

**TOWARD A CONCEPTUALISATION OF A SERVICE INNOVATION MATURITY
MODEL**

DOCTORAL COLLOQUIUM

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ABSTRACT

Service innovation is widely accepted as being a prerequisite of sustained competitive advantage and an essential mechanism for responding to changes in customer needs in a dynamic environment (Hogan *et al.*, 2011). However, the measurement of service innovation practices has been overlooked due to the historic bias towards the manufacturing sector and a research agenda that is more preoccupied with a broader economic perspective of service innovation (Drejer, 2004). The consequence of this knowledge gap is that no apparatus exists with which to gauge the innovative performance of service firms in Ireland (Forfás, 2006; Power *et al.*, 2010; Power and Lynch, 2012). Without a clear assessment firms are not able to evaluate their own innovative performance or determine where resources can be effectively deployed in order to enhance their service innovation capability (Hipp and Grupp, 2005). Indeed, service innovation maturity model research is at an embryonic stage and a review of existing literature reveals that despite an abundant and heterogeneous body of maturity model research, none address the staged, evolutionary development of service innovation capabilities that facilitate a superior innovative output (Li *et al.*, 2010). Though some progress has been made on the identification of the capabilities required for innovation, measurement has been broadly neglected (Den Hertog *et al.*, 2010).

Following best practice detailed by Jochem *et al.* (2011), this paper evaluates existing research concerned with the assessment and development of capabilities for effective service innovation in Irish SMEs and proposes a maturity model framework comprising of stages presented in an evolutionary framework that sequentially and incrementally describes the development of capabilities in a logical order. Our service innovation maturity levels range from low to high illustrating the increasing sophistication of the outlined attributes as firms grow and mature capabilities to achieve their service innovation goals.

Due to the research deficit, it is anticipated that the on-going study will make a substantial contribution to both academic knowledge and practice by expanding the service innovation literature and identifying and detailing the specific innovation maturity levels that can be used to enhance service innovativeness. The paper also highlights essential aspects of the discipline which warrant further investigation in the future.

Keywords: Service innovation capabilities, resource-based view, capability maturity model, capability measurement, service innovation maturity.

INTRODUCTION

Service innovation is a vitally important component of thriving competitive economies. With the overwhelming majority of developed economies comprised primarily of service activities, their ability to adapt, renew, and pioneer is key to creating employment and economic growth (Den Hertog *et al.*, 2010). Service innovation is distinctly important to Irish SMEs, as evidence shows that firms which innovate are more likely to be successful at exporting, an essential pursuit for businesses operating within a small domestic economy (Love and Roper, 2013). Indeed, there is considerable agreement within the literature that firms engaging in service innovation outperform non-innovating firms in areas such as productivity and growth (Cainelli *et al.*, 2004). These types of innovations create numerous benefits such as the attraction and retention of customers, increased value for shareholders, improvements to service delivery, flexibility, risk reduction, enhanced learning, employee satisfaction, improved market perception and market share, and increased competitiveness and financial performance (Chen *et al.*, 2011; Aas and Pedersen, 2010). Financial benefits arise through higher turnover, lower costs, increased quality, and a heightened ability to meet regulatory requirements, which can also play a valuable role in opening up new markets (Den Hertog *et al.*, 2011).

Rather than merely a strategic endeavour to enhance business performance, increasingly service innovation is being thought of as imperative to the survival of firms (Jones and Samalionis, 2008; Wang and Ahmed, 2004). Without innovation and undertaking steps to adapt to their business environment, firms may become trapped in activities which deliver ever-decreasing returns (Kindström *et al.*, 2012). This requirement stems from changes in the market where value is primarily derived from intangibles such as services, relationships, and knowledge, and in this context, service innovation is considered necessary to ensure long-term and sustainable competitiveness (Esterhuizen *et al.*, 2012; Ojasalo, 2009). This is perhaps why those outside of the traditional service boundaries, including manufacturing enterprises, are adopting service innovations also and similarly see them as a strategic necessity (Ojasalo, 2009). Service innovations are utilised by manufacturing firms primarily

in an attempt to differentiate themselves through the bundling of products and services (Carlborg *et al.*, 2013).

However, it must be stressed that service innovation within the services literature has received scant attention and even within the broader innovation literature, there is a historical bias toward the study of product innovation within the manufacturing context resulting in little significant international research activity on service innovation within SMEs (Szczygielski, 2011; Drejer, 2004). Moreover, there has been relatively little empirical research reported that details how firms can achieve the benefits of service innovation. Indeed, service innovation is difficult to achieve and remains a central dilemma for most small firms. For Hipp and Grupp (2005), this dilemma stems from a lack of a clear measurement tool for service innovation which consequently means that firms cannot identify which innovation capabilities their service innovation performance is suffering on, as well as the inability to identify and utilise the most relevant mechanisms in order to upgrade their innovative maturity mode (McDermott and Prajogo, 2012; Janssen, 2009). Simply stated, firms have no guidance with which to make informed decisions on how to enhance their innovation capability and achieve the benefits of service innovation through optimised resource deployment.

Developing a diagnostic model that will allow small firms to measure their service innovation capability in order to categorise their service innovation maturity level is the core objective of this research and builds upon previous work by Essmann (2009) in the innovation literature, Bullinger *et al.* (2007) from the strategy literature and (Den Hertog *et al.*, 2010) in the services innovation literature.

The rest of the paper is structured as follows; next the theoretical approach is outlined followed by an overview of existing service innovation literature and its shortcomings. This leads to the presentation of a tentative conceptualisation of the maturity levels in a service innovation capability maturity model and the paper concludes with observations and future steps for the research project.

THEORETICAL APPROACH

This study adopts a resource-based view (RBV), and by extension, dynamic capabilities (DCs) perspective (Karniouchina *et al.*, 2006). These are theoretical explorations of variations in firm performance over time, explained through resource and capability differences (Mort and Weerawardena, 2006). Resources and capabilities are depicted as being present in all businesses and embedded in their structures and processes to varying degrees (Barney and Clark, 2007; Walsh *et al.*, 2011). The RBV says competitive advantage occurs when they are valuable, rare, immobile, non-substitutable, and deployed and configured correctly by the organisation. DCs are capabilities that allow firms to sense opportunities and threats and respond to them by ‘enhancing’ the firms’ tangible and intangible assets through recombination or reconfiguration (Weerawardena and Mavondo, 2011: 1221). Both perspectives illustrate that the criticality of resource management is at least equal to their possession (Sirmon *et al.*, 2007).

RBV and DCs can be easily aligned with the study of innovation as they are concerned with utilising resources and capabilities to maximum productive output, or capacity, in a particular application domain (Gallego-Álvarez *et al.*, 2011). This makes it the most adequate lens with which to identify, measure, and leverage limited resources optimally. Winter (2000) says rather than just considering which capabilities are present, the degree to which they are present must be considered also. The granular level of analysis the RBV facilitates allows for more than just pass or fail standards, and leads to the identification of improvement opportunities (Paulk, 2009). This perspective can also offer new insights into the complexities of resource relationships and takes into account the informal and multi-dimensional elements of service innovation (Camisón and Monfort-Mir, 2012)

Within the RBV/DC literature, inadequacy is expressed regarding descriptions of how resources and capabilities are developed (Barney *et al.*, 2001). The systematic approach of the RBV/DCs and characterisation of the firm as a collection of resources and capabilities is useful in the firm-level study of service innovation (Lawson and Samson, 2001). It offers particularly useful insights as service innovations are “*less tangible and more interwoven*

with the capabilities embedded in the process and routines throughout an organisation”
(Den Hertog *et al.*, 2010: 491).

THE REVIEWED LITERATURE

This paper encompasses research from a heterogeneous range of sources such as journal articles, conference papers, books, internet resources, and doctoral theses. Though the quality of these sources may be inconsistent, the primary objective was obtaining insights regarding the service innovation capabilities of SMEs and how these could be measured and managed. Due to the absence of specific research in this area; work outside of the discipline was incorporated. In the course of the research topics such as service innovation, resource-based view and dynamic capabilities, resource and capability management, and the capability maturity model framework were considered.

Although many of the reviewed articles have had an impact on the direction and tone of the paper, in the interests of pragmatism not all of them are referred to in the text. The paper does not claim to include all publications in the research domains, but rather demonstrate that the review was extensive. Papers that were inaccessible or not in English could not be included. Throughout the research and writing process it was the intention of the authors to accurately and appropriately interpret the referenced support material. This paper incorporates research from 120 journals from 1985-2013 from all available and relevant databases such as ABI/Inform, Business Source Premier, Emerald Full Text, and Science Direct. Searches were conducted using keywords and reference list analysis. Any relevant literature which was not obtainable through the databases of the Luke Wadding Library at Waterford Institute of Technology was sourced through inter-library loans. In total 286 documents were reviewed for this paper (Table 1).

Journal Title	Number
Industrial Marketing Management	10
Strategic Management Journal	9
Service Industries Journal	7
Research Policy	6
Journal of Service Management	6
European Journal of Innovation Management	5
Technovation	5
The Academy of Management Review	4
Journal of Management Studies	4
International Journal of Management Reviews	3
Decision Sciences	3
Journal of Product Innovation Management	3
Computer	3
Creativity and Innovation Management	3
Small Business Economics	3
Research-Technology Management	3
Other journals (with two citations or less)	127
Books	12
Internet sources	49
Conference Papers	21
Total	286

Table 1: The Reviewed Literature

DEFINING SERVICE INNOVATION

Despite the numerous advantages to firms and increasing academic interest in the area there is a lack of consensus regarding service innovation and no definition exists which is widely used and accepted by all scholars (Giannopoulou *et al.*, 2011). Existing literature is very fragmented and service innovation has been interpreted in many ways, ranging from narrow perspectives, to broad views which incorporate the entire process of service development (Ojasalo, 2009).

For Den Hertog *et al.* (2010: 494) service innovation is ‘a new service experience or service solution’. Camisón and Monfort-Mir (2012: 779) add that innovation in services does not only create ‘new products and processes’, but also new ways to distribute and organise the services themselves. Ojasalo (2009: 219) perceives service innovations as the ‘ability’ and ‘competence’ to ‘anticipate’ and identify changes in customer behaviour and design better

services in response. She goes on to say that they are definable, repeatable, scalable, and unique and align the right ideas with the firms' goals, staff, level of risk, and demand (Ojasalo, 2009). Ostrom et al. (2010: 5) see service innovation as creating value for all stakeholders through 'improved service offerings, processes, and 'business models'. Riddle (2008) contributes that service innovations are intentional, bring benefit to the customer, improve profitability, are replicable, and can be as simple as identifying an unmet need and designing a service for it. Nijssen et al. (2006: 242) are of the opinion that innovation in services is primarily concerned with developing 'new procedures and concepts' as opposed to new technology.

Although these definitions may seem unrelated and divergent, most are deliberately broad in order to incorporate service innovations in the context of manufacturing firms. The importance of both technological and non-technological innovations and new ways of organising and distributing services can be seen (Aizcorbe *et al.*, 2009). Organisational innovations, such as new management or marketing models are traditionally areas associated with service firms and where they have led the way (Camisón and Monfort-Mir, 2012). Service innovations originate with new ideas and result in changing service elements to create value for stakeholders (Den Hertog *et al.*, 2010; Ostrom *et al.*, 2010). Though service innovations appear to be quite heterogeneous, some characteristics appear frequently such as intangibility, process change, and incremental, rather than radical improvements (Hipp and Grupp, 2005). However, in order for a business to survive in this challenging environment more is required than the ability to create an innovation. Firms must have the capacity to do so continually to capture and capitalise on potential opportunities in a dynamic environment (Chen *et al.*, 2011). The requirement to innovate constantly means innovation capabilities are of central importance (Lawson and Samson, 2001).

Based on the foregoing, we define service innovation as the *outcome of a firms' ability to repeatedly respond to changes in customer preferences by deliberately reorganising or altering the service-product or delivery system in a way that creates value for the firm and its stakeholders.*

SERVICE INNOVATION AND THE CAPABILITY MATURITY MODEL FRAMEWORK

Despite the numerous and varied advantages that accrue to firms engaging in service innovations, currently they do not have any insights into their own innovative performance. The reason for this is that in existing literature firms are either categorised as innovative or non-innovative (Den Hertog *et al.*, 2010). With this black or white analysis, the wide heterogeneity of firms' abilities in this area is not accounted for, and the detail and texture that comes with the identification of strengths and opportunities does not exist.

Recently increased interest has been stimulated concerning the measurement of service innovation. The reason for this is the growing importance of services and service activities to the global economy and the potential for growth that innovation offers firms (Camisón and Monfort-Mir, 2012). Currently, there is little data regarding the service innovation intensity of firms meaning it is difficult to understand how service innovation links to the performance of the business (Den Hertog *et al.*, 2011). In the absence of an innovation capability measurement mechanism, effective management and control cannot occur (Giannopoulou *et al.*, 2011; Adams *et al.*, 2006). The introduction of measurement would facilitate new forms of management leading to greater success in service innovation projects through the assessment and identification of priority areas (Hogan *et al.*, 2011; Aas and Pedersen, 2010). This information could be the foundation for the introduction of formal processes which would enhance both the rate and quality of service innovations (Janssen, 2009). The degree to which service innovation capabilities can be measured within firms will offer rich insights into how firms are positioned and take into account the multi-dimensional and informal elements of innovation (Bjork *et al.*, 2010). This provides a foundation for deliberate approaches to build capabilities, formalise informal process elements, and create effective new management forms, which benefit firms through increased consistent innovative service outputs (Camisón and Monfort-Mir, 2012; Lee and Kelley, 2008).

Despite the criticality of measurement in this area, it has been overlooked by researchers until very recently. Though limited progress has been made, the existing body of knowledge is still relatively small when compared to the rich literature on innovation in manufacturing (Szczygielski, 2011). Consequently, there is a limited understanding of service innovation and how it is measured (Chang *et al.*, 2012). Existing research on service innovation

measurement is disaggregated into partial views which are often difficult or impossible to combine (Adams *et al.*, 2006). Some existing theories of innovation measurement focus on tangible inputs or outputs such as innovation expenditure, number of new products or patents, or speed to market, and essentially ignore the processes involved (Adams *et al.*, 2006). Others assess the area perceptually rather than through actual measures of firm performance (Ordanini and Parasuraman, 2011).

The measurement of service innovation and the capabilities that enable it is problematic for a variety of reasons. The complexity of the actors, linkages, inter-dependencies, and networks which are involved are inseparably connected with the day-to-day delivery of a service and mean that pinpointing the causes, outcomes, or relevance of capabilities can be difficult (Aizcorbe *et al.*, 2009; Hipp and Grupp, 2005). Innovations can occur at different speeds between incremental and radical and the characteristics of service activities such as intangibility, and co-creation compound the difficulty further (Aizcorbe *et al.*, 2009; McDermott and Prajogo, 2012). In addition to this, services themselves exist on a continuum of pure services to a product service hybrid (Camisón and Monfort-Mir, 2012). The idiosyncrasies of services and their unique characteristics mean that it is not possible to apply traditional innovation measurement and management theories based on manufacturing to service activities (Janssen, 2009).

As a consequence, there is a massive deficit of practical, best practice solutions for managers at an organisational level (Keupp *et al.*, 2012). For Panayides (2006) and others (Abidin *et al.*, 2013; Karniouchina *et al.*, 2006; Keupp *et al.*, 2012; Den Hertog *et al.*, 2010; Nijssen *et al.*, 2006) the identification of innovation capabilities and how to enhance them ought to be at the forefront of innovation research. Appeals exist for assistance overcoming the 'resource poverty' experienced by many SMEs through the enhancement of resource deployment decisions (Mort and Weerawardena, 2006). Adams *et al.* (2006) propose that monitoring and evaluating service innovations, distinguishing weak areas, and making suggestions regarding how they could be addressed could be accomplished with a firm-level framework. This approach is categorised as resource and capability management and attempts to identify the critical capabilities of a firm and their connection to performance and make recommendations which maximise their positive impacts (Degraevl, 2011).

Existing capability maturity frameworks describe a series of stages representing the anticipated path from an organisation's current state to one of maturity, or accomplishment, in a discipline (Röglinger *et al.*, 2012; Wendler, 2012; Martin *et al.*, 2005). Maturity in the application domain is represented by a number, called the maturity level, which ranges from low to high indicating the increasing sophistication of the processes at that level (Jochem *et al.*, 2011). It is widely applicable to organisations in a variety of industries regardless of size, strategy or culture as it describes the 'what' and not the 'how', that represent the requirements of maturity levels, rather than specific practices (Essmann and Du Preez, 2009: 54). It is a descriptive, prescriptive, and comparative tool which institutionalises and embeds both the desired processes and the infrastructure to support them (Essmann, 2009). It is evolutionary and requires that all criteria for one maturity level are met before an organisation can proceed to the next.

Essmann (2009: 32) states “[t]here are two fundamental purposes of maturity models. The first is to establish the capability maturity of an organisation in terms of a specific domain or practice. The second is based on the results of the first; to facilitate in establishing a direction and course for improvement that will best suit the enterprise and that is in accordance with the prescribed best practices of the domain”. The models present a framework for measurement, evaluation, and diagnosis from which prescriptive solutions to deficiencies can be derived (Adams *et al.*, 2006).

The staged, incremental approach of CMMs ensures improvement steps are achievable, progress is measured, and immediate improvement areas identified based on the assessment of the organisation in question (Röglinger *et al.*, 2012; Burger *et al.*, 2011; Saiedian *et al.*, 1995). Due to limited resources there are a restricted number of areas that can be improved, and the use of a framework supports firms that may be “*overwhelmed by the size and complexity of the need*” and fail in improvement endeavours (Paultk, 2009: 7). Setting management priorities in this way facilitates the integration of traditionally separate organisational functions towards achieving critical improvements which are likely to have the greatest immediate impact and make the best possible use of scarce resources (Tan *et al.*, 2011; Kaner and Karni, 2004).

Assessing a firm's service innovation capabilities increases employees motivation for change and encourages the implementation of necessary improvements and enhanced organisational

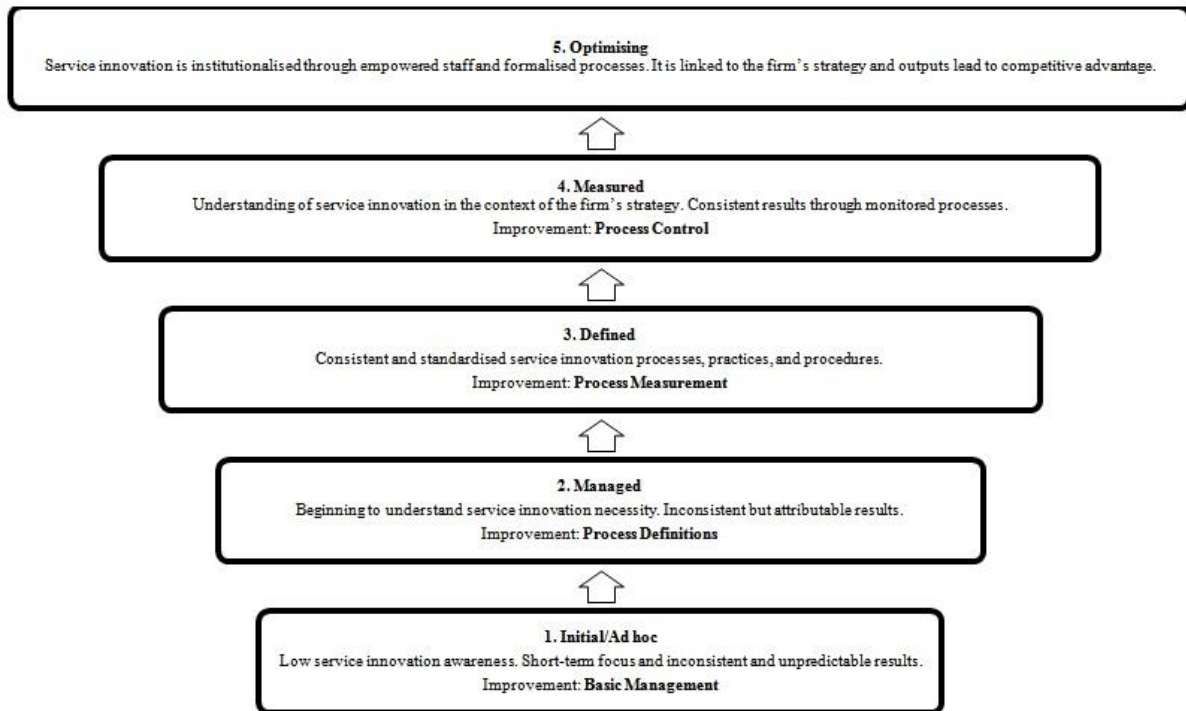
alignment (Jochem *et al.*, 2011; Essmann and du Preez, 2010). Maturity models often can generate an awareness of the features which they analyse by underlining their importance, complexities, and what is required of the firm (Wendler, 2012). Service innovation capabilities do not depend on rigid sector or country specific metrics which means that comparison is possible with other firms, even those within other industries or internationally (Jochem *et al.*, 2011). So once the service innovation capabilities are identified firms will be able to determine how they compare to 'best practice'.

The intention of the CMM is to generate results which are "repeatable, measurable and continuously improved" and transform undisciplined states into those which are capable of producing predictable results and increasing organisational capability (Wademan *et al.*, 2007: 100). As processes become better defined and more consistently implemented through continuous improvements, firms progress to reach the higher maturity levels. The highest of these is an idealistic state, or the maturity of service innovation capabilities, resulting in consistent service innovations (Kruger and Snyman, 2005).

DEVELOPMENT OF THE MODEL

Through an analysis of existing maturity models in other application domains, common characteristics can be identified and applied in a service innovation context (Janssen *et al.*, 2012). CMMs are unified by the same basic principles which systematise capability development resulting in increased control, incremental improvements, and enhanced monitoring and management ensuring predictable and consistent outputs in a particular area (Rasula *et al.*, 2008; Li *et al.*, 2011; Essmann and du Preez, 2010). Through an evaluation of the existing literature, themes became quite apparent regarding the behaviours expected to be present at the various maturity levels. Based on the maturity levels of extant maturity models, a composite model was created which outlines the characteristics expected at varying stages of service innovation capability maturity (Wendler, 2012). The composite model allocates titles to each of the maturity levels based on those expected behaviours. The project was also able to derive what the primary improvement area was for each level in order for a firm to progress. The labels for the maturity levels, the expected traits, and the primary improvement objective for each level are briefly outlined below.

Figure 1. Tentative conceptualisation of the service innovation maturity levels



1. Initial/Ad hoc

The first maturity level is labelled the initial or ad hoc stage. It is the lowest level of maturity that firm can have with regard to service innovation. There is low to no awareness of the benefits of service innovations and how to create them. Firms tend to have a short-term focus primarily concerned with day to day operations. There is little standardisation of service innovation processes and they are not planned or tracked. This environment is reactive, undisciplined, and comprised mainly of individualistic behaviours. There are no standard definitions of what is expected nor any feedback or monitoring, leading to wildly unpredictable results. To progress to the next maturity level the firm must to recognise that there is a need to improve their service innovation capabilities and introduce basic management measures.

2. Managed

At the second stage, the managed level, the firms' awareness of service innovation begins to increase and there is the realisation that it is a necessity. Management of service innovations is still inconsistent and reactive with low implementation of policies and low levels of strategy in the area. There are no mechanisms for feedback or the monitoring of results.

Outputs are inconsistent but firms are beginning to recognise capabilities that enhance innovative service outputs. Basic controls are established such as the identification of the roles and responsibilities of employees with regard to service innovation. Management also have a greater understanding of the firms' service innovation needs. Staff begin to understand the goals of the firm and this enhances relationships and interactions across business functions. This level is where the standardisation and the formalisation of processes originate. The firm move to the next level of maturity as the processes become better defined.

3. Defined

At the third stage, which can be described as the breakthrough stage, the emergence of a strategy with defined plans and priorities comes about. Some basic performance management metrics are present in order to track the behaviours of firms and allow for limited feedback. Processes begin to become further defined and start to be institutionalised. The consistency of innovative service outputs increases. The organisation has a more sophisticated management infrastructure which encourages employee learning and developing the capabilities required for service innovation. Limited, but increased data regarding progress facilitates decision making. Knowledge is managed more effectively through better communication systems. Senior management are engaged and committed and a more cohesive approach is taken than in previous levels. There is increased coordination, standardisation of processes, and integrated management. The introduction of accurate measurements of performance in the now defined processes is required to progress to the next level.

4. Measured

Present at the fourth, measured, maturity level is a high-level of strategic planning. Metrics are used in order to ensure that the innovative outputs are predictable and controlled through formalised procedures. These outputs are used as a source of differentiation. The organisation's processes are well understood and the responsibilities and roles of staff members are clear and well defined. The defined systems enable the pursuit of best practices and the firm adopts a long-term approach. The highly standardised processes and outputs are evaluated through comprehensive measurements and analysis. The culture of the business has also evolved as the capabilities that are desired and encouraged by the organisation become increasingly manifested in staff behaviour. There are high levels of coordination and performance data is used in future planning. There is an increase in quality and cooperation. Traditional business functions begin to disappear and capabilities take shape through deeply

embedded management systems and processes. Throughout the organisation there is an understanding of service innovation in the context of the firms' strategy. The firm use data from measurements to increase their control over processes further and move to the highest level of maturity.

5. Optimising

This is an idealistic state which represents the highest possible levels of service innovation capability maturity, or best practice. The firm at this level are recognised as a service innovation leader and drive standards instead of following them. The behaviours and processes of firms, which are enabled by the capabilities, differentiate the firm from its competitors. Processes are highly formalised and are based on actions which have been effective historically and incorporate feedback. Capabilities deploy resources in an optimal manner which is linked to the firms' strategy and leads to competitive advantage. Measurement is used to influence improvements. Processes and performance are continuously reviewed and enhanced to ensure that the firm retain their position as a service innovation leader and weak areas are refined and addressed through training and other measures. Organisational learning is managed and shared effectively by staff. Service innovation is institutionalised through empowered staff and formalised processes. Close to all staff are involved in service innovation and creativity and sharing is encouraged and promoted. The culture is adaptive, despite formal processes, due to the ongoing reviews that occur. High-levels of collaboration with customers and other stakeholders ensure that there are strong links with the external environment.

NEXT STEPS

Our initial tentative conceptualisation of the anticipated characteristics at the various maturity levels is only a starting point and it has its shortcomings and raises perhaps many more questions than it answers. For instance; What capabilities are essential to service innovation?; Whether all capabilities are equal or are some capabilities more useful than others?; and in what configurations do capabilities lead to enhanced innovative performance? (Janssen, 2009). Nevertheless the framework presented here paves the way for an understanding of what capabilities might be present at the different maturity stages.

Next Steps: Literature

The focus will be on understanding service innovation capabilities that shape the innovation maturity within an organisation. Indeed, service innovation is best conceptualised as an output, with service innovation capabilities as the organisational means for generating these type of outputs (Esterhuizen *et al.*, 2012). Innovation capabilities, often referred to as innovativeness, create the potential for behaviours that contribute to a firm's capacity to implement innovations (Basterretxea and Martínez, 2012; Lawson and Samson, 2001). Capabilities deploy the resources and assets of a firm, and through individuals and groups they enable distinctive abilities in a certain area (Kelliher and Reinl, 2009). Winter (2003) describes capabilities as high-level routines, or collections of high-level routines, which facilitate an organisation producing significant outputs of a certain type, which in this context would be service innovations. These capabilities can be considered as a characteristic of the firm's preparedness for innovation, or as the 'muscles of innovation' (Börjesson and Elmquist, 2011: 174).

Service innovation capabilities enable the routines and processes which leverage or deploy the firm's resources (Janssen *et al.*, 2012; Sok and O'Cass, 2011). They are learned through repetition as they are executed and refined through the firm's processes and systems. Giannopoulou *et al.* (2011) contend that service innovation capabilities are reliable and consistent, or mature practices, which occur over time as complex behavioural patterns, that require skills and knowledge and become part of the automatic behaviour of a firm, making them distinct from other firms (Sok and O'Cass, 2011). Because the survival of firms is linked to their ability to continually adapt and innovate to satisfy market demands, service innovation capabilities are essential to ensuring they are able to innovate consistently and predictably (Lin *et al.*, 2010). They represent a series of actions or practices that reliably deploy an organisation's resources allowing them to innovate repeatedly (Giannopoulou *et al.*, 2011). The consistent commercialisation of novel service ideas is necessary for both long and short-term performance and profitability (Mikkonen, 2009). Service innovation capabilities underpin and reinforce the entire innovation process, consolidating all the stages from idea generation to exploitation through new or changed services (Agarwal and Selen, 2009).

Although only limited studies have been conducted, there appear to be strong positive links between innovation capabilities and performance (Rhee *et al.*, 2010; Walsh *et al.*, 2011).

Basterretxea and Martínez (2012) assert that firms which have superior innovation capabilities also have superior performance and Alam *et al.* (2013) agree stating that innovation capabilities enhance every aspect of firm performance, ultimately resulting in increased competitiveness and superior financial performance. In order to determine how service innovations occur it is suggested that the best approach is to identify the capabilities that are present when they are achieved successfully (Hamel, 2006). This requires both the identification of service innovation capabilities and measurement of the degree to which they are present.

Methodology: Next Steps

In terms of methodology, to progress the development of a service innovation maturity capability framework that measures firm-level innovation capabilities, and prescribes the factors that shape it, the research will adopt a mixed-methodological approach. First, since prescriptive models which detail the capabilities that firms require in order to achieve service innovation are scarce, it is proposed to adopt a qualitative case study methodology that draws on the actual company-wide practices of four firms who have demonstrated and developed service innovation maturity. The benefit of using case research is the potential use of many different sources of evidence, commonly known as triangulation. Indeed, it is generally accepted that findings emanating from a case study should be based on several different sources of information (Yin, 2003; Eisenhardt, 1989). Thus in order to answer the research questions posed by this investigation, small firms will be the principal case data source. To extract the needed information, the study will employ a number of data collection techniques such as interviews, documents, archival records and observation. It is planned to interview the key personnel involved in the strategic innovative practices of the firms. These interviews should facilitate an understanding of the dynamic capabilities involved in creating firm-level service innovation maturity. It is also envisaged that the project will make extensive use of documents and archival records in order to prepare for interviews and also to contain the difficulties associated by participant's selective retrospective bias, in that documents will be used to 'challenge interviewees' memories and cross-check their *ex post* data and perceptions. It is intended that further field data will be gathered through participant observation by attending firm-level meetings, and innovation and brainstorming sessions at the case sites.

Second, a mail questionnaire will be designed to test the measurement of capabilities identified in Phase 1 and will form the basis of the measurement scales utilised in the service innovation maturity framework. The national study will also inform the researcher as to the extent and depth of service innovation capabilities within Ireland and the factors that contribute to higher levels of innovativeness. A mail questionnaire was considered a most suitable data collection method mainly due to the complexity of the issues under investigation, most notably developing interval level scales to measure the nature and depth of service innovation capability and maturity. In addition, in terms of reliability and validity, adopting a postal survey approach has its obvious strengths, explicitly the ability to generalise findings from the sample of companies involved in the research to a wider population and also the possibility for another researcher to replicate the original research under the same conditions (Gill and Johnson, 1997). The findings that emanate from this phase of research will greatly aid the development of a service innovation maturity model.

CONCLUSION

The positive implications to firms which have the ability to measure their service innovation capabilities ensure that this avenue of investigation is worthwhile. The importance of service innovation to Irish firms both now and in the future means that the ability to measure and manage innovation is an imperative. In order to address this issue the project proposes a mechanism which not only addresses the current deficit in both extant research and a practical business context, but also nominates a solution by which service innovation capabilities can be described, assessed, improved, and compared.

It is proposed that the outcome of this research will be a service innovation capability maturity model that is intended for use as a guide to improve innovative performance and address constraints in terms of resources or skills (Branzei and Vertinsky, 2006). Its goal will be to create a roadmap for the evolution of capabilities and a common decision making and communication structure for practitioners (Harigopal and Satyadas, 2001). The current paucity of research in this area means that there are numerous opportunities to advance theoretical understanding and provide rich insights into the innovative capabilities that exist within Irish SMEs. The potential benefits to practitioners are numerous as the identification of service innovation capabilities, and the processes that they enable, allow for the prescription of targeted and specific improvement initiatives which optimise resource deployment and result in greater innovative service outputs.

The proposed model theoretically facilitates the comparison across firms of their innovative capabilities and potentially it could be used for benchmarking or the selection of partners as it offers a means of comparison without divulging any organisation specific, competitively sensitive information. Models can never be entirely accurate in what they are representing, but it is hoped that a simplified representation may be useful in understanding a complex subject. By viewing this system in a new way it is hoped that this novel perspective and the insights it generates may lead to a heightened understanding of the dynamics in operation (Essmann, 2009).

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