ASSESSMENT OF PUBLICLY FUNDED RD&I SUPPORTS FOR INNOVATION IN SERVICES AND BUSINESS PROCESSES

Forfás

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Preface

Background and key findings

The focus on innovation in services and business processes is the result of a number of global trends. First, governments across the OECD are looking towards non-traditional sources of economic growth to help in the recovery from the current economic crisis. Second, advances in technology, including ICT, are enabling new means of delivering services and giving rise to new services entirely. Finally, the traditional distinction between manufacturing and services is being eroded as traditional manufacturers have increasingly blended their product development with services delivery thus enabling innovation and development in other areas of the economy.

In this context, Forfás has commissioned a report on Innovation in Services and Business Processes (ISBP), one of the 14 priority areas identified in the National Research Prioritisation Exercise. The report aims to look at international best practices in public research development and innovation (RDI) support for ISBP; to review existing RDI initiatives in ISBP in Ireland; and to make recommendations as to how Ireland can move forward in this area.

The key finding from the study is that there is no single 'off the shelf' solution that Ireland can follow in what is still a rapidly evolving area of public policy. Instead the report outlines a tailored set of recommendations which set out a roadmap for policy support which makes sense for Ireland.

The roadmap for policy action recommended in the report is illustrated in Figure 1.

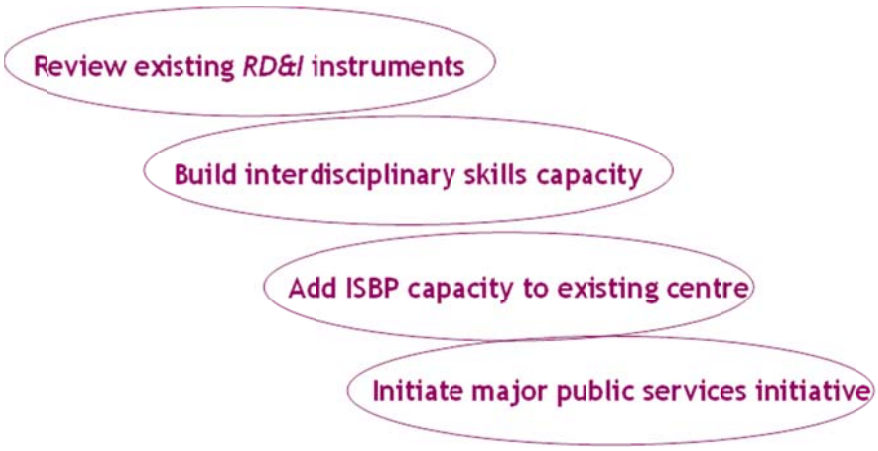


Figure 1: Roadmap for policy actions in support of ISBP

The four main steps in the roadmap are:

1. Review existing RD&I instruments

   Existing public RD&I supports should be kept under continual review and tested to ensure as far as possible that projects involving innovation in services and business processes are eligible for funding and support.

2. Build interdisciplinary skills capacity

   It was acknowledged at the beginning of the study that there is a deficit in Ireland's HEI system with regard to research capacity in ISBP. This step seeks to begin to address this deficit through joint agency calls for interdisciplinary research in ISBP.

3. Add ISBP capacity to existing research centre(s)

   The type of research relevant to ISBP differs in a number of important respects from research typically carried out in HEIs. These differences include the fact that the timescale for research is much shorter, end users are typically centrally engaged, and the research is multidisciplinary in nature. This step seeks to demonstrate the added value of ISBP by establishing an ISBP research capacity to one or more existing HEI research centres. The synergies between the existing centre's activities and the additional ISBP activities will be crucial in demonstrating the additional translational impact of research in ISBP.

4. Initiate a major public services initiative

   ISBP has been identified as a priority area in its own right. Research in ISBP also has an important role in helping achieve the research objectives of many of the other 13 research priority areas. This step seeks to align research in ISBP with research in one or more other priority areas in order to demonstrate how public investment in priority areas can result in job creation, the creation and diffusion of new technology-based products and services, and improved quality of public services and quality of life.

The report on RDI supports for Innovation in Services and Business Processes has been adopted by the Research Prioritisation Action Group (PAG). A dedicated advisory group is being established to assist with its implementation.

Summary

Innovation in Services and Business processes has been identified as a key priority for Research, Development and Innovation (RD&I) in Ireland. It is one of fourteen such national priorities and has been expressed in a detailed Implementation Action Plan for RD&I activity in Ireland, developed by the Research Prioritisation Action Group.

Research objectives

This report contributes towards meeting the objectives of the Research Prioritisation Action Group (PAG), by identifying how Ireland might best develop supports for RD&I in Innovation in Services and Business Processes. It draws on a programme of research to examine international comparative practices in public RD&I support measures.

The study addresses four main research questions:

1. An in-depth international review, including case studies, of a range of RD&I supports and practices;
2. Assess and identify the research needs of firms in Ireland in this area;
3. Assess how best Irish supports currently meet the objectives of promoting Innovation in Services and Business Processes;
4. Formulate recommendations for Irish RD&I supports to ensure the delivery on the vision for Innovation in Services and Business Processes.

Key features of innovation in services and business processes

While there is currently no widely accepted definition of innovation in services and business processes, for the purposes of this report, the European Commission's definition is used:

'…new or significantly improved service concepts and offerings as such, irrespective of whether they are introduced by service companies or manufacturing companies, as well as innovation in the service process, service infrastructure, customer processing, business models, commercialisation (sales, marketing, delivery), service productivity and hybrid forms of innovation serving several user groups in different ways simultaneously'[1].

Innovation in service and business processes extends beyond the traditional services sector *per se* and is equally relevant to the manufacturing and public services. Key characteristics of the innovation in services are summarised in the chart below:

[1] European Commission (2012) 'European Commission (2012) *The Smart Guide to Service Innovation – How to Support SME Policy from Structural Funds.* http://ec.europa.eu/enterprise/policies/sme/regional-sme-policies/documents/no.4_service_innovation_en.pdf.

Characteristic Features of Innovation in Services and Business Processes[2]

Unique characteristic features of Innovation in Services and Business Processes

- Multidisciplinary nature of this research area (e.g. human behaviour, ICT, business and process management);
- Embodiment of both technology (mainly IT related) & non-technology know-how;
- Co-productive nature of innovation involving for, example, producers and consumers;
- Pervasive nature of services in the economy and the diversity that encompasses them (i.e. technology orientation, R&D intensity, knowledge intensity and level of skills);and
- Required agility in the design of funding programmes in order to respond to a fast paced marketplace.

The global context for RD&I in services and business processes

Innovation in services and business processes has become an important feature of the global corporate environment. This has been driven by important trends such as globalisation and the emergence of new ICT technologies. In this context, innovation in services and business processes has emerged as an enabler of innovation and development in other areas of the economy.

While innovation in services and business processes has been at the heart of recent developments in the corporate sector, the promotion and prioritisation of policy is still, very much, an evolving area. International comparisons inevitably reveal a wide variety of government approaches and initiatives in terms of scope, policy priorities, available resources, the stakeholders engaged as well as the mechanisms and instruments that are typically used.

International comparator policy practices

The evidence presented in the report does not point to the emergence of a single good practice approach to supporting innovation in services and business processes. Instead the comparators demonstrate the importance of developing an integrated portfolio of supports across key areas such as:

- Business and applied RD&I;
- Cluster/networks;
- Research programmes;
- Policy and strategy statements.

They also illustrate the importance of viewing innovation in services as an enabler of transformation, through its focus on addressing important social, economic and environmental challenges.

[2] Forfás (2013) 'Innovation in services and business processes – briefing document'.

The comparator cases do, however, highlight the challenges associated with implementing supports for innovation in services and business processes. These are related to the relative novelty of the innovation in services and business process concepts and the lack of understanding and awareness. The dominant position of traditional concepts of RD&I can also act as a significant barrier to the development of new supports in innovation in services, reflecting the lack of identifiable stakeholder groupings or networks.

The challenges and lessons identified from the comparator cases are:

First, **providing a supportive environment for innovation in services and business processes is a key challenge.** This, as illustrated by the comparator cases, should be based on a high level of policy acceptance, and embedded through factors such as identification in key policy documentation, support from stakeholders and strong alignment to existing measures.

Second, **promoting awareness and understanding of innovation in services and business processes concepts is necessary and important.** Raising awareness of innovation in services and business processes to accompany the implementation of practical RD&I supports is commonly found amongst the comparator cases. For the comparators, this has been important in helping to communicate both the importance of innovation in services and business processes to researchers and businesses, and also to meet the requirements for funding agencies.

Third, **encouraging multidisciplinary approaches to RD&I projects is an important theme for innovation in services and business processes supports**. Drawing together researchers and businesses and maximising learning from different sectors, including technological and non-technological expertise is an important aim of many of the comparator cases.

Fourth, **adopting a strong focus on the end-user in developing supports for innovation in services and business processes is a central challenge** addressed by many of the comparator cases. This is particularly a characteristic of those comparator supports which support user engagement in co-creation activities, research projects and open forms of innovation.

Fifth, **a portfolio of funding supports based on a flexible and iterative process of development** will be needed. This is characteristic of many international comparator practices and draws together a broad range of stakeholders with a flexible package of funding supports to address business and researcher needs in areas such as business and applied RD&I projects, cluster and networks, research programmes, and strategy / policy support.

Finally, **an appropriate mix of traditional and less traditional metrics should be set,** supported by a regular evaluation. This will help to ensure innovation in services and business processes supports can be monitored effectively. In this respect while no country has been able to develop a robust and differentiated set of metrics for innovation in services and business processes, there are, however, emerging transnational initiatives to identify new metrics.

Support for innovation in Services and Business Processes in Ireland

While Irish policy and agencies such as EI and IDA have begun to experiment with supports targeted on innovation in services, the main national RD&I supports continue to be focused on traditional mechanisms such as R&D grants, technology/R&D centres, innovation partnerships and so on. In such support mechanisms, innovation in services and business process projects are frequently not able to meet application requirements and eligibility criteria.

Existing supports for innovation in services and business processes are limited but the experience of a number of centres (for example RIKON and IVI) and the activities of a range of multinationals in Ireland, points to the presence of both actual and latent demand from businesses to access innovation and business processes support. The results of the business survey further suggest that businesses recognise the importance of innovation in services, and would value supports that take account of innovation in services and business processes more closely.

The evidence of emerging need is also supported by the range of stakeholders from the public and private sectors seeking to engage with the topic. This provides a sound basis for the further development of supports. Addressing this opportunity will, however, require a number of barriers to be addressed. These include challenges such as raising awareness within the business sector of available supports; ensuring existing supports are available to innovation in services and business processes wherever possible; building up research skill; and, ensuring effective collaboration with universities and researchers.

Conclusions

The conclusions from this study suggest that, internationally, innovation in services and business processes is emerging as a strong area of policy focus. Evidence from the comparator review suggests, however, that there is no single solution or approach that can be recommended to support innovation in services and business processes and address the vision of the Innovation in Services and Business Processes Programme Action Group.

In developing Ireland's support for innovation in services and business processes any new supports should be placed in the context of existing priorities, programmes and funding mechanisms where possible. This is particularly important for ISBP where the concepts themselves, and the potential economic benefits, are less well understood and can limit willingness to experiment and adapt existing priorities, funding mechanisms, grand challenges and so on. Hosting a services innovation strand within an existing RD&I programme or aligning support to the policy needs of a sector or 'grand challenge' are possible ways forward.

The enabling and transformative capacity of services innovation is a further important theme and challenge for Irish policy. This is reflected in a number of comparator supports where the focus is on addressing important economic and societal challenges. In this respect policy towards innovation in services is based on its role as 'a means to an end'. This enabling role points to the potential for innovation in services and business processes to contribute to other policy priorities within the Research Prioritisation exercise helping to maximise the impact of the overall Prioritisation exercise.

Developing policy and supports for innovation in services and business processes will require the creation of a common understanding of the economic and social benefits to be gained amongst key stakeholders. In the Irish context, there is the need for a wider set of 'owners' and 'leaders', especially as the Research Prioritisation exercise and support for innovation in services and business processes moves into an implementation phase.

The evidence from the comparator cases implies that broadening out the 'ownership' base through better engagement with SME owners and managers, customers and the research community will be important. Engaging stakeholders, such as business owners and business leaders, in helping drive the introduction of new policy and support measures and in generating demand for supports was clearly illustrated in the comparators. Similarly, adopting

a strong focus on the customer, typically through research and supports that seek to better understand customer needs, and involving SMEs and their customers in the co-development of innovations in services and business processes is relevant.

There are a number of ways of focussing the delivery of innovation in services and business processes. These include Platform approaches that focus on a 'Quadruple Helix' to engage business, researchers and government on a sectoral, grand challenge or research area priority; Research priority approaches where businesses are consumers and customers of research results rather than co-designers of innovations in services; and, Applied innovation approaches that place the consumer and customer in the 'front seat' as far as the research and innovation effort is concerned. Each approach brings with them a slightly different set of challenges and implications for Ireland.

Finally, it will be important for Ireland to match the metrics used in assessing impact and value for money to the intervention objectives by the development of an appropriate mix of traditional and less tangible metrics. A participative evaluation process will also be required so that the value and utility of the metrics employed may be continually challenged and redefined throughout a programme or project implementation process.

Recommendations

The recommendations can be summarised as follows:

- Recommendation 1. Reaffirm innovation in services and business processes both as a priority area in its own right and as an enabler across other priority areas. Implement new innovation in services and business processes supports in the context of agreed government policy on research prioritisation and PAG's on-going work on implementation.
- Recommendation 2a. Broaden stakeholder engagement on policy development and implementation in innovation in services and business processes by establishing a stakeholder network to inform future policy development and implementation.
- Recommendation 2b. Existing public RD&I supports should be kept under continual review and tested to ensure that projects involving innovation in services and business processes are eligible for funding and support.
- Recommendation 3. Build research capacity and skills in innovation in services and business processes by providing incentives and opportunities for researchers to engage across disciplines in innovation in services and business processes projects.
- Recommendation 4. Implement an applied RD&I initiative by building on existing examples of such initiatives already in place in Ireland.
- Recommendation 5. Implement new platform demonstrators, immediately, around public services innovation platforms
- Recommendation 6. Establish the metrics for RD&I in services and business processes supplementing them with a range of learning activities designed to develop, over time, more focused indicators.

Chapter 1: Introduction

Innovation in services and business process has become an important topic of research and policy discussion in recent years. This, in part, has been driven by a recognition that services are a vital component of developed economies including public and private services. Further, services are now an important element across all sectors of the economy, as evidenced by trends towards service-driven internet business models, 'servitisation' in the manufacturing sector and so on. It is also been driven by an appreciation of the characteristics of services and challenges posed for policy makers by service provision as an economic activity. Finally, policy makers have become acutely aware that, in this context, current RD&I policies and supports demonstrate only limited alignment with the characteristics and opportunities provided by services.

While there is currently no widely accepted definition of innovation in services and business processes, for the purposes of this report, the European Commission's definition is used:

> *'…new or significantly improved service concepts and offerings as such, irrespective of whether they are introduced by service companies or manufacturing companies, as well as innovation in the service process, service infrastructure, customer processing, business models, commercialisation (sales, marketing, delivery), service productivity and hybrid forms of innovation serving several user groups in different ways simultaneously'*[3].

This definition emphasises the important cross-cutting role of innovation in services for all sectors – public-private, services-manufacturing. It also highlights the important role of the customer or end user at the heart of the innovation in services process.

1.1 Background to the study

Innovation in Services and Business Processes has been identified as a key priority for Research, Development and Innovation (RD&I) in Ireland. It is one of fourteen such national priorities and has been expressed in a detailed Implementation Action Plan for RD&I activity in Ireland, developed by the Research Prioritisation Working Group for Innovation in Services and Businesses processes.

The Group's Implementation Action plan sets out the vision, *'To capture customer centric innovation that combines non-technological and technological know-how in order to conceive and develop new globally successful operating models, products and business processes'*. This is accompanied by a series of objectives for RD&I in Ireland:

- 'Understanding consumer behaviour in order to extract real time information for the production and design of products and services;
- Understanding human interaction with IT for concept development and design;
- Monetising mechanisms for new service opportunities;
- Utilising technology for management of business processes; and legal affairs such as regulatory and competition analysis.'

[3] European Commission (2012) 'European Commission (2012) *The Smart Guide to Service Innovation – How to Support SME Policy from Structural Funds.* http://ec.europa.eu/enterprise/policies/sme/regional-sme-policies/documents/no.4_service_innovation_en.pdf.

The working group recommended that further study of publicly funded RD&I supports for innovation in services and business processes was needed to develop greater clarity about the opportunity for Ireland in this area[4].

1.2 Aims of the study

The aim of this study is to build on the work of the Research Prioritisation Working Group, and to identify how Ireland might best support RD&I in Innovation in Services and Business Processes. It incorporates a review of public support approaches and practices for innovation in services and businesses conducted by CM International. This draws strongly on international comparative practices in public RD&I support measures, the current position of such supports in Ireland, and the needs of businesses in this area.

The report is intended to inform the design of supports to help accelerate Innovation in Services and Business process across all sectors in Ireland and comprises four key objectives:

1. An in-depth international review, including case studies, on a range of RD&I supports in practice;
2. Assess and identify the research needs of firms in Ireland in this area;
3. Assess how Irish supports currently meet the objectives of promoting Innovation in Services and Business Processes;
4. Formulate recommendations for Irish RD&I supports to ensure delivery on the vision for Innovation in Services and Business Processes.

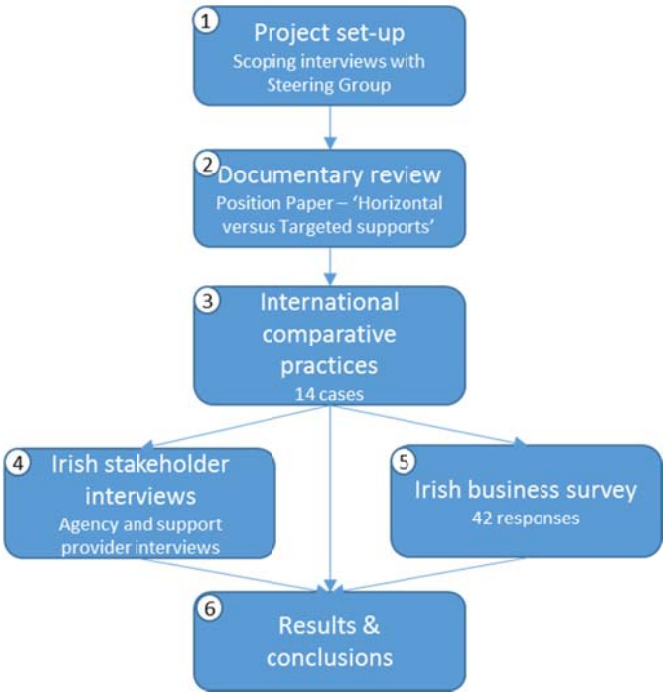
1.3 Research methodology

The study is based around a number of work stages designed to capture international practices in support of innovation in services and business processes. The main focus of the study was to learn from comparator country practices, and to inform this with an understanding of the current position in Irish policy and supports. A short 'signposting' survey with businesses was also undertaken to examine research needs. A summary of the approach adopted is shown at Chart 1 below detailing the focus of the work stages undertaken.

Further details of the approach adopted can be found in the Appendix I.

4 'Undertake an international review to establish what R&D structures are in place to support this area.' Extract from Objective 3; Action N 3.1 in Priority Area N: Action Plan for Innovation in Services and Business Processes, Forfás, 2012.

Chart 1: Study work stages



This research for this report was undertaken in the period July to October 2013.

1.4 Structure of the report

The structure of the report is as follows. Following this Introduction (Section 1), the report examines the global context for innovation in services and business processes (2). This is followed by an analysis of current approaches to the provision of public support for RD&I in services and business processes drawn from 14 comparator cases (3), before reviewing the current state of RD&I supports in this area in Ireland. This section also includes a 'snapshot' of evidence gathered from a signposting survey of Irish businesses (4). From these results the report identifies conclusions to the study (5), and recommendations for action (6).

Chapter 2: The global context for RD&I in Services and Business Processes

Innovation in services and business processes is becoming increasingly important in the global economy as a means of creating sustainable economic growth, inclusive employment and provide social services, such as health care and education. This has been described by one author in the following terms[5]:

> *'With tightening competition and the rapid pace of structural changes in the economy, service innovation and development have emerged as a strategic imperative for most companies, also for those outside of the traditional service industries'.*

Innovation in service and business processes extends beyond the traditional services sector *per se* and is equally relevant to the manufacturing and public services. Key characteristics of the innovation in services are summarised in the chart below:

Chart 2: Unique Characteristic Features of Innovation in Services and Business Processes[6]

- Multidisciplinary nature of this research area (e.g. human behaviour, ICT, business and process management);
- Embodiment of both technology (mainly IT related) & non-technology know-how;
- Co-productive nature of innovation involving for, example, producers and consumers;
- Pervasive nature of services in the economy and the diversity that encompasses them (i.e. technology orientation, R&D intensity, knowledge intensity and level of skills); and
- Required agility in the design of funding programmes in order to respond to a fast paced marketplace.

Innovation in services and business processes can be described as having a 'transformative' role, with potential to:

> *'Disrupt traditional channels to market, business processes and models, to enhance significantly customer experience in a way which impacts upon the value chain as a whole'[7].*

In this respect innovation in services and business processes can underpin emerging sectors and markets, and contribute towards structural change and industrial modernisation. In many respects it can also be seen as a means to an end, rather than an end in itself.

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[5] Ojasalo, K. (2009) 'Business and Design Competences in Service Innovation and Development', *The Business Review*, Cambridge13(1).

[6] Forfás (2013) 'Innovation in services and business processes – briefing document'.

[7] European Commission (2012) 'The smart guide to services innovation: how to better capitalise on service innovation for regional structural change and industrial modernisation', GuideBook Series: How to Support SME Policy from Structural Funds.

2.1 Global trends in innovation in services & business processes

Innovation in services and business processes has become an important feature of the global corporate environment. This has been driven by important trends such as the emergence of new ICT technologies. Together these trends have enabled multinational companies to transform their activities through the creation of global value chains, sourcing and production networks. In this context innovation in services has become a key competitive advantage for companies, determining how cost-effective firms manage to exploit knowledge commercially[8].

While global multinationals in service sectors such as Amazon and eBay have been at the forefront of developing new business models, based on more traditional activities (book retailing – Amazon; auctioneering – eBay), the role of innovation in services is also evident in the approaches of companies traditionally associated with manufacturing (for example, automotive and engineering). In such sectors so-called 'servitisation'[9] has been a key element of business model innovation and modernisation. Rolls Royce, for example, now describe their offer as being one of 'power by the hour' rather than aircraft engine sales. Similarly, automotive companies have innovated through bolt on services. These trends highlight an increasing merging between sectors and activities.

The OECD argue that these trends have both brought about and been influenced by new approaches to 'R&D in services'. These include[10]:

- Growing attention given to demand pull, in opposition to technology push, as users/customers/employees drive R&D and innovation;
- New service strategies aim to create value-in-use for customers/users;
- New service development, in business-to-business services, are bought (e.g. maintenance contracts) and then developed in long-term collaboration with the customer;
- The service provider opens the R&D and innovation process on the supply side to actors such as universities, scientific communities and suppliers, as well as on the demand side to users, customers, citizens and patients;
- New ways to leverage enlarged and agile forms of networking across and between organisations;
- Shift in the unit of analysis of market exchange from products to an understanding of the process of value creation within the exchange itself (value-in-use).

These activities are not exclusive to large companies, indeed studies have also shown how small companies are innovating in their services. Public service innovation is similarly becoming an important topic for governments. This is being driven by the need to contain healthcare costs and important societal challenges such as the ageing population.

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[8] Chesborough, H. (2011) 'Open Services Innovation: Rethinking Your Business to Compete and Grow in a New Era', Jossey-Bass, San Francisco.

[9] Barclays Bank and Cambridge Service Alliance (August 2011) 'Servitistaion and the future of manufacturing'.

[10] OECD (2012) 'Policy report on service R&D and innovation', Working Party of National Experts on Science and Technology Indicators; and Working Party on Innovation and Technology Policy, Paris.

While innovation in services and business processes has been at the heart of recent developments in the corporate sector, the promotion and prioritisation in the policy field is still, very much, an evolving area. International comparisons reveal a wide variety of government approaches and initiatives in terms of scope, policy priorities, available resources, the stakeholders engaged as well as the mechanisms and instruments that are typically used.

Globally, an increasing number of countries are becoming active in services innovation promotion and prioritisation. The first wave of 'early adopters' includes northern and central European countries such as Norway, Finland, Sweden, Denmark, Netherlands, Germany and Ireland. These pioneers are being followed the United States and the new economic powers such as China, Korea, and Taiwan. All of these countries have, to different extents, now begun to invest in services innovation and to promote and prioritise investments in the area.

The experiences of the first European wave of countries in particular, have also been increasingly evident in the new wave who have faced a range of challenges when beginning to operationalise the concept of service innovation. These challenges include the adaptation of existing innovation policy instruments and funding criteria for the new service innovation policy target and the need to create a common language among the key stakeholders such as businesses, government and research community.

Some countries, including Germany and Finland, have sought to mobilise a critical mass of stakeholders and users in support of service innovation. For instance, engaging key industrial firms with an important role in the successful launch of service innovations. Where this has been consistently performed it seems to be a key element of success.

Other countries have used the emergence of important grand challenges in areas such as the environment and ageing population to develop new innovation in public services. In the health sector, for example, countries such as the UK and Finland have been active in engaging stakeholders in responding to new technological and service opportunities.

Finally, agencies that are responsible for the implementation of service innovation have needed to undertake a great deal of work to 'up-skill' their own personnel to have the capability to understand, implement and champion service innovation policy and programmes. In a number of examples, the officials, coming from a tradition of technological innovation policies and programmes, have had to adapt their thinking to be able to deal with sectors and types of business that are unfamiliar to them.

2.2 National approaches to service innovation prioritisation and promotion

As noted above, globally, countries that are prioritising and promoting service innovation portray a wide variety of approaches and there are clearly a range of reasons why service innovation policy portrays such a variety of approaches, instruments and objectives.

Countries investing in service innovation do so with the aim of solving, sometimes, quite different problems. Understanding why they invest in a given area and why they choose particular means of doing it also requires an understanding of the needs which the various approaches aim to solve. There is, however, a danger of categorising countries and approaches in the hope that similar conclusions may apply.

For instance, while, on the face of it, there is a policy objective of renewing the service sector in China, however, this is not so much about service innovations but more about modernising the service sector; a sector which, in addition to research-based innovation

issues, has to cope with fundamental structural problems. Similarly, the so-called BRIC countries are categorised and grouped together through their acronym but otherwise exhibit a rich variety of innovation needs and opportunities.

Another difficulty lies in identifying what are truly service innovation policies and programmes. Here, some countries, such as South Korea and Taiwan, are very clear in highlighting these and explaining the special features of service innovations and what distinguishes them from more traditional innovation activity. Other countries are much less explicit, including both China, and the US. This may be due to innovation activity being defined in more traditional terms, with technology, industry and manufacturing as important ingredients. Moreover, service development is not always regarded as innovation activity, even if there is underlying vital service development.

In this context, the actual concept of innovation may present another difficulty. In countries where a free service market cannot really be said to exist, for example, China, the concept of innovation that seeks to address the needs of the market may not be understood in the same way. This is because, in the case of China, still with a largely controlled economy, most services are either free or heavily subsidised, and introduced under a fixed Five-Year Plan. Combined with a major need to modernise the service sector, and only a small number of service companies active in the market, renewal and innovation is more concerned with the central authorities' capacity to renew themselves rather than concerned with individual entrepreneurs creating new services for the market. For China this is recognised as an important obstacle to the development of innovative services and heavily influences answers to the question of how to regard service innovations in different countries.

Further, the fact that manufacturing and service activity are now often heavily integrated and bundled in customer offerings may also be a reason why service development is not always highlighted as a separate area. However, some countries, such as South Korea, make a point of shifting the focus from manufacturing to services even in integrated offerings so that, for example, there is an emphasis on moving from green manufacture to the development of a green service industry that will help the economy and consumers address global environmental challenges. In this case, the strengthening of service innovation is seen as an end to a means in policy terms rather than an end in itself. In a number of cases, globally, the grand challenges of climate and environment and various associated green efforts are also commonly occurring policy themes where service innovation becomes part of the policy implementation 'tool kit'.

This tendency to see services innovation as a means to a wider policy 'end' can be seen in many countries. For example, the role of IT as a facilitator of increased productivity in service production has been seen in many contexts as a vital factor in creating better services in the public as well as private service domains. In a similar way, service innovation has been seen as a way of better serving large but sparse population groups located in rural areas. In this context, the existing low levels of service provision give service innovation a great potential for overall service improvement which is obvious and which cover service areas such as education, healthcare and health information.

By contrast, countries with more resources and more well-developed welfare efforts, such as the USA, tend to be more focused on service areas such as tourism and leisure time, media, fashion and financial services. While, in parts of Europe and Japan, ageing population related services are the focus for service innovation.

A synthesis of policy related materials reveals that service innovation policy development follows a stylised life-cycle. While the policy area as a whole is maturing, different countries are at different stages of development. In broad terms these are:

- Countries with well-established service innovation policy that is developed systematically and as continuous priority area;
- Countries with well-established service innovation policy but where development takes place in an erratic manner with continually changing priorities;
- Countries that are developing their innovation system as a whole and where services innovation is, only latterly, entering the policy agenda.

In most countries only a limited number of innovation policy actors are actively engaged in service innovation policy. Bearing in mind the systemic nature of service innovation, this is a challenge that needs to be tackled in several countries.

Typically, service innovation policy employs fairly conventional policy instruments. For instance, funding for innovation projects using criteria that have been 'adapted' for the needs of service innovation development. A bias towards technology development still creates a challenge for service innovation policy evidenced by a lack of common language and skills, as well as in the mind-set of the decision makers. However, there are some novel developments:

- In China, service innovation promotion includes a major training programme targeting policy makers as well as businesses. The aim is to familiarise the target groups with the specific aspects of service innovation;
- In Sweden, much of the service innovation promotion in action results from improved framework conditions, especially opening up some public sector service areas for private business to provide services. This has provided much needed stimulation for service innovation at the public-private interface;
- In Finland, service innovation is on the agenda of Strategic Centres for Science, Technology and Innovation. These are organised as limited companies by the leading industry and academia players.

In considering what type of service innovation policy tools to employ, governments need to define the rationale for their policy interventions since the various instruments to foster service R&D and innovation do not all respond to the same policy rationale.

As with technological innovations, typically undertaken by manufacturing firms, the main rationale for governments to promote innovation in service firms will generally be based on market–needs and/or systemic market failures that prevent firms from investing in R&D and innovation at socially optimal levels. While some of the market failures faced by manufacturing and service firms are similar - such as information asymmetries, capital market failures, or knowledge spill-overs - which tend to lead to under-investment in innovation activities, the literature on the economics of innovation argues that market failures in innovation may particularly affect service firms because of the very nature of service activities (i.e. intangibility, low tradability, customer proximity for delivery).

Systemic failure can also be recognised as a hindrance to service innovation. For example, globally, service markets are often more regulated than markets for the manufactured goods preventing healthy competition and typically leading to a low level of innovation activity.

There continues to be only a limited range of specific policies and tools targeting service innovation as a policy objective in its own right. This can be contrasted with the long-held attention given to technological innovation as a policy objective. This obviously reflects the relatively short time service innovation has been on the policy agenda although, as a result, much service innovation support is delivered through broader innovation policies and instruments.

Drawing together the types of policies supporting service innovation, the following stylised points gives an idea of the current position of public supports available internationally:

- *Policies supporting service innovation in specific cluster or network.* Norway, Netherlands, UK and the EU Commission are seen to carry out this type of policy. In most cases service innovation promotion targets industries and sectors that are important in terms of their innovation activities. For instance, knowledge based services and creative industries are frequently targeted by service innovation policy;
- *Business and applied RD&I support* can also be identified. This type of policy is fairly strong in countries like Finland, Germany and Korea. Although there is a strong argument in favour of such policies, typical complaints are that the actual support for service innovation remains weak, and it 'works only on paper';
- *Research is an important area of support* and is a key focus for developing new knowledge and research capacity within the knowledge base. Such an approach is most developed in Germany and Finland;
- *Policy and strategy development* has been an important response of many countries to the challenge of innovation in services. This approach is strong in countries such as China, Korea, France and so on. It is also an area where grand challenges may typically form the basis of strategy.

2.3 Approaches to service innovation in selected global comparators

While much of the focus of research into service innovation has been carried out in the context of the European Union Member States, the position of some globally important comparator countries is also worthy of attention. For this purpose, and before the report moves on to consider comparator cases of policy support and implementation in more detail, a summary of the currently observed position in China, Korea and the USA is included here.

China

Only in the past 10 years (since 2000) has service innovation become a policy target. However, even so initiatives to develop framework conditions and infrastructure do not refer explicitly to service innovation. Instead, the development focus is on the service sector and the introduction of modern services that can support technology innovation.

In the current Five-Year-Plan (2011-2015), the innovation of manufacturing services is highlighted, including promoting innovation in service products and service models. However, the Medium and Long-term Strategic Plan for the development of Science and Technology (2006-2020) focusses on implementation measures such as R&D investment, tax incentives, financial support, public procurement, technology absorption and innovation of introduced technologies rather than making any specific provision for service innovation. As a consequence most service-related innovation measures are supply-side with limited use of demand-side instruments.

More recently service related initiatives are concerned with science and technology services. Even where broad financial policies include the support of innovative services, the evaluation criteria used within these policies and initiatives do not easily relate to service innovation activities.

A need for better coordination of the design and implementation of service Innovation policies is recognised in China and it is anticipated that when implemented this will involve government, businesses, R&D institutions and other stakeholders. However, at present, there are no signs of more detailed action plans and measures certainly at a regional level or on the level of specific service industries.

Korea

Despite the service industry's substantial and increasing contribution to the national economy, government and private R&D investment has historically been focused on the manufacturing industry. Consequently, most public support for innovations has focused on the manufacturing innovation. However, recently the Korea government has moved its policy focus from manufacturing to service innovation, especially service related R&D.

At a strategic level, the Korean government has established various types of policies and measures to promote service innovation:

- Firstly, promoting service innovation by targeting new types of innovation actors, novel types of innovation activities and innovative business solutions;
- Secondly, to improve service innovation related competencies and capabilities;
- Thirdly, the promotion of markets and infrastructure as a driver of service innovation.

As a result a range of national programmes were designed and launched including:

- Service R&D Programmes;
- Service Customer Ideas Contest;
- Service R&D Project Competition;
- Service R&D Tax incentive;
- Service R&D Research Institute Certification;
- Service R&D Experiment Laboratory.

To address future service innovation policy needs, new policy measures are being developed by the Korean government while the National Science & Technology Commission (NSTC) is developing the 'Service R&D Mid & Long Term Plan' which will consolidate and embed the service R&D policy in national level.

United States

The 'Strategy for American Innovation', updated in February 2011 by the Obama Administration[11], was a significant step forward for innovation policy in the United States, focusing primarily on improving framework conditions for innovation, particularly those regarding the patent/intellectual property system; entrepreneurship; education; physical and digital infrastructure and regional cluster innovation policies.

11 http://www.whitehouse.gov/issues/economy/innovation

The Strategy includes, for the first time, specific policies to support innovation in four services sectors of the U.S. economy. Most of the focus in the Strategy is on services sectors directly touched by the government such as health care, education, and government. For example, the National Science Foundation (NSF) funds two programmes related to services science or services engineering although these focus primarily on health care. Recently, a programme called 'Service Systems' was launched in September 2013.

The Strategy sets out a vision based on a 'three-level innovation pyramid,' building up from policies that 'invest in the building blocks of American innovation' (e.g. R&D investment, education, infrastructure, and ICT policies); to 'promoting market-based innovation' (e.g. R&D tax credits, entrepreneurship, and IP rights); to 'catalysing breakthroughs for national priorities' (e.g. health care technology, clean energy, education technologies).

The Strategy also calls for the government to make stronger use of prizes, challenges grants, government procurement, and open data to spur innovation. For example, the Office of Science and Technology Policy's (OSTP's) Big Data Initiative is an effort to coordinate federal government programs that address the challenges of, and tap the opportunities afforded by, the big data revolution to advance agency missions and further scientific discovery.

Stakeholders involved in supporting service innovation include the Office of Science and Technology Policy, the National Science Foundation, the Department of Health and Human Services, the Federal Communications Commission, and the National Institute of Standards and Technology.

Private sector innovation centres and initiatives also promote service innovation in the United States including:

- IBM's Service Science Engineering, Management, and Design (SSMED) initiative, which seeks to make services science a formal academic discipline, and which has placed a services science curriculum into over 130 U.S. universities and some 500 worldwide;
- Another important player is the Services Research and Innovation Institute (SRII), an industry consortium which promotes research and innovation in IT-enabled services;
- innovation.challenge.gov is a one-stop shop where entrepreneurs and citizen solvers can find and compete for public-sector prizes. This initiative has featured nearly sixty challenges from more than twenty-five federal agencies.

2.4 Summary of key issues

Innovation in services and business processes differs significantly from more traditional and technologically oriented conceptions of the innovation process. It is characterised by a number of unique features, notably the embodiment of both technology and non-technology know-how, the multidisciplinary nature of research, and the co-productive nature of the innovation process.

Taken together these characteristics, alongside the fast pace of the marketplace, call for a new approach to public RD&I support. In this respect the promotion and prioritisation of innovation in services and business processes is still, very much, an evolving policy field although, globally, an increasing number of countries are becoming active in the field.

Countries investing in service innovation do so with the aim of solving, sometimes, quite different problems. In considering what type of service innovation policy tools to employ, governments need to define the rationale for their policy interventions since the various

instruments to foster service R&D and innovation do not all respond to the same policy rationale.

Typically, service innovation policy employs fairly conventional policy instruments. A bias towards technology development still creates a challenge for service innovation policy. In most countries, for example, only a limited number of innovation policy actors are actively engaged in service innovation policy. Bearing in mind the systemic nature of service innovation, this is a challenge that needs to be tackled in several countries.

The strengthening of service innovation is frequently seen as an end to a means in policy terms rather than an end in itself and can be seen in many countries.

Chapter 3: International comparator policy practices

Despite the activity around policy discussion and experimentation, in recent years, the active implementation of RD&I supports has, arguably, not moved ahead strongly. Indeed, recent research suggests that there are 'few European countries where service innovation promotion is taken care of by a wide front of key actors. Instead, it is often the case that only a few of the key actors are active in promoting service innovation policies'[12].

3.1 Introduction to the comparator policy cases

The following section provides short summaries of the comparator policy cases reviewed for the study.

The research was conducted across eight EU countries and involved literature review and analysis supplemented, in each case, by structured interviews with programme managers and, where appropriate and available, interviews with external stakeholders for the programmes. The cases were identified from existing sources such as the OECD's recent policy report on service R&D and Innovation[13] and work of the European Commission's EPIS group[14], as well as the knowledge of the authors.

The aim of conducting this review of comparator cases is to illuminate the rationale for the choice of the policy and implementation approaches; to consider the operating and delivery methods that have been implemented and to gather evidence on the funding models, stakeholders and the metrics and evaluation methods adopted.

The comparators are categorised according to four main areas of support:

- Business and applied RD&I – for example, grant funding;
- Cluster and networks – for example, start-up and facilitation support;
- Research – for example, research programmes and calls;
- Policy and strategy – for example, strategic statements and action plans.

They include examples of supports targeting business, researchers and the public sector (see chart 3):

[12] EPISIS (2012) 'Policy recommendations to Support service innovation', EPISIS Final Report / ProInno Paper no. 20. Available from: http://ec.europa.eu/enterprise/policies/innovation/files/proinno/episis-final-report_en.pdf

[13] OECD (2012) 'Policy report on service R&D and innovation', Working Party of National Experts on Science and Technology Indicators; and Working Party on Innovation and Technology Policy, Paris.

[14] EPISIS (2012)

Chart 3: Comparator Policy Case Studies selected for research

Comparator programme	Country	Programme type
SERVE	Finland	Business and applied RD&I support
General Programme	Austria	Business and applied RD&I support
Research premium	Austria	Business and applied RD&I support
Service Science Factory	Netherlands	Business and applied RD&I support
Innovations in Social & Healthcare Services	Finland	Business and applied RD&I support
Green Innovation Vouchers	EU	Business and applied RD&I support
Assisted Living Innovation Platform	UK	Cluster and network support
Financial Services Knowledge Transfer Network	UK	Cluster and network support
Future Industrial Services	Finland	Cluster and network support
NEKOÉ	France	Cluster and network support
Centre for service innovation	Norway	Research support
Innovation with Services	Germany	Research support
Industry-Science Research Alliance	Germany	Policy and strategy
Demand and User Driven Innovation Policy	Nordic	Policy and strategy

Summary details for each comparator are set out below.

Business and applied RD&I support

Serve – Pioneers of Service Business (Finland)

Serve encourages Finnish companies to become global forerunners as customer-centric, knowledge-based service businesses. Serve aims at the second wave of the service business, challenging traditional ways of doing things both at the strategic and the operational level.

Serve provides funding for research, development and innovation projects focusing on new service-based business ideas, including products, production processes and business models.

Its total budget is EUR 224 million, of which Tekes will contribute around one half. Serve also funds academic research focusing on services, and particularly service innovation.

In addition to funding, Serve helps participating companies and research institutes in the development of their service business competence.

The General Programme (Austria)

The General Programme is Austria's most important source of public funding for research and development activities carried out by industry. It promotes R&D in all economic sectors and branches, all areas of technology, and all sizes of companies.

In 2010 the Ministry of Economy, Family and Youth launched the Service Initiative for the development of innovative projects through services. The aims of the Service Initiative are:

- To raise awareness of R&D in and through services; and
- To attract and support service innovation projects - in particular projects from non-traditional sources and fields.

The General Programme provides funding by awarding businesses financial support for their R&D projects, plus information and awareness raising, and support for project development.

Research Premium (Austria)

The research premium is Austria's major instrument of indirect research promotion. Operating since 2002, it has been possible for businesses to apply for a research premium including for services innovation and R&D. The research premiums represent a direct transfer to a company's tax account, and is therefore classified as government funding.

Through a mix of direct and indirect research funding, the public sector finances 10.3 % of the total corporate sector R&D (8.4 % of the business sub-sector) making Austria a leader among comparable OECD countries.

The Service Science Factory (Netherlands)

The Service Science Factory (SSF) describes itself as 'an interdisciplinary think-tank and applied R&D laboratory for service innovation solutions'. The Service Science Factory integrates knowledge from students, academics and professionals to develop service concepts. It was founded by the School of Business and Economics at the University of Maastricht, as an initiative to provide added value to the University's research and teaching outputs through the completion of service innovation projects in collaboration with client businesses and organisations.

Service Science Factory is described as an 'innovative place' where students, researchers and professionals work in a 'pressure-cooker' environment on inventing new or improving existing services. It offers companies, government entities or different organizations the opportunity to present their problems to dedicated project teams and, after six to eight weeks, receive a working solution, typically, a complete service or at least a prototype service solution.

Innovations in social and healthcare services (Finland / Nordic)

The purpose of the programme is to renew health and social services and increase business opportunities through innovative activities. Leading principles include:

- User centric development;
- Cooperation;

- Renewal of operational practises;
- Sharing and utilization of good practices.

The programme provides RD&I funding, seminars and workshops, scoping reports on interesting foreign and Finnish topics, field trips to interesting locations and for networking purposes. These supports are targeting services development and novel ways to produce healthcare services.

The programme is managed by Tekes with support from Ministries and health sector stakeholders such as Ministry of Employment and the Economy, Ministry of Social Affairs and Health and National Institute for Health and Welfare.

Green Innovation Vouchers (EU, various countries)

The Green Innovation Voucher scheme formed part of a European Commission services innovation programme - KIS-PIMS, designed to 'drive' innovation in services associated with the production of renewable energy.

The Voucher scheme provided SMEs with access to knowledge-intensive services and expertise in the production of renewable energy. This policy goal was shared by the three country partners (France, Austria, Germany) and underpin common project objectives to:

- Improve the innovation support framework for environmental innovators;
- Deliver an SME-focused instrument that is small and flexible;
- Bridge the gap between available innovation know-how on the market and innovation knowledge of SMEs;
- Contribute to meeting green policy goals.

The Vouchers supported the development and market introduction of innovative renewable energy services. These were available for eligible activities associated with the planning, installation, maintenance and scrapping of renewable energy systems, such as biomass, hydro, solar or wind energy services.

Cluster and networks support

Assisted Living Innovation Platform (UK)

The Assisted Living Innovation Platform (ALIP) is a UK initiative designed to promote business innovation and the development of new technology based products and services for independent living and improvement in quality of life.

The priorities of ALIP are to transfer and share knowledge between different industry sectors, health and care professionals, and users through:

- Tailoring assisted living technologies and services to the needs of each user;
- Designing technologies and services that are desirable and affordable;
- Designing technologies and services that are interoperable and work anytime and anywhere.

ALIP combines targeted calls for technology development funding in priority areas, with an online 'community' network and events. The funding includes funding for both short term and long term R&D. In these areas funding is provided by the UK's Technology Strategy Board, in collaboration with other government agency partners.

Financial Services Knowledge Transfer Network (UK)

The Financial Services Knowledge Transfer Network (FSKTN) is an overarching UK network, launched under the auspices of the national Technology Strategy Board and the Economic and Social Research Council, designed to stimulate innovative development within the financial services sector through engaging the financial services industry with technology businesses and the expertise and knowledge of the UK research base. The FSKTN is guided by a Steering Board, comprised of industry, academic and Government experts and chaired by a senior industry figure.

Financial services is a key sector in the UK, and an important contributor to employment and the UK economy. The FSKTN was established to complement the UK's response to the financial crisis, by bringing a greater focus on technology, know-how and behaviours to address key challenges/opportunities in areas such as risk, value transparency and system efficiency.

The FSKTN provides a range of 'interface' services designed to facilitate development, knowledge-sharing and networking across the financial services sector, including informing policy, regulation and government strategy; networking; collaboration between academia and business and engaging technology vendors, SMEs and entrepreneurs to bring innovative products and services to the market

Fimecc FutIS – Future Industrial services – research programme (Finland)

The Fimecc FutIS research programme works through a network to enhance the service element within the Finnish engineering business sector. The purpose of the programme is to promote service-related breakthrough innovations to ensure the competitiveness, and long-term prospects, of the metals and engineering industry in Finland.

The programme is funded by TEKES[15], companies and research institutes and supports the investigation of future of industrial services in three major topics:

- The service business mind-set;
- Integrated service development;
- Efficient service operations.

It is based on close collaboration and it seeks to merge academic research with applications of innovations through a networked 'business ecosystem'.

The programme involves metal and engineering industry firms of different sizes and also other types of firms and drives them work together to promote purposeful benchmarking and knowledge sharing across industries.

NEKOÉ (France)

The Cluster ('Pole d'Excellence' in French) operates in the Centre Region of France. Its mission is to support the creation and development of innovations based on services. This includes support for service innovation projects, and new educational programmes alongside awareness raising, project development and project support services.

NEKOÉ brings together 60 partners from industry, the university sector and researchers as well as support agencies for innovation.

[15] TEKES is a publicly funded expert organisation for financing research, development and innovation in Finland

The rationale for NEKOÉ is the growing recognition that innovation is an important imperative for both service businesses and the industrial sector. To address this challenge NEKOÉ has developed three main objectives:

1. To encourage 'service science' in France with the aim of putting Orléans at the forefront of this topic;
2. To establish Orléans as a location of choice for large companies seeking support in services innovation projects;
3. To support SMEs in the region through services innovation.

The NEKOÉ Cluster is a fee paying membership body.

Research support

The Centre for Services Innovation (Norway/Nordic)

The Centre for Service Innovation (CSI) is a joint initiative coordinated by the Norwegian School of Economics (NHH) to increase the quality, efficiency, and commercial success of innovation activities at leading Norwegian service providers and enhance the innovation capabilities of its business and academic partners.

CSI's goal is to establish itself as a nationally and internationally recognized research centre, noted for its collaborative innovation projects and its academic originality. To achieve its goal, CSI is focusing on research within four main research themes, which also represent opportunities for service-driven value creation. These research themes include:

- Innovations in customer and brand experiences;
- Co-creation and open innovation processes;
- Business model innovations;
- Regulatory and structural innovations.

Innovation with Services (Germany)

Innovation with Services is a capacity building programme for research in the area of service innovation with committed funding of € 70 million over the next five years provided by the German Federal Ministry of Education and Research (BMBF). The aim is to promote the 'systematic development of new services'.

The programme enables the build-up of a research community across various disciplines as well as to establish the Service Engineering as an internationally known research area.

The Innovation with Services programme is subpart of the BMBF Thematic R&D programmes. The importance of individual thematic fields varies over time and is adjusted to technological developments and defined priorities. The overall aim of the Thematic R&D programmes is to direct both public and private R&D activities towards areas that are particularly important for the future technological performance and competitiveness of the German economy.

It is an example of a horizontal support, providing multidisciplinary research relevant to a broad range of sectors and technologies.

The main tool used across all Thematic Programmes is direct support of business R&D through grants and loans. Other policy priorities include Public Research Organisations and R&D cooperation, such as joint projects, and Public Private Partnerships (PPPs) with research institutes.

Specifically, the Innovation with Services programme supports activities such as innovation management; innovation in growth fields of the service economy as well as a strand of activity around the development of people working in service companies e.g. design of specialised services, and research into employment trends in a modern service economy.

Policy and strategy support

The Industry Science Research Alliance - ISRA (Germany)

ISRA is a central advisory board for the Federal Minister of Education and Research, addressing innovation policy as well as the implementation and advancement of the Federal Government's High-Tech Strategy[16] (HTS). The High-Tech Strategy aims to stimulate Germany's scientific and economic potential in a targeted way and find solutions to global and national challenges.

ISRA provides a mission-oriented approach to research and innovation. It consists of 28 high-ranking representatives from private enterprises, industry and science acting as field experts and as promoters.

A working group for the Future of Service Provision was convened in February 2013[17] to start building awareness and stimulate demand for innovative services and is a research-industry alliance that is also seeking to tackle social challenges.

Demand and user-driven innovation policy programme (Finland/Nordic)

The programme forms part of the implementation of the national innovation strategy of Finland, which aims to find new sources of competitive advantages for Finland in response to the ever-increasing global competition. It has expanded the scope of Finnish innovation policy by introducing a demand and user-driven perspective to the traditional supplier-driven innovation policy and created new opportunities for improving the competitiveness of enterprises and renewing public services.

The programme developed a demand and user-driven innovation policy framework and an action plan covering the action points that promote implementation of the policy in the private and public sectors.

Tekes has been a key funder of programme actions, mainly through increased demand and user-driven policy emphasis in existing and new programme and project funding. Other ministries and agencies have also introduced elements of the new policies in their policy programmes and actions.

[16] Ideas. Innovation. Prosperity. High-Tech Strategy 2020 for Germany. Federal Ministry of Education and Research, Bonn 2010

17 http://www.forschungsunion.de/aktivitaeten/index.html

3.2 Lessons from the international comparator policy cases

In drawing lessons from the 14 comparator policy cases it is clear that there are a number of challenges facing public supports for innovation and business processes. The major barrier identified is that innovation in services and business processes is a relatively new area of policy development. As a new area, the comparators faced challenges associated with the lack of understanding and awareness of the innovation in services concept.

The comparators further revealed that the existing policy context can act as a significant barrier to the development of new supports in innovation in services. This is associated with the dominance of more traditional forms of RD&I and the tendency for innovation in services to therefore be marginalised. This is also reflected in the lack of identifiable stakeholder groupings or networks that can help underpin the development of new policy measures.

These challenges and barriers require concerted action in a number of areas to both raise the profile of innovation in services and business process, and to develop practical support measures which meet the needs of business. The following section highlights the practical ways in which the comparators have addressed these challenges, and provides the basis for the subsequent analysis of implications for Irish policy and implementation.

Policy support for innovation in services and business processes

The review of comparators suggests that many of the supports reviewed exist within a supportive environment, based on a high level of policy acceptance. The acceptance and supportive environment appears to be particularly important because innovation in services is a relatively novel concept which is typically introduced alongside more established scientific and R&D focused supports.

Examples of policy acceptance identified include the following:

A clear services innovation strategy / action plan

For a number of the comparators, a clear strategic statement or action plan has provided support and encouragement for implementation agencies to develop and experiment with innovation in services supports. This is evident in the Finnish Demand and User Driven Innovation Policy statement and action plan, which is driving the introduction of new projects by organisations such as TEKES. Similar strategic statements are evident in France (Ministry of Employment's Action Plan for Innovation), and Germany (the Federal Government's HTS Five Global Challenges).

Organisational or individual championing

Organisational and / or individual championing of innovation in services is also seen to play an important role in providing a supportive context for services innovation. This was particularly evident in the way that key national organisations such as the Austrian Ministry of Economy, Finland's TEKES and the UK's Technology Strategy Board all provide supports for innovation in services and business processes. These examples illustrate how leadership from a key agency responsible for economic development / innovation can help give rise to the development of wider activity.

Alignment to a pre-established support

Further support can be provided by adding services innovation support elements to existing 'lead' programmes or projects. For example, the presence of a 'lead project' is illustrated in the Austrian General programme for business R&D, which has added a 'Service Initiative' strand to its more traditional R&D funding, and the German 'Innovation with Services'

research programme, which is aligned to an existing funding programme. Other examples include the French NEKOE project (part of the national Competitiveness Cluster programme), and the UK Assisted Living Innovation Platform (part of the TSB's Innovation Platform project).

Focus on a sector or technological theme

Policy acceptance is further provided by close alignment with a particular sector or technological challenge. For example, building support for innovation in services on the needs of a sector or challenge, can reduce the novelty and complexity of 'services innovation', allowing for more immediate acceptance. This approach is evident in a range of the comparators adopting a 'horizontal' approach, notably the UK's FSKTN (financial services), ALIP (assisted living),) Finland's Innovations in Health Services and Future Industrial Services (engineering and metals), and the Green Innovation Voucher programme (renewable energy services).

Developing multiple strands of support through innovation platforms

The notion of the innovation platform is already well-established in the field of public support for innovation, providing the basis for engaging with a range of business, research and government actors over time and implementing flexible strands of support in areas such as networking/awareness raising, research and applied R&D, exploitation support and so on.

Among the comparator cases this approach is most clearly illustrated by the UK's national Assisted Living Innovation Platform (ALIP). This platform addresses a strategic grand challenge (the ageing population) in the UK bringing together a range of funding organisations (led by the TSB) to promote networking, organise calls for short-term and long-term research and provide advice for government.

At the regional level, the NEKOE cluster in France is a further example of an innovation platform, with its focus on building a fee-paying membership base alongside income streams from other public agencies (EU, local development), delivering advice and support for services innovation projects, and promoting the wider development of the service science discipline.

The concept of the innovation platform can also provide the basis for iterative development and policy learning to be embedded within a support initiative. For example, the Austrian General Programme, while not a full platform, illustrates how policy learning can lead to the amendment to or addition to an existing programme based on experience; in the Austrian case the addition of a service innovation voucher element to its technological RD&I supports. This allows the capturing of lessons and the adaptation of the support to needs over a period of time and can also potentially limit the danger that this may 'confuse' the policy landscape for businesses, researchers and so on.

Taken together the main lesson is that a supportive policy environment for innovation in services and business processes is a vital element to launching new supports. To achieve this the comparator cases studied demonstrate a number of important practical areas where implementation may focus:

Supporting multidisciplinary research

Promoting innovation in services and business process research will typically require multidisciplinary research from diverse areas such as ICT, social and behavioural sciences. This is a potential challenge faced by all of the comparators reviewed, as cross disciplinary research requires researchers to develop common ways of communicating and integrating

different research approaches and data. Such problems can be associated with both disciplinary and geographical 'distance'.

Despite the challenges the comparator practices demonstrate that developing appropriate incentives and mechanisms are important. With respect to incentives the provision of research and innovation grant funding is an important driver of research, and a common measure of success for academic departments. This featured for most of the support programmes reviewed, and was notably evident in models such as the Austrian General Programme, SERVE, Innovation with Services and so on. In all these cases, the provision of research funding is complemented by a clear specification of the intended research objectives, and an explicit requirement for researchers to collaborate across disciplines.

While providing researchers with a clear specification is an important necessary feature of the comparator cases reviewed, equally important is the provision of appropriate fora and mechanisms to interact and build the necessary cross disciplinary research partnerships. The innovation platform model established by the UK's ALIP and the Financial Services KTN are both examples which highlight the importance of such features in building networks, communicating strategic priorities, and funding researchers and companies to work together on challenges.

Other responses can be seen in the SERVE programme's emphasis on supporting services innovation linkages between Finnish and international research groups and companies through mechanisms such as study visits and seminars. A similar approach can be seen in the establishment of a research centre with a specific focus on innovation in services - Nordic Centre for Service Innovation. This research centre is a joint effort between a number of academic institutes (economics and business administration, and architecture and design) in Norway and other Nordic countries, The Centre addresses the challenge of building a strong multidisciplinary approach by drawing together researchers into a single body. The close physical proximity of researchers within the Centre further allows for new project ideas to develop from shared understanding.

The key lessons for supporting research in innovation in services and business processes relate to the importance of policy and supports to communicate the overall objectives of the intervention, and to provide incentives and fora for researchers and businesses to work across disciplines.

Promoting awareness and education

As a relatively new concept, support measures for innovation in services and business processes face the challenge of ensuring business and researchers understand the type of support on offer, and the type of project proposals that are sought. This challenge is faced by all the comparators, and a key response has been to focus on promoting awareness and education.

The experience of the General Programme in Austria highlights the limited awareness that many businesses have of innovation in services, and their lack of association between terms such as RD&I and service innovation. This comparator provides an information centre, and a dedicated 'advocacy team' to meet with companies and to support new innovation in services projects. Other examples include the SERVE programme which has consistently sought to raise awareness through a range of mechanisms supported an ongoing series of seminars, 'brunches' for industry, knowledge intensive businesses, real estate, commerce, logistics and finance to interact and share good practices. The SERVE example, in particular, points to awareness raising as a long term challenge, which cannot be 'solved' by short term actions.

A slightly different and more strategic approach to raising awareness is illustrated by the Nordic Demand and User Driven policy, managed by the Ministry of Employment and Economy. In this case the programme forms part of the implementation of a national innovation strategy in Finland. This experience points to the importance of gaining widespread stakeholder engagement in the implementation of a range of actions and adoption of the principles of demand and user driven support within existing activities. Conversely, the NEKOE cluster illustrates the challenge of trying to achieve possibly overly ambitious targets (for example, 'encouraging services science in France…') when funding and stakeholder engagement is primarily constrained to regional level partners.

In many of the comparators, an important goal for awareness raising with respect to RD&I is to contribute towards longer term 'capacity building'. This is particularly important given the novelty of the concept, and is clearly illustrated in the response of the German research agency, BMBF, where the 'Innovation with Services' research programme was originally conceived as a five year, €70m, capacity building programme aimed at building a multidisciplinary research community and systematic development of new services.

At a practical level, awareness raising activity can be crucial to the related challenge of creating sufficient demand for a programme. Lack of explicit demand has affected a number of comparators, limiting both the potential impact of schemes such as the Green Innovation Vouchers as well as jeopardising their longer term sustainability.

The experience of the Netherlands Service Science Factory further highlights this challenge, in terms of the need, in a self-funded programme, to acquire sufficient business-paid projects to ensure the sustainability of the centre. This is compounded in the academic environment in which the Science Service Factory resides where, according to traditional research funding metrics (publications, conference papers etc.), there are limited incentives encouraging academics to engage in applied research projects.

The main lessons that can be drawn on awareness raising is that this should be seen as a means to an end, rather than an end in its own right. In this respect, awareness raising and education should be integral elements of policy and support development in this area, supported by a long term commitment to building capacity and helping to encourage sufficient good quality demand for RD&I supports.

Involving the end user

The importance of the end-user and customer in innovation and services projects is highlighted as an important feature in innovation in services studies. While no explicit challenges or problems were identified by the comparators in engaging end users, the cases highlight a range of ways in which this feature has been addressed.

At the policy level, the Finnish Demand and User Driven policy programme sets out a broad action plan to raise awareness, empower citizens to choose services that better meet health needs, and the establishment of Living Labs. The concept includes a number of approaches to involve the end user in open forms of innovation, including the establishment of a living lab network, prioritising user centred research, and focusing TEKES research programmes towards 'demand driven business opportunities emerging from societal challenges'. These initiatives involve the end user in RD&I activities through opportunities to contribute towards co-creation activities and contribute ideas and 'needs' for researchers to develop solutions.

The Netherland's Service Science Factory is a research centre-based approach to engaging end users. This operates on a 'hot house' basis, allowing students, researchers and professionals to work on innovating new services and improving existing services through

innovation, with customers included at all stages to gain ownership and value of the work undertaken. This level of customer participation matches that of other models with direct involvement in the innovation process; for example, the co-creation strand of the Norwegian Centre for Services Innovations.

Ensuring that programmes recognise the important insights that can be gained from end users, and to provide sufficient opportunities for joint interaction throughout the RD&I process are valuable lessons from these comparators.

Identifying appropriate target groups

In targeting supports for innovation in services and business processes identifying the most appropriate target is a key challenge. This is particularly relevant to countries seeking to launch new supports and to more effectively target resources.

The majority (circa 10 of the 14) of the comparator practices are horizontal initiatives, providing support across a broad range of sectors and themes. While these comparator cases do not represent the full range of practices in place globally, they do illustrate a potentially straightforward way in which countries can begin to support innovation in services. As all sectors / themes are included, such an approach can help to maximise potential demand and provide the basis for launching new supports and learning lessons.

A more targeted approach, on the other hand, is most evident in the UK and Finnish examples.

Finland has a long history of developing supports for innovation in services, and has also experimented with more horizontal supports such as SERVE. While the UK examples also have a relatively long history, this has evolved from grand challenges and key sector prioritisation set by a national innovation agency (Technology Strategy Board) rather than evolving from a services innovation perspective. Here, therefore, innovation in services and business processes is seen as a means of achieving a policy or societal objective rather than an end in itself.

The main lessons are that horizontal and targeted approaches to supporting innovation in services and business processes are equally valid, and to a certain extent both required. Indeed, a robust policy approach will require efforts to maximising demand and target support on important challenges and issues.

Funding mechanisms

The comparators provide evidence of a diverse range of funding models and examples, including elements of private funding. These include:

- **Financial subsidy** – typically, grants, vouchers, tax credits or tax premiums paid to or claimed by businesses against an agreed formula or percentage of the cost of an innovation project. In the case of a tax credit this is returned through the corporate tax system based on eligibility of the expenditure as R&D;
- **Shared cost research** – usually, a commitment by a national research funder to 'match', to some extent, the value of the research budget being contributed by other partners or beneficiaries. The national research funder may be directly involved in the research area or may simply fund on the basis of agreed criteria and parameters such as the research project being in a grand challenge or other sector priority area;
- **Research calls** – a broadly competitive funding process where a research body with funding to allocate against desired objectives and priority research areas, will invite

projects and proposals usually from the research community, although with the involvement of research users and consumers as an increasingly important criteria;

- **Research programme** – a medium to long term commitment to fund research against wider policy objectives including 'grand challenges' or to achieve national research targets for capacity, capability or excellence.

Of these models, the comparator cases indicate that where applied RD&I is being conducted, for example, the Service Science Factory, companies are generally required to contribute towards project costs or to produce a voucher, as in the Green Innovation Voucher scheme and as required under regulations such as EU State Aid.

Higher education research costs, however, are typically included within funding mechanisms such as research calls and research programmes so that effectively a significant degree of core research funding is already allocated to the achievement of research objectives. The specific funding stream agreed for the innovation in services activity is therefore frequently additional.

The comparators also highlight the importance of agility in funding models. As noted earlier, the platform approach points towards the ability for RD&I supports to target and adapt flexibly to new challenges or needs over time, through new research calls, network events and so on.

While the comparators do not reveal any specific 'silver bullet' lessons in relation to particular mechanisms, they do point to the need for a range of funding mechanisms to support innovation in services and business processes.

Evaluation processes

Innovation in services, in contrast with more traditional technological approaches to R&D led activities, has yet to see any significant new departures to the measurement of outcomes and impacts. The public supports for innovation and services reviewed in this study illustrate well this challenge and highlight a number of, mostly activity or output related, ways in which it is being addressed.

The main approaches that the comparator cases have adopted are built around activity or volume metrics, for example, the number of grants allocated, workshops held and so on. There are very few examples where metrics related to the impact of a support intervention for innovation in services and business processes, and even those that exist remain closely related to those that are used in more traditional RD&I supports, for example:

- Service innovation projects launched;
- Knowledge intensive services launched;
- Technical objectives achieved;
- New services developed / improved;
- New service revenues generated;
- Additionality of the project;
- Peer reviewed research publications.

Alongside these 'hard' services innovation metrics amongst the comparator cases there are a number of examples where less tangible or non-economic metrics have been deployed, for example:

- learning experience (Netherland's Service Science Factory);
- awareness raising events (various examples);
- health benefits (the UK's ALIP);
- developments in the service culture (Finland's Future Industrial Services).

In several examples, research is being undertaken to develop new metrics for innovation in services. The Finnish Demand and User Driven Policy incorporates an assessment of indicators how 'broad-based' innovation activity could be developed. The European Service Innovation Centre is also due to publish a European Service Innovation Scoreboard in late 2013[18]. The detailed work being conducted by the ESIC is indicative of the extent to which the challenge of developing appropriate metrics with which to assess the success and impact of service innovation policy and supports is engaging experts from across the EU. A recent expert workshop held in Belfast was devoted to this single question using a high level conceptual model to focus attention on measuring the 'transformative power' of service innovation.

The comparator cases also demonstrate the use of a range of different evaluation models, including standard ex-ante, mid-term and final evaluations. These, again, are examples of good programme management and monitoring for all publicly supported programmes, and help to understand effectiveness, efficiency and economy of investment.

The lessons for this area are that complementing traditional RD&I metrics for new service developments, additional RD&I and so on, with more softer and experimental measures designed to capture the success of new supports in changing attitudes towards innovation in services and businesses will be necessary for any new policies in this area. Measuring success will therefore need to reflect the precise objectives established for new supports, and to be captured on a regular basis to allow for learning and adjustment of policies.

Educational requirements

Promoting education and skills in the area of service innovation are an important concern for the comparative cases reviewed in this study and demonstrate their recognition that to address innovation in services new skills are required.

The comparators illustrate a number of approaches. The Netherland's Service Science Factory, for example, has established a range of well received masters and doctoral courses on services innovation, covering topics such service innovation characteristics and challenges at the industry and policy level, methodologies and so on. The NEKOE cluster has also developed training activities for business in services innovation. These courses provide an insight into tools and methods for innovation in services, and are available to business and organisation members.

The main lesson from the comparators are that while innovation in services has yet to reach the status of a discipline in education, training or research, the emphasis of the comparator cases has been one of developing researcher 'soft skills' in relation to collaboration with businesses, public bodies and service users as well as seeing innovation in services as a concrete means of fostering cross-disciplinary working. Such cross-cutting skills and working are not, in the majority of cases being taught in a pedagogical sense, but are being encouraged by supporting researchers, businesses and other end users to work together in new ways and contexts.

[18] http://ec.europa.eu/enterprise/initiatives/esic/scoreboard/index_en.htm

3.3 Summary of key issues

The review of current comparative practices in public support for innovation in services and business processes tells us that while the comparator experiences remain relatively less developed than those available for more mainstream RD&I supports, there is sufficient emerging practice available for Ireland to learn lessons in key areas.

Clearly, the evidence presented in this chapter does not point to the existence of a single good practice approach to supporting innovation in services. Rather the comparators demonstrate that the need to develop an integrated portfolio of supports across key areas such as business and applied RD&I, cluster/networks, research programmes and supportive policy statements. They also illustrate the importance of viewing innovation in services as an enabler of transformation, through its focus on addressing important social, economic and environmental challenges.

The comparators reveal that to implement policy and supports for innovation in services and business processes a number of clear challenges will need to be addressed. This will require responses which:

- Build a supportive policy context for innovation in services and business practices, characterised by high level policy statements, organisational or individual championing, in alignment to pre-existing supports, sector or technological focus;
- Engage with stakeholders to develop multiple strands of support through portfolio or platform approach – allowing for the flexible and iterative development of supports with strong stakeholder participation;
- Support multidisciplinary research based on clearly established objectives, requirements and incentives to collaborate across disciplines;
- Promote awareness and education by embedding it as an integral part of policy and supports, and underpinned by a long term capacity building commitment;
- Adopt a strong focus on the customer through support for understanding customer expectations, facilitating co-development through customer participation;
- Identify target groups and funding mechanisms for a mix of horizontal and targeted policy and supports;
- Create accurate metrics, through the use of a mixed 'basket' of traditional and less traditional metrics, alongside a robust evaluation process;
- Promote innovation in services skills development in areas such as innovation in services design and methods, interdisciplinary working and new ways of interacting with end users and customers.

Chapter 4: Support for innovation in services and business processes in Ireland

Ireland has actively contributed to the development of policy for innovation in services and business processes not only at a national level but also at a global level. This has primarily driven by the work of Forfás, alongside experimentation at the agency (EI and IDA) level and has seen Ireland participate in a number of relevant EU projects, including the EPISIS policy learning platform for services innovation.

In addition to policy development, there is also evidence of innovation in services activity and adoption within Ireland's public service and its multinational sector. It is the current work of the Research Prioritisation Group, however, that is providing further impetus to the desire to strengthen Ireland's response to RD&I in public support for innovation in services and business processes.

The following section of the report examines recent policy and implementation activity for innovation in services and business processes in Ireland.

4.1 Irish policy development and implementation support

Innovation policy in Ireland, as it has in most other countries, has traditionally focused on scientific and technological innovation. This has been expressed in key documents such as the Strategy for Science Technology and Innovation (2006-2013), and reflected in many of the support measures established for R&D. Within this context, the implementation of innovation support has tended to underplay key dimensions of innovation in services such as new business models, customer interfaces and service product development[19].

While the traditional RD&I supports have focused on scientific and technological innovation, policy makers in Ireland have for a number of years explored the role and potential for supporting innovation in services and business processes. This has been expressed in a number of related conceptual and scoping studies published by Forfás in the 2006-2008 period. These studies were closely followed by the creation of an Expert Services Group, and the publication of Ireland's Service Strategy 'Catching the Wave' in 2008[20].

Recent innovation policy in Ireland has begun to respond to the growing importance of services innovation[21]. In this respect, while Ireland has not sought to develop its own services innovation strategy per se, the concept of services innovation, alongside product and process innovation has been reflected in a call for a broader conception of innovation, as embedded in the recent 'Innovation Taskforce' report (2010)[22]. This report highlights the multidimensional nature of the innovation process and the importance of factors such as design, business processes, organisational design, informal R&D and so on.

19 Forfás (2006) 'Services Innovation in Ireland – Options for Innovation Policy', Available from: http://www.forfas.ie/media/forfas060928_services_innovation_full_report.pdf

20 Forfás (2008) 'A Services Strategy for Ireland: Catching the Wave, Report of the Services Strategy Group', Available from: http://www.forfas.ie/media/forfas080912_services_strategy.pdf

21 Lynch, P.; Power, J.; Hussey, J. and Blommerde, T. (2013) 'Reimagining Ireland's innovation landscape to realise the potential of service innovation', Competitive Paper.

22 Innovation Taskforce (2010) 'Innovation Ireland Report of the Innovation Taskforce', Available from: http://www.taoiseach.gov.ie/eng/Innovation_Taskforce/Report_of_the_Innovation_Taskforce.pdf

The National Research Prioritisation Exercise (2012) has given further impetus to RD&I in innovation in services and business processes, and has provided the Terms of Reference for this study. The full list of research areas is set out in Chart 4 below.

Chart 4: Irish Research Priorities established by the Research Prioritisation exercise

A. Future Networks and Communications
B. Data Analytics Management, Security and Privacy
C Digital Platforms, Content and Applications
D. Connected Health and Independent Living
E. Medical Devices
F. Diagnostics
G. Therapeutics – Synthesis, Formulation, Processing and Drug Delivery
H. Food for Health
I. Sustainable Food Production and Processing
J. Marine Renewable Energy
K. Smart Grids and Smart Cities
L. Manufacturing Competitiveness
M. Processing Technologies and Novel Materials
N. Innovation in Services and Business Processes

In responding to the policy agenda set out above Ireland's development agencies have begun to explore their offer for innovation in services and business processes. This has included experimentation with the design and development of new services innovation supports.

Despite this activity, there remains relatively limited access to practical RD&I supports for innovation in services and business processes in Ireland. For many of the traditional RD&I supports for business there is also anecdotal evidence that eligibility and application criteria can often act as a barrier to innovation and business process projects.

Enterprise Ireland (EI) is responsible for the development and promotion of the indigenous business sector. Its core RD&I supports include R&D funding, Innovation Vouchers and Innovation Partnerships, and Technology Centres. Of this supports the Innovation Vouchers scheme is most closely aligned to the innovation in services and business processes theme, with its eligibility conditions referencing core characteristics of innovation in services projects – business model innovation, customer interface and so on. There are also a number of centres which have synergies with the services innovation agenda, including:

- Technology Centres - Innovation Value Institute, NUIM; Connected Health, Nexus UCD; The Irish Centre for Cloud Computing and Commerce (funded jointly with IDA);
- Technology Gateway Programme - Command, Athlone IoT and the Mobile Services; Technology Gateway at Waterford IoT.

Outside of these examples, however, there is limited evidence of direct support for innovation in services through EI's conventional RD&I supports.

In EI's Software and International Traded Services division support has been developed for sectors such as financial, outsourcing and ICT services, including workshops activities to raise

the profile of innovation in services. This division has also worked in partnership with other parts of EI and the IDA in the creation of Technology Centres, as noted above.

IDA Ireland is responsible for inward investment promotion and has also examined the topic of innovation in services. This forms part of its ongoing efforts to tailor its offer to potential clients. The IDA's most recent Corporate Strategy[23] highlights the growing focus that it intends to give to services innovation projects as an inward investment target. Within this the 'servitisation' of companies is seen as a driver of new employment opportunities in Ireland.

In recent years the IDA has supported a number of corporate innovation centres related to the services sectors, for example, the CitiBank and Merrill Lynch R&D Centres[24], and the Accenture Analytics Innovation Centre[25]. IDA has also participated in the development of Technology Centres alongside other partners (as discussed above) and has also developed a number of training sessions for its advisors to raise awareness of the services innovation topic.

The Agency's offer to businesses in the area of 'Content, Consumer and Business Services' is an area where innovation in services is thought to have particular relevance. Here the Agency has sought to explore the integral nature of services in the growing digital economy, and the importance of factors such as understanding customer expectations. This has included participation in the Shared Services Group established by a number of multinationals in Ireland, and chaired by Accenture.

In addition to the RD&I support available through EI and IDA, businesses are able to access the Irish R&D Tax Credit scheme, administered by *The Office of the Revenue Commissioners*. This scheme is promoted by both EI and IDA, and is available to businesses undertaking expenditure on certain research and development. These areas, however, exclude research in key areas for innovation in services, such as social science (business management, economics and behavioural sciences).

Science Foundation Ireland funds scientific research in three broad areas: Biotechnology, Information and communications technology (ICT) and Sustainable energy and energy-efficient technologies. These technologies represent important enabling technologies and provide the basis for successful innovation in a range of different sectors. SFI Ireland has published a number of calls for proposals in the area of the research priority themes (including SFI Research Centres), and is currently considering its response to the services innovation and business processes theme.

The *Health Research Board* (HRB) funds research in the health sector. While its main focus has been on biomedical research, it has recently begun to support funding for the development of new processes in 'population and health services research'. This has a focus on improving and innovating the delivery and impact of health services. Given the relatively novelty of the subject area HRB have begun by focusing on capacity building, with a broad programme of funding in areas such collaborative PhDs, post-doctoral research. This activity represents a comprehensive change for the sector, and was supported by extensive consultation and preparatory research.

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23 http://www.idaireland.com/news-media/publications/library-publications/ida-ireland-publications/IDA-Ireland-Strategy-2020.pdf

24 http://www.djei.ie/publications/science/2012/research_prioritisation.pdf

25 http://www.accenture.com/ie-en/Pages/service-accenture-analytics-innovation-centre-dublin-ireland.aspx

The *Irish Research Council* has also supported research in the area of innovation in services. While it does not have a specific programme dedicated to this topic, it has funded a number of studies including 'New Ideas' research projects undertaken on policy for services innovation (see RIKON below).

While the main focus of policy development and experimentation has taken place at the national level in Ireland, there is also evidence of innovation in services and business processes being implemented through practical supports for business. Two of the more prominent examples of RD&I support include:

Rikon[26] is perhaps is one of the few horizontal supports available in Ireland that is directly supporting services innovation. This initiative, part of the Waterford Institute of Technology (IoT) undertakes academic research, education/teaching, applied R&D and consultancy support for SMEs across Ireland. The Centre houses a multidisciplinary team of staff, with expertise in areas such as innovation, languages, HR, IT, Marketing, Management, Psychology and social science. Alongside its academic research the Centre works with a wide range of services and manufacturing businesses. Rikon has also recently launched Ireland's first higher diploma in Service Design and Innovation.

Many of its projects are funded by the mainstream EI Innovation Voucher scheme and there have also been discussions with EI regarding the potential for service innovation related applications to the Innovation Partnership Programme. However, it is noted by Rikon that services innovation projects do not always lend themselves to the requirements of such programmes.

The *Innovation Value Institute (IVI)*[27] is a further example of applied research support for business in Ireland to innovate in services and business processes. Based at National University of Ireland, Maynooth, (NUIM) the centre is focused on collaborative, open innovation research between industry, academia, government, and users of technology. The underlying research theme is about improving business and organizational performance through improved IT capability. The centre effectively takes a service innovative approach to its research by placing the user (individual or organization) at the centre of all research initiatives. The centre draws on a multi-disciplined team pulling in researchers and practitioners from a range of professional and academic fields, thus enabling the centre to respond rapidly to requests for funded applied research.

One of IVI's core research competencies is in the development of capability maturity frameworks; many of which are designed to help organizations develop / improve their ability to sense and respond to changes in an increasingly dynamic marketplace. The capabilities collectively reside within the IT Capability Maturity Framework (IT-CMF). However, there are some that directly influence how an organization develops its service innovation posture.

Examples of these capabilities include:

- Innovation Management;
- Service Management;
- Risk Management;
- Benefits Assessment and Realisation.

[26] http://www.rikon.ie/

[27] http://ivi.nuim.ie/

- User Experience Design
- People Asset Management
- Knowledge Asset Management

Although the IVI is a research centre within NUIM, it is also one of the EI/IDA supported Technology Centres, and, as such, provides a range of educational (Academic and professional) and R&D services.

The two regional assemblies in Ireland – the **Border, Midland and West Regional Assembly**, and the **South and East Regional Assembly** have recently collaborated on an EU Interreg project examining opportunities for supporting the role of Knowledge Intensive Business Services as drivers of growth and innovative development[28].

Both subsequently participated in the development of a KIS portal (www.kis4smes.com) to provide better access information on KIS providers, as well as opportunities for collaboration with potential partners. The portal currently includes details of more than 30 knowledge intensive services providers in Ireland, principally in the area of ICT, R&D and management services. It should be noted, however, that the focus of this project has not been innovation in services *per se*, but to understand and support the role of knowledge-based services companies to innovation.

4.3 The Irish business context

The Irish economy is home to a wide range of multinational businesses, many of which are at the forefront of responding to global and national challenges through innovation in services. Ireland benefits from the large presence of businesses from the internet and digital economy sector, where a combination of technical expertise and the ability to capture customer experiences (for example, behaviour analysis) are important. In this respect Ireland has sought to provide an offer which is aligned to the needs of emerging business models and important trends such as big data, P2P networks, and customisation and personalisation.

Research in Ireland also highlighted the importance of innovation in services to the SME sector. Here research by RIKON suggests that, while SMEs face particular capability and capacity challenges due to their size, scope and funding, innovation in services can make an important contribution to their success and growth prospects. Furthermore, supports such as RIKON and IVI illustrate that while there is demand from SME and larger companies for support measures that are adapted to the needs of innovation in services and business processes, raising awareness is an important requirement.

To further explore the potential needs of business for public RD&I support for innovation in services, a short snapshot survey was conducted with 42 companies (see Appendix I for further details of the business sample and approach adopted).

Given the relative novelty of the concept of innovation in services, and the 'fuzzy nature' of the concepts[29] the results of this survey should be treated as providing a 'signpost' towards some of the key needs and issues for the business sector in Ireland.

The survey first sought to establish the importance of innovation to growth and development of the companies.

28 http://www.atlantkis.eu/en/index.php

29 Gallouj, F. and Weinstein, O. (1997) 'Innovation in services', Research Policy. 26(4-5), pp. 537-556.

Chart 5: How important is innovation in the following areas, to the growth and development of your Company?

Answer Options	Very high	High	Medium	Low	Very low	N/A	Rating Average
Customer interaction	19	12	2	0	0	1	4.52
Business model	11	15	7	0	0	1	4.12
Products	17	7	3	0	0	5	4.52
Services	16	6	7	1	0	1	4.23
Processes, e.g. Supply chain optimisation	7	10	5	5	1	3	3.61
Other	0	2	0	1	0	5	3.33

The results indicate that the companies rate customer interaction, business model and both product and service innovation as having high to very high importance for growth and development. Relatively lower importance ratings were applied to business processes (e.g. supply chain optimisation), however, it should be noted that both this (and 'other' forms of innovation) were still ranked positively (medium to high).

These results indicate that, in broad terms, the sample of companies in this survey recognise the importance of innovation in services to their own businesses.

The extent to which companies agreed with a series of statements regarding innovation in services and business processes also formed part of the survey (See Chart 6). This question provided the company respondents with five possible statements.

Chart 6: To what extent do you agree or disagree with the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A	Rating Average
A strong understanding of consumer behaviour is essential when my Company is innovating in services and business processes	18	9	2	0	0	3	4.55
Working with customers and end-users directly to develop new or improved services is essential in helping us to innovate in services and business processes	17	10	3	0	0	2	4.47
To innovate in services and business processes my Company must successfully apply technology and ICT solutions	13	12	3	1	0	2	4.28

My Company is concerned that it is unable to effectively protect its IP and innovation in services limiting our innovation activity	0	3	9	9	8	3	**2.24**
Innovation in services and business processes is more difficult than innovation in products because the risks and rewards are not as well defined or/and are harder to monetise	2	13	7	5	2	2	**3.28**

The results suggest that the companies were most positive (in their agreement) on the role of customers/end-users in their innovation activities. This included strong levels of agreement that end users play an important contributory role in working with the business to innovate, as well as the importance of understanding customer behaviour when innovating.

Of the other statements, companies did not agree that they were unable to effectively protect their IP and innovation in services. The companies in the sample were broadly neutral (neither agreed nor disagreed) that innovation in services and business processes is more difficult than innovation in projects due to unclear risks and rewards.

These results seem to indicate that the companies demonstrated positive attitudes towards key dimensions of innovation in services and business processes.

The survey also assessed drivers to investment in innovation in services and business processes (see chart 7). Here, the companies were asked to identify whether a series of conditions identified would encourage them to be more innovative in this area.

Chart 7: Would your Company invest more in research, development and innovation in services and business process if:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A	Rating Average
We had a clearer understanding of how such innovations can improve our performance and profitability	5	16	6	2	0	2	3.83
We had greater clarity of the support that is available to our Company in Ireland to innovate in this way	5	17	6	1	0	2	3.90
We were able to more effectively partner /collaborate with universities and researchers in Ireland	4	13	7	4	1	2	3.52

We were able to more effectively partner /collaborate with other companies in Ireland	3	10	8	6	1	2	3.29
Other	0	2	1	1	0	6	3.25

The results obtained suggest that there was agreement that an understanding of how innovation in services and business processes can improve performance and profitability and greater clarity regarding the support available would help support investment decisions. The companies also agree that they would be likely to invest more in R&D if they were able to more effectively partner with universities and researchers in Ireland. Being able to partner and collaborate with other companies in Ireland, when innovating in services, was not however, rated as highly.

One other company commented that access to international collaborative opportunities may encourage it to invest further in innovation in services and business processes.

The environment for research and innovation in services was also explored in the survey. Here the companies were asked about the elements necessary to create a competitive environment for research and innovation in services and business processes (See chart 8).

The results suggest that tax credits/innovation vouchers; ease of access to knowledge transferred out of universities; and availability of superfast broadband were rated highest. This highlights the importance of infrastructure, knowledge and financial support to businesses innovating in this area.

Of the other factors rated most highly, '*public support mechanisms that take account of the reality of innovation in services and business processes'* were also rated highly by the companies. While none of the element choices provided in the survey were deemed 'not necessary' (by all but a small number of respondents), flexibility in regulation; strategic targeted investments; and access to services and business process 'hubs' and demonstrators were ranked relatively lower.

Chart 8: What elements are necessary to create a more competitive environment for research and innovation in services and business processes in Ireland?

	Essential	Necessary	Desirable	Not necessary	Rating Average
Tax credits and/or Innovation vouchers	17	10	3	1	**2.39**
Ease of access to knowledge transferred out of Universities etc.	12	11	7	1	**2.10**
Availability of Superfast broadband	17	7	4	3	**2.23**
Access to Services and Business process innovation 'hubs' and demonstrators	4	14	10	2	**1.67**
Flexibility in regulation including better IP protections	4	12	12	3	**1.55**

Strategic, targeted investments and support in selected topics/challenges	6	18	7	0	**1.97**
Public support mechanisms that take account of the reality of innovation in services and business processes	12	10	7	0	**2.17**
Other (please specify)	1	2	1	2	**1.33**

Awareness of supports was also examined in the survey, with companies asked to indicate whether they were aware of any public RD&I supports for innovation in services.

The results suggest that more than half (52%) indicated they were aware of supports. Examples of supports mentioned included Innovation Vouchers / R&D grants and R&D tax credits.

It was also suggested by one company that such mainstream supports may not necessarily be adapted to all services innovation project requirements.

> *'Some state incentives such as the current R&D Tax Credit scheme appear to be far too rigidly biased towards a purely academic interpretation of research and development. This does not reflect the reality of modern day R&D in the financial services sector which more often than not is market driven and rightly so in our opinion. Why else should Irish companies pursue R&D other than for commercial advantage to fulfil unmet market needs in the context of their evolving business domains? We {the company} would be interested in engaging with third level sector provided there is clear shared objective of developing IP that can be exploited commercially. Such partnerships can benefit both parties.'*

In addition to exploring awareness of existing supports companies were asked to indicate where they would require further support to innovate in services and business processes (see chart 9 below).

Chart 9. What support would your Company require to further innovate in its services and business processes?

	Response Percent	**Response Count**
Information and advice on innovation in services and business processes	59%	17
Financial support to conduct innovation in services and business process projects	86%	25
Access to university or institute of technology research	41%	12
Skills	41%	12
Availability of networks	38%	11
Other (please specify)		3

The results indicate that financial support for R&D, and information and advice were identified by the greatest proportion of respondents. This was expressed by one company as follows:

> *'{The} main item is availability of cash flow finance to fund research innovation which is upfront money with a return some years down the road if successful. Thus {the} main difficulty is securing the funds to do this'.*

In addition to RD&I financial support, a second group of support requirements included access to university or institute of technology, skills and networks.

These group of results are, to some extent, not entirely consistent with the earlier answers given (see chart 7), where a large proportion of companies indicated that they would innovate more in services if they were able to 'more effectively partner / collaborate with universities and researchers in Ireland'.

The survey then asked the companies what, if any, barriers exist to engaging with the higher education sector for innovation in services and business processes. This answers here suggest that the main barriers relate to the timing of projects. One company, for example, noted that:

> *'Response times during breaks is too slow for any meaningful urgent work. Many projects are short {by} under a month and require intense work and quick answers. Addressing everything as a three year PhD project is not industrial innovation'.*

Similarly, another pointed out that:

> *'Universities usually have different time lines e.g. two years for a Masters and three years for a Ph.D. The requirement for academic publication and commercial sensitivity don't always match. A research project may not result in the expected results e.g. products or application knowledge since these may not be of academic interest.'*

Other comments to this section illustrated concerns that the access to, and visibility of RD&I support from universities and institutes of technology. A number of respondents felt that this was particularly acute in their own sectors (financial services, business ICT sector and the primary food industry were mentioned in this context). One company, in this context, suggested that a unified portal of support and services may help to address this weakness.

Of the companies that indicated new skills were important to innovation in services and business processes (15 of the 42), ICT and Business were identified by the majority of companies, closely followed by Analytics (see chart 10).

Chart 10: If you indicated that your company would require new skills to innovate in services and business processes, please select those skills that are most important relevant

Answer Options	Response Percent	Response Count
ICT	60.0%	9
Social research	6.7%	1
Business	60.0%	9
Languages	6.7%	1

Finance	6.7%	1
Analytics	53.3%	8
N/A	13.3%	2
Other (please specify)		2

Relatively few of the companies identified social research, languages and finance, as areas of skills need for innovation in services and business processes. These findings appear to underplay areas of skills identified in the literature on innovation in services, and may reflect the make-up of the sample of companies surveyed.

Of the companies that indicated university or institute of technology research would be of help to innovate in services and business processes, ICT was identified as helpful by more than 70% of the respondents (see chart 11).

Chart 11: If you indicated that your company would require access to university of institute of technology research to further innovate in services and business processes, please select those areas of research that would be most relevant

	Response Percent	Response Count
ICT	70.6%	12
Social research	29.4%	5
Business	41.2%	7
Languages	5.9%	1
N/A	17.6%	3
Other		1

This was followed by business research. Interestingly, social research was identified by almost 30% of the respondents, and contrasts with the limited requirement for social science skills noted in chart 10. Languages was again, identified by the fewest number of respondents.

Taken together, the results of the survey suggest that companies view innovation in services as important to their businesses, and see the customer and end user as a key element in successful innovation. Similarly, the important role of ICT is highlighted by the respondents as an important enabler of innovation in services and business processes.

Companies in the survey did, however, point out that they would invest further in innovation in services if there was greater clarity regarding support and the potential benefits. Effective collaboration opportunities with universities and researchers were also noted. These results are consistent with the key barriers noted by the companies.

The main needs identified in the survey relate to the importance of contextual factors such as finance for RD&I, and ICT infrastructure. Business support RD&I needs concerned financial support to conduct innovation in services projects, and information and advice on innovation in services and business processes.

4.4 Summary of key issues

While public support has largely been focused on traditional concepts such as science and technological development, support for innovation in services and business processes has begun to evolve, albeit slowly and tentatively.

So far this policy attention has produced examples of experimentation with supports targeted on innovation in services at both the EI and IDA. However, there continues to be limited RD&I support for innovation in services and business processes, with the main national initiatives focused on traditional R&D supports such as Grants for R&D, Technology/R&D Centres, Innovation Vouchers, Innovation Partnerships and so on. In the majority of such schemes innovation in services and business process projects are not easily able to meet the requirements of application forms and eligibility criteria.

While existing supports for innovation in services and business processes are limited the findings in this chapter point to a number of emerging areas which can be built on:

- First, there are examples of a number of applied RD&I centres operating in the field of innovation in services and business processes (for example RIKON and IVI). These activities point towards actual and latent demand for such support, and synergies with programmes such as the EI Innovation Voucher scheme;
- Second, companies in Ireland, as indicated by the survey, recognise the importance of innovation in services, and would value supports that take account of innovation in services and business processes more closely, particularly those that provide financial subsidy to projects. The findings also support some of the unique characteristics of innovation in services, for example, the importance of the end user in the innovation process;
- Third, the multinational sector in Ireland is beginning to adopt a strong focus on innovation in services and business processes, benefiting from the development of the global economy and the challenge of harnessing customer inputs into the innovation process, and trading across boundaries;
- Fourth, the presence of a range of RD&I stakeholders from the public and private sectors seeking to engage with the topic of innovation in services and business processes provides a strong basis for further development of supports. This, as illustrated in chapter 3, represents are important feature of international policy practices;
- Finally, the identification of Innovation in Services and Business processes in policy statements such as the Research Prioritisation Exercise is contributing towards an emerging supportive policy environment.

The findings in this chapter do, however, point to a number of barriers which will need to be addressed. This includes challenges such as raising awareness within the business sector, ensuring existing supports are available to innovation in services and business processes wherever possible, and ensuring effective collaboration with universities and researchers.

Chapter 5: Conclusions

The conclusions from this study confirm that the promotion and prioritisation of innovation in services and business processes is an emerging policy field characterised by an increasing number of countries becoming active. This trend is being driven by the increasing importance of services within most developed economies, and the increasing moves towards the development of services by all sectors of the economy.

The findings from the comparator policy cases, however, suggest that there is no single solution to support innovation in services and business processes and address the vision of the Innovation in Services and Business Processes Programme Action Group.

Themes and lessons from international practices

The comparator cases provide important lessons regarding the challenges that are typically associated with implementing supports for innovation in services and business processes. While these are predominantly related to the relative novelty of the concepts around innovation in services and business process and a common lack of understanding and awareness, the dominant position of traditional concepts of RD&I can also act as a significant barrier to the development of new supports in innovation in services, reflecting the lack of an identifiable stakeholder groupings or networks.

Concerted action will be needed to both raise the profile of innovation in services and business process and to develop practical support measures which meet the needs of business.

The challenges and the lessons identified from the comparator cases are:

First, **providing a supportive environment for innovation in services and business processes is a key challenge for innovation in services and business processes.** This, as illustrated by the comparator cases, should be based on a high level of policy acceptance, and embedded through factors such as identification in key policy documentation, support from stakeholders and strong alignment to existing measures;

Second, **promoting awareness and understanding of innovation in services and business processes concepts is necessary and important.** Raising awareness of innovation in services and business processes, to accompany the implementation of practical RD&I supports, is commonly found amongst the comparator cases. For the comparators, this has been important in helping to communicate both the importance of innovation in services and business processes to researchers and businesses, and also to meet the requirements for funding agencies;

Third, **encouraging multidisciplinary approaches to RD&I projects is an important theme for innovation in services and business processes supports**. Drawing together researchers and businesses and maximising learning from different sectors, including technological and non-technological expertise is an important aim of many of the comparator cases;

Fourth, **adopting a strong focus on the end-user in developing supports for innovation in services and business processes is a central challenge** addressed by many of the comparator cases. This is particularly a characteristic of those comparator supports which support user engagement in co-creation activities, research projects and open forms of innovation;

Fifth, **a portfolio of funding supports based on a flexible and iterative process of development** will be needed. This is characteristic of many international comparator

practices and draws together a broad range of stakeholders with a flexible package of funding supports to address business and researcher needs in areas such as business and applied RD&I projects, cluster and networks, research programmes, and strategy / policy support;

Finally, **an appropriate mix of traditional and less traditional metrics should be set,** supported by regular evaluation. This will help to ensure innovation in services and business processes supports can be monitored effectively. In this respect while no country has been able to develop a robust and differentiated set of metrics for innovation in services and business processes, there are, however, emerging transnational initiatives to identify new metrics.

Implications and opportunities for Ireland

Irish public support for RD&I has, in line with the international practices, largely been focused on traditional concepts such as science and technological development. Indeed, the practical implementation of national supports has been tentative, and largely experimental, with the main national initiatives focused on traditional R&D supports such as Grants for R&D, R&D Tax Credits, Technology/R&D Centres, Innovation Vouchers, Innovation Partnerships and so on.

Despite the nascent position of innovation in services and business processes supports in Ireland the study findings point to a number of factors that can be built on. This includes areas such as the limited number of existing programmes and centres operating in this field, the presence of multinational service innovation activity, and the coalescence of stakeholders around the topic. The survey findings also point to the general recognition amongst companies that innovation in services and business processes are important drivers of growth and competitiveness.

In developing Ireland's support for innovation in services and business processes it will be important, therefore, that any new supports should be placed in the context of existing priorities, programmes and funding mechanisms. This is particularly important for innovation in services and business processes, where the concepts and potential economic benefits are less well understood, and can limit willingness to experiment and adapt existing priorities, funding mechanisms, grand challenges and so on. This is illustrated by the results of the comparative practices, where there is no evidence of innovation in services being adopted as a new 'disruptive' policy area.

Two approaches are evident that seek to overcome this challenge and which have implications for Ireland. The first is to 'host' a services innovation strand within an existing horizontal 'lead project' enabling the services innovation strand to share programme promotion, networks and management and metrics with the established programme and allowing time and resources for the delivery of the services innovation strand to mature. A second approach is to align support to the policy needs of a sector or 'grand challenge', allowing more immediate acceptance.

The enabling and transformative capacity of services innovation is a further important theme of the comparator practices reviewed. This is reflected in the development of supports for innovation and business processes as part of a wide ranging activities addressing important economic and societal challenges. In this respect policy towards innovation in services is based on its role as 'a means to an end'. This enabling role points to the potential for innovation in services and business processes to contribute to other policy priorities within the Research Prioritisation exercise helping to maximise the impact of the overall exercise.

Developing policy and supports for innovation in services and business processes will require the creation of a common understanding of the economic and social benefits to be gained

from greater innovation in services and business processes amongst key stakeholders. In the Irish context, the main leadership and ownership would naturally come from the Minister and government agencies such as Forfàs, IDA and EI. However, this has been in place for some years now and a wider set of 'owners' and 'leaders' is now needed especially as the prioritisation and support for innovation in services and business processes moves into an implementation phase.

The evidence from the comparator cases implies a broadening out of this 'ownership' base through better engagement with SME owners and managers, customers and the research community. The importance of engaging stakeholders such as business owners and business leaders in helping to drive the introduction of new policy and support measures and also in helping to generate demand for supports was clearly illustrated in the comparators. Similarly, adopting a strong focus on the customer through support for understanding customer needs and involving SMEs and their customers in the co-development of innovations in services and business processes is relevant.

There are a number of ways of focussing the delivery of innovation in services and business processes including Platform approaches that focus on a 'Triple Helix' to engage business, researchers and government on a sectoral, grand challenge or research area priority; Research priority approaches where businesses are consumers and customers of research results rather than co-designers of innovations in services; and, Applied innovation approaches that place the consumer and customer in the 'front seat' as far as the research and innovation effort is concerned. Each approach brings with them a slightly different set of challenges and implications for Ireland.

The funding mechanisms deployed for the approach, or set of approaches, chosen should be consistent, not only, with state (and state aids) regulations but also need to be consistently and appropriately aligned with the intended focus of the delivery approach.

It will be important also for Ireland to match the metrics used in assessing impact and value for money to the objectives that are established for an intervention by the development of an appropriate mix of traditional and less tangible metrics.

A participative evaluation process will also be required so that the value and utility of the metrics employed may be continually challenged and redefined throughout a programme or project implementation process.

Chapter 6: Recommendations for action

Challenge 1: Provide a supportive environment for innovation in services and business processes

Recommendation 1. Reaffirm innovation in services and business processes both as a priority area in its own right and as an enabler across other priority areas. Implement new innovation in services and business processes supports in the context of agreed government policy on research prioritisation and PAG's on-going work on implementation.

Evidence from the comparative countries points to the importance of strategic policy commitment in providing a supportive environment for innovation in services and business processes. Countries such as Germany and Finland have embedded innovation in services and business processes in strategic statements as well as in key policy supports for RD&I. This includes approaches such as sectorally based strategies (for example, the UK's Financial Services Knowledge Transfer Network) and specific RD&I funding supports (for example, Germany's Innovation in Services and Finland's, TEKES Serve initiative etc.). These actions provide a supportive environment for innovation in services and business processes and help promote policy and business acceptance and awareness of the importance of innovation in services and business processes. The evidence does not, however, point to a single approach that can be adopted 'off the shelf'.

Who?	Prioritisation Action Group (PAG)
How?	PAG to formally adopt and publish this report and the Roadmap for Action.
Timeline?	Completed by end Q1 2014

Challenge 2: Promote awareness and understanding of innovation in services and business processes

Recommendation 2a. Broaden stakeholder engagement on policy development and implementation in innovation in services and business processes by establishing a stakeholder network to inform future policy development and implementation.

The complex and novel nature of innovation in services and business processes suggests that policy and supports will need to be informed by expert advice. Advisory groupings are a common feature of international good practice (the German Industry-Science Research Alliance, for example), helping to drive new policy and support based on evidence of needs and appreciation of the existing funding context. In the Irish context, the main advisory inputs would need to come from enterprise development and research funding agencies, MNEs, SMEs, and academic and public researchers. Given the so-far limited research capacity in services innovation in Ireland there may be a need to seek international expert input.

Who?	PAG to establish an Innovation in Services and Business Processes Advisory Group
How?	PAG to develop Terms of Reference for the Group and agree membership – to include enterprise development and research funding agencies, enterprise, and academic and public researchers The Terms of Reference should be based on the findings of this report and authorise the Advisory Group to advise and monitor:

- the implementation of the innovation in services and business processes supports based on the findings and recommendations in this report;
- the necessary supports to be put in place that will:

  Promote awareness and understanding of innovation in services and business processes;

  Strengthen the research base relevant for innovation in services and business processes;

  Build research capacity and skills in innovation in services and business processes and the engagement of researchers across disciplines (nationally and internationally);

  Implement an applied RD&I initiative building on such initiatives already in place in Ireland;

  Implement new platform demonstrators, immediately, around public services innovation platforms;
- the development of focused indicators of innovation in services and business processes based on international good practice.

This Advisory Group should be established for a sufficient period to provide continuity, align with time scales of the capacity building focus of innovation in services and business processes, and provide sufficient time for new research to produce results.

Membership for the group should be drawn from the following groups:

- Senior Chair from an innovation in services and business processes company;
- IDA/EI senior representatives;
- SFI/HRB/IRC senior representatives;
- 2 – 3 innovation in services and business processes academic representatives;
- 2 innovation in services and business processes large companies;
- 2 innovation in services and business processes SMEs;
- International representative.

Timeline? Advisory Group to be established by End Q2 2014

Recommendation 2b. Existing public RD&I supports should be kept under continual review and tested to ensure that projects involving innovation in services and business processes are eligible for funding and support.

While key public RD&I supports (R&D Funding, Innovation Partnerships, Technology Centres etc.) are available to innovation in services and business processes projects, they typically follow a conventional technology research and development exploitation logic. Anecdotal evidence suggests that services innovation projects frequently find it difficult to meet the criteria within such projects, given their interdisciplinary approach of hard science, business,

ICT and social science. The R&D Tax Credit illustrates this barrier clearly, by prohibiting social science as a form of R&D for claims under the Credit.

Despite these challenges, the EU's RD&I State Aids regulations do not preclude support for new service innovation research and development, suggesting that there is an opportunity to champion greater promotion and take-up by innovation in services and business processes RD&I supports through the enterprise development agencies.

There are also examples of agencies in Ireland adapting existing RD&I support to the needs of innovation in services and business processes projects. For example, EI's Innovation Voucher scheme makes explicit reference to innovation in services themes (customer interface, business model innovation) in its eligibility criteria.

Who? Funding agencies and Departments

How? Advisory Group to develop an innovation in services and business processes checklist for agencies to use when reviewing or evaluating new and existing supports (ex-ante, mid-term and final), based on the key questions:

- Does this support scheme explicitly meet the characteristics and needs of innovation in services and business processes projects?
- Are the eligibility criteria published for the scheme and projects sufficiently and clearly inclusive as regards innovation in services and business processes projects?
- In operation, has the scheme been delivered in such a way as to have made inclusion of innovation in services and business processes projects possible?
- In operation, have any barriers or hindrances to support for innovation in services and business processes projects been identified? If so, have they been satisfactorily resolved?
- What lessons have been learned by the agencies in respect of the design and delivery of the schemes as regards their support for innovation in services and business processes projects?

Advisory Group to champion the use of this checklist with agencies, focusing on RD&I supports (EI, IDA, SFI, IRC, HRB suggested), targeting agency departments that are currently active in innovation (e.g. EI's Research and Innovation division)

PAG to monitor the ongoing implementation of the checklist, collate lessons and advise on agency responses (as per Recommendation 1)

Timeline? PAG to receive updates from the Innovation in Services and Business Processes Advisory Group on a six monthly basis

Challenge 3: Strengthen the research base relevant for innovation in services and business processes.

Recommendation 3. Build research capacity and skills in innovation in services and business processes by providing incentives and opportunities for researchers to engage across disciplines in innovation in services and business processes projects.

Building capacity within the public research system in innovation in services and business processes is an important challenge faced by the international comparators from the study. Responses to this are typically incremental and incorporate awareness raising and encouragement of interdisciplinary responses (for example, the German's Innovation in Services and the UK's Assisted Living Innovation Platform). These examples highlight the importance of providing time for Interdisciplinary research to flourish, based on building new connections, developing trust, creating shared understanding and so on.

The experience of SFI in promoting innovation in services research suggests that such challenges are both shared, and recognised, in Ireland. Here, SFI is incrementally launching a number of innovation in services and business processes-related calls, with the view to evaluating responses and adapting its approach. This will need to be built upon, alongside greater efforts to promote interdisciplinary research.

Who? Funding agencies and Departments, particularly SFI, EI, IRC and HRB

How? Funding agencies and Departments, particularly SFI, IRC and HRB to review results from their capacity building activities in innovation in services and business processes, and develop better understanding of the current research capacity in Ireland.

Based on the capacity review and international good practice in innovation in services and business processes research, consideration should be given to:

- Developing research funding calls around grand challenges (research priority) requiring innovative service and business process outcomes;
- Providing opportunities for early engagement between researchers (of different disciplines), companies and agencies through partner-matching events and facilitated project initiation tools;
- Making explicit, and non-negotiable, the funding agencies' requirement for interdisciplinary responses to the calls;
- Supporting research proposals which focus on translating research and knowledge into improved understanding of the service need and opportunities for practical service and business process solutions.

Timeline? PAG to receive updates from the innovation in services and business processes Advisory Group on a six monthly basis

Challenge 4: Support innovation in services and business processes in enterprise by adopting a strong focus on the end-user in innovation in innovation in services and business processes initiatives.

Recommendation 4. Implement an applied RD&I initiative by building on existing examples of such initiatives already in place in Ireland.

International good practice points to applied RD&I funding as a key element of support for innovation in services and business processes (for example, Finland's TEKES Serve project). Such support, as in the case of the Serve project, can be stand-alone. In other examples it is embedded in an existing RD&I funding programme (the German Innovation in Services programme, for example). Building on to an existing programme does, however, provide the

potential for greater researcher acceptance and stronger awareness benefits. It also provides an opportunity to develop RD&I mechanisms incrementally, while 'learning by doing'.

In Ireland there are a range of different applied RD&I mechanisms in place. These include centres funded by SFI, IDA and EI.

While the SFI centres focus on academic excellence, the IDA/EI centres have a stronger focus on applied RD&I and involvement of the end user. A number of these centres have synergies with the innovation in services and business processes agenda, including:

- The IDA/EI Technology Centres - Innovation Value Institute, NUIM; Connected Health, Nexus UCD; The Irish Centre for Cloud Computing and Commerce;
- The EI Technology Gateway Programme - Command, Athlone IoT and the Mobile Services Technology Gateway at Waterford IoT.

In addition to these centres, and perhaps the most prominent services innovation centre in Ireland, is the RIKON Centre at Waterford IoT. This receives its funding from a number of sources including the IRC, EI's Innovation Voucher programme, and industry.

There is the potential to build on an existing centre or centres but it will be important that centres are provided with appropriate objectives, delivery approach, delivery targets and funding model. This will need to complement and maximise the synergies of the innovation in services and business processes agenda with their existing agenda but will also need to ensure that projects are end-user specified and led (i.e. there is a market need and a commitment to exploitation from a commercial partner); that the centres engage researchers from across a range of academic and research disciplines in each project as appropriate; and, that the project funding is directly related to the value and contribution that the end-users place on the results of the work and that maximum advantage is taken of existing public innovation funds.

Who?	Innovation in Services and Business Processes Advisory Group (EI, IDA, SFI, IRC)
How?	PAG to champion the creation of an appropriate innovation in services and business processes initiative within one or more existing centres The Innovation in Services and Business Processes Advisory Group to work with the agencies to develop the most appropriate way of integrating innovation in services and business processes into the activities of the centre(s), and to identify those centres where addition of innovation in services and business processes to existing activities is most feasible/appropriate.

Further details of possible approach - to be finalised by Advisory Group in conjunction with PAG:

A limited call for up to two pilot centres should be launched with targets for:

- *successful completion of end-user specified service innovation in services and business processes projects (arising from SME, multi-national or public service clients);*
- *engagement of researchers across disciplines in innovation in services and business processes project teams and,*
- *innovation funding leveraged from the private sector and from existing innovation schemes (Innovation Vouchers)*

Pilots should be for 3 years and evaluated after 2 years with a view to mainstreaming if appropriate.

Pilots will need core funding from existing innovation schemes possibly as a 'special case' element within the existing Technology Centre and/or Technology Gateway funding lines.

Timeline? PAG to receive updates from the Innovation in Services and Business Processes Advisory Group on a six monthly basis

Challenge 5: Encourage multidisciplinary approaches to establish innovation in services and business processes projects of scale

Recommendation 5. Implement new platform demonstrators, immediately, around public services innovation platforms

Innovation platforms are a well-established approach in the field of public support for innovation, providing the basis for engaging with a range of business, research and government actors over time and implementing flexible strands of support in areas such as networking/awareness raising, research and applied R&D, exploitation support and so on. They represent long term responses to important policy challenges (grand challenges) and offer the potential for co-creation in the design of new services and a test bed demonstrator for new approaches, which can be learnt from over time. (This is most clearly reflected in the Assisted Living Innovation Platform in the UK.)

In Ireland, a number of potential areas present themselves that could provide the basis for an innovation in services and business processes-focused platform. While this could be based around a standalone innovation in services and business processes platform that supported awareness, networking, applied RD&I and knowledge transfer, greater leverage would be obtained from a challenge-led (research priority) approach where innovation in services and business processes is one of the means by which the platform delivers against the challenge rather than the aim of the platform itself.

In particular, the cross-cutting nature of innovation in services and business processes points to the potential for strong and obvious synergies with other research prioritisation topics, for example, connected health, digital platforms and content.

A platform represents an ambitious area of action both in terms of complexity and scale. A challenge-based approach is likely to be best suited to this ambition, allowing full integration with the other actions proposed in the Roadmap and the overall Research Prioritisation exercise.

Who? PAG, Innovation in Services and Business Processes Advisory Group

How? Advisory Group to develop a joint proposal specifying the focus for the platform, ensuring that the role of innovation in services and business processes within platform activities will be clear and obvious.

A Platform will play an integral role in mobilising Ireland's research and innovation effort and development of innovation in services and business processes based solutions in respect of the identified grand challenge (research priority). The platform will contribute to the definition and

implementation of a research and innovation programme for the medium to long-term including acting as a facilitator of effective partnerships for implementation of research and innovation activities.

Further details of possible approach - to be finalised by Advisory Group in conjunction with PAG:

The platform's role should be to:

1. Provide a framework for stakeholders to help define research and development priorities and actions in the challenge area including identifying the availability of skills, finance and an appropriate regulatory environment

2. Ensuring that research and innovation in innovation in services and business processes solutions in the challenge (research priority) area are focused on multi-disciplinary working and achieving tangible outcomes including exploitation of innovation in services and business processes

3. Bring together the key stakeholders from business, public and research sectors to work together to solve critical problems in the challenge (research priority) area and communicate with users, consumers and policy makers.

Key guiding principles for a platform activity should be to:

- *Recognise that a platform is a medium term endeavour rather than a short term opportunity;*
- *Gain input and commitment from the key stakeholder groups with a clear vision of the nature of the challenge (research priority) being addressed by the platform;*
- *Inter-disciplinary working and networking must be embedded in the platform and exchanges;*
- *The creation and initial work programme of the platform should be supported for the first 3 years but thereafter should be increasingly linked into relevant research and applied R&D calls ensuring that the platforms focus will continue to be aligned with the overall focus of the challenge;*
- *Practical demonstration.*

Timeline? PAG to receive updates from the Innovation in Services and Business Processes Advisory Group on a six monthly basis

Challenge 6: Establish a supportive evaluation mechanism by setting an appropriate mix of traditional and less traditional metrics

Recommendation 6. Establish the metrics for RD&I in services and business processes supplementing them with a range of learning activities designed to develop, over time, more focused indicators.

Monitoring the effectiveness of new and existing innovation in services and business processes supports is necessary with respect to lessons and identifying potential impacts. The evidence from the international comparators suggests that while current RD&I indicators are well developed, they largely reflect the technological conception of the innovation process. The study findings suggest that there is a need to supplement these indicators and metrics with indicators that reflect the fact that service innovations are not always the output of formal R&D but rather the outcome of daily business interactions, customer and supplier collaboration or the incremental optimisation of processes and economic value added. This points to the need for more sophisticated metrics, which capture the so-called 'non technological' elements of innovation in services, including the role of end user.

The challenge of developing better metrics for innovation in services is reflected in the efforts of organisations such as the European Commission, NESTA in the UK and various academic groups[30]. These activities represent learning opportunities for Ireland, and will be important in ensuring effective evaluation of RD&I supports.

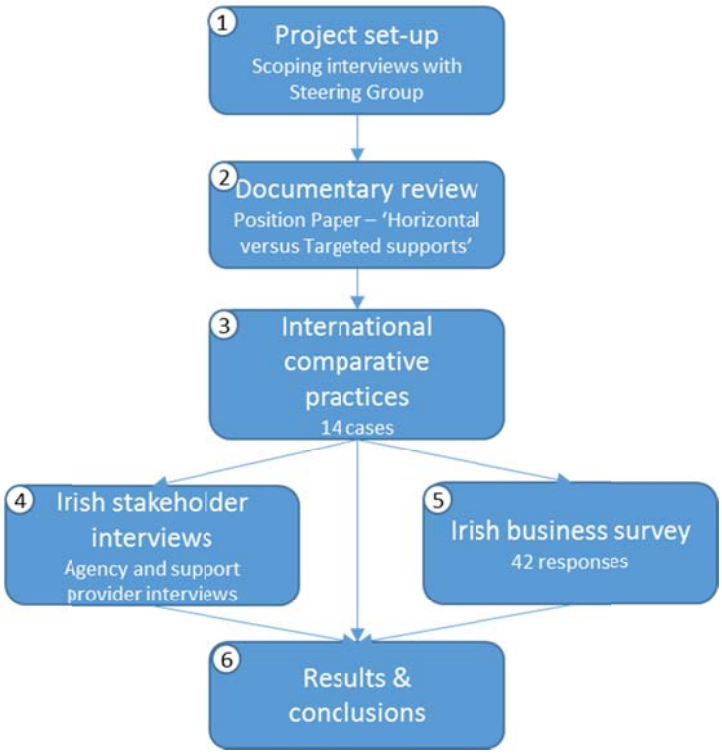
Who?	PAG, Innovation in Services and Business Processes Advisory Group, Forfás, DJEI
How?	PAG to champion the development of new innovation in services and business processes metrics and their use by the Agencies Forfás / DJEI to engage with leading edge innovation in services and business processes initiatives to develop innovation in services and business processes metrics, (such as European Commission's European Services Innovation Centre and the development of a European Services Innovation Scoreboard.) Innovation in services and business processes Advisory Group to review the results of the Forfás review and advise PAG on the utility of the metrics. International expert may play a key role in advising in this area.
Timeline?	PAG to receive updates from the Innovation in Services and Business Processes Advisory Group on a six monthly basis.

30 See for example, http://www.inderscience.com/info/ingeneral/cfp.php?id=1339

Appendix I. Study methodology

The study of innovation in services and business processes incorporated six work stages designed to capture international practices in support of innovation in services and business processes. A summary of the approach adopted was included in Chapter 1, and repeated below.

Chart 1: Study work stages



Stage 1 Project set up

The aim of this stage was to define and confirm the study objectives. It included an inception meeting with Forfás in which the objectives of the study were reviewed and agreed, documents collected, and key informants (stakeholders and partners) identified. In addition a small number of scoping interviews with members of the steering group were undertaken to fully explore key issues for the study. Following these initial meetings a detailed research plan was developed and agreed with Forfás.

Stage 2 Documentary review

The aim of this stage was to conduct a review of available documentation and to produce a 'position paper' exploring horizontal and targeted approaches to support for innovation in services and business processes. This literature reviewed existing international policy supports through documentary sources, to identify whether Ireland should focus its policy and implementation efforts. The results of the documentary review were set out in a position paper and agreed with the Steering Group.

Stage 3 International comparative practices

The aims of this stage was to review comparator country RD&I supports for innovation in services and business processes, and identify key themes and challenges. The list of comparators was selected globally, with a focus on those countries that are advanced in their implementation of practical supports. Sources reviewed include the recent OECD study on innovation in services[31], the EU Smart Guide to Services Innovation[32], the EPISIS study[33] materials, and the knowledge of our team members. A total of 14 comparators were selected (see Chart) and documentary research and telephone interviews were conducted with project managers, stakeholders or experts[34]. The major focus of the comparative studies was to collect information that was 'operational' in focus, and would allow agencies in Ireland to implement support on the basis of practical experiences.

Chart 2: Comparators selected for research

Comparator programme	Country	Programme type
SERVE	Finland	Business and applied RD&I support
General Programme	Austria	Business and applied RD&I support
Research premium	Austria	Business and applied RD&I support
Service Science Factory	Netherlands	Business and applied RD&I support
Innovations in Social & Healthcare Services	Finland	Business and applied RD&I support
Green Innovation Vouchers	EU	Business and applied RD&I support
Assisted Living Innovation Platform	UK	Cluster and network support
Financial Services Knowledge Transfer Network	UK	Cluster and network support
Future Industrial Services	Finland	Cluster and network support
NEKOÉ	France	Cluster and network support

[31] OECD (2012) 'Policy report on service R&D and innovation', Working Party of National Experts on Science and Technology Indicators; and Working Party on Innovation and Technology Policy, Paris.

[32] European Commission (2012) 'European Commission (2012) *The Smart Guide to Service Innovation – How to Support SME Policy from Structural Funds.* http://ec.europa.eu/enterprise/policies/sme/regional-sme-policies/documents/no.4_service_innovation_en.pdf.

[33] EPISIS (2012) 'Policy recommendations to Support service innovation', EPISIS Final Report / ProInno Paper no. 20. Available from: http://ec.europa.eu/enterprise/policies/innovation/files/proinno/episis-final-report_en.pdf

[34] Fifteen were initially selected, however, one comparators was unable to participate in the study - the NESTA Public Services Innovation Lab.

Centre for service innovation	Norway	Research support
Innovation with Services	Germany	Research support
Industry-Science Research Alliance	*Germany*	*Policy and strategy*
Demand and User Driven Innovation Policy	Nordic	Policy and strategy

Stage 4: Irish stakeholder interviews

The aim of this stage was to understand the current position of policy and company needs with respect to innovation in services and business processes. To this end semi-structured interviews were undertaken with organisations responsible for research, development and innovation in Ireland. This included interviews with:

- Enterprise Ireland (www.enterprise-ireland.comf);
- RIKON – Waterford Institute of Technology (www.rikon.ie);
- WESTBIC (www.westbic.ie);
- CorkBIC (www.corkbic.com);
- Nexus Innovation, University of Limerick (www.nexusinnovation.ie);
- Servitize (http://servitize.wordpress.com).

These interviews focused on identifying the nature and demand for the RD&I supports, linkages between supports, and potential impacts from innovation in services.

In addition to stakeholder interview evidence from recent evaluations of RD&I programmes in Ireland was also undertaken. This examined generic lessons that could be learnt for innovation in services and business processes projects.

Stage 5: Innovation in services - business activity and support needs

The aim of this stage was to review the innovation in services and business processes activity and support needs in Irish firms. A business workshop was initially discussed as the primary data collection. Experience of earlier Forfás workshop attendance, however, resulted in the adoption of a survey approach. This was delivered as an online survey, based on a small number of focused questions (see Appendix III). A number of agencies provided contact details for the survey, including EI, IDA, and Teagasc.

The survey generated 42 responses from both indigenous and multinationals companies, of which 30 were completed in full. The sector breakdown of the survey responses is set out in chart 3 below:

Chart 3: Sectors of the survey respondents

In what sector does your Company operate?		
Answer Options	Response Percent	Response Count
Agriculture, forestry and fishing	16.7%	7
Mining and quarrying	2.4%	1
Manufacturing	11.9%	5
Electricity, gas, steam and air conditioning supply	0.0%	0
Water supply; sewerage, waste management and remediation activities	2.4%	1
Construction	0.0%	0
Wholesale and retail trade; repair of motor vehicles and motorcycles	4.8%	2
Transportation and storage	2.4%	1
Accommodation and food service activities	4.8%	2
Information and communication	26.2%	11
Financial and insurance activities	14.3%	6
Real estate activities	0.0%	0
Professional, scientific and technical activities	7.1%	3
Administrative and support service activities	7.1%	3
Education	0.0%	0
Human health and social work activities	0.0%	0
Arts, entertainment and recreation	0.0%	0
Other service activities	23.8%	10

Given difficulties in securing a fully representative sample, the results of the survey should be treated with some caution. They do, however, provide a signpost to some of the issues facing companies innovating in their services and business processes.

Stage 6: Analysis and reporting

The aim of this stage was to draw together the findings from the study activities, with the aim of drawing out conclusions and implications for Irish RD&I support for innovation in services and business processes. The analysis was presented at a number of stages, including a draft PowerPoint presentation to the Forfás Steering Group, and discussion of a final hard

copy document. Recommendations were also developed for the Research Prioritisation Programme Action Group for Innovation in Services and Business Processes.

Appendix II. Evidence from the evaluation of RD&I mechanisms

Lessons from mainstream and more traditional public support mechanisms for RD&I are relevant to further understanding how business needs for RD&I could be addressed. Here the results of recent EU studies suggest that there have been some dominant categories of policy measures implemented over the period 1999-2011, in terms of number and funding, are the following: A number of lessons are drawn from these categories, notably[35]:

- Countries should be encouraged to develop their own specific policy models– and should respond to country specific challenges. The promotion of 'best practices' across Europe with limited consideration should be avoided;
- Funding remains concentrated on science and technological research– There is a need to consider more competition in the access to RDI support and to work on non-technological innovations;
- Innovation policies to foster industry-science collaboration seem to be effective– Such collaboration requires development of RDI capacities both in universities and businesses; and suggests that attention to capacity is an important objective for support;
- Mixed impact of grants to support business innovation– The analysis indicates that grants may be less effective than loans and other financial instruments to raise the innovation performance of SMEs. However strong conclusions cannot be drawn in this respect.

Other lessons can be drawn from the recent evaluations of RD&I public supports in Ireland, commissioned by Forfás. These results highlight the importance of clarity and visibility of access points to public support for RD&I. This suggests that attention should be given to streamlining the range of programmes on offer, both for communication purposes and to improve efficiency of delivery.

The importance of good programme design is also highlighted in the Forfás evaluations. This is important in ensuring that programmes are based on a strong logic model, which sets out the rationale, objectives, delivery approach, and expected outputs and outcomes. This is important from the perspective of the programme sponsors and managers, and contributes towards effective monitoring and evaluation.

Lessons from programme delivery models are also evident in the Forfás evaluations. Here the findings highlight the range of models that can be implemented to support RD&I objectives. These includes measures that target:

- Business RD&I activity – for example, the EI/IDA 'Grant for R&D';
- Industry led collaborative R&D – for example, the IDA/EI Technology Centres, the EI Innovation Partnerships and Innovation Vouchers;
- Academic-led collaborative R&D – for example, CCETS;
- Infrastructure programmes – for example, the Campus Incubation Programme;

35 http://ec.europa.eu/enterprise/policies/innovation/files/decade-innovation-policy-executive-summary_en.pdf

- Information and advice – for example, the Intellectual Property Scheme;
- Research and technology development partnerships - for example, the SFI CCETS IDA/EI Technology Centres, Strategic Cluster Partnerships.

While a number of the supports covered in this review are no longer available there continues to be a range of different mechanisms available to support RD&I. Further, while direct funding of businesses is an important mechanism, particularly in terms of encouraging R&D activity, but also in helping businesses to develop capacity and capability[36], collaborative approaches to RD&I can also help to bring about wider benefits (for example, provide benefit for both businesses and academics.

Wider benefits from R&D projects is a further emerging area, with attention given to the potential benefits of innovation spillovers[37]. These spillovers or externalities can produce benefits for wider economies or clusters of companies, and can emerge where project partners disseminate R&D results beyond the confines of a project, for example with suppliers or other companies. Such benefits, while potentially important, are, however, often difficult to identify in practice, without in-depth research.

A further key lesson from the evaluations is that RD&I projects are often long term endeavours, with the full benefits only becoming evident over a number of years. The precise time will, however, vary according to project and sector. The medical sector, for example, tends to require long term development and regulatory testing, compared to other sectors where fast times to market are common (e.g. fashion).

The focus on the external environment further highlights the important role that RD&I supports can play in supporting a wider innovation ecosystem. Such systems can provide a supportive environment for interactions between companies, researcher, business support providers, and government agencies, and suggests the need for new supports to be designed in a way that will contribute towards this wider system. As one of the recent Forfás evaluations notes, there is a need to ensure an appropriate balance across the system – to include building world class research excellence, while simultaneously stimulating increased R&D activity at the level of the firm.

In building such collaborations the evaluation results suggest the importance of trust as the basis of such collaborations, and the need for this develop over time is also highlighted and in key areas such as clear objectives, target group and expected outputs.

Awareness-raising measures, support services for innovation, skill development, cluster programmes and support to networks carry much less financial weight in programme-based policy budgets. Although the availability of skilled people is often cited as one of the key challenges, there has been only a small share of funding devoted to support innovation skills development.

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36 Georghiou, L. and Clarysse, B. (2006) 'Behavioural Additionality of R&D Grants: Introduction and Synthesis', In Government R&D Funding and Company Behaviour: Measuring Behavioural Additionality, pp. 9-38. Paris: OECD.

37 Roper, S. and Hewitt-Dundas, N. (2009) 'Public R&D and Regional Development: Spillovers from university and company-based research centres', Working Paper No. 104.

Appendix III. Survey instrument

A Forfás study of Innovation in Services and Business Processes

The Forfás study of Innovation in Services and Business Processes is one of the fourteen national research priority areas and is focused on supporting publicly funded RD&I that enables firms (and the public sector) to:

- connect and engage with customers in order to conceive, develop, and deliver new services offerings (service innovation); and
- utilise new knowledge to promote increased efficiency and effectiveness across all business processes, such as logistics and supply chain management, in order to increase productivity, competitiveness and to manage the integration of business into global value chains.

The ambition for this priority area is for Ireland to develop, to an internationally competitive level, the multidisciplinary public RD&I capability to support this area of research priority.

In meeting this ambition Forfás and its partners wish to understand how enterprises in Ireland are currently innovating in their services and businesses processes, and to learn how this activity can be better supported.

Please respond to all questions, unless otherwise instructed.

Definition of Innovation in Services and Business Processes

Service innovation and business processes comprises new or significantly improved service concepts and offerings as such, irrespective of whether they are introduced by a pure service companies or manufacturing companies, as well as innovation in the businesses process….customer processing, business models, commercialisation (sales, marketing, delivery), service productivity and hybrid forms of innovation serving several user groups in different ways simultaneously[38].

The Innovation in Services and Business Processes Study is conducted by CM International on behalf of Forfás, and supported by [*insert relevant agency name here*}.

Thank you in advance for your participation in this study. We would be grateful if you could complete the survey by following the link.

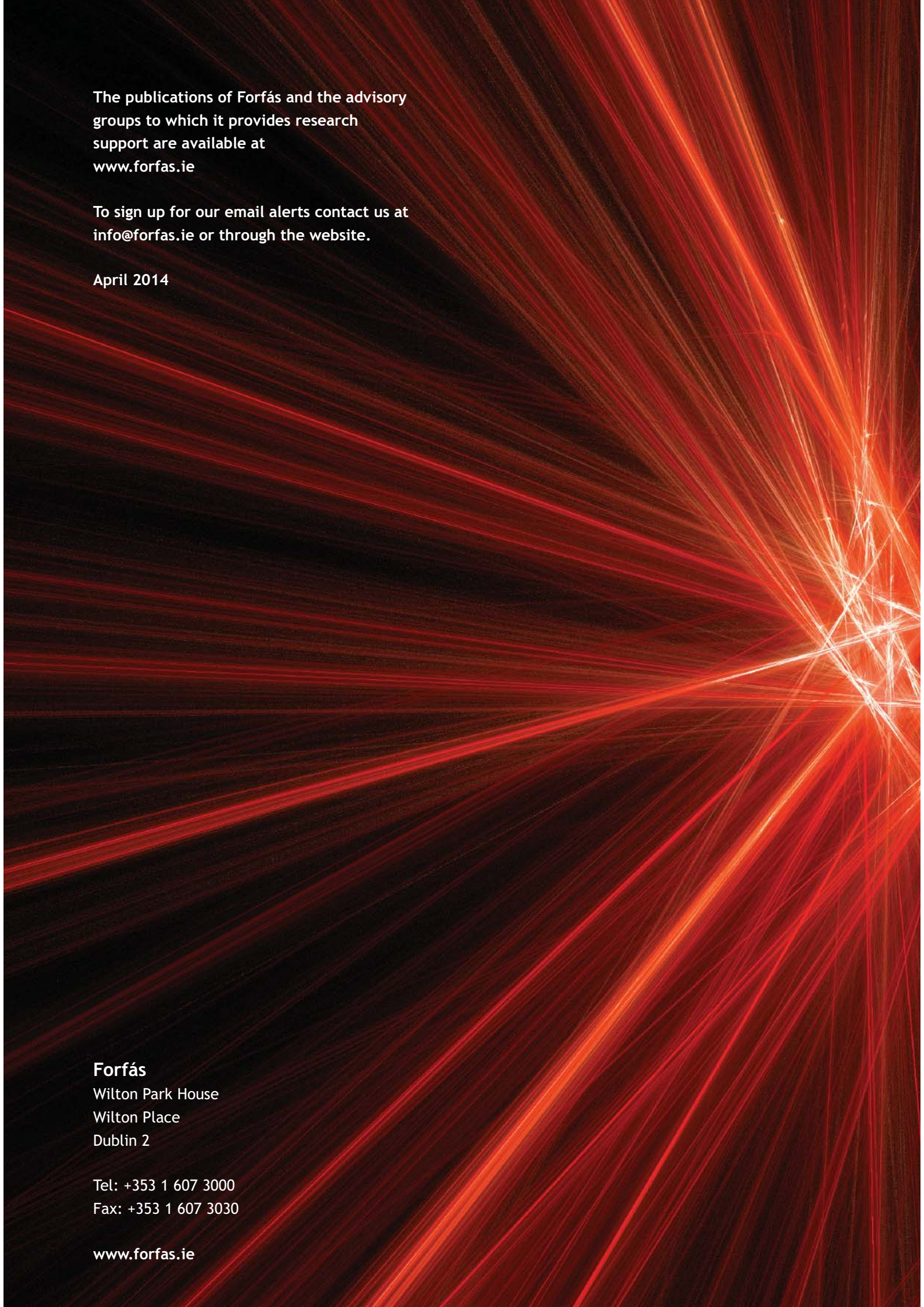
[38] [38] European Commission (2012) 'The Smart Guide to Services Innovation'. Available from: http://ec.europa.eu/enterprise/policies/sme/regional-sme-policies/documents/no.4_service_innovation_en.pdf

Question	Options
1. What is the name of your Company? *For example your Company's name or subsidiary name*	(Open question)
2. In what sector does your Company operate?	• A - Agriculture, forestry and fishing • B - Mining and quarrying • C - Manufacturing • D - Electricity, gas, steam and air conditioning supply • E - Water supply; sewerage, waste management and remediation activities • F - Construction • G - Wholesale and retail trade; repair of motor vehicles and motorcycles • H - Transportation and storage • I - Accommodation and food service activities • J - Information and communication • K - Financial and insurance activities • L - Real estate activities • M - Professional, scientific and technical activities • N - Administrative and support service activities • P – Education • Q – Human health and social work activities • R - Arts, Entertainment and Recreation Other service activities (please specify) – open-ended
3. Which of the following statements best describes your Company's approach to innovation? *The statements are not mutually exclusive so please select <u>all</u> modes that are relevant to your Company*	• We engage in developing new-to -market products and services, which we seek to protect through patenting, design registration and copyright. We also tend to engage in in-house R&D or collaborative R&D. • We engage in developing products and services that are both new-to-market and new-to-firm. We place high importance on marketing our products or services, and less emphasis on patenting, design registration or copyright. • We engage in process innovation. Our innovation activities are not primarily aimed at developing new products or services. Our innovation expenditure is focused on the

	acquisition of machinery or staff training. • We engage in innovation aimed at improved management and business strategy changes, including new sales or distribution methods. • We engage in external knowledge sourcing in the form of bought-in R&D, licences or other know-how and formal collaboration on innovation projects. Universities and research organisations are an important innovation partner for us. None of the above (please specify) – open-ended
4. How important is innovation in the following areas, to the growth and development of your Company? (*Please rank each as either very high, high, medium, low, very low, N/A*)	Our: • Customer interaction • Business model • Products • Services • Processes, e.g. Supply chain optimisation • Other (please specify):
5. To what extent do you agree or disagree with the following statements? (*Strongly agree, agree, neutral, disagree strongly disagree, N/A*)	• A strong understanding of consumer behaviour is essential when my Company is innovating in services and business processes • Working with customers and end-users directly to develop new or improved services is essential in helping us to innovate in services and business processes • To innovate in services and business processes my Company must successfully apply technology and ICT solutions • My Company is concerned that it is unable to effectively protect its IP and innovation in services limiting our innovation activity • Innovation in services and business processes is more difficult than innovation in products because the risks and rewards are not as well defined or/and are harder to monetise.
6. Would your Company invest more in research, development and innovation in services and business process if: (*Strongly agree, agree, neutral, disagree, strongly disagree, N/A*)	• We had a clearer understanding of how such innovations can improve our performance and profitability • We had greater clarity of the support that is available to our Company in Ireland to innovate in this way • We were able to more effectively partner /collaborate with universities and researchers

	in Ireland • We were able to more effectively partner /collaborate with other companies in Ireland • other (Please specify)
7. What elements are necessary to create a more competitive environment for research and innovation in services and business processes in Ireland? *(Not necessary; desirable; necessary; essential)*	• Tax credits and/or Innovation vouchers • Ease of access to knowledge transferred out of Universities etc. • Availability of Superfast broadband • Access to Services and Business process innovation 'hubs' and demonstrators • Flexibility in regulation including better IP protections • Strategic, targeted investments and support in selected topics/challenges • Public support mechanisms that take account of the reality of innovation in services and business processes • Other (please specify)
8. Are you aware of any support currently available for innovation in services and business processes?	• Yes • No If yes, please list those supports for innovation in services and business processes you are aware of, and indicate which have been used by your Company?
9. What support would your Company require to further innovate in its services and business processes?	• Information and advice on innovation in services & business processes • Financial support to conduct innovation in services and business process projects • Access to university and institute of technology research (if yes, please list which areas of research are you believe are most relevant to your Company's needs in innovation in services - ICT, Social Science, Business School, Languages, Other – please specify) • Skills (if yes, please list skills are likely to be most relevant to your Company's innovation in services – ICT, Social Research, Business School, Languages, Finance, Analytics Other – please specify) • Availability of networks • Other (please specify)

10. What, if any, barriers does your Company face in engaging with the higher education sector for innovation in services and business processes?	(Open question)
11. In the box below, please write any additional comments that you would like to make	(Open question)



The publications of Forfás and the advisory groups to which it provides research support are available at www.forfas.ie

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