisation of new ideas.

Indicators of Service Sector Innovation in Ireland

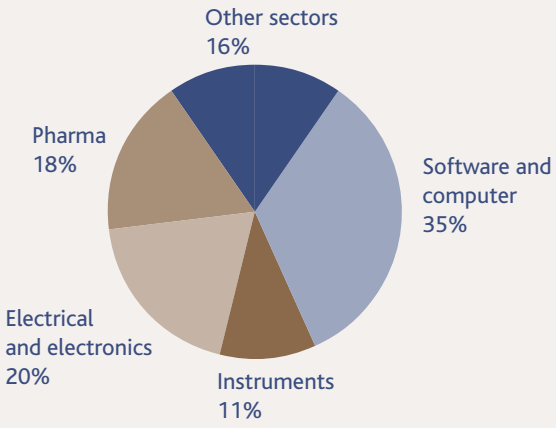
Indicators of service sector innovation are similarly underdeveloped in Ireland. While this position is no different to other countries, the main innovation indicators collected have focused largely on technological innovation such as R&D expenditures (see, for example, the annual Forfás BERD report). While this data is potentially useful to the services innovation it tends to under represent innovation in the services sector. The CIS has increasingly begun to introduce more service innovation-related indicators (marketing and organisational innovation for example[147]).

The remainder of this section seeks to review Ireland against the indicators currently available. It should be noted, however, that data is not currently available in a format that closely matches the conceptual framework outlined in Chapter 2:

Research and Development

Recent research by Forfás indicates that overall business expenditure on R&D stood at €1,075.6m in 2003 (Figure 9). Within this the manufacturing sector accounts for some €672 million. Levels of R&D expenditure in the services sector are not specifically identified in the survey. The Survey does, however, provide data for the software and computer related activities, of which a significant proportion of expenditure is likely to be accounted for by services activities. This suggests that the sector accounts for a total of €378 (2003 figures)[148] – the largest spend reported for any sector by some way.

Figure 9 *Sectoral Distribution of BERD in 2003*



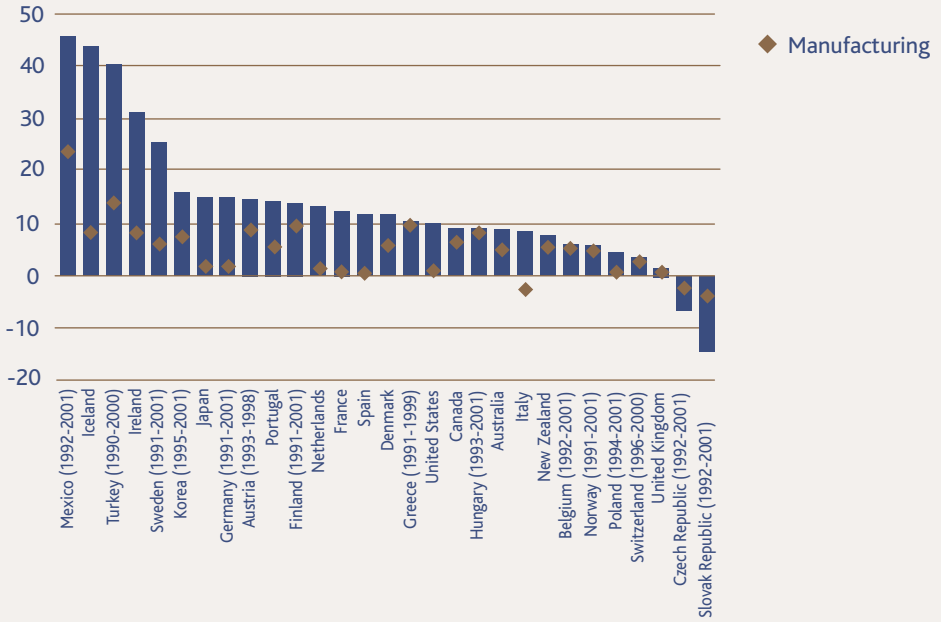
Source: Forfás (2005) Business Expenditure on Research and Development (R&D) Ireland 2003/4, Science and Technology Indicators Unit, Forfás.

Despite the importance of the software sector to business R&D in Ireland, the overall picture is one dominated by manufacturing R&D. The OECD, however, has estimated that this dominance has been eroding since the 1990s. Indeed, as Figure 10 suggests, the service sector, while starting from a lower base, has grown by just over 30% during the 1990s, which was a faster pace than manufacturing R&D.

147 *Bloch, C. 2005. 'Innovation Measurement: present and future challenges', Paper prepared for the Eurostat Conference, "Knowledge Economy – Challenges for Measurement" Luxembourg, December 8-9.*

148 *It is generally difficult to determine the precise level of business expenditure in the service sector, however a significant proportion is likely to be accounted for by the software services sector.*

Figure 10 *Growth of Business R&D Expenditures, 1990-2001(%)*



Note: Differences in data collection and reporting methodologies for services R&D limit the comparability of statistics across countries. Total OECD and European Union are estimates. The European Union aggregates include EU member states except Luxembourg, plus the Czech Republic, Hungary, Poland and the Slovak Republic (since 1 May 2004).

Source: OECD ANBERD Database, 2004.

While a certain amount of this increase is likely to be attributable to better measurement of R&D in the services sector, or reclassification of firms to the services sector, the OECD maintains that it also reflects real increases in R&D by service-sector firms.[149]

Findings from the most recent CIS3 (2003) in Ireland provide further evidence on R&D activity in the services sector. Although the response rate of Irish companies was relatively low at just 17%, the data provides a broad snapshot of the services sector, indicating that 23% of firms were engaged in 'any form of R&D' in the period 1998-2000. This figure falls to some 13% when service firms are asked whether they are engaged in continuous R&D.

As the Table 8 indicates, these levels are somewhat below those reported by manufacturing companies. Table 8 also provides data in relation to company size. This suggests that larger companies in services tend to engage in R&D at higher rates. While the precise relevance of the concept of R&D to the service sector may well account for some of the under-performance noted in the services sector, the finding is consistent with similar findings from the manufacturing sector.

[149] *OECD. 2005. 'Science, Technology and Industry Outlook 2004 country response to policy questionnaire: Ireland'.*

Table 8 *R&D Engagement in Services and Manufacturing Companies in Ireland*

	Total Number of Firms	Engaged in Continuous R&D 1998-2000	Engaged in any R&D 1998-2000	Response Rate
All Firms	3,500	26%	27%	18%
Manufacturing	2,000	36%	29%	18%
10-49	1,262	24%	33%	18%
50-249	564	50%	26%	18%
250+	173	76%	9%	19%
Services	1,500	13%	23%	17%
10-49	1,052	10%	19%	16%
50-249	331	18%	28%	18%
250+	117	24%	43%	17%

Source: Forfás (2002) 'Results of the Third Community Innovation Survey for Ireland', Report Presented to the Forfás Board, November 2002.

Patenting Activity

Forfás' BERD research provides a picture of general[150] patenting activity amongst companies in Ireland (Table 9). This suggests that in 2003 a total of 1,464 patents were applied for, with 755 granted. A relatively equal split between the application numbers for by Irish and foreign owned companies is also evident. From a sectoral perspective Table 9 again highlights the importance of the software/computer related sector, with some 21% of applications in 2003. A further interesting point to note is that 64% of the patent applications made by this sector were to the US.

Table 9 *Sectoral Distribution of Patents Applied for by Companies which undertook In-house R&D Activity in 2003*

Sectors	All Companies						
	RoI	Rest Europe	USA	Elsewhere	Total	No.	%
Electrical/Electronic Equip	21%	32%	32%	15%	100%	326	22%
Software/computer Related	19%	14%	64%	4%	100%	312	21%
Instruments	23%	25%	35%	17%	100%	285	19%
Machinery & Equipment	44%	29%	14%	14%	100%	191	13%
All other Sectors	37%	30%	16%	17%	100%	350	24%
Total	28%	26%	33%	13%	100%	1,464	100%

Source: Forfás (2005) Business Expenditure on Research and Development (R&D) Ireland 2003/4, Science and Technology Indicators Unit, Forfás.

[150] *Not specific to 'high tech' patenting.*

New Service Products and Service Development/Delivery Innovation

Table 10 provides data on product and process innovation by size band of company and sector (manufacturing and services). This data suggests that larger services companies appear to have higher levels of product and process innovation than their smaller counterparts, as shown also in respect of the R&D expenditure findings discussed above.

Services companies do, however, tend to lag behind manufacturing on both product and process innovation measures. This is particularly noteworthy in the case of process innovation with less than half as many services sector companies reporting process innovation than in manufacturing companies.

Table 10 *Product and Process Innovation by Industry Sector and Size*

	Total Number of Firms	Developed New Products 1998-2000	Developed New Processes 1998-2000
All Firms	3,500	43%	33%
Manufacturing	2,000	49%	40%
10-49	1,262	38%	36%
50-249	564	61%	41%
250+	173	87%	71%
Services	1,500	32%	19%
10-49	1,052	32%	20%
50-249	331	40%	21%
250+	117	46%	49%

Source: Forfás (2002) Results of the Third Community Innovation Survey for Ireland, Report Presented to the Forfás Board, November 2002.

Given the relatively low response rates of the CIS3, it is important to support these findings by considering results from complementary surveys. Here, the work of InnovationLab has been important in helping to track service innovations through its IIP surveys covering both in both the Republic of Ireland and Northern Ireland.

Table 11 *Innovation in Services/Service Products*

	Northern Ireland	Republic of Ireland	Total
Service innovation during 2000 to 2002 (% businesses)	49.40	52.70	51.70
Sales from entirely new services (%)	17.90	18.20	18.10
Sales from services copied from elsewhere (%)	7.60	7.00	7.20
Sales from improved services (%)	18.30	18.60	18.50

Notes: Figures relate to tradable services businesses with ten employees or more. Survey responses are weighted to give representative results. No statistically significant differences exist between the Northern Ireland and Republic of Ireland figures.

Source: Roper, S., Hewitt-Dundas, N. and Savage, M. (2003) 'Innovation, Best Practice Adoption and Innovation Networks: a comparison of Northern Ireland and the Republic of Ireland', Innovation Lab.

Table 11 is drawn from the most recent IIP4. While no statistically significant differences are demonstrated between Northern Ireland and the Republic, the data nonetheless provides a useful perspective. In particular, the survey suggests that just over half (52.7%) of all service companies introduced new service innovations during the period 2000-2004. Of this, the most important innovations, in relation to sales, were entirely new sales (18.1%) and improved sales (18.5%). Relatively few companies reported 'copying' of sales as having a significant impact on new sales (7%). The IIP surveys also highlight a strong link between size of company and service innovations with larger companies innovating at a higher rate, 78% of companies with more than 100 employees reported service innovations in the survey period, compared with 46% of companies employing 10-19 people.

Overall, these rates are somewhat higher than those reported in the CIS3 and while it is difficult to draw firm conclusions given the differing methodologies/definitions employed, it is possible that services innovation reported in the CIS surveys is underrepresented.

Summary

Indicators of service innovation have tended to lag behind measures of more technological activity. This, in part, is linked to the low priority given to services innovation by policy makers. It is also closely connected to the complexity of service innovation concepts and the difficulties of operationalising these in a way that is relevant to such a diverse sector. Despite these challenges researchers across Europe are increasingly developing more sophisticated instruments to survey services innovation. Ireland has responded to this through its implementation of the CIS, however, the quality of the data obtained is not particularly high, given the low response rates experienced.

Using the data that is currently available, the review of current Irish innovation indicators suggest the following picture:

- Service sectors, most notably software and computing, account for a significant proportion of business R&D although manufacturing sectors account for a higher proportion than services (Forfás BERD). This position is also given some confirmation by the CIS.
- Larger service companies report higher R&D levels (CIS3) and specific product and process innovations than smaller companies (CIS3 and IIP4[151]).
- In relation to patents the position largely mirrors the BERD data, with Software and computer services accounting for a significant proportion of patent applications (21% of all applications in 2003).

This data does not necessarily mean that the service sector is less innovative, since the technological orientation of such indicators does not capture the broader nature of innovation in service companies. While there is clearly a case, however, for Ireland to interact with the CIS process to a greater degree (improving response rates and so on), it will also be important to consider collecting supplementary data on indicators such as those identified in Table 7.

[151] *Although innovation rates reported by IIP4, while not directly comparable, appear higher.*

Annex 7 – Services Companies Participating in the Case Studies

Avocent International

AXA Insurance Ltd Ireland

Banta Global Turnkey

Benetel

Chorus/Liberty Global

Company C

DCC PLC

Electric Paper/Thirdforce PLC

Emerald Cultural Institute

Enterprise IG

eTeams

Flextronics

GE Capital European Funding

Griffith College

Haptica Ltd

IdentiGEN Ltd IMI

MBNA Bank Europe

Merill Lynch

National College Ireland

Nephin Games Orbis Information Systems

PulseLearning Ltd

Qumas

RCSI

SerCom

TGD Ireland

The Cartoon Saloon

UPS Supply Chain Solutions (Ireland) Ltd

Zefcom Ltd

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Forfás, Wilton Park House, Wilton Place, Dublin 2. Tel: 01-607 3000. Fax: 01-607 3030. Website: www.forfas.ie