Service Science: Research and Innovations in the Service Economy

Linda A. Macaulay · Ian Miles
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Editors

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Editors

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Springer

Editors
Linda A. Macaulay
Manchester Business School
Manchester, UK

Ian Miles
Manchester Business School
Manchester, UK

Jennifer Wilby
Hull University Business School
Hull, North Humberside, UK

Yin Leng Tan
University of Reading
Reading, UK

Liping Zhao
University of Manchester
Manchester, UK

Babis Theodoulidis
Manchester Business School
Manchester, UK

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Introduction to the Book

Case studies in service innovation brings together contributions from researchers and practitioners in a celebration of achievements of innovation in practice, with the intention of adding to the wider understanding of how service innovation develops and to stimulate learning from one context to another.

The book benefits from an introduction by world-leading expert, Professor Ian Miles of Manchester Business School, UK, who has been researching and publishing in Service Innovation since the early 1990s. The introduction maps out some of the early approaches to service innovation, introduces the terms "service" and "services" and guides us through the complexities of service innovation, thus providing an excellent context for the cases that follow.

The book is organised around five major themes each reflecting recognised sources of service innovation. For purposes of simplicity each case is reported under only one theme. The themes can be summarised as follows:

Theme 1: Business Model Innovation: Service innovation through new ways of creating, delivering or capturing value (economic, social, environmental or other types of value).

Theme 2: The Organisation in its Environment: Service innovation through an organisation engaging beyond its own boundaries, for example through public private partnerships; sourcing knowledge externally; innovation networks; open or distributed innovation.

Theme 3: Innovation Management within an Organisation: Service innovation through an organisation actively encouraging innovation within its own boundaries, for example through project teams, internal governance of innovation, methods or tools that stimulate innovation.

Theme 4: Process Innovation: Service innovation through changes in service design and delivery processes, for example through consumer-led innovation or consumers as part of the innovation process, service operations management, educational processes.

Theme 5: Technology Innovation: Service innovation through the use of technology, for example through ICT-enabled innovation, ICTs that are themselves innovative and support the delivery of new services, new ICT services, new ways of delivering services associated with ICT products, technology other than ICT.

Each case provides a two-page description of the context in which the innovation occurred, the opportunity that led to the innovation and an overview of the innovation itself. It also addresses how success was measured, what success has been achieved to date and links to further information.

On reading a given case it will soon become clear that the case may also contribute to other themes; for example, technology innovation may not be achieved without process innovation; business model innovation may be stimulated by technology innovation, and so on. Hence the final part of the book presents extended case studies illustrating the complexity of service innovation and the inter-relatedness of all things within the service system that will ultimately deliver the innovation.

The cases are not limited to one industry sector but are from a wide range of sectors and countries. Theme one, business model innovation, includes cases from the aviation sector and the telecoms sector in China, the video games industry in Taiwan and the manufacturing sector in Finland. Theme two, the organisation in its environment, includes cases from the farming sector in France and the healthcare sector in Denmark and Tanzania. Theme three, innovation management within an organisation, presents cases from the public sector within the UK including social housing and health services. Theme four, process innovation, includes the insurance sector in Finland and a case of applying techniques from the manufacturing sector to the healthcare sector in the UK. Theme five, technology innovation, includes cases from the real estate sector in Taiwan, the telecoms industry in the UK and Spain, government services in Switzerland and the IT sector in multinationals.

The book is organised by theme rather than by sector in order to facilitate learning from one sector to another and to stimulate the reader in examining how innovation occurs.

It is clear from the cases that innovation occurs for many different reasons, usually some opportunity or motivation for change that has stimulated the need for innovation. Deregulation of the Chinese aviation industry led to development of a new business model. A change in government policy on health promotion stimulated creation of public-private innovation networks in Denmark. Security threats and the challenge of software piracy led to a rethinking of the business model in the Taiwanese video games industry. New European Union environmental regulations on crop spraying led to the use of satellite technology by farmers. The economic downturn and pressure to reduce costs of providing services whilst maintaining quality standards in the social housing sector in the UK led to the adoption of private sector tools and techniques by the public sector.

The book includes examples of innovation motivated by deregulation, government initiatives, security threats, the environment, the economic downturn, the need for greater customer involvement and of course the opportunities afforded by new technologies.

New technologies stimulating service innovation include: the use of knowledge sharing between real estate brokerages to help grow the size of the market in Taiwan; the use of Telco 2.0 technologies to support an "innovation community" and facilitate personalisation of telecoms services; the use of ultra-high seismic sensing technology to improve the quality of data delivered to energy companies; and the use of virtual

world technology to enable geographically dispersed students to attend graduation via their avatars.

Measurement is an important aspect of service innovation. In this book authors were asked to address the question of whether the innovation was successful and how success was measured. Measures include: ability to attract new customers; efficient use of human resources; ability to export services to overseas markets; profit; growth; profit despite the economic downturn; the innovation resulting in a stable, long-lasting solution; the level of trust between partners leading to longer-term partnerships; customer satisfaction; cost savings whilst maintaining standards; compliance to regulations; environmental measures; complementarities between public and private sector partners; revenue generation; accuracy of stock levels; shorter transaction time; and the expansion of market size.

In addition to the twenty-two cases summarised above, the final part of the book is given to four extended cases allowing for a more in-depth treatment of innovation within a complex service system. The extended cases also illustrate two important and growing trends, firstly the need for, and benefits of, a more customer centric approach to service innovation and secondly the need for better understanding of public services and the role of public-private partnerships in identifying and achieving innovation.

Finally, this text is offered as a resource for students and practitioners who are looking for examples against which they might test their ideas, thus contributing in some small way to the on-going dialogue about service innovation within the service science community.

Linda A. Macaulay

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Introduction to Service Innovation

Ian Miles

Abstract This essay discusses how service innovation has moved from being a topic attracting little interest, to one that is increasingly focus in innovation studies. While this means taking account of issues that have generally been neglected in innovation analysis, the case is made that we can move to more integrated views of innovation and innovation processes which take into account both common and specific features across sectors and different types of organisation, and across a wider spectrum of innovations than captured in standard classifications such as product versus process. The essay reviews studies discussing varieties of innovation and innovation management across modern economies, and outlines multidimensional approaches to service innovation that should prove useful for further analysis.

Service Innovation Comes in from the Cold

Until the 1990s, it was rare to find researchers and policymakers taking the topic of service innovation seriously. Innovation was identified with technological innovations, which were mainly seen as flowing from manufacturing industries. Service industries at best adopted these innovations.

By the 1990s, it was clear that service industries were among the most enthusiastic adopters of new Information Technologies (IT), that many of these industries were actually creating quite new services around the use of these technologies, and that new service industries were emerging to develop software, content, designs and many other aspects of IT activities. Alongside the rising share of service activities in industrial societies around the world, this made the neglect of service innovation look increasingly outmoded. The research community responded: Publish or Perish (Harzing 2010; data accessed December 2010) indicates only eight publications in the period 1975–1989 containing "service innovation" in their titles; but this rose to 24 in the 1990–1999 period; and 500 over 2000–2009.

Reviews of this emerging literature note that some rather typical approaches recur. Reviews by Gallouj (1998) and Coombs and Miles (2000) each classified three

I. Miles (✉)
Manchester Institute of Innovation Research, Manchester Business School,
Harold Hankins Building, Oxford Road, Manchester M13 9PL, UK
e-mail: ian.miles@mbs.ac.uk

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approaches to service innovation, and these classifications have been adopted by several subsequent scholars. Droege et al. (2009) suggest that there are actually four distinct approaches being discussed (Table 1). Most authors who have made use of such comparisons end up arguing that a synthesis approach is optimal, both in that it will allow for better capture of important phenomena in modern economies which the other approaches might overlook, and because it is more elegant to have a single approach than to have incommensurable analyses of what are often at least superficially similar processes. It also makes it easier to argue for integrated training, policies, and the like. Nevertheless, the diversity of service activities, which we discuss at more length below, has led some researchers to argue that we need to embrace the variety of forms of innovation and innovation management that are emerging. Thus Howells (2010) sees a "segmentalist" approach to innovation in services as emerging, moving away from analysing services as a whole. Even a casual encounter with the literature on services is likely to reveal that for every generalisation that can be made about these activities, there will be numerous exceptions. Should we expect innovations in cinemas, hotels, surgeries, software maintenance, logistics, and management consultancies to have that much in common, and to be generated and managed in the same ways?

This essay will review literature exploring what we mean by service innovation, what might be its notable characteristics and varieties, and what is known about the methods and processes of innovation management and new service design and development.

The Ambiguities of Service—and Service Innovation

"Service" and "services" have been contested concepts, with much scope for misunderstanding. Are we talking about particular products (services as intangible goods), about particular industries (those whose main output is such service products), about particular types of social or market interaction (service relationships, customer service, etc.)? To further complicate matters, economists may talk about "product services" (value supplied by industrial equipment, for example), informatics developers about service-oriented architecture (the orchestration of services supplied by software) and environmentalists about ecosystem services (nature providing us with air and water, for example). We shall draw a veil over the servicing of livestock in farming.

The Service Relationship: Interactivity

One approach that has gained much influence in recent years is that of "service-dominant logic" (see, for example, Lusch et al. 2008; Vargo and Lusch 2006). Service marketing scholars and practitioners had found that service marketing could not rely on the methods used for marketing goods. *Service* is seen as a process and relationship, rather than just as an "intangible good". It is a *co-production* process in

Table 1 Four approaches to service innovation analysis. (Source: Categories from Droege et al. 2009, text by author)

Name of approach: Assimilation (Coombs and Miles 2000)	
Main characteristics	Most economic attributes of services are seen as fundamentally similar to those found in manufacturing, and where there are differences these tend to be shades of the same colours, not qualitatively different ones. Thus, theories and concepts developed in manufacturing contexts readily apply to innovation in services, and statistical measures can be simply transferred to services. Differences will often imply simply that services are lagging behind other sectors
Comments	Such an approach is apparent in many of the earlier statistical studies of innovation in services that deployed the data produced in the Community Innovation Surveys (CIS). A similar viewpoint is advocated in many mainstream accounts of topics such as trade and productivity, which assume that existing instruments will work effectively to describe the service economy
Name of approach: Technologist (Gallouj 1998)	
Main characteristics	Focus on new technologies (especially IT) as the critical form of innovation in services. Research and analysis using this framework tends to draw on ideas of innovation based on studies of manufacturing, but may stress distinctive features of services' technological innovation
Comments	Gallouj and Savona (2010) identify the technologist approach with the assimilation approach (above). Droege et al. (2009) consider the two approaches to be distinctive. The emphasis on technology may resemble that of many assimilationists, but some authors have stressed technological innovation, while arguing that the trajectory of service innovation is distinctive. For example, Barras (1986, 1990) account of the "reverse product cycle" portrays service organisations as following a distinctive trajectory of technology-based innovation, beginning with use of new technology to render production of services more efficient, and culminating in the creation of new services. This is the mirror image of the standard product cycle account for manufacturing
Name of approach: Demarcation (Coombs and Miles 2000; Gallouj 1998)	
Main characteristics	Services activities are highly distinctive. They may still be poorly understood, but what it is clear is that in many respects their dynamics and features require novel theories and instruments. It suggests at one extreme that quite new instruments are required for investigation of services activities, or that the results of established instruments need to be interpreted in new ways. For instance, since services conduct little R&D (on the whole), R&D-intensity is a poor indicator for identifying "high-tech" or "knowledge-intensive" services, and new approaches are required (e.g. skill profiles of the workforce); since much services internationalisation takes the form of investment, franchising and partnerships rather than conventional exports, the analysis of services "trade" has to pay more attention to such modes of presence. The distinctive features of services include intangible and un-storable products, and high degrees of interaction with customers (up to the point where consumers are often seen as "co-producing" services). Such features do not only mean that service industries lag behind in terms of innovation, but also that their types of innovation and innovation management processes are very different from those seen in manufacturing

Table 1 (Continued)

Comments	This approach is displayed in many case studies of services activities, often by researchers who come more from a service research tradition than from an innovation studies one. A case for demarcation is also made in much of the service marketing literature, and some "new service development" studies; some studies of productivity analysis also point to particular problems in assessing service productivity in conventional terms (e.g. Gadrey 2002; Grönroos and Ojasalo 2004)
Name of approach: Synthesis (Coombs and Miles 2000; Gallouj 1998)	
Main characteristics	There are continuities but also discontinuities between analyses of manufacturing and services innovation. The latter have highlighted issues that require examination—but at least some of these are features of innovation that are present in many manufacturing firms, but that have been neglected in most accounts of manufacturing innovation. A more comprehensive analysis, with more adequate indicators, is required for enriched understanding of innovation right across the economy. This will help account for variations within and across goods and service innovation, and help address the service activities of manufacturing firms and the goods-producing activities of service organisations
Comments	In many respects there is convergence between manufacturing and service sectors (Miles 1993). Many manufacturing firms more resemble the traditional view of services (for example, producing more customised products, having closer links with consumers, etc.; and at the same time, many services are becoming like traditional manufacturing (standardised and mass production of services by large firms, for example)

fact, where both "supplier" and "client" contribute resources to create and achieve benefits. All economic activity can be seen in this perspective as an exchange of services, and the service-dominant logic (rather like the "synthesis" approach mentioned above) proposes that the new framework for marketing and other analysis should apply to all sectors. The emphasis is on service (the co-production relationship) rather than on services (which we might consider to be the benefits that are supplied to the users). This approach might prompt us to look at service innovation in terms of changes in the resources the partners bring to, changes in the benefits they receive from, and changes in the way they act and interact in, the co-production relationship.

A more "demarcationist" approach to services also focuses on the service relationship and the associated process of "servuction" (contrasted to industrial production). This proved influential in particular in francophone research into services (e.g. Eiglier and Langeard 1987) but informed few innovation studies (a notable case being Belleflamme et al. 1986). Nevertheless, there is wide acceptance of the idea that the service relationship is a critical feature of service activities, and that these are often (at least) characterised by elements of co-production (where the user or customer has to contribute physical presence and quite possibly more active engagement for the service to be delivered). This can be seen to be one of the major defining features of service activities—that they very often require some interaction between supplier and user for the service to be produced. (They are "consumer-intensive", in the terminology of Gartner and Reissman 1974; they display high "interactivity" according to Miles 2005).

This is of course partly a matter of one's point of view. Is a broadcasting company no longer producing services if nobody is tuning in to its radio or TV station at a particular moment? While many services are produced to demand, there are some that are generated on a routine basis regardless of user presence, though these may be exceptions. From a service-dominant logic perspective there may be no service being created—or perhaps we could consider knowledge of the availability of the broadcast to be the service (that informs choice) co-produced in this case. This is perhaps an extreme example, but it is clear that the amount and type of effort that is put in by the partners varies from service to service. Sometimes the customer/user simply has to be present; sometimes they have to be very much more engaged for the service to be delivered (compare, for example, cinema attendance with having dental treatment, taking a train journey with interacting with a counsellor). Often, the service users are engaged in more activities than just specifying the desired service, purchasing it, and accepting "delivery". The quality of the user inputs is very important for the quality of the final service. Broadly, then, we can say that service processes are characterised by what is produced through more "interactivity" between supplier and user than is the case for other economic sectors. This is bound to have substantial influences on innovation processes—the relationship and ways in which interactivity is mediated can be important foci for innovation. Service innovation is liable to involve learning and behavioural change on the part of the user as well as the nominal service supplier.

Interaction necessarily involves information exchanges, even when the service also features delivery of a physical product or the transformation of something tangible. Information exchange implies that there is much scope for application of IT—from visual aids to support presentations and teaching, to online services of all kinds, monitoring and sensing systems, and automated equipment for supplying money, selling goods, or cleaning surfaces. Such new technologies have been at the heart of many new and improved services, while IT has also been used in back offices for a wide range of administrative and organisational functions. The "technologistic" approach is readily understood in consequence of the pervasiveness of new IT. Barras' (1986, 1990) contribution was to see this as a technological revolution in service industries analogous to that which manufacturing went through in the nineteenth century when it was transformed through the use of new power systems. He believed that organisations that previously had not been very technology-intensive would learn about the new ways in which they could accomplish goals through use of these technologies, and set off on trajectories of service innovation based on this use.

Another important development, however, is not always dependent on the use of new IT. Much service innovation centres, on the redistribution of the co-production activities between supplier and client. As widespread phenomenon is the introduction of what are sometimes known as "self-services" (cf. Gershuny and Miles 1983, for early discussion of this trend). The user plays more of a role in service production, for example by taking goods from shelves themselves (they have often have been pre-weighed) rather than asking an attendant to fetch and weigh the goods. This reduces labour costs for the service organisation, but can improve the quality and efficiency of the experience for the customer. Such innovations require creation of a mutually

acceptable framework for identifying and accessing the objects of the service. Of course, IT is often used in support of self-services, with ATMs and online bank accounts replacing counter staff. Finally, we should also note that the behaviour of other users can affect the service experience. Consider the impact of other users of social networking, or public transport services, for example. Value may be provided or destroyed by the interactions of and with other users, and this too can be a focus of innovative effort.

From Interactivity to Intangibility

Interaction is much more of a relationship or process than it is a tangible good or physical artefact, and this is one reason for the characterisation of services as intangible products. (And even the broadcast mentioned above is intangible in this sense, whether or not anyone has tuned in to it!) The benefits for the user may also be highly intangible ones such as knowledge (supplied by industries as diverse as consultancy and education), and emotional experiences. (As generated by the entertainment industries, in particular—but these are present in many more service activities, leading to some discussion of the need for interpersonal skills and emotional labour in industries as diverse as hospitals and restaurants). Service activities, of course, generally use physical artefacts in the course of production of their benefits; and sometimes they also create tangible changes in the state of people (new dentures and hairstyles) or artefacts (repair and maintenance services). But intangibility is a fairly common characteristic of service activities and many service products, and as such is also likely to affect service innovation and innovation processes. One point that is often remarked is that it is hard to protect service innovations with the IPR arrangements (patents) deployed for innovation in material goods; less well-known is the fact that policy support for innovation may discriminate against service activities (for example, R&D tax credits systems ruling out support for R&D on social; and managerial issues—see Miles 2007). Intangibility also can mean that service products are difficult to store, transport, or demonstrate (in advance of purchase). One result is that service innovators often seek to address these features, for example finding ways to add tangibility to their services (e.g. loyalty cards), to deliver them to remote customers (e.g. through the Internet), to provide evidence of quality (trails, quality standard accreditation, etc.). This last point accounts for the need for regulation of many services, and the challenge that can confront the service supplier when it comes to convincing consumers about the superiority of innovative services.

It is quite logical to think of *service innovation* as involving the introduction of new or improved services, just as goods innovation will be seen as involving the introduction of new or improved goods. However, the ambiguities of the term mean that as well as the service-dominant logic emphasis on innovation in service (singular!), there is also scope for the term to be employed to refer to innovation in service industries. Here, we will use the formulation *innovation in services* to refer to both product and process innovation in service firms, sectors and industries.

This will include the service innovation that takes place in these industries, but not service innovation that may take place when manufacturing firms, say, introduce new or improved services.

"Servicisation" and Industrialisation

One of the reasons for promoting a "synthesis" approach to services and manufacturing industry is the phenomenon of "servicisation" (aka "servitisation") of firms in all sectors (e.g. Avadikyan and Lhuillery 2007; Howells 2001; Neely 2008; Susman et al. 2006). Typically, this involves firms providing services related to the goods or raw materials that they produce, or ones that are related to the production processes they use. In the former case, the new services may be "product services" such as after sales support, or other ways of redefining the product that is sold to include, or even to consist of, services, rather than just be a matter of delivering a material artefact. Sometimes servicisation involves complementing the good with services such as finance, insurance, maintenance, software, etc. Sometimes it involves a shift to a service focus, in which the firm sees its job in terms of providing the outcomes for customers that the good itself would be used to create: the firm can then sell a promised amount of service rather than selling—or even renting—the good. A famous case of this is Rolls-Royce contracting to supply hours of flight time rather than aircraft engines; and the efforts by computer companies to sell cloud computing services rather than computer kit itself can be seen in a similar light. Such servicisation strategies are also liable to influence innovation pathways, beyond innovation in the new or improved service itself (an echo of the service-dominant logic approach can be seen here). Because different costs are internalised and externalised by the partners, the manufacturer will need to pay more attention to the ways in which its goods are consumed—for example, by monitoring usage through new sensors and software—and in turn this might promote new product services in providing customer support and equipment maintenance and disposal.

Manufacturers are becoming more service industry-like in other ways too, for example by adopting "post-Fordist" strategies of "mass customisation" and tailoring products more to customer specifications, by putting more emphasis on interaction and customer service. At the same time, some service industries are becoming more like Fordist manufacturing. Four decades ago Levitt (1976) described the increasing industrialisation of services. Some service firms were expanding rapidly, and often spreading across large countries such as the USA and even becoming significant transnationally—even though they often adopted patterns of internationalisation (such as franchising) that were different from those of manufacturing. Just as Adam Smith described for manufacturing, these firms often set up production lines or similar arrangements with a high division of labour, producing much more standardised products produced en masse, and using larger-scale technology. These Fordist trends are accompanied by some use of strategies of mass customisation, as standardised service modules can be combined in numerous ways. These approaches are used both

by firms producing on a low-skill, low-wage basis (e.g. fast food restaurants) and those preparing much higher value-added services (e.g. some professional and financial services). Products are not necessarily customised in depth, but the quality of the service is fairly predictable for the user, which is not always the case in services. Again, there are many implications for service innovation related to the growing economies of scale and scope, technology-intensity, and division of labour—indeed, the organisations that have successfully industrialised their services are in many ways pioneers of a particular form of innovation.

Varieties of Service Innovation and Innovation Across Services

The present volume marks a significant contribution to the accumulating body of case studies of service innovation. Much of the wider literature, however, concerns "innovation in services". Part of the reason for this is that large-scale survey studies are somewhat easier to organise at the firm and industry level than at the level of specific innovations.

Initially, a major role of such survey studies was simply to indicate that, contrary to much received opinion, service forms were quite often innovative. More detailed work soon explicated variations across different types of service industry. In addition to some commonplace results—as in manufacturing, the typical picture is for smaller service firms less often to report having undertaken innovations than larger firms do—patterns began to emerge in terms of the relative incidence of innovation and the forms of innovative effort across different service sectors.

In the most recent version of the standard industrial classification NACE Rev. 2 (NACE = "Nomenclature générale des Activités économiques dans les Communautés Européennes", cf. Eurostat 2008), the service industries are classified into 13 "sections", namely:

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
O—Public administration and defence; compulsory social security
P—Education
Q—Human health and social work activities
R—Arts, entertainment and recreation
S—Other service activities

This represents far more detail than available previously, and gives a good idea of the range of activities that are counted as services.

There have been many survey studies focusing on services, some of which are allowing us to examine how far variations in features such as standardisation vs. customisation, and high vs. low levels of interaction with clients, affect innovation processes (e.g. Nählinder 2005; Tether et al. 2001). The most extensively used surveys, however, are the Community Innovation Surveys (CIS), undertaken regularly across the EU, and covering a range of private sectors (though areas like retail, entertainment and personal services are often omitted). CIS data allow for comparisons to be made across sectors: while on average the services sectors report lower rates of introducing product or process innovation than do manufacturing firms overall, some service sectors are strikingly innovative. Similarly, the innovation budgets of service firms tend overall to be lower than those of manufacturing firms, even controlling for firms size (important because service sectors generally feature more small firms than manufacturing does), but there are also marked exception. Broadly speaking, more physically-oriented services (such as transport and wholesale and retail trade) report lower levels of innovation; more information-oriented services (financial services and Knowledge Intensive Business Services, KIBS, such as computer, engineering and other technical KIBS, and legal, accountancy and other professional KIBS) are much more innovation-intensive. Technology-related KIBS in particular—firms providing computer, and engineering services, for instance, typically have large innovation budgets. An early summary of results for KIBS on a cross-national basis is Tether et al. (2002).

Beyond generalising about sectoral variations, large-scale survey data can be used for cluster analysis and similar approaches for identifying distinctive innovation styles. Thus Hipp and Grupp (2005) differentiated between German service firms in terms of the sorts of knowledge drawn on for innovation. They identified four patterns: the knowledge-intensive, network-intensive, scale-intensive and external innovation-intensive patterns. These were associated with different sectors of service industry, for instance, the knowledge-intensive pattern was particularly common in technical KIBS, the network-based model in banking, the supplier-dominated pattern in other financial services. But Hipp and Grupp showed that though there are in some cases strong trends, all sectors featured several of the patterns.

The survey studies focus on the firm, its innovation expenditure, its sources of information and collaborations, etc. They do not take the innovation itself as a unit of analysis, and are thus rather limited in terms of what they tell us about the types of innovation that are undertaken—we typically just have data on whether this was a goods/service or process innovation, with more recent data providing some information about changed organisational strategies. In relation to this last point, there are a number of studies that indicate that service firms may put more stress on organisational innovation as compared to technological innovation (though there is also evidence that innovators of one sort also tend to adopt the other sort of innovation). Howells and Tether (2004) found a substantial share of services firms claiming that their main innovative activities were *solely* organisational, while it was fairly uncommon for manufacturing firms to do so. Kanerva et al. (2006) report that services firms (especially financial and wholesale sectors) are more prone to initiate organisational

change; Schmidt and Rammer (2006) and Miles (2008) report that manufacturers and IT service sectors feature firms tending to report more technology-based innovations, while most service sectors report more organisational innovation.

Dimensions of Service Innovation

A provocative approach to understanding service innovation has recently been articulated by Pim den Hertog (for a recent summary of this approach, see den Hertog et al. 2010). He suggests that it is misleading to draw strict boundaries between, for example, technological and organisational innovation, product and process innovation, and the like. In practice, many innovations in service organisations, and many service innovations, involve simultaneous changes along several dimensions. den Hertog proposes that six dimensions can be effectively used to characterise innovation (his essay provides examples of these):

The **service concept** or offering: what is the value that is created by the service provider (or co-produced with the customer)? The innovation may be a new way of solving a customer's problem or meeting a customer's need, perhaps by combining existing service elements in a new configuration.

New customer interaction focuses on innovation in the interaction process between the provider and the customer, and thus on the role customers are playing in the creation of value. The client may be an important source of innovative ideas, co-producing innovation as well as the service!

New value systems (chains and clusters), new sets of business partners involved in jointly co-producing a service (and often a new service). This is a point where discussion of open innovation and service innovation coincide. Important new services can be developed in large communities linked through platforms and networks of businesses.

New revenue models: the distribution of costs and revenues needs to be aligned, especially where multiple actors are involved. The shift to charging for a service rather than selling a good could be seen as a new revenue model, as could the shifts between subscription and advertising-based models for online services.

Personnel, organisation, and culture elements of a new delivery system: these involve alignment of management and organization so as to enable service workers to perform new jobs, and to develop and offer innovative services. "Soft" elements of the service delivery system can allow firms to differentiate themselves from the competition. This may require new organisational structures and team skills, for example, and can be a focus for innovation as well as a necessary complement to innovations that are centred on the other dimensions.

Technological elements of a new service delivery system: application of new technology (predominantly, but not exclusively IT) to allow for improved production and use of services by allowing for new interfaces and ways of delivering services or service elements.

A service business can innovate on any or all of these dimensions, and many service innovations will be a combination of the dimensions, which may need to be aligned in specific ways. When there is a great deal of change on multiple dimensions, we are liable to see what is known as Business Model innovation, den Hertog et al. (2010) go on to examine the management capabilities that may be required to support such service innovation processes effectively. Six "dynamic service innovation capabilities" are identified: (1) signalling user needs and technological options; (2) conceptualising; (3) capabilities in bundling and unbundling; (4) co-producing and orchestrating; (5) scaling and stretching; and (6) learning and adapting. The argument is that successful service innovators (including manufacturing firms that are servitising) are liable to outperform their competitors in at least some of these capabilities. This seems to be a fruitful basis for future studies.

Service Innovation Management, New Service Development, and the Rise of Service Design

In addition to the many survey studies published in recent years, there are now some very substantial overviews of service innovation and innovation in services, for example many chapters in the *Handbook of innovation and services* (Gallouj and Djellal 2010). When these studies focus on the organisation of innovation in service organisations, they suggest that these are typically different from the R&D management model that is supposedly characteristic of manufacturing. The classic R&D pattern features specialized R&D departments (and dedicated R&D managers and staff) conducting research of a strategic nature does exist in some service organisations. Technical KIBS and some large service organisations may follow such a model—just as in manufacturing it is most prevalent in high-tech and larger firms. As the synthesis approach suggests, too, often firms apply more than one model across their range of innovative activities; the R&D activity may be directed at the main products and industrial processes, for example, but not at web presence, distribution and retail activities, or at other product-related services.

A useful classification of different approaches to managing service innovation was proposed by Sundbo and Gallouj (2000). They present seven broad patterns, more than one of which may be used in any given organisation:

1. The **classic R&D pattern** is found mainly in large and/or technology-based firms.
2. The **Services Professional Pattern** is one that often applies in knowledge-intensive organisations such as KIBS, whose professionals often generate solutions for clients that are ad hoc and highly customised. Their innovations typically rely on employees' professional skills. Much innovation intelligence may flow through professional networks and associations, or other communities of practice. Many consultancy firms and some "creative industries" (e.g. advertising and design) follow such a model. One major challenge for these firms is "capturing"

and replicating innovations that are made in practice by professionals, and much attention in knowledge management is directed to this.

3. A **Neo-Industrial Pattern** lies between patterns (1) and (2): alongside a specialised R&D or innovation department, there is much more distributed innovation in the course of professional practice. This often characterises, for example, health services and some large consultancies.
4. The **Organised Strategic Innovation Pattern** is encountered in large service firms, such as airlines, hotel chains, and retailers. Innovation is organised in the form of projects that are directed by more or less transitory cross-functional teams, working through distinct steps of project management, and often with strong leadership from marketing groups.
5. An **Entrepreneurial Pattern** characterises start-up firms that offer services based on more or less radical innovations: these may be technological or rely more on new business models: many so-called gazelles, online services, and others follow this pattern, across many sectors: typically it is short-lived and they move into one of the other innovation modes.
6. The **Artisanal Pattern** is found in many smaller-scale and low-tech physical ("operational") services, such as clearing and catering. These are classic supplier-driven sectors, where major innovations are imported from other sectors (e.g. manufacturing), though innovation may also be driven by regulations and demand. Employees and managers may be sources of (typically incremental) innovation.
7. Finally, the **Network Pattern** involves a network of firms acting together, and adopting common standards or operating procedures. There may be a dominant company in such a network, and this has been the case in the rolling-out of such innovations as ecommerce, where often a major customer has requested that its suppliers use standardised means of electronic trading. Many services are organised in franchise networks through which such diffusion of innovations may take place: this is familiar in sectors such as fast food and hotels, and also in some professional sectors.

Historically there may well have been less emphasis on innovation in service firms than in manufacturing industry, and less sophistication of innovation management in the former than in the latter. However, things have been changing very rapidly, and much work is underway on innovation and innovation management among researchers and practitioners.

One result of this is an upsurge of attention to New Service Development (NSD); Johne and Storey (1998) presented an early review of studies that often stressed the challenges for marketing new services associated with co-production and interactivity. Martin and Horne (1993, 1995) focused on the factors facilitating successful introduction of new services The NSD process is typically seen as requiring more attention to customer features and roles, and to their expectations and experiences. The cooperation of users is critical in shaping the quality of the service outcome, and the effectiveness of service innovation. Similarly, employees are often vital, since their interaction with customers is central: they are co-producers of the service, and may require skills and knowledge to support innovation. Again, their knowledge and

insight (of customers and of service processes) may be vital. Successful NSD was rarely achieved, and by a few experts. It is fairly common for service innovation to be organised through transitory project management structures—and much innovation emerges from ad-hoc, on-the-job experimentation.

Another very interesting development, which has considerable promise for provoking new approaches to service innovation across many organisations and sectors, is the emergence of a body of practice around "service design". Methods such as service blueprinting have been in use for some time, (see e.g. Bitner et al. 2008 for a recent account), but a wide range of tools and techniques from various origins—storyboarding (from the creative industries), interface and interaction design (from informatics), and more—have emerged as methods used to model and design complicated services, often involving multiple service encounters and relationships extended over long periods of time and multiple venues. Many established industrial design firms have started to address service design, and specialised firms have emerged to focus on this activity. (A journal of service design, *Touchpoint*, was launched in 2009, and there are several online communities associated with this body of activity. For reviews of the field see Moritz 2005; Saco and Goncalves 2008.) Again we see that distinctive techniques have had to be developed to reflect the intangibility and interactivity of service processes and relationships.

Future Directions

This is a great moment at which to be exploring case studies in service innovation, because this exploration can now contribute to a growing and deepening body of research and practice. No longer do we need to go around proclaiming that services can be the focus and origin of innovation. We can now devote more energy to forming and testing ideas about how innovation processes operate, and how they can be enhanced. Given that service sectors are the bulk of the economy, and that many of the pressing problems of the world are ones that services have to tackle, the need to improve our understanding and practice is a pressing one. Research should be able to inform the practice of service-producing organisations, and the policies that governments and public organisations are implementing in support of service innovation. New approaches to service science and the study of service systems (e.g. Maglio et al. 2010), alongside new service design practices, demonstrate that this is a remarkably vital topic.

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Theme I
Business Model Innovation

Introduction to Business Model Innovation Cases

Babis Theodoulidis

Abstract This theme presents four cases of service innovation through variations of the organisational business model to deliver new ways to create and manage value. In all cases, the organisations responded to changes in their external environment by adapting or extending their business model. The four cases are:

- Service innovation in the Chinese aviation industry: the case of Chinese low cost carriers, Liang
- Survive by "Servicisation": A multiple-case study of Taiwanese video games industry, Lee
- Innovation in China's mobile multimedia broadcasting service, Ren and Zhao
- Optimisation of the clients' warehouse logistics—A KIBS-type service in the manufacturing context, Toivonen and Valminen

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The cases addressed service innovation through the development of services that targeted new areas of activity for the organisations in an expanded market place. The stimulus for change originated in different ways, such as the deregulation of the aviation market (Liang), new technologies used in the gaming industry (Lee), hosting the Olympic Games (Ren and Zhao) and increased competition in the forklift manufacturing sector (Toivonen and Valminen).

B. Theodoulidis (✉)
Centre for Service Research, Manchester Business School, Booth Street East,
M13 9SS, Manchester, UK
e-mail: b.theodoulidis@manchester.ac.uk

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With regards to business model innovation, three main issues of interest can be identified: how organisations redesign their structures internally, how the people involved are affected, and how their relationships with outside entities evolve. As this relates to a change scenario, there is always a stimulus that initiates the process; normally this stimulus comes from market forces such as increased competition, deregulation, major events and changes in technologies. For changes to happen, organisations need to develop and deliver new value in different forms. Economic (i.e., revenue generation) is the primary form of value, but there are other forms of generation such as social and environmental. Finally, changes to business models entail implications for business processes, technology infrastructure and human resources within the organisation and also, very importantly, new ways to measure the outcomes of the business model redesign efforts.

Although the selection of the cases was based on the way the organisations approached business model innovation, the cases themselves are related to the other themes in this book in more ways than one. Business model innovation is initiated by changes which can affect the ways that organisations relate to their environment (theme 2); the innovation process can be seen as a continuous process which could have implications on the way organisations manage their innovation processes (theme 3); business processes are very often the focus of the business model (theme 4); and finally, innovation can relate to changes in the technological landscape (theme 5).

The three common issues identified above were addressed by all four cases in different ways, depending on the specifics of the actual case. This section provides an overview of each issue even if this was not discussed directly by the authors, and draws some conclusions that could be used to add to the overall content of this book.

Irrespective of the stimulus that drives business model innovation, organisations still need to identify opportunities for new or improved services and decide the approach they will follow to deliver them. In the case of the deregulation of markets, as with the Chinese aviation industry, the approach was to adopt a low-cost carrier business model and focus on unique ways to identify and deliver value. In the examples discussed in the case, value was perceived as the ability to offer low ticket prices and special offers, enhanced frequency of flights and personalised customer service.

In the case of the Taiwan video games industry, technological innovation was the reason behind the change; it included new hardware technologies for 3D graphics and increased access to the Internet and online games. The response of the organisation was to focus on and expand the core capabilities (such as project management) and improve human resources through training and new recruits. At the same time, new forms of business process were explored, such as outsourcing to enhance even further the core capabilities.

In the case about Chinese mobile multimedia broadcasting there was a clear stimulus based on the hosting of the 2008 Olympic Games. This major event, together with follow-on deregulation and standardisation activities and also increased availability of key technologies (3G/4G), essentially created a new market into which companies moved. The possible business models were in essence dictated by what was available

to exploit and the fact that there was a good revenue generation opportunity through the Olympic Games to kick-start the new market.

The case about the forklift manufacturer related to warehouse logistics and represents a "servicisation" of manufacturing. The stimulus in this case was the changing industrial landscape; in response, the company decided to focus on the redeployment of their information resources in a new service area (warehouse logistics). What is particularly interesting in this case is the way in which the organisation developed new co-production processes for service optimisation that included the development of skills and capabilities of their human resources and, more importantly, the skills and capabilities of their customers.

Overall, the cases in this theme present instances of business model innovation in various organisations and sectors that had clear measurable outcomes in terms of market share and revenue generation. They are all interesting cases that could help inform research into the way that an organisation identifies key change drivers and possible ways to explore opportunities; and also, how individuals can be involved in this process.

Service Innovation in the Chinese Aviation Industry: The Case of Chinese Low Cost Carriers

Liting Liang

Abstract Encouraged by the deregulation process in the Chinese aviation industry, three Chinese airlines have changed traditional air travel services in China by following the operation principles of western LCCs. Spring Airlines offers no frills, low fare travel with high quality; Shenzhen Airlines provides a high standard of service at a reasonable price while China United Airlines supplies simple, low fare and flexible air travel. Based on their innovative service activities, the three airlines have achieved considerable competitive advantage in the Chinese aviation industry.

Background

Traditionally, the Chinese aviation industry has been highly regulated by government authority. Since the late 1990s, the industry has witnessed a series of fundamental transformations towards deregulation, privatisation and consolidation. This has created the precondition for the emergence of the Low Cost Carrier (LCC) business model in the Chinese market. A low cost carrier provides passengers with point to point, no frills flights and low fares on the basis of quick, streamlined processes, minimal complexity in products and high utilisation of assets. Three Chinese airlines have sought to adopt the LCC model: Spring Airlines, Shenzhen Airlines and China United Airlines. The three LCCs have, however, set up different brand names in the Chinese market, as a result of variation in their service innovation.

The Opportunity

Despite China's civil aviation industry having grown substantially since the economic reforms of 1978, the total demand for air transportation is still very low compared with the total transportation market in China. The major reason for this is that the cost of air travel is too high to be afforded by most Chinese in a country where

L. Liang (✉)
Manchester Institute of Innovation Research, Manchester Business School,
University of Manchester, Manchester, M13 9QH, UK
e-mail: Liting.Liang@postgrad.mbs.ac.uk

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the average disposable income remains low by world standards. Encouraged by the potential demand for low cost air travel and the deregulation process of the civil aviation industry, Spring Airlines (Spring), the first LCC in China, was set up in June 2005.

Shenzhen Airlines (SA), a state-owned airline, was founded in November 1992. In November 2005, following a successful sale of its equity, SA became the biggest private airline in China. As the Chinese airline market was dominated by the three biggest state owned airlines; the top management team sought an alternative strategy to encourage existing customers to consume more and to attract new customers into the market. With the additional financial support from its new shareholder, offering more value through adopting the LCC model seemed to be a solution.

China United Airlines (CUA) was set up in December 1986 by the Chinese Air Force. It is the only airline based at Beijing Nanyuan Airport, a former military airfield. CUA's adoption of the LCC model started when it was reconstructed by Shanghai Airlines and lost its military status in October 2005. Beijing, where it is based, has the strongest competitive market. After losing the support of the Chinese Air Force, as a newly re-launched small airline, CUA could not survive without a different strategy. As it was still allowed exclusive use of military airports, the airline was able to serve destinations inaccessible to other Chinese commercial airlines. Based on its unique resources, targeting a market where other airlines were unwilling or unable to serve was the only option available to CUA.

Description of the Innovation

Spring aims to "make flying affordable for every Chinese person". It has built up its business model on the fundamental low-cost principles of the original model created by Southwest Airlines by offering a no frills, low fare and single class air travel service. The airline's average fare is 55% lower than the industry's average price; promotional prices of 99, 199 and 299 Yuan are available for all its routes, the lowest promotional price of all being 1 Yuan. There is no free in-flight catering or entertainment (only a bottle of water) and no connecting services. No compensation for flight delays or cancellation is offered regardless of the reason. Free luggage allowances were decreased from the industry standard from 20 to 15 kg. Spring offers only economy class tickets, although three classes of ticket price are available, offering different levels of pre-flight services and flexibility in flight cancellation and alteration. Irrespective of the selected class of ticket, the service provided in flight is the same. Spring also offers value-added services such as "Fast Boarding" and "Direct Link" to passengers who pay a premium.

SA aims to provide passengers with a high standard of service, but at reduced cost. Its service slogan is "whenever you are with us, feel free and comfortable". To achieve this, the airline makes continuous efforts to offer warm and unique services from start to finish. Upon arrival at the airport, passengers are greeted by members of SA's "compass service team" who are responsible for assisting them through

check in and flight boarding. SA also offers free safety packaging and a cleaning service for luggage, called the "white gloves service programme". In flight, the airline aims to create a great family atmosphere by paying detailed attention to every aspect of service. One of its customer service slogans is "when you travel from your home to theirs, we want you to enjoy your stay in *our* home". To achieve this, SA designed different flight broadcasting programmes, greetings and music, according to the local culture on different routes. It also uses a "relaxing travel programme", which includes in-flight games, auctions of scale models of aircraft, and in-flight aerobics exercises. To make passengers journeys as comfortable as possible, SA offers "continuing comfortable economy class" to provide more leg room. The seat pitch for SA's economy class has increased by 3 in, the same as business class. To provide more flexibility to passengers, SA offers 'one ticket, two destinations' to allow passengers to switch their destination without incurring any further cost.

CUA flies point to point with limited frills air travel services. It only offers cold food and cold drinks and in-flight entertainment has been kept to a minimum. Shortly after it resumed its flights, CUA started to offer CNY 210, 290 and 320 fares, which are 70% lower than tickets offered by other airlines. In July 2007, CUA launched 'Special Economy Class' on five domestic routes which would allow passengers to sit in first class as long as they paid 110% of the full ticket fare of economy class. CUA defines itself as "A fast and flexible united airline; A friendly and harmonious united airline". As the only civil airline based at Beijing Nanyuan Airport, the company is responsible for management of the terminal, security checks and ground/tower control. Based on its exclusive use of Nanyuan airport, it offers an integrated service from ground to flights. The average time from entering the airport terminal, through checking in and clearing security, to boarding the aircraft is approximately twenty minutes, while passengers on other airlines may take at least an hour. In particular, unlike other Chinese airlines which require passengers to check in at least 30 minutes before flight departure, CUA allows its passengers to check in as late as 10 minutes before departure.

How is Success Measured? What Success has been Achieved to Date?

Based on the low-cost carrier business model, Spring achieved significant success within four years. In 2007, its annual revenue was CNY 1.23 billion and its net profit CNY 70.86 million. In 2008, despite the fact that the whole Chinese aviation industry experienced huge financial loss, Spring still made CNY 21.04 million in net profit. On 30 June 2007, *China Entrepreneur* magazine awarded Spring the title of future star, the first airline on the list since 2001. SA's high standard of service has been widely recognised by the market. A passenger likened it to "a gentle breeze touching the face". On 18 April 2008, SA received the Five Star Diamond Award from the American Academy of Hospitality Science, which confirmed SA's brand name for continued excellence and unique service innovation. Based on its low cost

and flexible air travel service, CUA has achieved rapid growth in the past two years. Despite the current economic downturn, CUA still achieved profitability from its main operations in 2008.

Links to Further Information

Spring Airlines: http://en.china-sss.com/
Shenzhen Airlines: http://www.shenzhenair.com/
China United Airlines: http://www.chinaunitedairlines.com/

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Survival by "Servicisation": A Multiple-Case Study of the Taiwanese Video Games Industry

Alger Lee

Abstract Around 10 years ago, the Taiwanese video games industry was faced with a series of challenges which put many of the local video game companies out of business. However, some companies managed to meet these challenges by conducting various innovative activities and successfully transforming themselves from small offline-PC-game producer (with a business model very similar to those of conventional manufacturing companies) into large complex-online-service providers. Adopting complementary lines of innovation reported in the literature as "theoretical lenses" for investigation, this case study not only finds the Taiwanese VGD industry highly innovative, but also reveals "hidden innovations" embedded in the process of "servicisation". Throughout this radical transformation, dynamic capabilities (i.e. continuous learning, developing and upgrading core competences) are the key to success. More significantly, since the VGD industry is a creative industry, these empirical findings make a contribution to the recent scholarly effort to address the research gap in the study of highly-innovative creative industries. In addition, this case study provides valuable insights for policy makers into providing more effective support for creative industries in the near future.

Background

Since the late 1990s, Taiwanese video game-software development (VGD) companies have been encountering a series of challenges brought about by advances in ICT and competition in the marketplace. These challenges have profoundly affected video game-play, the videogame development process, business models and other aspects of VGD. Throughout the second half of the 1990s, Taiwanese VGD companies also suffered heavy financial losses inflicted by the pervasiveness of software piracy, brought about by an ineffective intellectual property regime and the ever-decreasing cost and -increasing ease of CD-burning. These problems rapidly undermined local VGD companies' established business model (selling offline/standalone PC games through conventional arm's-length transactions) and existing capabilities. During the

A. Lee (✉)
Taiwan Institute of Economic Research, 10461 Taipei City, Taiwan
e-mail: algerlee@gmail.com

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same period, Taiwanese PC game developers were also facing strong foreign competition in the local market. Owing to the superior design and quality of imported games, Taiwanese video games rapidly lost market share to Japanese and American console games, and then to Korean online games. As a result, many local VGD companies went out of business, while others embarked on fundamental transformation.

The Opportunity

Although caught in the turmoil of structural transformation, some Taiwanese VGD companies still tried to seize the opportunities that emerged from the development of new technologies and the growing online games market. At the turn of the new millennium, Japanese- and Korean-made online games had the lion's share of the growing market. To overcome the severe problem of software piracy and secure a market share in the future—and most importantly of all, to survive—they considered "online game-play and 3D graphics" as the only way forward. However, at that time, they were short of crucial technological expertise and had literally no experiences of developing and operating large-scale online game systems. In order to achieve their "Online and 3D" strategic visions and survive, they must learn and innovate.

Innovative Activities

In this case study, different lines of innovation have been adopted from the literature as "theoretical lenses" to investigate the innovation process and dynamics in the VGD industry. The case study finds that the conventional view of innovation is unable to offer a satisfactory account of the industry's innovative undertakings. Instead, only a synthesised view, combining complementary lines from the literature of innovation, that is service innovation (Barras 1986; Gershuny and Miles 1983; den Hertog 2000; Miles 2005), creative service innovation (Caves 2000; Cunningham 2004; Miles and Green 2008, 2010), and complex product systems innovation (Davies 1997; Hobday 1998; Hobday et al. 2000; Rush 1997), can reveal the "hidden aspects" and present a fuller picture of VGD innovation.

The evidence shows that many Taiwanese VGD companies have been highly innovative. In order to take on continuous challenges and bridge capability discontinuity, they conducted many innovative activities.

The nature of VGD innovation varies from case to case because all the companies originate from different starting points and evolve along different trajectories shaped by their own specific sets of resources and capabilities. However, VGD innovations across different companies do have some common features. For instance, over the last 10 years or so, they all have been engaging in similar activities, for example developing new videogames; changing their company's organisation and production processes; strengthening and updating technology-related capabilities; and generating more sensational and appealing content.

In general, Taiwan's VGD industry has experienced a radical "paradigm-shift", in which companies have moved from making simple offline-PC games as boxed products to supplying highly complex large online game service systems. This radical structural change is made up of numerous incremental innovations within these companies, where both videogames *per se* and videogame production processes have changed profoundly.

Informed by literature review and empirical investigations, VGD innovation can be categorised into the following types:

- technology-based innovation, for example continuous improvement of different kinds of technological capability and developing new tool-kits for VGD;
- process/organisation innovation, for example continuous improvement of the project development cycle, reorganisation of company structure, establishing new departments/teams, and outsourcing;
- product/content/experience innovation, for example releasing new games with new content and new gaming experiences, new artistic design, new stories, and new game-play design;
- marketing/delivery innovation, for example gradually giving up the conventional distribution channels, and interacting with and marketing to end-users directly via the Internet;
- revenue/business model innovation, for example transforming from the conventional arm's-length transaction model to a new online transaction model, and designing more flexible pricing schemes to target different groups of end-users directly.

The above taxonomy is for the convenience of analysis. In fact, we should note that all these types of innovation take place concurrently and are closely related to one another. For example, technology-based innovation is one of the most fundamental criteria, enabling other types of innovation in VGD to take place. New content and game design require technology-based innovation to express the new effects and experiences which artists and designers aspire to offer. Technology-based innovation also supports new marketing strategies and the new ways of delivering "products" to the end-user through the Internet. In the context of VGD, content innovation is tantamount to product innovation itself. Content (with a large amount of aesthetic and entertainment value) innovation *per se* is an internal driving force for organisational and technological change. When the very nature of a product is transformed radically from an offline-PC game to a large-scale online game, the revenue and business models also change significantly. Previously, the revenue was generated from conventional arms'-length transactions, but now it mostly comes from the online gamers' subscription fees.

VGD innovation is conducted by PBO (Project-Based Organisation) because it has greater flexibility in managing heterogeneous inputs from various types of human resource and in delivering customised video game systems. PBO also has better flexibility in managing business risks and uncertainty, as a project can be disbanded or reconfigured more easily than can a department.

In terms of drivers of innovation, the evidence shows that most developers are not only videogame producers but also enthusiastic videogame players. This kind of enthusiasm plays a significant role in VGD innovation, because in the process of fulfilling that enthusiasm, developers have strong internal motivation to produce higher quality, more realistic and absorbing videogames.

In terms of sources of innovation, the evidence shows that technology is not the only source of innovation. Other cultural products, such as films, books, TV and other videogames, all provide important inputs for VGD innovation. Aesthetic style, game design and content creation are, to a great extent, subject to developers' backgrounds and experience. These personal attributes are also influenced by other cultures and cultural products.

In addition, this case study finds that the skills and knowledge required for VGD are largely tacit and difficult to codify and accumulate, because most of the innovations are adhoc, one-shot deals. However, developers do manage to codify parts of them and turn them into proprietary game engines and development tools for repeated use. This practice helps the companies retain the staff's tacit knowledge and skills within the organisation, and transform that knowledge into firm-specific assets.

Despite the variation in practice, it has been found that VGD companies' innovation strategies of creating competitive advantages encompass the following elements (or trajectories):

- "scaling-up" videogames from small/simple ones to big/complex ones;
- "upgrading" videogame graphics from 2D to 3D;
- "transforming" videogames from standalone to online;
- "prolonging" videogame "title life span" from a few months to several years;
- "diversifying" videogame genres;
- "alliancing" with other companies.

In order to pursue these multifaceted yet evolving strategies, Taiwanese VGD companies have had to create, modify and renew many technology-based capabilities. Meanwhile, it is worth noticing that the knowledge base and skills required for VGD have also expanded significantly into the non-technology areas. For example, developers may have to use knowledge of psychology to design more rewarding gaming experiences. Others have to learn about economics in order to keep the virtual game-world and its economic system in equilibrium. This is because if the game-world and its economic system are "unfair", crashed or frustrating, the online game will soon lose its userbase. Some developers have to learn martial-art techniques from real practitioners and cinematic techniques from TV/films to present appealing 3D visual effects to players. These are only a few examples among many. Although innovation strategies can be synthesised into a few elements, in reality, the phenomena are far more complicated.

In general, the dynamic capabilities approach (DCA) (Teece and Pisano 1994; Teece et al. 1997) appears to be a better framework for analysing strategic management of the companies in this case study, because the DCA does not only focus on using technology to manipulate a company's relationship with the outside world or

rely on managers' capabilities of "strategising and playing the game" with competitors. Instead, as this case study finds, each company is more likely to be competing with itself in the long run. The process is path-dependent and the source of competitive advantage comes from the learning processes of trial-and-error, knowledge accumulation and capability building within the organisation over a long period of time.

Measurement of Success

In the long run and with hindsight, the VGD companies' success can be measured by their longevity. This is because their "strategic visions" are extremely difficult to achieve in a highly competitive business environment. In particular, these "visions" were something that they had no experiences of. In the medium term, success can be measured by whether they developed and consolidated necessary capabilities for VGD, and whether they can retain existing gamer communities and attract new gamers by releasing different lines of video game/services which appeal to them. In the short term, the efficient use of the human resource, and delivering good quality video games on time and on budget, can be used to measure the success of VGD companies.

Success to Date

The companies in this study are surviving the highly competitive business environment and meeting the strategic goals set some 10 years ago. They have been able to overcome the software piracy problem, and are putting more effort into the creative work and business management, making much better profits than many other ICT manufacturing sectors in Taiwan. They have also diversified their lines of business by working with other local and foreign companies, and exporting services to overseas markets. Meanwhile they continue to enhance their core competencies by continuous organisational learning.

Further Information

This case study draws on material collected for an unpublished PhD thesis.

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Innovation in China's Mobile Multimedia Broadcasting Service

Jinluan Ren and Liping Zhao

Abstract With the development of mobile communication technologies, mobile multimedia broadcasting services have become an important part of our life. This short report outlines the development process and status of the China Mobile Multimedia Broadcasting (CMMB) services in China, and summarises their successful innovation in CMMB. This work covers five areas of CMMB's business, including technology, organization, service, finance, and business model.

Background

The need to integrate China's Telecommunication Net, Broadcasting Net and Internet was proposed at a Chinese State Council executive meeting in 2010. This proposal aimed to advance the integration and development of all mobile services in China. At the end of 2009, there were already 9.64 million digital mobile TV consumers in China. China Mobile Multimedia Broadcasting (CMMB) was established to serve as an industry standard. China Broadcasting Communication (CBC), which was funded directly by the State Administration of Radio, Film and Television (SARFT) in 2008, is the main management arm of CMMB services. Based on CMMB's technology, CBC is exploring new business models for Chinese mobile broadcasting services.

The Opportunity

The advent of the third generation (3G) and fourth generation (4G) of mobile telephony technologies has transformed China's inseparable mobile network services into independent services that can be accessed at any time or place (Berry et al.

J. Ren (✉)
Media Management School, Communication University of China, Dingfuzhuang East No.1, 100024 Beijing, China
e-mail: jinluan_ren@163.com

L. Zhao
School of Computer Science, University of Manchester, Manchester M13 9PL, UK
e-mail: liping.zhao@manchester.ac.uk

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2006). By 2009, more than 32,000 independent base service stations had already been set up in China, with an estimate of 740 million mobile phone subscribers (MII 2009). The technology advance has brought with it a huge potential market, which provides a great opportunity for the development of mobile multimedia broadcasting services. Yet, constructing a coordinated management system and a fair profit distribution mechanism in service provision poses a challenge to CMMB.

Description of the Innovation

The CMMB service innovations include technology, organisation, service, finance and business model innovation, briefly summarised as follows.

Technological Innovation CMMB was developed by the CMMB Technology Research Workgroup. Its main aims are to provide a clear vision and a better support for businesses, and to adopt the energy-saving technology. During the development of CMMB, the application of more than 140 patents has been submitted and a number of techniques used have reached an international standard. In the process of developing the CMMB system, more than 140 patents have been applied for, and a number of techniques have reached an internationally recognised advanced level.

The Organisational Innovation The organisation innovation of CMMB services is embodied in the three levels of the organisational structure, which offers different CMMB service functions. China Broadcasting Communication (CBC), which is directly managed by the SARFT, has overall responsibility for the investment and operation of the CMMB network. Provincial subsidiaries were created by CBC local radio and television organizations. City branches were created based on consultation between provincial subsidiaries and city broadcasting organisations.

Service Innovation Several kinds of broadcasting service are integrated in the CMMB platform, including public service, basic business and expanding business. Integration is the main characteristic of CMMB's service innovation.

Financial Innovation This concerns the change of the charging patterns and profit patterns. Charging patterns include: (a) charging through terminal equipment sales (b) charging through cooperation with the operator, and (c) electronic charging. New profit patterns include: (a) user subscription (b) advertising, and (c) value-added service.

Business Model Innovation Three kinds of business model were adopted: the CBC independent business model, cooperation with network operators, and cooperation with terminal manufacturers.

What Success has been Achieved to Date?

Based on the CMMB platform, the 2008 Olympic Games were successfully broadcasted from Beijing. During the Games CMMB service tests were carried out in 37 cities. Seven to eight sets of central and local television programmes and four

sets of radio programmes were retransmitted. More than 5,000 international athletes, coaches and media reporters had used the CMMB services. CMMB test results showed that transport, emission, coverage and receiving were successful.

How is Success Measured?

The success measure indexes include the number of mobile multimedia broadcasting subscribers, the revenue from CMMB business, and the social effect of CMMB business. The social effect reflects users' evaluation, measured through customer surveys.

Summary

This short report shows that the success of innovations in CMMB services cannot be determined by a single element. It was a synthesis of the company's technical innovation, organisational innovation, service innovation, financial innovation, and business model innovation. Technological innovation forms the basis of the business model innovation. While the market, policy and other factors have played an important part in these innovations, the Chinese government has played a key role in promoting and ensuring the rapid development of CMMB. The service innovation pattern ensures that the social and business functions of the media can be realised on the same platform. The cooperation with China Mobile has rapidly expanded the number of users. Combining major hot events, CMMB's business was promoted quickly. Future research includes surveying customer habits, developing suitable mobile multimedia service programmes and conforming to international mobile service technology standards.

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Optimization of the Clients' Warehouse Logistics: A KIBS-type Service in the Manufacturing Context

Marja Toivonen and Katriina Valminen

Abstract This case study describes innovation at the convergence of manufacturing and services. It presents a KIBS-type expert service that a Finnish forklift manufacturer offers to its clients. The core of the service is the optimisation of the clients' warehouse logistics: the forklift fleet and its use. The innovation in the service is in its comprehensiveness; it includes not only elements that are linked to the functionality of the products (forklifts) and their operating environment, but it also tackles HR issues like work safety and the skill level of the respective drivers. The optimisation service consists of an analysis of the present situation and recommendations for improvements; within its total portfolio, our case company also provides the means to carry out the improvements. Training of forklift drivers in the cases where knowledge deficiencies are a problem is perhaps the most striking individual example of how far into the realm of services a manufacturer can penetrate.

Background

Services today are provided not only in service sectors, but increasingly also in the manufacturing context. There are several reasons for the transfer of industrial businesses towards services. Through services, firms can lock out competitors, lock in customers, and increase the level of differentiation. Services also provide a more stable source of revenue than goods, due to their resilience against economic cycles, and they are a way for manufacturers to escape the problems of a mature business (Martinez et al. 2010; Neely 2008). After-sales services usually form the first step in the "servitisation" process. When the firm notices the economic potential of services, the total offering is expanded and additional services, such as training and consultancy, are included (Oliva and Kallenberg 2003; Gebauer 2008).

M. Toivonen (✉)
VTT Technical Research Centre of Finland, P.O. Box 1000, Fl-02044 VTT, Finland
e-mail: marja.toivonen@vtt.fi

K. Valminen
BIT Research Centre, Aalto University, P.O. Box 15500, Fl-00076 Aalto, Finland
e-mail: katriina.valminen@aalto.fi

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Many innovations in industrial services are today linked to the transfer from services that support a good to services that support the client's processes in the production of the good, or the client's business in general (Mathieu 2001). This also holds true in our case, which represents the sector of equipment manufacturing. Our case company is an internationally operating Finnish forklift manufacturer, which is over 60 years-old and employs about 600 persons. During recent years it has increasingly adopted an approach that focuses on customer value, i.e. the service-dominant logic (Vargo and Lusch 2008) is visible in its practices. In addition to earlier goods-related services (maintenance, repair and renting), several services are now offered that support the client's processes and business. In our study we focus particularly on one service of the latter type: the optimisation of the client's logistics fleet. This service is interesting because it is actually an expert service and resembles KIBS offerings (Miles 1999) in many respects. Thus, it can be regarded as an example of the 'kibsification' of industrial services.

The Opportunity

The move towards a so-called *solutions business* (Brax and Jonsson 2009; Wise and Baumgartner 1999) has played an important role as an innovation driver in our case company. After a long history as a traditional manufacturer, the company started to modernise its production and to develop its offering as an integrated whole. This change, which began about ten years ago, has meant that the company no longer focuses on selling individual products on the basis of clients' orders, but proactively builds long-term client relationships and analyses clients' needs much more comprehensively than before. Selling availability, i.e. guaranteeing that customers always have working equipment at hand, has become the core of its business idea. Consequently, some of the equipment-related risk that the clients earlier carried has been transferred to our case company. In order to reduce this risk, the company has developed new IT-based tools for the remote control of the installed base and started to enhance its service repertoire. Thus, the need for new services, e.g. customer training, emerged along with the change of the business model.

Description of the Innovation

The innovation—the service focusing on the optimisation of the clients' warehouse logistics—is a part of the integrated solutions that our case company offers. However, because the total offering of the company has been constructed on a modular basis, this specific service can also be purchased separately. It consists of analysing the client's existing fleet and operating environment, and developing plans regarding possible fleet renewal, maintenance and use of forklifts and other logistics equipment. The benefits to the client include increased efficiency, effectiveness and safety,

and reduction in costs. The service also supports the client in the purchase of new logistics equipment: a careful analysis of the existing situation helps to identify what combination of products and services is optimal.

From the viewpoint of the case company, the question is of a "bridging service" which introduces the client to other offerings from the company. According to the company representatives, clients have had difficulties in perceiving the whole repertoire of equipment and services on the basis of standard presentations. Thus, the optimisation service supports the provider's marketing and selling activities. After the analysis, the client can establish a looser or tighter relationship with our case company, but it can also select a competitor. If it continues cooperation with our case company, it can select from three options: it can purchase a standard service package, an extended service package, or a premium service package. In the last mentioned package, our case company ensures not only the availability of well-working forklifts, but *the availability of skilled forklift drivers* as well.

The optimisation service includes six basic elements of analysis: (1) suitability of the number and type of forklifts for the specific situation of the client; (2) fleet management: how the client has organised the procurement and maintenance of forklifts and what the respective costs are; (3) examination of work safety, using indicators like the faulty use of forklifts, damage, accidents, etc.; (4) inspection of the working environment, e.g. measuring the spaces where forklifts are operated; (5) labour force issues: how often and how much the client uses temporary drivers due to seasonal variations, and what is the experience level of the drivers; and (6) warehouse processes and technology, focusing on the factors that may restrict the use of some specific forklift types. The results of the analysis are described in the form of a summary report which is presented and distributed to the client.

The optimisation service resembles KIBS in several respects (cf. Miles 1999). The core content of the service is *diagnosis and problem clarification*, typical of consultancy. We can also identify manifestations of *co-production* in the optimisation service. The goals of optimisation are set together with the client, and during the diagnosis the self-analysis of the client firm plays an important role. Different employee groups express their views of the factors as being in good condition and those needing improvement. The service provider's observations at site are the next step. Then the produced materials are combined and the client firm's situation described as a profile in regard to the studied factors. The results are evaluated together and the goals and steps for improvements are set.

The service requires new skills and competences from both parties. The need for *analytic competences* grows and reflects—once again—a similarity with KIBS. In the manufacturing company, the change and challenges are substantial among the sales and maintenance staffs in particular. They have to be able to discuss the content and benefits of the optimisation service and to recognise potential clients. The service has enabled a shift from tendering-based sales to proactive contacts with clients. From the clients' viewpoint, the optimisation service implies moving the focus from "here and now" issues to a strategic approach, i.e. comprehensive and long-term oriented planning of procurement and maintenance. Thus, the service stimulates a *learning*

process both in the provider and in the client company—and, as is typical for KIBS, a great part of learning occurs in the mutual interaction.

Features of several types of service innovation—improvement, addition, recombination and formalisation (Gallouj and Weinstein 1997)—are found in the offering. In addition, the optimisation service supports the development of other functions in the case company. The service provides information to the maintenance management system, enabling the utilisation of this information in the product development of forklifts. At a later stage the material accumulating from different client companies can be used for benchmarking purposes, i.e. recommendations can be grounded on a broad set of real-life experiences.

How is Success Measured?

The company has measured the general success of its service business in terms of growth and internationalisation figures. These figures show that the development has been positive—even during the recession time 2008–2009, when the sales of manufactured equipment diminished.

What Success has been Achieved to Date?

More than half of the company's turnover comes nowadays from service business. The optimisation service is provided, in addition to Finland, in Sweden, Denmark and Estonia. The expectation that this service would support the sales of equipment and other services has also been realised. Finally, it is worth mentioning that our case company is widely used as a best-practice example of the development of industrial services in Finland.

Links to Further Information

The case has been analysed in the project ISO (Innovation Integrated in Service Operations) in the BIT Research Centre of Aalto University. The authors have been involved in this project, and further information can be requested from them. Some further information can also be acquired directly from the website of the company. The name of the company is Rocla (http://www.rocla.com).

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Theme II
The Organization in Its Environment

Introduction to the Organization and its Environment Cases

Ian Miles

Abstract Moving on from analysis of business models, this section considers relations between organisations and the environments they exist in. These relations may be shaped by business model innovation—organisations may have to cope with disruptions imposed by others—and may trigger the search for new business models. In these chapters, we will be looking in particular at public-private partnerships, where at least the "public" part of the partnership may be unused to thinking in business model terms. But changing boundaries of public services, related to environmental features such as changing demand for services and transformations of political thinking, mean that business processes are liable to be restructured and redistributed across organisations. These chapters consider how innovation in public services is intertwined with such change. Drawing on a wide range of examples, they point the way to fruitful directions for service research—and important topics for innovation management as well as social policy.

Essays in the preceding section discussed business model innovation, showing this to take many possible forms. Such innovation frequently involves the organisation responding to changes in its environment. For example, the organisation may be taking advantage of opportunities offered by regulatory changes and changes in market conditions and stakeholder strategies (as in the case of low cost airlines), or responding to the challenges posed by new technology platforms and disruptive service innovations (e.g. online computer games). Business model innovation involves repositioning of the organisation in its environment, through some combination of new service offerings, aimed at new markets, produced and delivered in new ways, with new channels for interfacing with clients, and with different revenue logics and the like. (The work by den Hertog et al., cited in "Introduction to Service Innovation" in this volume, represents an effort to systematically conceptualise business model innovation, as do papers by Liting Liang cited in her "Service Innovation in Chinese Aviation" in the preceding section.)

All of the articles in the present section deal with public-private partnerships, where organisation-environment relations are naturally critical, and are undergoing

I. Miles (✉)
Manchester Institute of Innovation Research, Manchester Business School,
University of Manchester, Manchester M13 9QH, UK
e-mail: Ian.miles@mbs.ac.uk

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great change. Three of the articles stem from research in the ServPPIN project, whose central feature was the analysis of innovation in such partnerships. It is important to note in this context that the European use of PPP terminology is rather different from that in the USA. In the USA, many research programmes are described as PPPs. (Arthur Link is the most prominent of the researchers using this vocabulary.) Formally, this terminology would apply in Europe as well, but often it is not invoked. PPPs in European parlance are often cases where a mixture of public and private organisations are involved in service production and delivery. Typically, these are services which for much of the latter half of the twentieth century were overwhelmingly dominated by public provision in many European countries—the key elements of the welfare state. Most of the studies here concern services that provide what would indeed in most countries have been heavily organised by local or national governments until fairly recently. (Though there have been elements of the "public services industry", as it is now known, for a long time, with many health services, in particular, involving more or-less coordinated mixtures of public and private actors.)

The first essay, by Pierre Labarthe, is something of an exception. He describes a type of service offered to farmers that could well have been a purely commercial service in other circumstances. Public support services for agriculture are common in many developing countries, but among Western European societies, France is known to give special weight to small farmers. This reinforces the point that the public–private boundary is conditional rather than absolute. The big debate is just what those conditions should be. Is market failure a necessary and sufficient rationale for public service intervention, or should other criteria, such as system failure, or seeing markets as social constructs rather than platonic ideals, be employed? And what agency is wielding and acting on the criteria, with what sources of legitimacy?

The big questions need debating, because the environment for service organisations is changing. The public sector faces long-term budgetary pressures, exacerbated by the economic crisis of recent years. Services, and the mix of services, are themselves becoming more complicated, as a consequence of many factors. These include the complexity of late industrial societies and economies (with their fragmentation of lifestyles and cultural diversity); the availability of new technologies (providing solutions to some major problems, but often provoking new problems—cf. the consequences of extending the average life span as major infectious diseases are dealt with); and intensified communication opportunities (meaning that suppliers can share experience of good practice, that users of services can access intelligence about services provided elsewhere and gain direct access to data previously only accessible to expert service providers). Public sector organisations find themselves challenged by new models of service provision and new demands from their users. Private service providers find new patterns of receptivity in the public service, and new inputs for service design and delivery; at the same time, the whole ecosystem of service provision is restructured with new entrants and even new value chains based on new service models.

Just one example here is the idea of "active independent living", which goes under various other names (indicating that the precise paradigm as yet to be worked out) but which roughly relates to combinations of service innovations and new technologies

that enable people to avoid admission to hospital and similar institutions, and spend more time in their own homes and communities with a reasonable quality of life and social engagement. This will almost certainly involve new roles in assessing and responding to signals from new monitoring and communication systems installed in the home (and perhaps the bodies and clothes) of vulnerable people. New service organisations may be created—in public or private structures, and under various governance patterns—and new relations are required between existing service providers (linking health and social care, for example), between these and the new actors, and between all of these and the providers of new technologies and telecommunication and software services. This is a brief summary of the complex situation surrounding just one set of services; though ones addressing highly important social issues.

The significance of the services involved is apparent in all of the studies in this section. Fugslang deals with services for the elderly in present-day Denmark, which should be creating the context for further developments towards active independent living. Ward describes the urgent case of malaria prevention, emphasising the point that we need to see the activity as a service, not just the production of large quantities of pharmaceuticals. Scheuer's case is particularly interesting, since the issue being addressed is also important—creation of a Health School to address chronic diseases—but the conditions meant that the proposed PPP was not regarded as sustainable. The literature tends to select success cases, in other words those that have been selected by the environment; we can learn much from those cases where things failed to work as expected, so this account is particularly valuable. Labarthe's case was earlier mentioned as having less of a classic public service focus, since it concerns services to farmers, but these services concern important environmental goals, which historically the state has had to promote against inertia and outright resistance from many elements in the private sector (though some have been supportive).

The topic of organisations in their environments can be addressed in many ways, and these essays demonstrate just a few of the possible approaches. They show the value and the necessity of collating case studies if we are to better understand the forms and scope, services innovation. The contributors are all examining cases of service development aimed at helping deal with major social, economic and environmental challenges. As we noted earlier, they also feature innovation involving PPPs. We may expect PPPs to be involved in many of the efforts to address such challenges in the future. This has dangers, but also offers prospects for mobilising the distinctive creativity and resources of both public and private sectors. The essays here demonstrate the sorts of research that can be deployed to better understand how PPPs can work—and can hopefully work better—in addressing the major challenges of our age.

Public-Private Innovation Network in Knowledge Intensive Services: Co-production or Technological Lock-in? FARMSTAR, a Case Study in Advisory Services for Farmers

Pierre Labarthe

Abstract This paper presents some results from research carried out within the ServPPIN project (an EU-funded project within the 7th Framework research programme: http://www.servppin.com). It explores the dynamics of a public-private innovation network for Knowledge-Intensive Services (KIS). It is grounded on a case study in the sector of farm advisory services. The service innovation studied is based on the use of satellite images to bring information to farmers who use precision farming technologies. The empirical investigations have led to three major findings. First, the settings of this innovation network have allowed long-term relations between private and public actors, throughout the different stages of the life-cycle necessary to prototype, consolidate, and commercialise a service innovation. Second, the network made it possible to develop the complementarities between private and public stakeholders, both about front-office competences (ability to capture and drive end users' preferences: here, farmers), and about back-office investments (R&D effort to combine two very different knowledge bases: agronomy and satellite imagery). Third, it highlights the difficulty in actually measuring the effectiveness and impact of an environmental service innovation embedded in a public-private partnership; and it emphasises the risks of technological lock-in.

Background

This innovation consists of a new method of advisory services for farmers called "FARMSTAR". It is embedded in the development of precision farming. Precision farming or precision agriculture is a farming management concept based on observing and responding to intra-field variations. It relies on new technologies like satellite imagery and information technology. It is also aided by farmers' ability to locate their position in a field using satellite positioning system like GPS. The FARMSTAR innovation deals with one of the most important farming practices: nitrogen fertilisation.

P. Labarthe (✉)
UMR SAD-APT, INRA, 16, rue Claude Bernard, 75231 Paris Cedex 05, France
e-mail: pierre.labarthe@agroparistech.fr

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It is both a central issue for agricultural production (nitrogen is a major determinant of crop yield, and thus of farm productivity) and a serious environmental concern (nitrate is an agricultural pollutant that is the target of numerous national or European Union environmental regulations). In practice, this innovation provides farmers with information derived from satellite images so as to calculate the need of the plants for nitrogen according to their geographical position in the field.

The Opportunity

There are a growing number of environmental regulations (especially in Europe) that orientate agricultural production. Farmers have to comply with regulations with very specific technical content: for instance, the maximum amount of nitrogen that farmers can spray is constrained by EU regulations. Complying with this standard is now compulsory for farmers in order to benefit from direct subsidies from the EU Common Agricultural Policy (CAP). Other standards are compulsory for access to agricultural commodity markets (e.g. maximum acceptable concentration of toxins in grain). In this context, advisory services are expected to help farmers comply with health and environmental regulations.

The European Commission obliges the member states to form "national farm advisory systems (FAS)", which will provide farmers with the relevant information and knowledge to adapt their production systems in order to meet environmental regulations and standards. As a result, this has generated a boom in farm advisory services as well as in KIS and ICT innovations in the agricultural sector: a market for software enabling a formalisation of farm practices registration (information traceability), a market for decision support tools (methods for knowledge production), etc.

Description of the Innovation

FARMSTAR is a major innovation in that, for the first time in France, it enables farmers to take into account the spatial heterogeneity within a given field for calculating the nitrate needs of the plants. Before FARMSTAR, decision support for nitrate fertilisation was based on the calculation of an average value of plants' needs for a given field. With FARMSTAR, the idea is *to bring the right amount of nitrate at the right place and at the right moment*. Farmers who subscribe to the FARMSTAR service provide information about their farms and their production systems; and they receive either maps or numeric files about their fields, with precise instructions regarding the optimal nitrogen quantities and spraying dates. The services are provided to users by farmers' cooperatives, which have contracts with the initiators of FARMSTAR.

There are two main initiators of the FARMSTAR Public-Private Innovation Network:

- an applied research institute (ARVALIS) owned by farmers but heavily subsidised by public funds (agricultural taxes and contracts with ministries or regions) and with public missions;
- a private company specialising in the development of environmental KIS based on ICT innovations and on satellite imagery (Info-Terra, the sister company of EADS).

The cooperation between these two constitutes the heart of the network. In addition, the network comprises the following factors: various partners that directly supply advisory services and sell FARMSTAR to farmers (cooperatives, chambers of agriculture, farmers' groups, private companies), sub-contracting software companies, local public authorities that subsidise the network, etc.

How is Success Measured? What Success has been Achieved to Date?

FARMSTAR is successful in the French market of decision-support tools for nitrogen fertilisation. It has risen from 40,000 ha covered by the technology in 2003 to 400,000 ha in 2009, becoming the leading product on the market of advisory services based on satellite technology in France. More than 8,000 farmers are clients of this service all over the country. There are three major facts to be highlighted about the role of the public-private network in the success of this service innovation.

1. The network had been in place for a long period of time, more than 10 years, before it achieved a profitable service product. This resilience of the network was possible thanks to its ability to gather different sources of public financial support, ranging from public programmes funding basic research (for instance from the national or EU space agency) to subsidies from local government to farmers using the technology. This was made possible by the diversity of stakeholders in the network, involved in different domains of public policy (space programmes, agriculture and environment, etc.). It has allowed FARMSTAR to follow a long-term innovation life cycle, consisting of three stages: (1) a proto-industry or crystallisation stage, when public funding and public research are still associated, but the demand for the service is still not articulated; (2) a commercialisation and entrepreneurial stage when large firms invest (in this case EADS and the biggest national union of farmers' cooperatives) in order both to develop knowledge bases and test prototypes; and (3) a consolidation or firm growth stage, where public participation declines as a well-articulated demand generates revenue streams from a successful network of firms.
2. The network has allowed development of some complementarities between public and private partners, both in terms of front-office competences and back-office investments:
   (a) in terms of front-office competences: the network has made it possible to articulate the heterogeneity of end users' demands (here the farmers) regarding

environmental service innovation. It has allowed locking out of a niche of users (the narrow minority of farmers who actually own the machinery and skills to implement precision farming) and to imagine with farm advisory service suppliers (farmers' cooperatives or chambers of agriculture) some alternative ways of using FARMSTAR with broader and more heterogeneous communities of farmers (for instance by using the maps during field trips and collective discussions between circles of farmers and advisers);

(b) in terms of back-office investments: the length and strength of the relations between the two main actors have made it possible to combine two knowledge bases (agronomy and satellite imagery). Moreover, the collaboration with both farmers' cooperatives and software firms allowed standardisation of the process of collecting data and information from and for the farmers, and yet keeping the system flexible (it is adaptable to other software used by farmers to track and store information).

3. This case study highlights the difficulty of actually measuring the efficiency and impact of an environmental service innovation embedded in a public-private partnership; and it emphasises the risks of technological lock-in. Indeed, there is no clear evidence for the effectiveness of the method, and no proof that it provides better advice and prediction than more traditional agronomic methods. This is partly due to the difficulty for some actors to actually test the method, because they lack the knowledge about how to measure the accuracy of a spatially explicit prediction method. This could also derive from the unbalanced powers and asymmetries of knowledge within the public-private innovation network.

Link to Further Information

More information can be found on the website of the ServPPIN project (The Contribution of Public and Private Services to European Growth and Welfare, and the Role of Public-Private Innovation Networks). ServPPIN was carried out within the EU 7th Framework research programme (http://www.servppin.com).

The Role of Boundary Objects in Public-Private Innovation Networks: The Story of Næstved Health School

John Damm Scheuer

Abstract This case study concerns a public-private collaboration in 2005–2008 between a private company, Falck Healthcare, and a municipality, Næstved commune, aimed at establishing a health school. The health school organised training courses of 10 weeks for patients with chronic obstructive pulmonary disease (COPD), type 2 diabetes and heart failure. The school was developed, tested out for a short period and then closed. The research project described and analysed the process through which the health school was established and showed how the inability of involved actors to construct an attractive boundary object may explain the lack of further public-private collaboration around the health school and thus the project's lack of success. Boundary objects are objects that exist at the points where various social worlds meet in an arena of mutual concern. They have different meanings in different social worlds but their structure is common enough to make them recognisable, and a means of translation. Data were generated by means of document studies, interviews and talks with key actors.

Background

The context of this case is Danish health policy and local government reform. A new health act was passed in 2005 (Act no. 546 of 24 June 2005) and a structural reform of the Danish municipalities took effect in January 2007. The health act stipulates (§ 119) that the municipalities (municipal councils) are responsible for establishing services for citizens in the area of disease prevention and health promotion.

The more specific background of Næstved Health School is the government's perception of a growing need to deal with chronic diseases. About one third of the population are considered to live with one or more chronic diseases and 80% of public expenditure on health is used to deal with chronic diseases (http://www.sst.dk/Planlaegning_og_behandling/Planer_Indsatser/Kronisk_sygdom.aspx). There are several other reasons why it seems important for the government to promote health.

J. D. Scheuer (✉)
Department of Communication, Business and Information Technologies, Roskilde University, Building 42.3, Universitetsvej 1, 4000 Roskilde, Denmark
e-mail: jods@ruc.dk

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First of all, if people can be motivated to take more care of their own health condition, this may increase their quality of life in the longer term. This will have a positive effect on a number of more economic measures. People will have fewer chronic diseases. Fewer persons with or without chronic diseases will have to be hospitalised. This could also lead to a reduction in absence from work due to illness. Good health services in a town or municipality may also inspire people and companies to settle in that municipality. There are, however, problems. Very little has been done by medical doctors in terms of research in the areas of prevention and rehabilitation. Foursome, this area is seen as low status. Patients may feel that they are let down by the health system if they have to take care of their own health. They have to be willing to learn about health and prevention. Health services are also dependent on collaboration of the local community, GPs and hospitals. Participation of private or civil organisations, such as local fitness centres, a local diabetes association or local sports club, may be needed.

The Opportunity

Falck Healthcare is a division inside the larger enterprise group Falck. Falck is a private limited company which was established in 1906 by Sophus Falck (1864–1926). Its main service has been rescue and emergency services which today include ambulance services (including pre-hospital treatment), transport of patients, fire fighting and other safety- and rescue-related services for the public authorities. Falck Healthcare was created as an independent unit in Falck in 2005. According to its homepage (February 2009), it sees itself as Denmark's largest private-sector provider of healthcare services. It has four focal areas: employee health (health as a way to avoid illness and lost workdays), public health (assistive equipment, physical and vocational rehabilitation, accident prevention and establishment of health training centres), absence management (reviews of complicated patient cases) and temporary staff services (services of healthcare staff, physicians and specialist doctors). A new manager took over the Næstved project in Falck's Health Care division. He and Falck reasoned that after the Danish structural/administrative reform, Danish councils did not have the competences necessary to solve the new tasks in relation to health prevention and promotion and would either have to buy them or develop them themselves. This point of view was backed up by a marketing analysis made by a private consultancy firm. Falck therefore decided to continue and try to further develop the Health School project in Næsved in order to develop a service that could be sold to other municipalities. The politicians of Næstved council were tempted and decided to join the project when the Ministry of Health and Prevention, administrating a fund of money aimed at the establishment of local healthcare centres, showed an interest in the public-private collaboration around the health school. The school was to be situated in the same building as the Næstved Health Centre suggested by Falck and Næstved municipal council, and it was decided to fund the health school from September 2006 to June 2008.

Description of the Innovation

The idea of health school is to give people tools to take more control over their own health. The health school organises training courses of 10 weeks for patients with chronic obstructive pulmonary disease, type 2 diabetes and heart failure. These patients attend a common course. They are also seen as individuals with different needs for training and health promotion. After attending the course they are checked after 3 and 12 months. The innovation can be characterised as a pedagogical innovation meant to support government policies of health promotion. There is nothing new in the idea of a healthcare centre or health promotion as such. The newness here lies in the particular framework it uses, grouping people with different chronic diseases in one common course and making use of pedagogical tools developed by Falck. We can characterise it as a process innovation, a conceptual innovation and a marketing innovation at the same time. It is a process innovation because it improves the process of health promotion in the municipality as requested by the government. It could also be seen as a product innovation (a new pedagogical tool), but it is more accurately described in terms of process innovation because, in a certain sense, the product has already been invented: the idea of health promotion through patient training has been implemented in other places in Denmark. The health school in Næstved aimed to improve the process. The health school is also a conceptual innovation. It contributes to the concept of health promotion by creating a service that can be generalised at the conceptual level and potentially repeated in other local communities in the form of a concrete service or advice. At this level, it is an idea or concept rather than a concrete service in Næstved. Rather than being a specific offering in Næstved, it was seen by Falck as a conceptual innovation that could be introduced in many places. Furthermore, the promotion of this concept to patients, hospitals, GPs and other local actors through active networking implies that this is a marketing innovation as well. For example, information materials have been developed in order to present the new concept to patients and GPs.

How Success is Measured

The success of the public-private innovation network is measured on the basis of the degree to which the collaboration results in a permanent collaboration between Falck and Næstved Municipality around the health school. Since the health school was developed, tested out for a period and then closed, the project was unsuccessful. Data about the collaborative project were generated by means of document studies, interviews and talks with key actors. The data analysis shows that involved actors' inability to construct the health school as an attractive boundary object may explain the lack of further public-private collaboration around the health school after the test period ended and government funding ceased. Boundary objects are objects/written descriptions that exist at the points where various social worlds meet in an arena of mutual concern. They "... have different meanings in different social worlds but

their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is key to developing and maintaining coherence across intersecting social worlds" (Star and Griesemer 1989, p. 393).

What Success has been Achieved to Date?

The health school activities resulted in improvements in patients' health. The Municipality's health centre took over the tasks and some of the employees from Falck's health school, profiting thereby from the learning that had taken place in the health school. Moreover, Falck Healthcare have carried out an experiment and learned a lesson by testing whether a new service might profitably be developed in the area of health prevention and promotion. Falck's conclusion was that such a service should not be developed since Falck could not produce a cheaper or significantly better service than could the Næstved Health Centre itself. Moreover, the local municipality, including politicians and civil servants, preferred to organise the service without a private partner since this made it easier to integrate the services offered by the health school in other healthcare activities as well as remaining within the management structure of Næstved Health Centre. Finally, it was difficult to convince politicians and civil servants in Næstved about the importance and economic value of investing economic resources in health prevention. What made this experiment and learning possible was the government funding without which it would not have taken place.

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A Platform Innovation in Public Service

Lars Fuglsang

Abstract This study concerns a case of public–private collaboration in elderly care in Gribskov municipality in Denmark. Gribskov has been a frontrunner and driver in public–private collaboration in Denmark. It is situated north of Copenhagen in the capital region and has approximately 40,500 inhabitants. The interesting aspect of the case study is the attempt to change the approach to public–private collaboration from focusing mostly on price, efficiency and the disaggregation of public hierarchy towards including development, innovation and collaborative activities among private and public companies. The case study illustrates that, under certain conditions, a "platform organisation" could be a relevant framework for public–private collaboration. A platform organisation is an organisation that facilitates collaboration across organisational boundaries and which provides a formative context for experimentation, communication and innovation among them (Ciborra 1996). It considers resources for collaboration, such as a secretariat, expert facilitators and office buildings. The case study also illustrates that a facilitator or broker can play a crucial role in the platform for common innovation activities.

Background

The focus of the case study is the Danish municipality of Gribskov's "development partnership", created in 2005. In addition to the municipality itself, the development partnership involved three contractors (two private and one public: Attendo, Aleris and Pleje Gribskov) that run the municipality's five nursing home centres.

Three of the centres situated in the former municipality of Græsted-Gilleleje were outsourced in 2005 (in the municipality's "third generation" outsourcing). The three centres were outsourced to the two private enterprises, Attendo and Aleris (both Swedish). The remaining two nursing centres were run by the previous municipal provider which had been turned into a public company, PlejeGribskov. It had a contract with the municipality on similar terms to those of the two private providers.

In their contracts, the public and two private service providers were required to collaborate mutually with one another and with the municipality in a development

L. Fuglsang (✉)
Roskilde University, CBIT, Building 44.3, 4000 Roskilde, Denmark
e-mail: Fuglsang@ruc.dk

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partnership. The purpose was to ensure development and innovation in care of the elderly. To this end, they had to allocate resources to this partnership (money and hours) which were to be facilitated by a platform organisation called Momentum. Momentum is a private association with public and private membership that was created in 2003. Its purpose is to create value in the collaboration between service partners, especially the collaboration between public and private partners. Its core service is "value-creating collaboration", i.e. facilitation of collaboration, development and innovation.

The Opportunity

The interesting aspect of the case is that it has gone one step further, compared to previous contracts. It requires the contractors to participate in, and allocate resources to, collaborative development and innovation. Most NPM or PPP initiatives stress competition, incentivisation and disaggregation of public hierarchy (Dunleavy et al. 2006). The rationale is to improve efficiency. But it could be argued that this initiative in Gribskov has taken NPM to a new stage. Gribskov has had the lowest costs among Danish municipalities in relation to personal care and the third lowest costs for practical help to the elderly. Basically, the development partnership has created a collaborative space for development and innovation among the contractors and the municipality. It has moved focus from efficiency and arm's-length principles, towards a more integrated form of collaboration between the municipality and the contracting enterprises facilitated by what could be called a platform organisation. A platform organisation can be defined as an organisation that facilitates collaboration across organisational boundaries and which offers a formative context for experimentation, communication and innovation among them (Ciborra 1996). It distributes resources for collaboration, such as a secretariat, expert facilitators and office buildings. This seems at least to be a unique approach in a Danish context, and it could be a model for other public–private collaborations.

In this way, the development partnership can be seen as an example of a new type of service public–private innovation platform or network (ServPPIN). Its central feature has been collaboration about innovation. A central challenge was to develop new concrete services in elderly care. A critical point has also been the mediating activities of the external facilitator Momentum for developing these services.

Description of the Innovation

1. *Firstly, it was a policy innovation*, because it was invented at the policy level by politicians and senior managers in Gribskov municipality. It is a particular feature of the public sector that innovations often come from the top; from politicians and senior managers who have the formal power and public legitimacy to initiate innovations.

In this case, they operated in a climate favourable to public–private collaboration and with several years of experiences in this area. Public–private collaboration started in the mid-1990s. In this period, the later Danish Prime Minister, Lars Løkke Rasmussen, was Deputy Mayor in Græsted-Gilleleje and he was chairman of the municipal Health Committee (1994–1997). He was known as a driver of public–private collaboration, and Gribskov was clearly a frontrunner of public–private collaboration in Denmark.

2. *Secondly, the development partnership can be seen as a system innovation*. It was part of a broader change in the Danish public sector towards stimulating public–private collaboration. In this way, it may also be seen as an element of New Public Management.

The specific contribution of this particular system innovation is that it changed the focus from efficiency, the arm's-length principle and problems related to public choice, towards integration and mutual collaboration among public and private companies. In Gribskov, it was believed that outsourcing of public services to private enterprises could create better and less costly services. However, this was also seen to make it more difficult for the service provider to relate to new policy requirements and to participate in broader discussions about service innovation. The development partnership was introduced to correct for this "system failure" of NPM.

3. *Thirdly, the development partnership can be seen as a platform innovation*. The platform organisation was Momentum, responsible for resources for coordination and collaboration. A characteristic of the platform was that the outcome of its activities was not specified from the beginning, and the members were not forced to adopt the innovations that resulted from this collaboration. Each company had to see if it could work with or integrate some results into daily operations.

4. *Finally, the development partnership could also be seen as a service innovation* in two related ways. Momentum, which was created in 2003, was a service innovation in itself. Its purpose was expressed in the following way (July 2009) on its home page: "Momentum is an association of which the purpose is to create value in the meeting between different partners... Momentum's core service is value-creating collaboration, whether it is short idea-meetings or long-term alliances." Momentum is itself a network; it is an association of members.

The second way in which the development partnership can be considered a service innovation is through its concrete service projects (innovations) in the project organisation with Momentum. A number of concrete projects were initiated, among them:(1) a project about the concept of care, (2) a project about competence development, (3) a common training facility called Care Academy for employees, and (4) a project about involving local actors (volunteers) in care.

How is Success Measured?

Success was measured indirectly by the trust that grew inside the network among the members. The development partnership became more successful with time, when the partners had become more trustful and it became clearer as to how they could gain

new insights about care from projects like the above, that could generate value for all partners in the long term. In the first stages, by contrast, the partners seemed more sceptical—they were competitors and they were more oriented towards immediate results and fear that the other companies would steal their ideas—and reluctant to collaborate in what was partly seen as a waste of time.

What Success has been Achieved to Date?

The collaboration has led to a number of concrete innovations in the services offered (see above). Furthermore, a platform was constructed, and trust has been created on this platform between the private suppliers and the municipality.

Links to Further Information

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Theme III
Innovation Management within an Organization

Introduction to Innovation Management within an Organization Cases

Jennifer Wilby

Abstract This theme of innovation management presents four cases of service innovation as implemented through organizations actively encouraging innovation within their own boundaries, for example through project teams, internal governance of innovation, and/or methods or tools that stimulate innovation. In these included cases, the internal innovation explored activities of the organization that were already occurring, but which also emerged from purposeful re-design of those activities and service. Several observations regarding the roles of the people involved in the intervention, the organizational structures inherent in the interventions, and the measurement of outcomes of the interventions were considered. Finally, this introduction also describes and discusses general learning emerging from the cases reviewed, and adds proposals for areas of further learning about the theme exampled by the four cases chosen for this section.

This theme presents four cases of service innovation as implemented through an organization actively encouraging innovation within its own boundaries, for example through project teams, internal governance of innovation, and/or methods or tools that stimulate innovation. The four cases are:

- Understanding drivers of customer satisfaction in the social housing sector, Kitshoff et al.
- *Trus*TECH—innovators in the field of innovation, Martin.
- Soft systems methodology and innovation, Hindle.
- Achieving Service Innovation through a Health Education Programme, Hipwell.

In these cases, the internal innovation explored activities of the organization that were already occurring, but which also emerged from purposeful re-design of those activities and service. They covered the defining and measurement of customer satisfaction, in a case based in a social housing organization, innovation through dissemination of new design and practice in the NHS, the utility of an existing systems science problem structuring methodology in determining and managing innovation process, and how to innovatively serve the health needs of communities, demonstrating one particular intervention with South Asian Women.

J. Wilby (✉)
Hull University Business School, Cottingham Road, Hull, HU6 7RX, North Humberside, UK
e-mail: J.Wilby@hull.ac.uk

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With regard to the design of innovation management within these organizations at least four domains of interest come to mind:

- The people involved and how they might change or be changed.
- The structures of the organization and how those structures need to be considered in light of the proposed changes.
- The relationships within and without the organization linking with the previous domain of structure and boundary issues.
- The measurement of the outcomes of these redesigns.

This selection of case studies (in some ways) has drawn an arbitrary boundary given the interconnected ideas and processes in the full set of themes and cases in this book. Every other theme has something to contribute to this theme, but in this section there is valuable insight in the needs for further work in defining and utilising knowledge about innovation within organizations, and how that changes the people and the processes involved. So, having established a defined boundary for this section, how the four domains of interest described above are discerned in each of the cases is discussed in the next section.

The four domains were addressed in the cases to a greater or lesser extent, partly depending on what the focus of the innovation was, and whether these domains of interest were recognised by the authors. This overview tries to draw this information from each case to add to the overall discussion, especially when not specifically identified by the authors themselves. The domain of peoples' concerns was addressed directly by cases Kitshoff et al., Hindle and Hipwell. Kitshoff et al. looked at how peoples' experiences could be addressed and improved, Hindle presented a systems methodology capable of addressing human interests and activity systems, and Hipwell also looked at improvement of personal health within a specific community in that case, but which could be generalised to other similar service interventions.

Structure was addressed by Kitshoff et al., Martin and Hipwell, and relationships were addressed by Kitshoff et al., Martin and Hindle for similar reasons as those listed in the people domain discussion. These issues were core drivers of either what was observed happening, or were the specific content of the designed innovation within those organizations. However, in those cases the presentations could have placed more focus on the implications of changing these domains and the ramifications concerning how people relate to their work, along with the financial, auditing, accounting, human resource and governance changes, which can lead to radical changes to existing processes and the reflection required when such changes are planned. It is not only that certain people are now brought into this experience of innovation as agents of the changes, but these people are affected and changed by the innovations as well, and this has implications for management of personnel and staff development, dealing with more autonomy and self-actualisation when this autonomy is granted to individuals within the organization.

The case of the soft systems methodology presented in Hindle has the capacity to address these issues and could be brought to bear on the cases included in this collection for additional insight and feed forward to future planning and action.

One of the domains specifically reported in Kitshoff et al., Martin and Hipwell was the concept of measurement and how that would be monitored in each of the

situations. Measurement appears in these cases to encompass a numerical increase in profit, growth, or number of customers, rather than addressing the intangibles of measurement such as organizational change or quality of experience and how roles and responsibilities are re-designed as innovation occurs within and between organizations. In Kitshoff et al., however, there is a specific process described for measuring quality and satisfaction with a service, which is less tangible and indicative of the forms of measurement service systems will require to monitor their practices.

After the presentations in this topic, and building on the points of the previous section, the following issues appear to be relevant for further investigation in the provision of service innovation:

- The measurement of outcomes in each instance of innovation in an organization, whether changes in people, commodities, finance or structural and procedures for that organization.
- The ownership of the innovation and changes, with regard to what percentages of ownership are important to defining internal and external boundaries of the innovation and interactions, and roles and responsibilities of each actor in that innovation.
- The facilitation of innovation and the second-order learning about the facilitation of learning.
- The transfer of knowledge about the innovation and knowledge about the organizational changes that occur because of it.
- There cursive nature of innovation from peoples' experiences and how this contributes to the co-creation of value and learning in the innovation and how this further enables innovation.

There are other domains of interest that could be explored regarding organizational change that is effected by innovation in these cases and generally. These involve:

- Definitions of what is change versus what is classed as innovation; what makes innovation a more complex occurrence?
- The process of emergence in the implementation of innovation, and whether innovation itself is emergent?
- The (re-)drawing of boundaries for organizations and individuals in innovation?
- The classes of measurement to be considered for organizations managing innovations?
- How organizations have changed themselves, in their relationships with other organizations (whether clients or other entities)?
- The dissemination of this information about innovation in practice and how best to inform about upcoming innovation to those involved, and the support of organization in redesigns.

These cases present instances of innovation in various organizations, presenting novel ideas in areas not necessarily noted for the possibility of innovation. The cases are all interesting, and offer material about which further research in how innovation changes organizations and the individuals who work in them can be explored.

Understanding Drivers of Customer Satisfaction in the Social Housing Sector

Jan Kitshoff, Robin Gleaves and Gordon Ronald

Abstract There is substantial service performance information and customer satisfaction data available in the social housing sector due to regulatory reporting requirements and a focus on improving service delivery. However, the links between service standards, organisational performance and customer satisfaction are not clearly understood. Millions of pounds are spent annually in the sector on the measurement of customer satisfaction surveys and service benchmarking, but there appears to be no causal link or correlation between high customer satisfaction and high service delivery standards. Recent research confirms the above and more research is required in the sector to fully understand the drivers of customer satisfaction in the social housing sector. This case study is how One Vision Housing (OVH), a Registered Housing Provider (RP), recognised this problem some time ago; they have responded operationally to understand the drivers of customer satisfaction in a structured way and align their service investment based on customer feedback. OVH evaluated a number of operational approaches to increase their customer understanding. SERVQUAL was explored as a possible methodology but based on the lack of use in the social housing sector as well as the pitfalls of the approach as reported by Francis Buttle (Eur J Mark 30(1):8–32, 1996), OVH decided to go back to the basics of service quality and to monitor the ten dimensions of service quality over a year. This allowed OVH to evaluate trends and see how property and service investments and other operational decisions have impacted on their customers Customer survey results over a year identified the top four dimensions of service quality to improve as competence, access, responsiveness and communication. Detailed analysis shows that access to services for customers has improved over the year and improvement across this dimension correlates positively with key investment decisions and operational improvements. The use of the ten dimensions of service quality to understand

J. Kitshoff (✉) · R. Gleaves
KitshoffGleaves & Co, 21 Withington Ave,
Culcheth, Warrington, WA3 4JE, UK
e-mail: jan@kitshoffgleaves.com

G. Ronald
Vision Housing Ltd, Atlantic House,
Dunnings Bridge Road, Bootle L30 4TH, UK
e-mail: gordon.ronald@ovh.org.uk

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the links between customer satisfaction and service delivery is an innovative approach for the social housing sector, and there are no practitioner or academic publications about this approach, the methodology, pitfalls and potential benefits.

Background

There is substantial service performance and customer satisfaction data available in the housing sector. Organisations are required to submit their customer satisfaction data annually to the regulator based on a prescribed methodology to ensure comparability across the sector (known as the STATUS survey methodology). In addition it is common practice for organisations to annually evaluate and benchmark their performance across a range of performance factors against its peers through benchmark clubs (HouseMark is the market leader). Service performance including customer satisfaction measurement is compared and organisations are ranked in terms of quartiles with Q1 performance as top and Q4 as bottom. Scrutiny of data, comparing service performance against customer satisfaction, however, shows weak correlation between high customer satisfaction and high service performance. In practice this means that an organisation can outperform its peers in terms of service delivery but still have low customer satisfaction, making it extremely difficult to focus on specific service improvements that will result in an increase in customer satisfaction. This raises three questions:

- Is the housing sector measuring and benchmarking the right things?
- What are the real drivers for customer satisfaction in the housing sector?
- What service delivery areas should OVH focus on to increase customer satisfaction?

The Opportunity

One Vision Housing has invested substantially in commissioning service-specific customer surveys and has monthly customer feedback data available from a variety of sources. How to make the most of the intelligence and data available and to inform strategic and operational decision making became a challenge and OVH used the ten dimensions of service quality as key performance measurements.

Description of the Innovation

The approach is breaking away from the traditional methodologies in the sector and focusing on the ten dimensions of service quality. It is a structured approach and not without pitfalls, and can best be described as a case of adaptive innovation. The

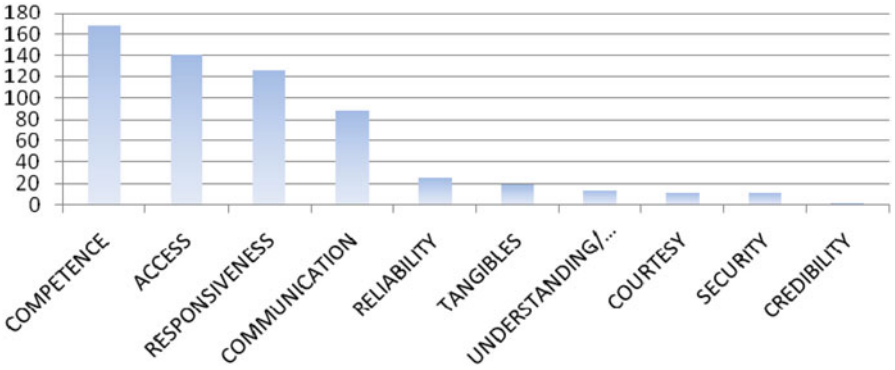

Fig. 1 2009/2010 OVH SERVQUAL importance ranking

use, reporting and findings based on the analysis of the ten dimensions of service quality have never been carried out in a recognised structured manner in the sector. We believe this approach will help the social housing sector to become aware of a new approach to evaluate their customer service data and provide meaningful insight about the drivers of customer satisfaction. It also allows organisations to be more specific about investment decisions which will lead to further efficiency gains and front-line service improvements (Fig. 1).

How is Success Measured?

OVH has developed a baseline for all ten dimensions of service quality and understands which service quality issues are most important for their customers. OVH has established trends across all the ten dimensions and has identified the top four service quality issues for its customer base. Customer feedback showed access to services as a major issue and OVH reacted positively, investing in and implementing change to make access to services easier. This includes substantial spending on both human and financial resources. In addition, action plans have been put in place to improve the top four service quality dimensions—competence, access, awareness and communication.

What Success has been Achieved to Date?

Access to services for customers has improved substantially over the last year, and plotting investment decisions across the number of access problems shows how OVH's decisions have impacted positively. Over the period in question, customer satisfaction with the service area was studied (Fig. 2).

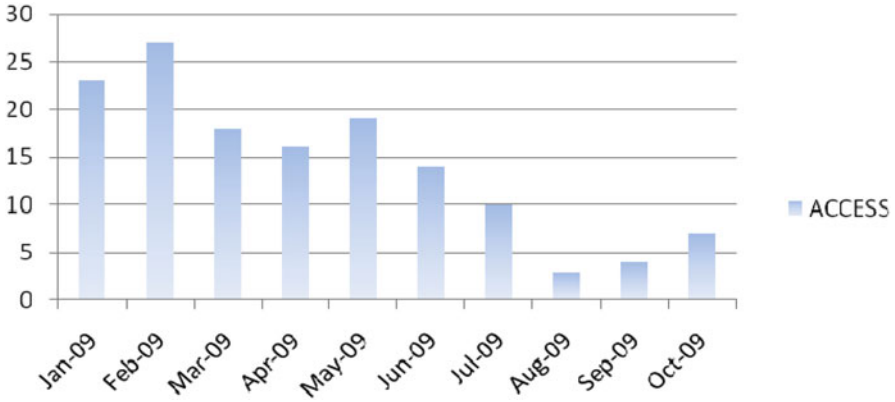

Fig. 2 2009/2010 monthly OVH access trends

Acknowledgments The authors wish to thank One Vision Housing for permission to publish this case study.

Links to Further Information

http://www.ovh.org

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TRUSTECH: Innovators in the Field of Innovation

Michelle Martin

Abstract TRUSTECH is an NHS organisation and part of the NHS Innovation service network. It provides advice on and assistance with managing innovation arising from all aspects of NHS healthcare provision. As one of the first NHS Innovations services to be established, TRUSTECH has a wealth of experience in intellectual property management. Since 2001 TRUSTECH has been supporting the NHS in the North West with innovation management, including intellectual property advice, service innovations, in-depth market research studies and support for commercialisation of innovations. TRUSTECH also manages the NW Innovation Fund, via InnovateNoW, on behalf of NHS North West (NW Strategic Health Authority).

Background

TRUSTECH is based in Manchester Royal Infirmary (with offices in Preston and Liverpool), and offers support and advice from inception to commercialisation of devices and services, with a tangible benefit to patient experience and cost savings to the NHS. Where a Trust has successfully implemented a novel service innovation, which may be of benefit to other Trusts. TRUSTECH also offers the opportunity for assessment of innovations under its Service Innovation Scheme and gives support for advertising and implementing the service in other Trusts.

TRUSTECH was established in early 2001, as a partnership between Central Manchester University Hospitals NHS Foundation Trust, the Royal Liverpool and Broadgreen University Hospitals NHS Trust, and the University of Central Lancashire. It initially received its core funding from the Department of Health and the Department for Business Skills and Innovation (DBIS). Current funding comes from Trust Membership fees.

TRUSTECH works with NHS staff across all disciplines with Trusts in the NW Region, Cheshire, Cumbria, Greater Manchester, Lancashire and Merseyside, and has experience in managing a diverse range of innovative ideas, including those in the following fields:

M. Martin (✉)
Service Innovation Manager, TRUSTECH NW NHS Innovation Hub, 1st Floor—Post Graduate Centre, Central Manchester Hospitals NHS Foundation Trust, Oxford Road, M13 9WL Manchester, UK
e-mail: michelle.martin@cmft.nhs.uk

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- Service delivery
- Biotechnology
- Diagnostics and therapeutics
- Medical devices and equipment
- Software
- Training and educational materials

The Opportunity

As an Innovation Service, TRUSTECH is an advisor to NHS Trusts, (Acute, PCTs, Mental Health, etc.), helping them to meet the obligations of the Department of Health (DH) policy on managing Intellectual Property (IP) arising from within the NHS. The DH has issued guidance on the management of IP in the NHS and TRUSTECH works with Trusts to meet the requirements outlined in these documents.

TRUSTECH facilitates the building of relationships across the NHS to disseminate innovative ideas and acts as a point of contact between the NHS and industry to build commercial relationships.

Description of the Innovation

The TRUSTECH Service consists of three distinct offerings:

1. The TRUSTECH Service Innovation Scheme recognises that not all innovations benefit from commercialisation. It is sometimes more appropriate to share innovations freely within the NHS and, with this in mind TRUSTECH developed the Service Innovation Scheme. Set up in 2005, it raises awareness of service innovations and encourages NHS staff to review and modify procedures.
2. The TRUSTECHNHS Service involves auditing or assessment of the innovation and assessing its value and potential benefit to a wider market either through commercialisation or free dissemination to other Trusts. This includes looking at competing products, market size, potential development route/costs and IP protection. TRUSTECH will report back to the Trust providing advice on protecting the innovation through legal rights know as intellectual property rights (IPR) and on the commercial potential. If a Trust wishes to engage TRUSTECH to assist in the further development and commercialisation of its IP, the unit will work with the Trust to provide these "commercialisation" services. TRUSTECH provides support and IP advice from inception to commercialisation of devices and services with a tangible benefit to patient experience and cost savings to the NHS.
3. TRUSTECHCommercial Services actively interacts with commercial organisations and can help broker engagement between NHS organisations and companies. This service is another part of the Innovation Gateway, facilitating knowledge and technology transfer between the NHS and the commercial and academic sectors.

2011 and Beyond

2010–2011 has brought many changes, political and economic, which impact on all aspects of the NHS, including the removal of central DH funding of all Innovation Hubs, some of which may not survive. However, now more than ever the NHS needs innovation to enable it to make the financial savings required, whilst at the same time delivering the Quality, Innovation, Productivity and Prevention agenda (QIPP). The NHS has to do things differently otherwise it will produce only the same results. (There is a definition of stupidity: continuing to do the same things but expecting different results).

Doing things differently involves both service innovation technological innovations as well as breaking down the barriers to implementation.

The model of engaging with industry and developing synergistic relationships with them is key. TRUSTECH can help industry understand what the unmet clinical needs are, how they might develop the right products to meet those needs, both fit-for-purpose and at the right price.

Integration of health and social care, as well as vertical integration between Acute and Community Trusts, will also help to develop a holistic view of healthcare and will hopefully reduce the silo budget mentality that has previously been one of the key barriers to implementation of innovation.

All innovations should meet a clinical need, have a sound evidence base or business case and have committed enthusiastic support at the most senior level of an organisation, as well as at the coal face.

How Success is Measured	Success Achieved to Date
Number of members	85% of Trusts in the NW region are TRUSTECH members
Successful promotion and management of the Regional Innovation Fund on behalf of the SHA	There have been four rounds of InnovateNoW up to December 2010, with 575 applications from NHS employees within 60 NW Trusts, 80 projects awarded funding, of over £2 million
Number of competition entries and winners	Over the last seven years, TRUSTECH, through its innovation competition, has identified over 700 innovations and created over 85 award winners, benefiting thousands of patients' lives, providing a tangible cost benefit to the NHS and continuing a culture of innovation in the North West NHS
Securing funds for innovation in the NW	Over £8 million of external funding has been secured for the NW, which has been wholly used to support the NHS organisations, primarily to develop their innovative ideas including: • Establishment of Medilink North West (the medical device and healthcare SME support network) • Establishment of ACTNoW (the NHS clinical trials facilitation system for the North of England) • Establishment of the NHS National Technology Adoption Centre (to address barriers to adoption of proven technologies entering the NHS) • Facilitation of a regional bid for modernization of the Regional Genetics Laboratories

How Success is Measured	Success Achieved to Date
The number of innovations assessed and supported as well as the number of those that progress to be successfully developed and implemented	From April 2009 to March 2010: • TRUSTECH had 192 new enquiries, did 116 evaluations of technology and service, and agreed strategies for the development of 21 innovations with NHS Trusts • TRUSTECH brought six new products to market
Commercial Innovation	Brokered 12 new collaboration agreements incl. Operation of the Smart Solutions for HCAI Programme and IP development agreements Recently commissioned to run the Smart Solutions for Health Care programme with support from Manchester Innovation Investment Fund (MIIF) and NW NHS Established the Medtech Centre in 2010 as a Joint Venture between the Central Manchester University Hospitals NHS Foundation Trust (CMFT) and Manchester Science Parks. It is operated by TRUSTECH and Manchester Science Parks who jointly bring wide experience in provision of facilities and innovation services to technology-based businesses TRUSTECH is currently in the process of launching a new service, part of the NHS Innovation Gateway for the North West. This is supported by the Greater Manchester Comprehensive Local Research Network (GMCLRN) and is delivered by TRUSTECH. The aim is to connect companies from the Medical Technology Industry (Medtech) with the NHS and enable high quality clinical evaluations to take place using the NHS research infrastructure, enabled by the National Institute for Health Research (NIHR) Clinical Research Networks

Links to Further Information

http://www.TRUSTECH.org.uk
http://www.smartsolutionsforhc.co.uk
http://www.InnovateNow.org.uk

Soft Systems Methodology and Innovation

Giles Hindle

Abstract The aim of this chapter is to illustrate how to apply soft systems methodology (SSM) in the context of service innovation and as such has a slightly different structure to that of other chapters. A brief overview of the main steps of SSM is presented together with a case vignette of innovation in a large public sector service.

Introduction

This case will focus on service innovation and on how to make innovation happen in practice within organisations. We utilise a set of tools from soft systems methodology (SSM) (Checkland and Poulter 2006; Checkland and Scholes 1999). Application contains three steps, which are mostly completed within facilitated workshops:

Step 1 Situation Mapping: the situation is expressed on a large whiteboard using a simple mapping tool (Fig. 1). The process gives participants the opportunity to stand back from the situation, propose different points of view and develop a holistic picture of the situation.

Step 2 Design Modelling: the next step involves developing a range of creative ideas for the future. SSM uses systems modelling tools to help construct designs of the service system or explore alternative views and theoretical positions.

Step 3 Action Planning: a final step is needed where the systems models are compared with existing arrangements to identify desirable changes and develop action plans to take the situation forward.

Although the application of SSM is presented here as a logical three-step process, it is important to realise that real-world projects will be open, messy and will require iteration between stages. There are two main reasons for this. Firstly, as with many design and problem solving processes, participants will have new ideas and change their views as the project develops. Secondly, it is likely that new designs and action plans may not achieve the outcomes intended by the project team. This is due to the complex nature of real-world change processes and should not be seen as failure by

G. Hindle (✉)
Centre for Systems Studies, Hull University Business School, Hull, HU6 7RX, UK
e-mail: giles.hindle@hull.ac.uk

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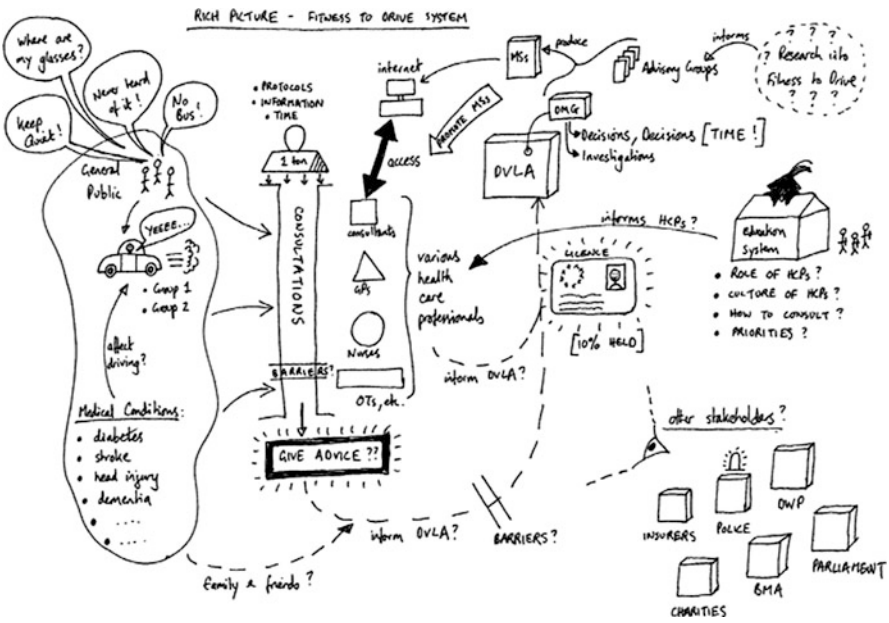

Fig. 1 Situation Map

the project team. Rather, SSM encourages participants to view such projects as part of an experiential learning process which in principle is never ending. Hence, the application of SSM becomes part of the on-going culture of the organisation, not simply a one-off project.

Case Vignette—Department for Transport

The case vignette explores the innovation of a large public sector service: the Department for Transport's arrangements to deliver medical standards on fitness to drive. The medical standards determine whether patients with a medical condition such as diabetes or dementia are permitted to retain their driving licences. A series of workshops was run with a range of stakeholders including hospital consultants, GPs, occupational therapists, nurses, social workers, patients and Department for Transport staff. The purpose of the workshops was to identify issues with the current system (mapping) and generate structured ideas for how the system might be improved in the future (modelling).

The arrangements to deliver medical standards (MSs) on fitness to drive may be viewed as a service system which creates the standards; endeavours to ensure they are implemented in practice through the co-operation of healthcare professionals (HCPs); and operates an administrative function in Swansea (UK) to process licensing decisions. The data collected in mapping workshops included a range of

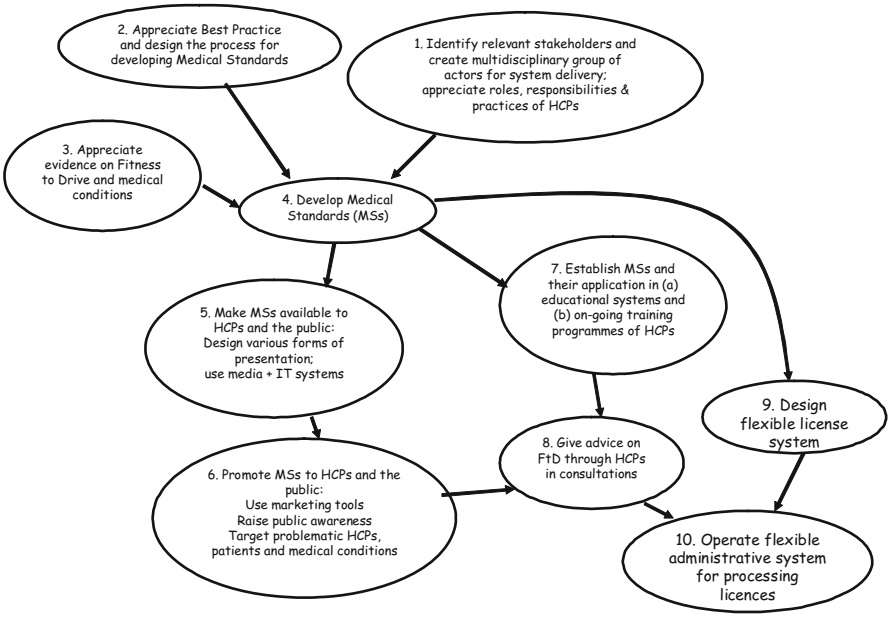

Fig. 2 Descriptive Model of the DVLA System (the Baseline)

stakeholder views from straightforward improvements to existing operations right through to fundamental changes to the underlying philosophy of the system. For example, some GPs requested quick-reference Internet pages, whereas some occupational therapists wanted a move away from licensing/exclusion to a more supportive philosophy. The data was structured using a systems model (Fig. 2) which captured the 10 core activities of the current DVLA system. This model enabled data to be associated with a particular activity within the current system or else identified the activity as (a) a systemic feature of the system, (b) an environmental constraint upon the system, or (c) an alternative philosophy for system redesign. It is worth noting this first model was *descriptive*, i.e. it described the *existing operation* of the DVLA's fitness to drive system; it was not a creative design at this stage. The reason for building a descriptive model first was to create a baseline understanding of the system.

Designing the New System

The modelling language of SSM is flexible in practice and can be used to develop models in a variety of ways. Once the baseline model had been constructed, we were able to explore the data relating to the improvement of the existing arrangements. One way was to develop models from explicitly stated philosophies or points of

view; for example, a hard-hitting legalistic model of the "system to deliver MSs on fitness to drive" could be constructed. This approach would allow the implications of adopting a particular point of view to be explored in a rigorous manner and facilitate a structured discussion. A second approach was to create models in the form of ideal designs; for example, various ideal designs of a "system to deliver MSs on fitness to drive" could be constructed to allow creativity to surface within a problem-solving team. A third approach involves a more operational and detailed point of view. Here the activities *within* a model can be viewed as sub-systems and modelled. Building ideal type models of such sub-systems can help develop ways of improving the effectiveness or efficiency of existing arrangements. Hence, there was a wide range of modelling options open at this stage of the project, both for the system as a whole (the "system to deliver MSs") and the 10 core activities within the baseline model.

In this project, we undertook the first and third options mentioned above (see Hindle and Franco 2010): we explored changes in philosophies and changes to the core activities. For example, we modelled the implications of adopting a "supportive" philosophy for fitness to drive, based upon views expressed by occupational therapists in a stakeholder workshop. This model introduced the idea of creating "support packages" rather than "medical standards" for the relevant medical conditions; drivers would be kept on the road where possible, or given travel support, rather than being licensed off the road. The model (and others) was then systematically compared with existing arrangements to assess the implications for possible implementation. Innovating a part of the system, on the other hand, entailed selecting one of the activities within the baseline model and creating a design model of it, i.e. regarding the activity as a sub-system. Building models of sub-systems is useful when one wants to innovate or "tune" specific aspects of the existing system; for example, Activity 5 in the model above was viewed as "a system to make MSs available to HCPs and the general public". When modelled in this way and compared with existing arrangements, we recognised opportunities to identify target markets for MSs and to design communication "products" for each group. Another idea was to place communication "products" along the care pathways of the various medical conditions, thus improving the hit rate with patients and HCPs.

In this project, the various models based upon alternative philosophies and the models based upon sub-system designs were ways of capturing and articulating views expressed in stakeholder workshops. Here SSM was operating as a type of research methodology to capture and structure qualitative stakeholder data. The analysis was fed back to the client organisation in the form of a report which then informed the internal decision-making processes of the DVLA. Often SSM practice consists of workshops with decision takers, but in this case, due to the large-scale nature of the public sector service, it was necessary to involve a range of stakeholders in the innovation process.

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Achieving Service Innovation Through a Health Education Programme

Alison E. Hipwell

Abstract International evidence confirms that patient educational self-management courses help people with long-term conditions to improve their daily health management, which benefits their quality of life and, in the UK, provides a small cost saving. People from South Asian backgrounds who live in the UK experience substantially worse health than other groups, yet few South Asian people attended the pilot phase of one self-management course: the Government-funded Expert Patients Programme (EPP). The six structured sessions last 2 ½ hours per week, and are delivered by trained tutors. Key topics include communication, nutrition, exercise, cognitive symptom management, contracting and problem-solving. For the current case study, Punjabi Sikh Indian women were offered experiential insights about living with arthritis and attending the EPP. Analysis revealed promising areas for service innovation and improvement around components of this course and its delivery, which may in turn result in improved resource efficiency and quality of life for this group.

Background

Based on Stanford University's self-management model, the UK's EPP is a free self-management course that helps people with long-term health conditions to improve their daily health management, whilst offering a small cost saving. Government funding has allowed such courses to become widely available to people living with long-term conditions. However, when few South Asian people attended the pilot phase of the EPP, concerns were raised about exacerbating substantial existing minority ethnic health inequalities. The World Health Organisation and the Department of Health advocate the cultural tailoring of patient educational self-management courses, through engagement with target communities, to address these increasing health inequalities. As with many other long-term conditions, arthritis is more prevalent amongst South Asians in the UK than in the majority White population. Yet little is known about South Asian community-members' experiences of living with and

A. E. Hipwell (✉)
Warwick Medical School, University of Warwick, Division of Metabolic and Vascular Health, Coventry CV4 7AL, UK
e-mail: a.e.hipwell@warwick.ac.uk

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self-managing arthritis, their understanding of self-management courses, what barriers and enablers to attendance may exist for them, or their experiences of attending EPP.

The Opportunity

This exploratory study afforded an opportunity, from the perspectives of Punjabi Sikh Indian women living in the UK, to describe:

- their experiences of living with and self-managing arthritis, prior to attending the EPP;
- their understanding of self-management education, before their enrolment on the EPP, to identify perceived barriers and enablers to participation;
- their experiences of attending a Punjabi-language EPP.

Description of the Innovation

For this novel case-study, 10 Punjabi Sikh Indian women with arthritis (mean age 65 years) were recruited at a community centre in an area of urban deprivation in the UK, prior to attending the EPP. Interviews were performed in English, or in Punjabi with a trained, qualified interpreter. Data, translated where necessary, were transcribed into English before being qualitatively analysed using Interpretative Phenomenological Analysis, in what is believed to be a methodological innovation. Four participants were re-interviewed after attending a Punjabi-language EPP, which had been culturally modified in the light of the initial findings.

How is Success Measured?

The success of this research is confirmed by the striking and unique results that the analyses revealed. Prior to EPP attendance, participants actively self-managed their physical symptoms of arthritis, such as pain, by using tailored combinations of prescription medication (painkillers), dietary modification (e.g. traditional Indian herbal remedies) and yoga. These women also engaged familial and spiritual sources of psychological and social (psychosocial) support, in order to better self-manage psychosocial aspects of their arthritis experiences, such as adjustment to disease.

Numerous enablers to self-management educational participation were identified, of which some were culturally-situated. For instance, the women understood that dietary advice is given at self-management courses, and felt that examples using vegetarian Indian foods would be most relevant. Similarly, self-management education that addresses their prevalent herbal medicine usage would be pertinent and exercise guidance that considers this group's widespread use of yoga, would also be beneficial.

Potential barriers to these women's participation in self-management education were again more similar to those found in White populations. However, linguistic considerations were highlighted by some women. Several participants expressed a preference for self-management programmes to be conducted in Punjabi, if possible, to enable as many members of their community as possible to attend and benefit. Although some participants could speak and read some English, Punjabi courses would enable them to "understand it fully", whereas "If it is in another language, we only understand half". Importantly, no conceptual barrier to self-management or health education *per se* was identified.

Following their attendance on a Punjabi-language EPP course, the participants had all learnt new techniques that helped them to actively self-manage their arthritis. They particularly welcomed the culturally-tailored information about dietary modification and exercise that they received on the course. These women greatly appreciated the opportunity to attend the Punjabi EPP, finding it a positive, shared learning experience.

What Success has been Achieved to Date?

This novel case study identified promising areas for innovation in this health education programme, which was refined to better meet the needs of this culturally and linguistically diverse group. This may, in turn, improve their quality of life, whilst offering a small cost saving. The importance of this study has been recognised by the EPP's national management, and in the divergent disciplines of health psychology, rheumatology, self-management, diversity in healthcare, and Interpretative Phenomenological Analysis. The necessity to consider patients' experiences during the introduction of the NHS Self Care agenda is increasingly being acknowledged.

Acknowledgments Funded by Arthritis Research UK (formerly Arthritis Research Campaign) Educational Research Fellowship grant ref: 17882

Links to further information

Self-management websites: http://www.expertpatients.co.uk/

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Theme IV
Process Innovation

Introduction to Process Innovation Cases

Steve Street

Abstract While it is clear that few Service Innovations are really 'single category', this section presents Case Studies that can be called 'Process' Innovations through being either Processes for 'doing Innovation', Innovations that changed processes, or Innovations whose key content turned out to be in the area of Process.

A major theme is the 'transdisciplinary' application of existing 'non-Service specific' methods for innovation—a key question being how much adaptation to 'Services' each technique required and how successful that adaption was.

However, there are also examples of new 'service specific' techniques being applied—notably variants of 'participatory design' which may become typical in an increasingly 'User generated content'/'Web 2/3.0' world.

An additional key theme is that of 'Origination' where drivers were often 'external' and arising from an interesting range of motivation.

Finally, while 'Services Innovation' and 'Ordinary Innovation' have much in common, from these Case Sudies it seems 'Service Innovation'—with its emphasis on novel and 'multi-dimensional' approaches—*is* different and increasingly involves complex, multi-stakeholder 'service systems'.

The headline theme of this section of Service Innovation Case Studies is 'Process Innovation'—Service Innovation through changes in service design and delivery processes. The Innovations described in these case studies certainly encompass elements of Process Innovation in this sense. However, in terms of scope at least two observations can be made:

Firstly, while for simplicity each case is only reported under one theme, the Service Innovations presented are in reality typically 'multi-category' and several of the cases could be presented under other themes. In general it is unusual to have a Case Study that is not 'enabled by technology' in some way, or an Innovation that has *no* impact on operational process.

In the same way, several cases presented elsewhere—for example 'Information Technology Enabled Business Platforms' (Parmar; Theme 5) and 'Understanding the Drivers of Customer Satisfaction in the Social Housing sector' (Kitshoff et al;

S. Street (✉)
IBM Global Technology Services, PO Box 41, North Harbour,
Portsmouth, Hampshire, PO6 3AU, UK
e-mail: steve_street@uk.ibm.com

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Theme 3) as well as several others—could also have been presented as process innovation.

Secondly, the 'Process Innovations' presented often related to process in the sense of the *process* of *Service Innovation* as well as to process in the sense of *process* being *changed*. For example 'Including Customer Representatives in the Development of a Service Innovation Model' (Toivonen and Holopainen; Theme 4) as well as 'Soft Systems Methodology and Innovation' (Hindle; Theme 3) and the 'Business Platforms' Case Study (Parmar; Theme 5) already referred to, are based on the application of either existing 'innovation methods' originating outside the area of 'Services' or new methods developed specifically to encourage 'Service Innovation' itself.

In fact 'Process Innovation' Case Studies seem to fall into three main overlapping categories: (a) Processes or Methods for 'doing Innovation' in services (b) Innovations that changed processes directly, for example, 'A Systems Approach to Housing Repairs' (Seddon and O'Donovan), and (c) Innovations which were Innovations whose most significant content turned out to be in the area of Process—including again Toivonen and Holopainen.

There were examples of new 'service specific' techniques being applied to innovation in services—'Including Customer Representatives in the Development of a Service Innovation Model' (Toivonen and Holopainen) being again the clearest example presented under this theme (but for example see also the application of a bespoke service quality monitoring approach in Case Study Kitshoff et al. 'Understanding the Drivers of Customer Satisfaction. . . ').

However, a major theme was the 'transdisciplinary' application to Services of existing tools or methods for innovation. For example, the famous 'Lean' Methodology/thinking was applied to 'Health Visiting services' in Macintyre and Bestwick, 'A Systems Approach to Housing Repairs' (Seddon and O'Donovan) was based as you would expect on applying Systems Thinking and 'Social Housing Asset Management' (Kitshoff et al.) sought to use Customer Profitability Analysis (CPA).

These attempts at 'transdisciplinary' application of technique raise the question of how much each technique could be applied directly versus how much adaption was required to apply it to subject matter for which it was not originally designed.

For example, CPA/'Whale Curves' appear to have been applied directly and effectively in Kitshoff et al., but—while 'Lean' Techniques are among the more popular techniques to be applied to Services—for example see the McKinsey article 'Applying lean production to the public sector'—in my experience the ease with which they can be applied 'directly' and their actual role in achieving successful outcomes in Services is not so straightforward as it may appear.

The experience of Macintyre and Bestwick (Improving Health Visiting Services through Lean Thinking) where the main outputs failed to be implemented for reasons beyond the control of the study authors may be illustrative.

It may also be significant that as well as any pre-established 'method' Seddon and O'Donovan (Systems Approach to Housing Repairs), Macintyre and Bestwick (again) and Toivonen and Holopainen (Development of Service Innovation 'Model' for an Insurance Company) all used some form of 'participatory design' technique.

In addition in terms of method, the references in Seddon and O'Donovan to 'collective experiment(ation)' and to 'The contractors. . . , design(ing) their system' bring to mind the types of approach that are increasingly becoming familiar in a 'User generated content'/'Web 2/3.0' world. It is tempting to imagine that this kind of approach may become a more familiar model of Innovation in general.

However, beyond technique, a key theme is that of 'Origination'—many innovations are triggered 'externally', very often due to legal, regulatory or compliance initiatives. (There is an interesting class of 'External Originators'—exemplified by Case Study Parmar; Theme 5 'IT Enabled Business Platforms', Hindle; Theme 3 'Soft Systems Methodology' and Martin; Theme 3, '*Trus*TECH—Innovators in the Field of Innovation'– where the innovator came from outside those directly involved and was in effect 'self-motivated' -encouraging *others* to innovate so as to then be able to participate in these innovations).

It is possible that the case studies presented under 'Process Innovation' shed some light on the significance of 'Origination' in that in particular cases Seddon and O'Donovan (Systems Approach to Housing Repairs) and Toivonen and Holopainen (Development of Service Innovation 'Model' for an Insurance Company) were clearly internally originated and achieved significant 'buy in', whereas in the case of Macintyre and Bestwick (Improving Health Visiting Services through Lean Thinking) internal sponsorship is less obvious (and was probably harder to achieve in the organisational context) and—as referred to above—adoption of the recommended improvements was inhibited by 'poor leadership and cultural issues'.

Finally, the importance of 'buy in' and sponsorship are not unique to 'Service Innovation' many of the characteristics of innovation identified in these case studies are similar to those identified in general studies of innovation (For example see 'Diffusion of Innovations' by Everett Rogers 2003).

This raises a key question—to what extent is 'Service Innovation' just 'Innovation'?

Many of the key requirements for the success and adoption of a 'Service Innovation'—notably the need for sponsorship and acceptance by key stakeholders—are clearly similar to those for Innovation in general.

Consequently it is clear that there should be much opportunity for investigating the 'trans-disciplinary' application to Services Innovation of existing techniques, methods and models to those originate outside the area of Services.

However, while 'Services Innovation' and 'Ordinary Innovation' do seem to have much in common, it also appears that 'Service Innovation' *is* different—at a minimum in its subject matter but also perhaps in the methods needed to yield success in Innovation as evidenced by the apparent emphasis in these Case Studies on 'multi-dimensional'/soft approaches to Innovation including 'Process Innovation'.

Further, there appears to be a lack of established, successful techniques for 'Service Innovation'—as evidenced by those Case Studies that show participants developing new processes and methods for Service Innovation or achieving new/novel results by applying techniques already established in other areas (It is an indication of the comparatively 'wide open' nature of the field of Services Innovation to observe

that in Kitshoff et al. a newly developed technique was preferred to even a relatively established 'Services Method'—SERVQUAL).

This situation where 'Services Innovation' *is* at least partly different is only likely to grow as External drivers for Innovation continue to evolve and many key problems, for example in the use of Water & Electricity—increasingly involve complex 'service systems' with multiple, non-dominant stakeholders.

As a result, Services Innovation is likely to be an increasingly profitable area of research encompassing for example (a) The collection of more 'Services Innovation' Case Studies, particularly examples of innovation in B2B (Business to Business) Services (b) The testing of the transferability of 'Non-Services' techniques and methods to Services to establish both what does and what does *not* work and (c) The development of New Service Innovation Methods with perhaps an increased focus on techniques for propagating 'Services Innovation' across Services.

In any event, whatever form the future of Services Innovation takes, it is clear that it is likely to be 'multi-dimensional' and in those dimensions 'Process Innovation' is likely to play a key part!

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A Systems Approach to Housing Repairs

John Seddon and Brendan O'Donovan

Abstract This is the remarkable story of Portsmouth City Council's housing management service, which has transformed the way it works by designing services against local demand. Along the way, their work has won an award from Professor Gary Hamel's 'Management Innovation eXchange' (MIX) (Hamel and LaBarre, Dispatches from the front lines of innovation management, 2010). The council is a unitary authority on the English south coast and directly provides social housing to over 17,000 tenanted and leasehold dwellings, representing 18% of tenures in the city. The department has an operational budget of £80 million and comprises a staff of approximately 600. Whilst housing repair systems thinking interventions have been documented elsewhere (e.g. ODPM, A systematic approach to service improvement evaluating systems thinking in housing, 2005; Jackson et al., Evaluating systems thinking in housing, J Oper Res Soc 59:186–197, 2007; McQuade, Public Money and Manage 28(1):57–60, 2008), this intervention is especially noteworthy for the level of integration of systems principles throughout the whole supply chain. In Portsmouth, the council's housing tenants now experience exemplary services. Property repairs are completed either on the day required by the tenant or within less than a week (compared with the official government target of 28 days). The council's private-sector suppliers have more than halved their costs per repair whilst the city council's housing department operates with 12% less resource. These are results that no one would dare to have predicted if writing a plan in advance, but which have been derived from careful study of their system, leading to a fundamental change in management thinking and subsequent experimentation with new, inventive methods. Portsmouth's design has been developed in conjunction with its private-sector suppliers—a pocket of excellence in strategic partnerships that goes against the grain of guidance on partnerships coming from central government. Through working to stock their repair vans against what was predictably required in a certain area, the contractor firms now spend less than 25% of what they were spending on stock before. On top of this, there has been real innovation within the system, both in designing IT in-house to support their work (developed at a fraction of the cost of conventional off-the-shelf housing IT packages) and in starting a new logistics arm which supplies materials to tradesmen exactly when they are required. It is not

J. Seddon (✉) · B. O'Donovan
Vanguard, Villiers House, 1 Nelson St., Buckingham, MK18 1BU, UK
e-mail: john@vanguardconsult.co.uk

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exaggerating to say that this case study of collaboration demonstrates the potential to rewrite the guidance on strategic partnerships, and to serve as the benchmark for economic performance in the public sector.

Background

Despite an admirable record of accolades and commendations from inspection bodies, Portsmouth City Council's elected members (councillors) still found their weekly surgeries full of complaining tenants, dissatisfied with the service they were receiving (Caulkin 2010). This led the Head of Housing Management to the decision to follow the Vanguard Method (Seddon 2008) with the aim of redesigning their service from the customer's point of view. One of the first services they decided to change was their housing repairs system. A group of workers from across the system, including from the private sub-contractor repairs firms, was tasked with investigating their service to find out how it was currently performing. They decided that the purpose of this service from a customer's point of view was simply 'to do the right repair at the right time'. An analysis of the demands that were coming into the system through the council call centre showed failure demand (Seddon 2003) to be running at an astonishing 60% of all demands. Failure demand is "demand caused by a failure to do something or do something right for the customer" (Seddon 2003: 26). What was discovered to matter to customers was that jobs would be completed in one visit, that they would stay fixed, not requiring another call to the council for a further repair and that they were undertaken either as soon as possible or at a time convenient to the customer. By looking at work historically, it was possible to see how the organisation had been performing against these customer expectations. Housing staff found that the end-to-end time for a repair was averaging 24 days, with 15% of repairs requiring four or more visits for a job to be satisfactorily completed.

The Opportunities

As is often the case with managers examining their service from a customer's perspective for the first time, these results came as a tremendous shock—the service was used to praise from inspectors and was performing well within national targets for providing a service. In fact, when they delved deeper they discovered that it was a concentration on meeting these targets which was causing many of the dysfunctional outcomes for residents: to meet time targets, single jobs were being fragmented into many; to meet budgetary requirements, short-term patch-up jobs were being applied rather than tradesmen being allowed to attack the root cause of a repair problem (Zokaei et al. 2010a). Conversely, they found perfectly functioning bathrooms or kitchens were being ripped out at great expense and replaced to fit a planned maintenance schedule, based on the idea of supposedly accruing savings through

exploiting economies of scale. In the private-contractor organisations, the repairs tradesmen were found to have under-stocked vans as their managers did not trust them not to use the stock to do other things. These consequences of their 'command and control' (Seddon and Caulkin 2007) management worldview were imperceptible to the managers and the inspectors themselves, but ended up having an incredibly disruptive effect on the lives of the council's housing tenants.

Description of the Innovation

Starting from scratch, the organisations (the council and its contractors) collectively experimented with new ways of working based on doing work right first time, at a time that suited the resident. Working to a new purpose of 'do the right repair at the right time', the team set about experimenting with designing a perfect system. In such an ideal world, there would only be three steps in the process of making a repair:

- ensure access to the property;
- diagnose the problem; and
- complete all necessary repairs.

In effect, the tradesman undertaking the work was allowed to decide the best way to do it, unencumbered by management diktats or presumed budget constraints. In order to work in this way, it was discovered through experimentation that tradesmen needed a service which brought the building materials (e.g. doors or windows made to order) directly to them whilst they were attending a property. One of the contracting organisations thus started a new firm to do exactly that, based on the model of a pizza delivery firm—the materials needed to arrive exactly on time, just as a pizza needs to be delivered while still hot. Houses are now repaired in an average time of 7 days, and more importantly at a time suiting the resident. Another innovation came when the supplier spurned the usual choice of off-the-shelf IT packages designed for housing associations (quoted to cost £150,000) and instead only introduced IT once the whole system had been redesigned. Their new bespoke IT package cost them only £3,000 and works by matching the demands of customers (which ones want what jobs at what times) with the supply of tradesmen by highlighting when each is likely to come free from his current job. Large screens at headquarters provide transparency, and the system works as a single piece flow, with each tradesman getting one job at a time to avoid bottlenecks and delays. The contractors have designed their system such that they arrive within 15 min of the resident's specified time for an appointment 94% of the time.

How is success measured? The service has recorded a 99% satisfaction rating from residents, with over 90% of jobs being completed right first time. The private-contractor firm has subsequently seen profits rise steeply, as costs per job have been halved and they have been able to win more work because of greater capacity. Despite taking on more repair jobs than before, the council has managed to reduce the overall

spend on its repairs service from over £35 million in 2007/2008 to a budgeted figure of under £32 million for 2010/2011 (Zokaei et al. 2010b). None of this could have been planned at the beginning of the intervention; it was only by systematically examining their service, understanding what mattered to their customers and then designing to perform this work and this work alone that they have been able to achieve this astonishing success.

What Success has been Achieved to Date?: The Achievement of Effective Local Service Delivery and Outlook

Portsmouth City Council's approach has had a dramatic impact on the provision of housing services. Customers are experiencing the benefits, as is shown by the customer satisfaction data collected after a repair has been done. The service continues to learn by listening to customer demands and ploughing information back into its services. The process has required the support and commitment of staff across the organisation, as well as residents, councillors and service providers. These results were only achieved through a change in thinking, whereby managers 'unlearned' the common assumptions they had viewed as 'best practice' (managers removed from the work, contractual relationships with contractors, and managing costs) and instead changed to a 'systems thinking' (Seddon 2003) mindset (managers work on the system as a whole with suppliers, with an unrelenting focus on managing value to the customer). Along the way, they counter-intuitively discovered that excellent, bespoke service to customers can actually be achieved at a lower cost for all.

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Opportunities to Improve Health Visiting Services Through Lean Thinking

Mairi Macintyre and Stuart Bestwick

Abstract This paper presents the findings of applying tools and techniques emerging from the manufacturing sector, commonly referred to as lean, to a service sector setting of a health visiting service. In particular, value stream mapping was employed to demonstrate the current level of waste in common tasks for the participating health visiting service. Through participatory design work a re-designed future process map was created. Concurrently, stakeholder mapping was conducted to demonstrate the multiple links to other services that needed to be considered in the future state service design. Despite quantifiable evidence collected during the study demonstrating measurable improvements that would free up resource within the organisation, which could be redirected towards providing better direct care to patients, changes were not implemented. From follow-up interviews and analysis, poor leadership and cultural issues were identified as the main barriers to implementation of improvements. Leadership support and cultural disposition are critical in the transformation process; adopting an improvement culture is critical in both manufacturing and service sectors for successful implementation of lean, but their manifestation is necessarily different in a service dominant business model as opposed to a product-dominant business model. These differences occur because the value proposition is predominantly experience based in a service-dominant model.

Background

Health visitors (HV) are public health nurses working with children up to five years old and their families. They are responsible for delivering early intervention, prevention and health promotion for young children and families (DOH 2007a). In recent years the demand for health visiting services has increased due to greater social, cultural, racial and geographical diversity in the UK (DOH 2007b) Services are under pressure to deliver care to more patients with constrained resources (Wilson 2009).

M. Macintyre (✉)
WMG, Associate of The BIRCH Foundation, University of Warwick, Warwick, UK
e-mail: m.macintyre@warwick.ac.uk

S. Bestwick
Alexander, Associate of The BIRCH Foundation, University of Warwick, Warwick, UK
e-mail: stuart.bestwick@alexander-ecc.com

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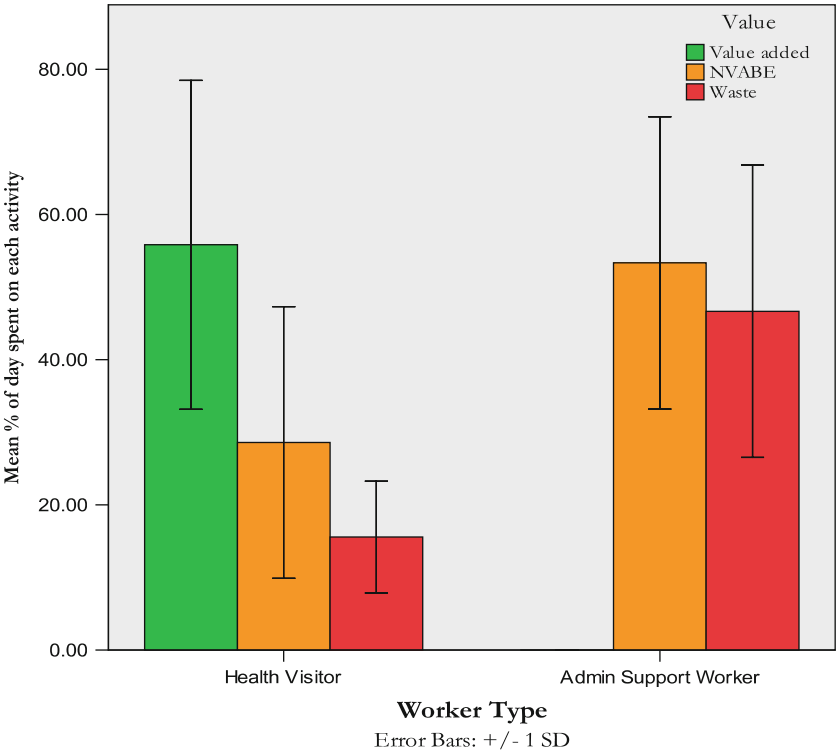

Fig. 1 Activity by worker type as a percentage of their time (adapted from Grove et al. 2010)

The need to improve healthcare efficiencies has been heightened by recent UK Government spending cuts (HM Treasury 2010), and one approach to address this is seen to be applying philosophies, tools and methods from other industry sectors (Weinstock 2008). This study focuses on the applicability of lean (Ben-Tovim et al. 2008; Fillingham 2007) within NHS primary care HV services.

The aim of the study was to identify ratios of value-added (VA), non-value-added (NVA) and essential non value-added (ENVA) activities, value being defined by the end user of the service. Future state mapping was used to identify opportunities to remove non-value added activities from the system resulting in the release of time, hence resource, for users of the HV service.

Working with HVs and their Administrative Support Workers (ASW) in a PCT in southern England, data was collected over five days at various HV locality bases in a city-based PCT. The observers used time intervals to examine the working day of both HVs and ASWs in a 3:2 ratio. Their activities were grouped into VA, ENVA and NVA and revealed 15% NVA for HVs and 46% for ASWs (see Fig. 1) (Grove et al 2010).

The Opportunities

The results showed that a sustainable amount of time is spent on non-value added activities in the service with HVs at 15% and ASWs 46%. This figure can be used to calculate the amount of spend in the budget to which this equates and which could be spread across the services on an annual basis. The resultant figure is only an estimate but it provides a useful benchmark against which to measure future improvements. Opportunities for significant waste reduction were identified during the study and include simplification of standard tasks, reduction in paperwork and standardisation of processes. So what were the obstacles to creating efficiencies that would free up HVs?

Description of the Innovation

The technique was effective in identifying the efficiencies that would be made by redesigning the service.

Problems, seldom existing in isolation, were made more complex by the interdependencies of multi-skilled teams working across multiple sectors and organisations. The number of interacting processes was implied after stakeholder mapping. The complexities this offers in terms of processes can be modelled by role activity diagrams.

Isolated attempts to tackle issues were visible from innovations by staff to make life easier. However, by approaching the problem in small areas of the whole system, the solutions only led to small islands of good practice that could not be easily integrated in the larger system; this leads ultimately to an increase in barriers to working together as employees become protective of their 'good' part of the system. A new approach would be required to achieve real, beneficial change.

How is Success Measured?

Measuring success is easy when using lean tools and techniques, as it is just a case of measuring the improvement to the percentage of time spent on value-adding activities. A balanced scorecard approach may help to take into account the value offered that cannot be measured by cost.

The challenge is not in measuring the benefits once change has been made but in making the improvements themselves in these human-intensive services. It is more important to measure indicators of successful change in such a system. This requires an understanding of the relationship between process and efficiency; pre-disposition, environment and experience; and the difference between efficiency and effectiveness.

Implementing Lean Thinking in Health Visiting

To solve complex problems, such as those evident in HV services, requires a discipline of techniques from both the methodologies that specialise in improving process efficiency and those that specialise in improving the experience. Techniques associated with improving the experience manage the dispositions of the users and the providers of the service to ensure optimisation of the co-creative process of service and management of the environment in which the service is delivered. For the HV service, the greatest value is delivered at the end user's home; managing the environment can be done through consistency in interaction. This may be achievable through standardisation of some elements of the engagement with the service. Predisposition of both actors can be managed by information and expectation setting in both employee and service user.

The process improvement element requires application of principles such as those identified by Kotter (1990).Currently the HV service is not a team but a collection of individuals. There is little standardisation of the employees' working practice, skills or processes followed. The system is currently an intricate web of work-arounds, rather than a purposeful system dynamically responding to changing conditions.

Systemic change needs to take place if the identified improvements are to be realised.

Improvements to working practices must take place while delivery of day-to-day services continues. Lean thinking and its systematic application, coupled with an awareness of the complexities of service-dominant organisations, provides opportunities to bring about that change.

Links to Further Information

http://birchgroup.org/

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Including Customer Representatives in the Development of the Service Innovation 'Model' for an Insurance Company

Marja Toivonen and Mari Holopainen

Abstract This case study describes an innovation process in which customer representatives participated. The case company is a medium-sized Finnish insurance company which has developed several individual service innovations during recent years (e.g. an online application system and decisions concerning indemnities, and a specific mapping service concerning insurance needs). Nevertheless, the company has realised that its innovation activities are still product-oriented, focusing on the development of insurance products and IT systems. Our case study describes an action research project, where the authors together with the company pursued a new type of process model for service innovation which would support the systematic implementation of a strong customer perspective. Here, we concentrate on the description of customer interaction in this work. The interaction was organised as a series of development workshops in which representatives of customers participated.

Background

The perception of the customer, not only as a co-producer of services, but also as a co-developer, is expanding. In the traditional way of perceiving the market, customers become involved at the point of exchange. The perspective of co-development presupposes that starting the interaction with customers much earlier—during innovation of service offerings—generates new knowledge and ideas, and provides additional value both to the customer and the provider. Co-development leads to better identification of customer needs and the close interaction process favours creativity (Abramovici and Bancel-Charensol 2004; Prahalad and Ramaswany 2004) Recent ideas about the opening of innovation activities follow the same line of thinking (Chesbrough 2004).

This chapter presents a case study of a medium-sized Finnish insurance company. The company has developed several individual service innovations over recent years.

M. Toivonen (✉)
VTT Technical Research Centre of Finland, P.O. Box 1000, 02044 VTT, Finland
e-mail: marja.toivonen@vtt.fi

M. Holopainen
BIT Research Centre, Aalto University, P.O. Box 15500, 00076 Aalto, Finland
e-mail: mari.holopainen@aalto.fi

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These innovations have been based on broad, systematically gathered customer information. By the time our case study started in 2008, the company had recognised the need to develop their service innovation processes to be more customer oriented. According to their notion, these processes were still too product oriented: innovation efforts were targeted first and foremost at the development of insurance products and IT systems. The company was not only interested in strengthening its customer-oriented perspective in general, but wanted to develop *a new type of process model for service innovation* that would support the systematic implementation of a strong customer perspective. Over the last 2 years we have carried out an action research-based case study, where these aims have been pursued. The final model is still under construction, but we have abundant material which illustrates both individual service innovations and *experiences of the interaction with customer representatives in innovation*. Here, we focus on the latter material and describe a series of development workshops where representatives of customers participated.

The Opportunity

Among the individual service innovations created by our case company, two are worth mentioning in particular: an online application system and decisions concerning indemnities, and a specific mapping service concerning insurance needs. As regards the former, the innovation is in the decision-making—the customer gets *the decision during the same on-line session* where he/she makes the application. (Online application as such is broadly used in Finland nowadays, i.e. it is no longer an innovation.) Thus, our case company does not require medical reports or receipts before making the decision, but asks the client afterwards if the situation is unclear. As regards the needs mapping service, the innovation lies in its deep and comprehensive nature and its *different applications for different age groups*, including seniors who are often considered less attractive to the insurance business. In its basic form, the needs mapping service is not an innovation, being provided in some form by all insurance companies in Finland. In our case company, the mapping service is carried out as a one-hour face-to-face discussion with the customer, and it covers broadly the issues which may influence the economic security of the customer. The service is free of charge and it does not put the client under any obligation to purchase new insurance products. However, the discussion often reveals gaps or overlaps in the customer's insurance policies, deposits or loans, and in this way leads to seeking solutions which may benefit the service provider.

It was the needs-mapping service that led the company to realise that there was still much to be done in its customer orientation. As the company had carried out systematic R&D for years regarding its insurance products, it wanted its genuinely service-focused processes to be systematic as well. This led to the search for a new process model. In the development of this model, the analysis and further development of the above-mentioned innovations, as well as some other services, played a central role.

Description of the Innovation

The part of the development process where customer representatives participated was carried out in the form of eight workshops. The company has 'customer juries', from which the workshop participants were gathered. As a rather small group was judged best for the work, only six customer representatives were invited. In addition, five persons from the company took part. Each *customer workshop* had a specific focus and each was followed by an *intra-firm workshop*. In the latter, the customer workshop and its implications for the next step were judged, and ideas for the more general innovation model were gathered. Customer workshops lasted three and half hours and in-house workshops 2 hours. An individual service—life assurance—was used as an example to make the discussion concrete.

The first workshop was future oriented. After an introduction to the aims of the workshop, the task of the participants was to identify important phenomena linked to insurance services in the present and in the future. The participants were asked to structure future phenomena using the concepts of *trends and weak signals*, whose combination enables a simultaneous consideration of the prevailing development and the emerging phenomena. In the second workshop, the participants addressed the question of how insurance services should be renewed in order to make them correspond to customer needs in the best possible way. The foresight perspective was included here: instead of merely focusing on the immediate necessities of change, the customers were asked to imagine the services after 5 years in their ideal form. In this workshop, *service blueprinting* was used as the main tool (Bitner et al. 2008).

In the third workshop, participants' task was to describe *what a good service means in different situations*. In-depth understanding and respect for the needs and desires of the customer were highlighted as the most important expression of good service. However, information in the form of clearly 'packaged' solutions (instead of quantities of detail) was also considered highly important. Based on these results, the fourth and last workshop analysed *the characteristics of a successful customer encounter*. Socio-drama was applied in this workshop (Moreno and Borgatta 1951; Torrance 1975): the participants went through four types of customer encounters, representing situations identified previously. For socio-drama, customers (and in one case company representatives) formed pairs—one person played the role of a customer and the other the role of service advisor. The rest of the participants formed an audience and their task was to seek answers to the following questions: What does a genuine understanding of the customer's situation mean in practice? How can the respect for the customer be expressed? What type of information is useful for the customer and in what form should it be presented? What does it mean to offer a solution for a customer? Each 'piece' of socio-drama was followed by lively discussion and resulted in many new ideas for the development of insurance services.

How is Success Measured?

The company has measured the general success of its new services in terms of new customers attracted to the company. These figures show that the development has been very positive.

What Success has been Achieved to Date?

The development of an alternative service innovation model has continued in our case company, following the process in which customers participated. Also, other new methods of customer involvement have been tested, including future-oriented concept building. This approach seems promising especially at the very beginning of the process, in the idea-generation phase.

Links to Further Information

The case has been analysed in the project ISO (Innovation Integrated in Service Operations) in the BIT Research Centre of Aalto University. The authors have been involved in this project, and further information can be requested from them. Some further information can also be acquired directly from the webpage of the company. The name of the company is Tapiola (http://www.tapiola.fi/wwweng/briefly/).

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Social Housing Asset Management: An Innovative Approach to Increase Productivity and Performance

Jan Kitshoff, Robin Gleaves and Gordon Ronald

Abstract There is substantial pressure on social housing sector organisations commissioning or delivering services to reduce the cost of providing services whilst maintaining service standards. In order to achieve this operationally, organisations need to evaluate their service costs, understand where and how service costs are consumed and how to use financial resources better. A key asset for social housing providers is their housing stock, and the efficient management of financial resources to maintain their assets and make the best use of available resources has become more critical over the last years. This case study is how One Vision Housing, a Registered Provider (RP), has adopted private sector methodologies in their asset management strategies and has tailored it for the social housing sector to increase productivity and performance. The broad methodology and thinking was adopted from private-sector approaches and specifically developed for the Housing Sector at One Vision Housing. It is an innovative approach for the social housing sector and there are no practitioners or academic publications about this approach, the methodology, pitfalls and potential benefits. Although still in the early stages of implementation, it is anticipated that between 4 and 6% of cost savings in service delivery can be identified and realised in the medium term. Approximately £ 7 billion was spent in 2009 on maintenance and repair of housing assets in England alone, and wider adoption of this innovation can make a significant contribution to performance in the sector. It is a good example of service innovation in the public or voluntary sectors and an innovation that improves productivity and business performance.

Background

The use of individual customer profitability analysis (CPA) as a strategic and operational management tool is well established in the private sector. The aim of CPA is ultimately to identify profitable and unprofitable customers at either the individual

J. Kitshoff (✉) · R. Gleaves
KitshoffGleaves and Co, 21 Withington Ave, WA3 4JE Warrington, UK
e-mail: jan@kitshoffgleaves.com

G. Ronald
One Vision Housing Ltd, Atlantic House Dunnings Bridge Road, Bootle, L30 4TH, UK
e-mail: gordon.ronald@ovh.org.uk

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or segment level, and this information is used to develop marketing and operational tactics and also to inform resource investment decisions. In order to understand individual profitability, all costs associated with service activity are allocated at the transaction level. Comparing the income with the associated service costs on an individual basis allows a company to identify profitable or unprofitable customers. The results can be graphically presented as cumulative profitability curves, also known as whale curves.

In the context of profitability, service providers in the social housing sector do not have the same operational options or tactics available as do private-sector firms. However, the fundamental approach is the same although whereas the motive for private firms is profit optimisation, the focus for RPs is surplus cash generation in order to release resources for investment elsewhere. The emphasis in the approach is on understanding the cost of service, but instead of completing the analysis at the individual customer level, it is completed on an individual house or neighbourhood basis. The methodology links capital expenditure and all day-to-day service and repair costs.

The Opportunity

A complex range of services are typically provided by RPs. Facilities Management or Repairs and Maintenance departments are typically responsible and provide:

- Responsive repairs, including togas and heating
- Planned repairs, including new bathrooms and kitchens
- Aids and adaptations
- Environmental works
- Capital expenditure.

Typically for the sector, service costs are understood at the service level but in isolation from other service costs. This can be more complicated depending on whether the services are provided internally or outsourced. Capital expenditure is planned and spent based on typical replacement cycles, and the linkages between capital costs and the associated reduction in anticipated repairs is not clearly understood. There is no collective view of all costs and associated rental income at the individual property level. This single view methodology allows practitioners to integrate all service costs at the individual stock level and make meaningful decisions about capital expenditure, in particular in order to reduce maintenance and repairs costs.

Description of the Innovation

The use of whale curves (see Fig. 1), or ‘Housing Stock Efficiency Curves’, is innovative in the housing sector, and OVH are thought to be leaders in this respect. The methodology provides a structured approach to allocating cost at the individual level, based on customer profitability analysis and developing a specific methodology for the public social housing sector.

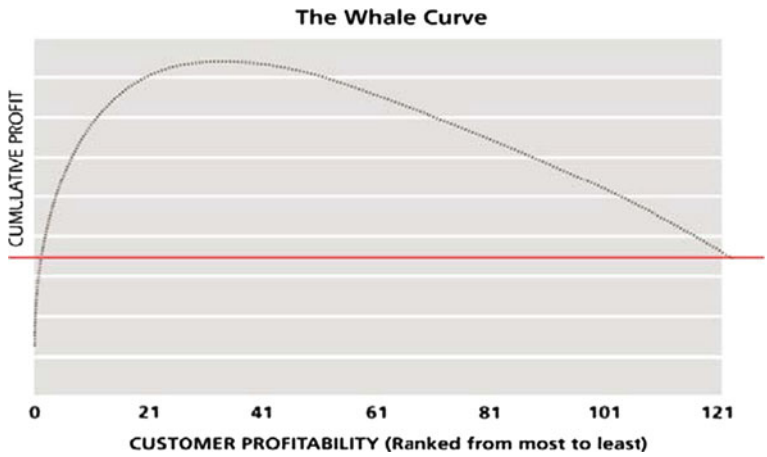

Fig. 1 Typical Whale curve. KitshoffGleaves 2004

How is Success Measured?

Success is about understanding cost drivers and how different service costs interact at individual stock levels. In order to allocate all service costs at the individual stock level companies need to:

- Understand the different service processes and associated costs
- Understand the workflow including re-work and associated costs
- Determine cost drivers and how they interact across the various services

What Success has been Achieved to Date?

OVH have identified the different service processes and the amount of re-work and associated costs. This has led to an understanding of service costs and the identification of estimated savings of £ 220,000.

Acknowledgements The authors wish to thank One Vision Housing for permission to publish this case.

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Innovation Perspectives of a Personal Financial Services Call Centre

Babis Theodoulidis, Stephanos Strickland and David Diaz

Abstract This paper reports on a study carried out within the Centre for Service Research at Manchester Business School, examining issues of concern for existing call centre organisations and identifying innovation opportunities for the future vision of such call centres. Based on this study, a personal financial services call centre was examined and this paper reports on innovation aspects relating to business strategy, service design and evaluation that have been identified, implemented and assessed. The paper also discusses innovation opportunities identified for the future of the call centre.

Background

This case study refers to call centres that use Interactive Voice Response (IVR) technologies (Interactive Voice Response 2011) as the main communication medium with customers (Theodoulidis et al. 2010). The overall aim of the IVR technologies used as part of a call centre operation is to service high call volumes, reduce costs, extend the business hours of support operation and improve the customer experience by identifying and segmenting callers. Historically, IVR solutions have been using pre-recorded voice prompts and menus to present information and options to callers, and touch-tone telephone keypad entry to gather responses. Nowadays, they offer also additional solutions such as the ability to input and gather responses via spoken words with voice recognition. There are many IVR applications in existence that enable customers to retrieve information including bank balances, flight schedules, product details, order status, movie show times, and more from any telephone (Interactive Voice Response 2011). This case study relates to the call centre of a personal financial solutions firm that offers debt management and consolidation services to individuals,

B. Theodoulidis (✉) · S. Strickland · D. Diaz
Centre for Service Research, Manchester Business School, University of Manchester, Manchester M13 9SS, UK
e-mail: b.theodoulidis@manchester.ac.uk

S. Strickland
e-mail: stephanos.strickland@postgrad.manchester.ac.uk

D. Diaz
e-mail: david.diazsolis@postgrad.mbs.ac.uk

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located in Manchester, UK. The firm operates an IVR system and accepts enquiries through telephone and the Internet.

The Opportunity

The firm was established in 2003 as an organisation that generated leads from interested individuals looking for debt management services, and selling these leads to organisations offering such services. The strategy was focused on building the brand and market share, so quality was paramount. To support this strategy, the firm employed highly skilled (and highly remunerated) operators who were allocated to specific customers and offered a highly personalised service.

The company had increased to about 20 employees, had a very good reputation in the market and was profitable, when the opportunity arose to expand their services by themselves offering additional financial services and generating new income. Their business model evolved through acquisitions and mergers into an organisation that currently offers a full service to customers looking for help with areas such as debt management, debt consolidation, individual voluntary arrangements, trust deeds and bankruptcy.

Description of the Innovation

The strategy of the firm has evolved over time. Initially, it focused on building the brand and service quality. Following the business model changes, the strategy moved towards expansion, lowering costs and increasing income. This was achieved through the separation of business processes that were originally managed by highly skilled operators. Three new departments were created: the enquiries and pre-qualification department, the sales department and the customer support department. Tasks and processes in the enquiries and pre-qualification department were automated as much as possible, employing less skilled and low-remuneration operators. The focus changed to volume of services supported by a technology-enabled platform. After the innovation, only the sales and customer support departments maintained the original focus on quality.

Currently, the call centre structure mimics the operational structure of the firm, divided into three departments (den Hertog et al. 2010). The first department deals with enquiries from new customers and carries out a pre-qualification process in order to check their suitability and also satisfy the various legal requirements for companies offering financial advice and services. Enquiries received from existing customers for new services are also dealt with in this department. Operators follow a strict, well-defined decision-tree based process for the enquiries and pre-qualification process with no flexibility or variation.

The second department deals with sales of appropriate financial products to individuals. Enquires from new customers that successfully complete the pre-qualification process, and calls from existing customers relating to new products and services are forwarded to the sales department. Customer service is the third department, dealing with enquiries from existing customers and operating the organisation's customer relationship management system. Comparatively, the sales and customer support operators have substantially more flexibility and they are empowered to make decisions in the best interests of the business and the customers, while at the same time satisfying the various legal and best practice requirements relating to financial services organisations.

The call centre is central to the innovation processes of the firm, and there are two further examples of innovation that are worth reporting here. The first relates to the use of externally obtained information that allowed the organisation to revise the pre-qualification and advising process. The information was obtained from Experian (Experian Business Services 2011) and related to the search terms that people use when looking for help on financial issues. It was noticed that certain terms were becoming more popular, following the recent financial crisis. The organisation revised its processes to take this into account, and this change led to improved quality of the service provided while at the same time increasing the conversion of enquiries to sales. The second example relates to the further separation of the sales teams into new teams dedicated to specific financial products and services. Finally, the company is currently considering whether to deal internally with all the enquiries that successfully pass the pre-qualification stage (i.e. transfer them to its sales teams) or to sell these leads to other organisations offering suitable financial products.

How is Success Measured?

Success was measured by the implementation of new Key Performance Indicators (KPI) and by the close monitoring of cost savings. The cost savings were partially achieved through the employment of less skilled (lower remuneration) individuals to run the enquiries and pre-qualification process and the customer support process, while at the same time increasing income from the highly skilled and highly remunerated sales operators through the handling of additional cases. The call centre operators are trained in-house and this training is specific to their job function. Following the separation of the enquiries and pre-qualification process from the sales and customer support processes, the training requirements for the operators working for the enquiries department were substantially reduced, as these operators need few basic skills. This meant that further cost savings on training were also achieved. The results of these changes were substantial as the staff increased from 20–120 employees within the space of two years and the firm was able to deal with an increasing volume and type of calls. Furthermore, the evaluation process and the KPI used evolved over time; in fact, it has produced a continuously evolving process where the KPIs are reviewed regularly and revised accordingly, and new KPIs have been introduced to reward performance (e.g. best employee, compensation and bonus structures).

Summary

The overall strategy of the firm was to further increase the quality of services while keeping performance and costs at an acceptable level (Miles 2008). On the basis of this, the innovation opportunities that the firm identified relate to improving systems integration, maintaining better customer profiles and exploring cross-selling and up-selling strategies. The firm operates separate systems and databases to manage the customer lifecycle information and an integration project is underway to bring together the different systems and sources of information. Also, the current design of the call centre does not take into consideration the customer characteristics and diversity (e.g. customer preferences, cultural background, customer skills). This is something that the firm is looking to explore further, especially during the pre-qualification process. With reference to the IVR technology employed, the firm has identified opportunities relating to additional personalisation services that can be offered, but their initial evaluation is that the technology is currently too expensive to deploy. Finally, with reference to cross-selling and up-selling strategies, the firm is currently considering whether to offer additional financial services through third parties and whether to separate the different departments of the call centre as standalone companies.

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Theme V
Technology Innovation

Introduction to Technology Innovation Cases

Michael Lyons

Abstract Developments in technology change both what services can be offered and how they can be supplied. This section contains six papers in which a major focus is the use of new technology, particularly ICT, to develop new services. In the majority of papers, the main driver of technological innovation is a desire to exploit new capabilities offered by advances in technology. However, despite the focus on technological innovation, the papers in this section demonstrate that this rarely occurs in isolation; sometimes, the effects of technological innovation can be surprisingly far-reaching. Overall, the papers show both the range of technological innovation, and the way it is closely coupled to other innovation activities.

For many, innovation and technological innovation are synonymous. Developments in technology change both what services can be offered and how they can be supplied. This section contains six papers in which a major focus is the use of new technology, particularly ICT. Three papers focus on specific services: an e-commerce website for the Taipei Association of Estate Brokers (Hung and Tseng 2012), an on-line degree ceremony for remote students (Macaulay et al. 2012) and the use of advanced MEMs technology to improve the quality of seismic imaging (Moyers 2012). The other three papers focus on platform technologies, including a service delivery platform that enables third-party service developers to access Telco services (Davies et al. 2012), a similar platform that enables public sector workers to modify and adapt administrative services without the need for long and costly software development (Meyer et al. 2012) and a methodology for identifying how business components can be transformed into a business platform (Parmar 2012).

In the majority of papers, the main driver of technological innovation is a desire to exploit new capabilities offered by advances in technology (Davies et al. 2012; Meyer et al. 2012; Hung and Tseng 2012; Moyer 2012). But there can be other motivations. For Macaulay et al. (2012) a key driver was a perceived emotional need that was satisfied by developing an on-line degree ceremony in Second Life, thus enhancing the value to students of an existing degree course. On the other hand, Parmar's prime concern is strategic: how firms can use platform technologies to transform their business and open up new commercial opportunities.

M. Lyons (✉)
BT Innovate and Design, G10, Adastral Park, Martlesham Health, IPS 3RE Ipswich, UK
e-mail: Michael.h.lyons@bt.com

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Despite the focus on technological innovation, the papers in this section demonstrate that this rarely occurs in isolation. Thus Davies et al. (2012) are developing a new ICT-based service platform in anticipation of radical changes in business models. They note the need to nurture and support an application developer community if the technology is to be successful. Parmar also highlights the need to nurture an ecosystem of complementors in a programme to identify platform opportunities. Meyer et al. (2012) extend this idea, and provide tools to enable workers without programming skills to adapt and modify services and processes. This end-user development is seen as a cost-effective alternative to the need for public administrations to constantly adapt their processes to meet changing requirements. The focus of Moyer's paper is a new way of exploiting HP's research capability in collaboration with customers. The paper describes how technological innovation can itself be a service, illustrated by an example of HP working with its customers to exploit new seismic sensing technologies.

Sometimes, the effects of technological innovation can be surprisingly far-reaching. Hung and Tseng's paper describes how the introduction of a web-based e-commerce site for real estate brokers in Taiwan opened up new scope for opportunism, which in turn required innovative approaches to governance and dispute resolution. Innovation is a process of experimentation and learning, not a one-off event.

The papers also illustrate different mechanisms for value co-creation. In Hung and Tseng's paper, user experience was the main driver for the innovations in governance following the introduction of the e-commerce website. In the case of business or service platforms (Davies et al. 2012; Meyer et al. 2012; Parmar 2012), value co-creation is enabled by allowing third parties to exploit the capabilities of the system in their own applications. Similarly, Moyer describes the development of a seismic imaging system as a joint enterprise between HP and their customer.

Overall, the papers show both the range of technological innovation and the way it is closely coupled to other innovation activities.

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The Benefit of Knowledge Sharing: A Case Study of a Real Estate Brokerage Service

Yu-Chung Hung and Paul T. Y. Tseng

Abstract The Taipei Association of Real Estate Brokers (TAREB) integrated all resources from members and government to install an electronic commerce (e-commerce) website, which is shared by all members. In order to successfully implement e-commerce and knowledge sharing, this association also formulated a reasonable commission share system and a disputation arbitration mechanism to encourage and ensure that house agents share information and objects. Finally, all members of TAREB enjoyed an expansion of the market, cost reduction, profit increases and numerous benefits brought by e-commerce and knowledge sharing.

Background and Opportunity

Before 1980, because the industry of real estate brokerage in Taiwan was in its infancy, the performance of a house agency depended on the interpersonal skills and sale capabilities of an individual broker. However, some brokers could ruin the reputation of a house agency and cause consumers to lose faith in it. Along with the economic growth of Taiwan, consumers felt the importance of transaction security and the brand equity of a house agency. Some agencies with good reputations and management policies started to operate the chain-store model for real estate brokerage, and this model has now become mainstream in the industry. The individual house agency survived by operating a niche market strategy.

The depression of 2000 significantly impacted real estate brokerage in Taiwan. The chain-store house agencies survived by shutting down unprofitable branches. However, individual agencies faced a serious challenge, and some were forced to retreat.

In the meantime, Taipei Association of Real Estate Brokers (TAREB) considered e-commerce as a possible solution, as it might reduce tangible costs such as store rent

Y.-C. Hung (✉)
Department of Accounting and Information Technology, National Chung Cheng University,
168 University Rd., Ming-Shiung, Chia-Yi, Taiwan
e-mail: hung6599@ms3.hinet.net

P. T. Y. Tseng
Center for Service Innovation, College of Commerce, National ChengChi University,
64 Sec. 2, Zhi-Nan Rd., Taipei 11605, Taiwan
e-mail: ptseng@nccu.edu.tw

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and the huge labour cost. TAREB therefore decided to install a website to exploit the opportunity brought by IT/Internet to help all members. In the introduction stage of website, TAREB provided free web pages and IT training courses for all members. However, the response of members was disappointing.

Description of the Innovation

After recognising the difficulties in introducing a website, TAREB developed its first innovative business model, the commission sharing system. In addition, TAREB applied government funding to help members to establish their own websites, and prepared a budget (around US$ 4,000) to encourage members with good IT capabilities to support the Association's decision and to share their properties with other members through hyperlinks. TAREB set up a standard commission ratio for all shared sales, of 6:4 or 5:5 for the agency which advertised the property and the agency which actually sold it. However, this model did not have good results, because members only shared properties which were hard to sell, and would not share with other members the commission from properties which the original finders had no time to sell. Even worse, some members sold the properties shared by other members and refused to share the commission.

TAREB therefore designed a disputation arbitration mechanism to help the original finders get back the commission. If the original finders can provide the contract between themselves and the house owners, TAREB will consider a house agency which refuses to share the commission as an "information thief". It then warns the information thief by a formal letter, and suspends the thief's membership and account until it pays the commission according to the set ratio. If the agency does not accept the arbitration and still refuses to pay, TAREB helps the original finders to bring a suit against the unfaithful agency. This mechanism effectively minimised the disputation relating to information theft. The cohesion of TAREB members also increased. The market for real estate brokerage in Taipei increased and boomed.

In addition to the above management systems, TAREB also introduced advanced IT technologies such as virtual reality, mobile commerce and GPS (Geographic Positioning System) to help members manage individual brokers, reduce costs and enhance transaction efficiency and customer satisfaction.

How Success is Measured? and What Success has been Achieved to Date?

Initially, after introducing e-commerce, TAREB only expected to leverage IT technologies to reduce costs and increase transaction efficiency. However, the Association established two innovative business mechanisms and realised the following benefits from knowledge sharing:

The transaction time is shortened. Before TAREB helped all members to use websites to share information and to collaborate commercially, individual house agencies required at least three days to complete all the processes involved in taking on a property, including signing the contract with the house owner, taking pictures of the property, verifying it, and preparing documents. In particular, the process of verifying the property took a whole day to complete. Since implementing IT technologies, house agencies only require 10 minutes to verify a property by using information from government agencies. In addition, they can ask for help from their fellow workers to take pictures. Therefore, all the processes involved in taking on a property can be expected to be completed in an hour and a half. Once this stage has been completed, house agencies can post the information on their websites, and all members of TAREB will do their best to sell the property, significantly shortening the transaction time.

The collaboration promoted by TAREB results in performance synergy. In the early years, the brokers with good interpersonal skills and sale experience completed many transactions every month, while novices might take a month to achieve nothing and no commission. Because TAREB has established a supply chain with a good division of labour, both novices and veterans can play their own roles and make sure that they receive commission every month. Also, every agency shares website maintenance costs, resulting in an overall reduction in IT costs. In addition to monetary benefit, many intangible benefits have been found, such as enhancing customer satisfaction, confirming customer loyalty, ensuring that every house will attract someone's interest no matter how hard it is to sell, promoting manpower quality by information sharing, and boosting overall performance.

Real-time and accurate performance auditing is improved. In the past, house agencies asked their brokers to fill out a plethora of forms and join a sales review meeting to audit performance. After introducing e-commerce and IT systems, every transaction takes place in real-time and is accurately recorded; IT can also help its completion. Every house agency can access the TAREB website and its own human resource management system to review performance, thus providing real-time and accurate performance auditing in a paperless way. In addition to broker performance, house agencies can identify hot properties or hot areas from the website.

Expansion of the overall market is a further result. Since information sharing reduces redundant work on the same properties, the brokers have more time to develop new leads, increasing the overall supply of properties. At the same time, buyers have more convenient and real-time access to information about properties, transactions are speeded up, and the total quantity of transactions is increased.

To sum up, all members of TAREB are enjoying an expanded market, cost reduction, profit increase and numerous other benefits from e-commerce and knowledge sharing.

Links to Further Information

Please contact Prof. Yu-Chung Hung on hung6599@ms3.hinet.net or visit the website of the Taipei Association of Real Estate Brokers, http://www.taipeihouse.org.tw/.

Using Virtual World Technology to Deliver Educational Services

Linda Macaulay, Kathy Keeling, Debbie Keeling, Cliff Mitchell and Yin Leng Tan

Abstract Despite increasing educational use of immersive virtual environments for seminars, lectures and teaching related events, there is an absence of ceremonial events such as graduation. Graduation is not simply an 'event' but a cultural practice, a ritual, marking alife-transition point and public recognition of achievement. This case study reports a recent innovation in the delivery of educational services in which university students take part in an official graduation using the virtual world technology, Second Life (http://www.secondlife.com). This case study has previously been reported in Keeling et al. 2009.

Background

Virtual Worlds (VWs) are a significant development for both the Internet and society as a whole. The 3D capability and, importantly, a personal viewpoint, make them highly immersive and compelling for virtual learning. There is already a sizeable body of literature reflecting the growing use of VWs in education. In particular, as educators gain access to Second Life technologies, adaptable, conceptual spaces are being created. There is also much work on simulating real-life situations or environments and projects using highly accurate real-world simulations as educational tools. Other initiatives examine the types of space required for effective learning in a

L. Macaulay (✉) · K. Keeling · D. Keeling · C. Mitchell
Manchester Business School,
University of Manchester, Manchester M13 9SS, UK
e-mail: info@lindamacaulay.com

K. Keeling
e-mail: Kathy.keeling@mbs.ac.uk

D. Keeling
e-mail: Debbie.keeling@mbs.ac.uk

C. Mitchell
e-mail: cliff.mitchell@manchester.ac.uk

Y. L. Tan
Henley Business School, University of Reading, Reading RU6 6UD, UK
e-mail: y.l.tan@reading.ac.uk

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variety of subject areas and create suitable spaces for online collaboration in multi-user virtual environments Papamichail et al. 2009. Yet documentary evidence for support of alumni groups or holding educational ceremonial events in Second Life is limited. Graduation ceremonies have been streamed as video presentations into virtual auditoria but these still require physical presence to take part. Conspicuously absent are graduation ceremonies run uniquely within Second Life using avatars to represent the graduates.

The Opportunity

This graduation case concerns a university Executive MBA Managing Projects (MP) programme for a major international company, a distance learning course supported heavily by e-learning technologies yet lacking a formal graduation due to the difficulties inherent in physically bringing together geographically dispersed executives holding critical roles.

The Second Life Award Ceremony provides an opportunity for Senior Management in the company to mark the importance of the delegates' achievement while minimising travel costs, time commitments and disruption to major projects and helping reduce the carbon footprint of such an event. The Group Director of Projects for the company took part in the ceremony to underline its importance. The Programme Deputy Director provided overall project management including University and company approvals, formal invitations, a trial and a dress rehearsal, whilst a commercial company provided design, technical development and delivery.

In this case study, we describe running such a graduation event for executives (students) from the UK, USA, Norway, Germany and Egypt. We argue that for students, graduations are a fulfilment of the investment (time, finance, emotion) they have made in their education and the start of a new phase of life. Academic graduations are a symbol of transition in lifespan development; a ritual event marking the passage or transition in our social status, for example, from student to professional, from learner to worker. Moreover, academic graduations are used as a symbol of achievement and success by individuals, educators, organisations and governments alike. The power lies in this symbolism; the degree certificate, the graduation gowns, the academic procession, the speeches, the photographs, etc. Graduations represent attainment of some sort of 'expertise'.

For academic organisations, the symbolic significance of the graduation is as a mark of achievement in teaching students, providing the necessary infrastructure, and as a measure of their ability to attract successful students. Many e-learning programmes without such a ceremony do not provide students with the opportunity for closure that is demonstrated as important on other courses Importantly, in an age of distributed learning, they are also foregoing the potential to (a) validate the University's legitimate power and unique ability to confer the awards, and (b) attract new students by demonstrating success in helping students to succeed. So, the seemingly simple act of giving and receiving a certificate has a series of possible consequences beyond the ceremony itself that can impact on the educational organisation.

Description of the Innovation

The Manchester Business School SecondLife Island was built as a space that takes the idea of 'the 3D web' literally. It uses familiar website paradigms of top-level and secondary navigation to determine the design of the virtual space, creating an environment where navigation is intuitive and rational. The 'physical' structure acknowledges that it exists in an environment where the usual constraints of physics (atmosphere/climate, gravity, etc.) do not apply, therefore there is no need for windows, roofs and doors and we are able to create an 'impossible' structure that defies real-world building conventions. The structure is based around a tower that is accessed by a lift and forms the backbone of the site where each colour-coded level represents the top-level navigation. From each level the visitor can access a number of modular spaces. These represent the secondary navigation. Visitors land at a central hub (or home page). Although the overall aesthetic is futuristic there is a sense that the space is underpinned by old technology as massive cogs work in the background, so referencing a local industrial heritage.

The ceremony took place in two 'rooms' developed for this purpose in Second Life: a small ante-room where delegates and guests arrive, are welcomed, and to which they can return at the end of the award ceremony (celebration phase); and the main 'hall' where the actual ceremony was conducted (the Whitworth Room). We sought to recreate sufficient reality to give participants some sense of comfort, following the established order of ceremony while at the same time taking advantage of the new environment. For participation with minimum effort, we created avatars for each graduate from photographs and provided gowns, simplified avatar gestures to essential items only, and provided a simple user guide describing how to move and interact, limited to essential information required to take part in the ceremony. Most graduates also took part in a dress rehearsal following a formal Order of Ceremony document sent to all participants prior to the event.

Speeches were pre-recorded; avatars and gowns were provided appropriate to the status of the dignitaries. During the ceremony, we provided experienced operators for dignitary avatars, and a marching script to ensure that the dignitaries marched in time during the procession. Graduates received their certificates by a script-controlled handshake with the Vice Chancellor. We made the event a memorable experience for participants by providing a souvenir video of the occasion, downloadable certificates and an opportunity for networking with fellow graduates.

How is Success Measured?

Success was measured by gathering feedback from all key stakeholders using short questionnaires and telephone interviews where appropriate. A range of measures were explored to assess social and emotional impacts of the ceremony such as feelings of importance and self-esteem; design issues such as ease of use; ease of navigation

and control; and issues related to the six essentials of rituals (Grimes 1994), i.e. ritual space and time; ritual objects, sounds and music; identity; and ritual action.

What Success has been Achieved to Date?

The first ceremony in February 2009 was successfully concluded (Financial Times 2009). Graduates enjoyed the ceremony and felt engaged, as evidenced by spontaneous celebratory behaviours at the end of the ceremony that mirror those in 'real life', e.g. throwing hats in the air and cheering. For the MP programme, a second event was held in February 2010 and we would expect to run the event three times a year for up to 35 delegates per cohort.

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Partnering for Technology-Led Innovation to Deliver Enterprise Service Innovation: Ultra High Resolution Seismic Sensing Solution

Chris Moyer

Abstract Many clients are looking to technology partners or suppliers to help them innovate. They believe that, with their in-depth technology and industry expertise, vendors should proactively offer them innovation services that will help them succeed in business. HP's converged approach to innovation is unified, client-focused and aligned to business strategies that achieve outcomes that matter most to our customers. Central to this approach is our ability to help clients explore, evaluate and leverage HP's innovation assets—including our partners and industry best practice—to apply the right technology and solutions. One such example of this successful partnership approach to innovation is with one of HP's global energy clients and the application of HP's ultra high resolution Seismic Sensing Solution.

Background

The oil and gas industry requires high-quality seismic data to accurately assess exploration prospects for commercial viability and to effectively monitor in-production reservoirs. By delivering a much higher channel count and a broader sensor frequency range than are currently available, the new system promises to vastly improve the quality of seismic data.

HP is collaborating with a global energy company around a joint innovation agenda in which a particular focus is to develop a wireless sensing system to acquire extremely high-resolution seismic data on land. The companies will use their complementary knowledge, expertise and experience to produce this ground-breaking enterprise innovation solution that can sense, collect and store geophysical data.

HP is approaching sensing networks not just as sensing or moving data or crunching it, but from a holistic perspective. Customers can access networking expertise in HP's Networking division, and consulting and integration through their Enterprise Services division, not to mention business intelligence, storage and data centre technologies. The ground-breaking solution will be delivered by HP Enterprise Services.

C. Moyer (✉)
Hewlett Packard, Chicago, IL USA
e-mail: chris.moyer@hp.com

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The Opportunity

The Micro-Electro-Mechanical Systems (MEMS) accelerometer is a sensor that can be used to measure vibration, shock or change in velocity. By deploying many of these detectors as part of a complete sensor network, HP will enable real-time data collection, management evaluation and analysis. This information empowers people to make better, faster decisions, and take subsequent action to improve safety, security and sustainability for a range of applications, such as bridge and infrastructure health monitoring, geophysical mapping, mine exploration and earthquake monitoring.

The HP sensing technology enables a new class of ultra-sensitive, low-power MEMS accelerometers. Up to 1,000 times more sensitive than high-volume commercial products, sensors based on this technology can achieve noise density performance in the sub-100 ng/sqrt Hz range to enable dramatic improvements in data quality. The MEMS device can be customised with single or multiple axes per chip to meet individual system requirements and benefit applications such as bridge, infrastructure and seismic monitoring.

The sensing technology is a key enabler of HP's vision for a new information ecosystem, the Central Nervous System for the Earth (CeNSE). Integrating the devices within a complete system that encompasses numerous sensor types, networks, storage, computation and software solutions enables a new level of awareness, revolutionising communication between objects and people.

In the first commercial application of CeNSE technology, HP and a global energy company will build a wireless sensing system to acquire high-resolution seismic data. By vastly improving the quality of seismic imaging, the new system will allow our client to more easily and cost-effectively explore difficult oil and gas reservoirs.

Sensor nodes, however, are only part of the challenge of CeNSE. At a typical data rate, one million sensors running 24 hours a day would require 50 hard disks running in parallel to capture the 20 petabytes of data created in just six months. It then has to be crunched to extract meaningful information.

Description of the Innovation

The importance of Enterprise Innovation is widely recognised, but knowing how to stimulate, manage and globally connect innovative thinking within an organisation can prove challenging, a challenge HP is responding to with its client-centric approach The Innovation Agenda. HP is also expanding its innovative approach by offering 'Innovation as a Service' to help clients gain real business advantage by innovating in their own domain. Through this service, HP can help clients build a framework for innovation that is geared towards addressing the client's key opportunities and challenges and help the customer develop a strategic approach to innovation to drive transformation that is firmly aligned to their business outcomes.

Enterprise Innovation as a Service is designed to help clients innovate and is based on a composite set of tools for the client to use to drive and manage innovation across their own organisation, whether it is across the client's research and development activities, creating new services, collaborating with partners and industry peers, or mergers and acquisitions. This is leading to novel ways in which HP's clients are using IT to drive and support their ideas, encourage their creativity and thought, and create business advantage.

Additionally, HP has its own highly effective research and development capability, HP Labs, which focuses on near and long-term research and developing the next generation of leading technology and business advantage and collaborates with academia, industry and, of course, its clients. One of the objectives of the Innovation as a Service from HP is to link the HP Labs' work to the customer, to identify areas of potential collaboration and linkage around future content and services.

What Success has been Achieved to Date?

HP, along with a global energy company and leading-edge technology developed from HP Labs, has developed an inertial sensing technology that enables a new class of ultra-sensitive, low-power MEMS accelerometers that are up to 1,000 times more sensitive than high-volume, commercial products.

Integrating the devices within a complete system including IT services that encompasses numerous sensor types, networks, storage capabilities, and computation and analysis tools that monitor the environment, assets, and health and safety, enables a new level of awareness, revolutionising communication between objects and people.

How is Success Measured?

The success of this innovation will be measured against client, industry and environmental factors:

- Better and faster decision making in the business
- Increased clarity of existing and alternative energy resources
- Ability to perform more targeted oil exploration thereby reducing environmental impact
- Harnessing the potential of the client's processing and imaging technology on land
- Transferability of sensor network expertise to other domains such as public safety in cities and environmentally sustainable resource management.

Summary

The new sensing technology represents a breakthrough in nano sensing research and uses the fluidic MEMS technology co-developed over the past 25 years by HP Labs—the company's central research arm—and the company's Imaging and Print Group. The technology is a key enabler of HP's vision for the new information ecosystem, CeNSE.

The companies will use their complementary knowledge, expertise and experience to produce a ground-breaking solution to sense, collect and store geophysical data. The system is designed to integrate seamlessly with high-performance computing and seismic imaging environments and to be deployed safely and more cost-effectively than current systems and services.

Links to Further Information

HP Sensing Solutions
http://www.hp.com/hpinfo/newsroom/press_kits/2011/sensingsolutions/index.html
HPnew information ecosystem, the Central Nervous System for the Earth (CeNSE)
http://www.hpl.hp.com/research/intelligent_infrastructure/

Chasing the Long Tail: Growth Through Personalized Telecoms Services

J. Davies, A. Duke, S. Stinčić Clarke, Nikolay Mehandjiev, and Guillermo Álvaro Rey

Abstract We highlight one of several available transformational paths for traditional telecom operators to respond to challenges of declining revenues in their traditional business. The new opportunities appear in the so-called 'Telco 2.0' world system, using advanced service technology to provide access to the Telco's infrastructure in a two-sided business model, enabling easy creation of services to exploit small niches of opportunity within an open-service ecosystem. A Telco can take the role of platform provider, service provider or service reseller in such ecosystems.

Background

Traditional Telco business models, also dubbed 'Telco 1.0', are characterised as operator-run closed environments, with tight control over the whole value chain and processes, and direct revenues achieved via network/billing silos. The operator offers services such as voice calls or text messages (SMS) to a mass market, with little or no customisation. The model relies on vertical integration, where the Telco owns or controls the network. It uses a very simple cost and revenue model, where the operator incurs costs by maintaining the network, purchasing equipment and providing customer-facing services (support, billing, etc.), and receives revenue by billing users for services used, traditionally on usage-based tariffs.

The reasons for the past popularity of this model were the capital-intensive nature of telecoms infrastructure and the organisational culture prevailing in former utilities. The infrastructure predominantly relied on fixed copper lines and centralised routing, so inertia and lack of flexibility are inherent in such a model. The situation started to change with the advent of mobile telecommunication services and the

J. Davies (✉) · A. Duke · S. Stinčić Clarke
BT Innovate and Design, 81 Newgate Street, London EC1A 7AJ, UK
e-mail: john.nj.davies@bt.com

N. Mehandjiev
Manchester Business School, University of Manchester, Manchester M13 9SS, UK
e-mail: n.mehandjiev@mbs.ac.uk

G. Álvaro Rey
iSOCO, Pedro de Valdivia, Madrid 10, Spain
e-mail: galvaro@isoco.com

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appearance of 'virtual providers' which do not own the infrastructure but specialise in customer service aspects (e.g. Virgin Mobile in the UK). These developments rendered Telco 1.0 assumptions invalid. Also, the telecoms sector has been subject to market liberalisation over the last 20 years, bringing competition. In many cases, this has meant a separation between wholesale and retail providers and we have seen the emergence of the Telco 1.5 model. Telco 1.5 has been associated with increased network capabilities, leveraging IP technology, and protocols such as Parlay3 and SIP, expanding into broadband, mobility and networked IT services (known as 'new wave' areas).

These traditional and (formerly) lucrative ways of doing business are, however, coming under increasing pressure due to a number of factors: declining fixed voice business, changing customer expectations for increased variety of services received, and blurring of industry sector boundaries, where TV and media companies provided telephone services and vice versa. Telcos have also been challenged by webcos such as eBay and Google and even discount retailers entering the communication marketplace.

The Opportunity

Telcos can exploit their existing assets and strengths by exposing their capabilities via innovative service platforms. They would thus move from a 1-sided to a 2-sided business model, tapping into new revenue streams from novel products and services. In brief, 2-sided business models are those in which revenues flow in two directions. When exposing their capabilities via a platform, a Telco can take on various roles:

- Platform Provider—here the Telco offers a platform from which its own and/or other organisations' capabilities can be exposed;
- Service (Capability) Provider—the Telco exposes some of its own capabilities, either on its own platform or via a platform belonging to another organisation;
- Application Provider—the Telco creates applications and services built from compositions of its own and/or third party capabilities;
- Application Reseller—the Telco offers an environment wherein application developers can publish their applications for sale, effectively making the Telco a reseller of these applications with an appropriate revenue-sharing agreement.

Which role(s) a Telco will wish to take up depend on the commercial environment(s) in which it is operating and its own technological and business preparedness.

Description of the Innovation: A Service Delivery Platform for the Public Sector

In response, Telcos are moving to expose capabilities via the Internet and embrace a two-sided business model in *open service ecosystems*. This is part of a larger initiative that is changing the web from a place primarily offering information to users to a

so-called 'service web'. The established webcos and Telcos are among the leaders in this trend, with organisations such as Amazon, Google, AOL, BT and Telefonica among those who have already moved in this direction, along with many smaller start-up webcos.

The Telco 2.0 initiative introduces the notion that Telcos should use the opportunity provided by their position in the value chain in order to develop new '2-sided' business models, extracting value from both sides of a value chain. One side is the traditional revenue producer where customers pay for core Telco services such as voice and messaging; the other revenue side is made possible by the Telco's position as a platform provider, offering platform services to third party businesses who then build on them to offer services and applications to their own customers.

Exploiting the 'long tail': opening up the platform access to third parties allows the market to innovate by implementing new niche personalised services, which are currently not viable commercially given the application development costs. Services exposed via the Telco API can be divided into three main segments:

- *Operator branded services*: using core telephony services in combination with third party features to create a new offering;
- *Co-branded services*: services that enable a brand's customers to be accessible to an operator, e.g. operator's Facebook widget.
- *Long tail services*: services too niche for operators to consider offering to customers today.

Having and exposing the Telco API is not enough: in order to achieve critical mass, operators must nurture and support an application developer community (innovation community). For the API to be used it must be easy for the applications to get on the operator's network, easy to be discovered by early adopter customers, and have easy-to-use tools for the community, enabling rapid application development. Allowing developers to create their own applications and providing them with an option to be part of an ecosystem (e.g. 'iPhone App Store') gives an opportunity for Telcos to take a share of the revenue, hence implementing the new business models described in the next section.

How is Success Measured? and What Success has been Achieved to Date?

Telcos are already responding. BT is redefining its roles and offerings within the 21CN programme, aiming to deliver a new IP-based 'future-proof, flexible, intelligent' network. This coincides with other restructuring or network transformation (e.g. France Telecom and Deutsche Telekom, Netherlands KPN, and Verizon). China Telecom aims to become an integrated information service provider. Most are providing free or credit-based usage of published capabilities via an API, whilst reserving the option to change the model. Another approach comes from Ribbit, using the concept of 'bringing your own network' (BYON) and using their platform to

build communications into the business by leveraging an existing underlying carrier network.

There are already lessons to be learned: Microsoft shut down its own Telco 2.0 initiative product called CSF (Connected Services Framework) in December 2008. The reason offered was that current deployment among 30 service providers required a much higher degree of customisation than expected, prompting the software giant to focus on the delivery of web services via Exchange Online and SharePoint Online, and leaving the telecom service delivery platform business to systems integrators.

In addition to Telcos and webcos, device manufacturers (Nokia, Motorola, etc.) are increasingly participating in this new environment; also, there are many smaller companies offering functionality over the 'Internet of Services'.

The technology to provide such functionality over the Internet of Services is the focus of the EC project SOA4All, providing a platform and development environment for creating and consuming services. This can promote services and facilitate Telcos in exposing capabilities in a user-friendly manner. Allowing end-users and third parties to combine services in different ways will promote new personalised services and the Long Tail business model. SOA4All technologies benefit environments where a large number of services and users are foreseen, since the semantics involved in these technologies provide an intelligent way of dealing with this scale, and will ultimately enhance the user experience.

Conclusions and Outlook

A number of challenges should be addressed in order that SOA4All technology can play its full part in assisting in the transformation from Telco 1.0 to Telco 2.0, including billing technologies, integration issues and choosing the correct business model and service ecosystem model (open like Facebook or closed like Apple's AppStore). Once these challenges are resolved, service technology such as the one developed on SOA4All would provide valuable support to telecom operators, helping them to re-invent themselves in order to tap into the new opportunities in a world dominated by web-enabled service providers. Indeed, the telecoms sector is in a period of rapid change, with falling traditional revenues but many new opportunities in the new Digital Ecosystem (telecommunications, media and information, software/technology) as the borders between the sectors are increasingly blurred. There is an increasing need to reconsider business and structural models to compete effectively in this new world. Otherwise Telcos are in danger of becoming utility companies offering bandwidth at ever-decreasing margins.

Further Reading

http://www.telco2.net/manifesto/
http://www.soa4all.eu/

Information Technology-Enabled Business Platforms

Rashik Parmar

Abstract Commoditisation of products has been researched and understood for many decades. However, over 70% of the GDP of major nations is dependent on service industries. Little is understood about how services industries commoditise. The notion of business platforms [1] provides some important clues. The combination of a business platform supported by an innovative information technology system can disrupt industries, as organisations such as Google and eBay have demonstrated. This case study introduces a technique for assessing an organisation to identify candidate business platforms, and how to apply information technology to create competitive industry disruption. In addition, it will provide initial experiences from using these techniques.

Background

The role of information technology (IT) systems as a potential industry disruptor had been well understood from the early 1960s. IT systems continue to drive innovation in many industries. For the services industries, IT systems will continue to be a major disruptive force that will be used by leaders for competitive advantage. The IBM Component Business Modelling (CBM) method (IBM Business Consulting Services 2005) provides a tool to analyse a company. The results from a CBM analysis identify the firm's core capabilities and also their costs, to create a heat map of transformation opportunities. This highlights the areas where IT systems can allow innovation of the business. This analysis typically considers areas within the boundaries of the current firm.

Business Leadership (Gawer 2010) provides historical insight into how business platforms which have emerged in some service industries have established their leadership position. Organisations such as Google, eBay, PayPal, IBM, Microsoft and Intel are all seen as platform leaders. The business platform can be considered as a combination of the processes, capabilities and resources required to provide a service to an ecosystem of businesses. The business component has a clearly

R. Parmar (✉)
IBM CTO North East Europe, 1175 Century Way,
Thorpe Park, LS15 8ZB Colton, UK
email: rashik_parmar@uk.ibm.com

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defined scope and purpose as identified using the analysis method. The business platform, in contrast, does not have such a precise definition. By taking a business component, and offering it to an ecosystem of complementers and customers, a business platform can be created. This provides the opportunity for the business platform to benefit from a range of economies and so create a competitive advantage or drive the commoditisation of a particular aspect of a business.

The Opportunity

The opportunity is to develop a repeatable and structured technique to enable industries or organisations to identify areas of commoditisation. This insight would allow service organisations to develop strategies for competitive analysis or to disrupt adjacent industries.

Description of the Innovation

A technique has been developed that can identify the business components that could be transformed into business platforms and lead services innovation. The description of a business platform (Gawer 2009) identifies six essential characteristics for a successful business platform, and also helps to distinguish business components from business platforms. The six characteristics can be summarised as:

- The platform allows a unique capability or service within an organisation to be accessed by partners and customers.
- The platform is perceived as open and the interfaces to the services are based on agreed standards.
- Innovation and novel use are encouraged for all complementers.
- Partners are able to add value to and capture value from the platform.
- The core platform provider is able to capture value through the platform to profit from provision of the platform and to afford its maintenance.
- The platform can evolve, so that new or enhanced facilities can be provided non-disruptively.

These characteristics can be used to identify how a business component can be transformed into a business platform. In the form of a business platform, the business component not only serves an internal population, but it can also be offered to complementers, partners and adjacent industries.

The business platform provider has to maintain the trust of the ecosystem either by establishing an independent standard and allowing the creation of competition in equivalent providers or by creating a community that is willing to leverage the unique benefits the platform offers. In analysing a number of business platforms, two elements that can be used to develop strategies for creation of a platform have

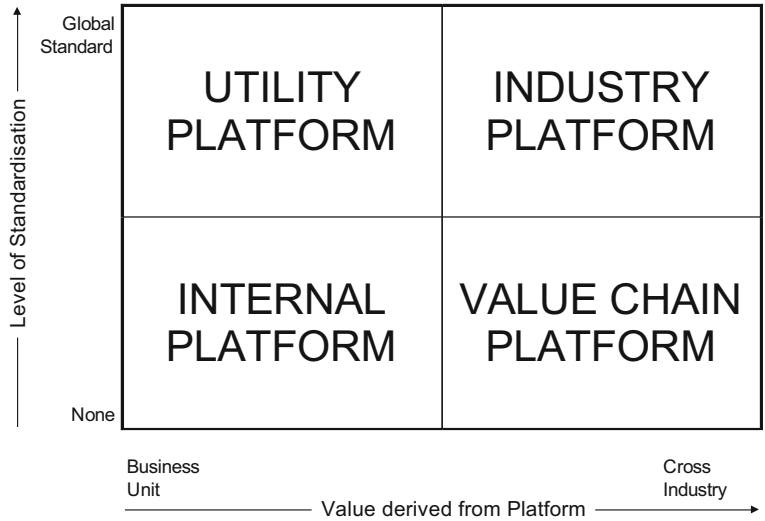

Fig. 1 Four types of platform

emerged. First is the status of the standards associated with the platform, and secondly is how the value can be realised using the platform. Figure 1 shows the four current types of platform.

Although the business platform does not necessarily imply the use of IT systems to enable the innovation, Evans et al. (2008) show how software platforms have the potential to be a key factor in innovation. In addition, considering the business platform as a two-sided marketplace Parker and Van Alstyne (2005) allow the platform provider to develop a sustainable value capture model.

How is Success Measured?

This result of the analysis is the identification of revenue generation or value creation for an organisation. This can be readily quantified as a financial measure. In addition, the competitive advantage or barriers to entry created by the ecosystem of platform complementers is a key measure of success.

What Success has been Achieved to Date?

This technique has been tried with four firms in retail, manufacturing and banking over the last 18 months. For each firm, two to six business platform opportunities have been identified and programmes have been initiated to create the standards or the ecosystems of complementers.

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An End-User Friendly Service Delivery Platform for the Public Sector

Sonja Meyer, Juergen Vogel and Nikolay Mehandjiev

Abstract We present a service innovation scenario where semantic web services and visual process specification allow public sector workers to easily modify and adapt administrative services and processes, thus responding to new challenges such as the implementation of the European Services Directive and other recent developments. Our use case is based upon a novel Service Delivery Platform developed in the EU FP7 project SOA4All.

Background

Public administrations have to deal with hundreds of different procedures that are typically implemented in one or more legacy systems or even executed manually. At the same time, the increasing number of regulatory changes and new regulations requires them to constantly adapt their procedures in a flexible and cost-efficient way. For instance, the EU Services Directive (European Parliament 2006; European Commission 2007) requires administrations to implement a one-stop e-Government approach where constituents can file requests for public services via a single point of contact which coordinates all necessary activities.

As a consequence, public administrations need to constantly adapt their service offerings to the specific needs of each constituent. Considering the tight budgets together with the high costs that would result from a traditional software development process under such dynamic conditions, it becomes evident that new solutions are required. Public administrations typically have to deal with numerous administrative procedures, interacting with citizens, businesses, and other administrations (European Union 2007). Their IT infrastructure is often heterogeneous with disconnected

S. Meyer (✉) · J. Vogel
SAP Research, St Gallen, Switzerland
e-mail: sonj.meyer@sap.com

J. Vogel
e-mail: juergen.vogel@sap.com

N. Mehandjiev
Manchester Business School, The University of Manchester, Manchester, UK
e-mail: nikolay.mehandjiev@manchester.ac.uk

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solutions, and many public services are still performed manually. Changes to existing IT applications or the implementation of new ones often require lengthy and costly software development processes that are mostly handled by external solution providers.

An alternative to dedicated software development projects by IT professionals is End-User Development (EUD) where professional users who do not have programming skills are enabled to perform smaller development tasks with the guidance of a user-friendly tool. Such tools often rely on wizards, programming by example, or graphical programming. Different studies have shown a general positive attitude towards EUD among professional end users, and EUD activities are in fact already widespread in different organisational contexts. We are therefore confident that a technological solution allowing civil servants to adapt existing administrative procedures or create new ones with an appropriate EUD tool will not produce unnecessary obstacles to its uptake.

The Opportunity

In the EU FP7 project SOA4All, we investigate different key technologies that help to address such challenges, based on advanced service technologies. We envision an open and flexible *Service Delivery Platform (SDP)* where administrative procedures are handled over a central Internet portal that serves as a single point of contact between the public administration and constituents. This SDP allows the combination of administrative procedures of semantic web services together with human task services. Unlike existing service composition tools, ours explicitly addresses civil servants with regular IT skills as our target users, in order to create a large user basis, leveraging the professional expertise and local knowledge of our users to create and modify effective administrative procedures.

Description of the Innovation: A Service Delivery Platform for the Public Sector

We now describe how our proposed SDP can bring about innovative ways of delivering e-Government services using an example of the procedure to register a new business in the City of X. Barbara is working as a process expert in the public administration of the City of X in Germany. When the SDP is introduced, in order to realise a constituent-friendly one-stop e-Government solution, her task is to create business process models for selected standardised administrative procedures. In our example, she models the process of registering a business using the process editor depicted in Fig. 1.

Like the SDP's other tools, the process editor has a simple web-based user interface that can be accessed via a standard Web browser. For each step of the process, Barbara

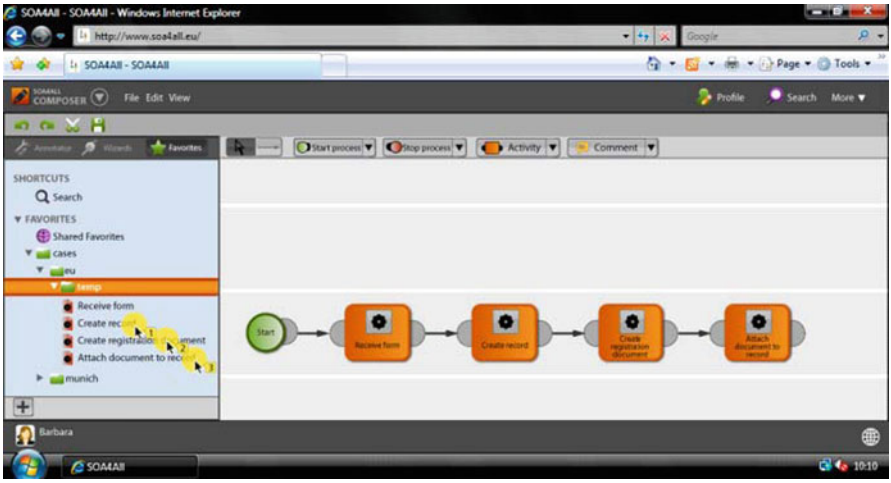

Fig. 1 Web-based interface of the SOA4All SDP

selects either a human task or a semantic Web service. In order to simplify the modelling process, we have designed a new graphical process notation that contains just a few elements such as start, end, process step, and connectors between these steps. Before the business process modelled by Barbara is ready to be deployed, the responsible manager, Claudia, verifies that it complies with all legal requirements. Thus, the SDP allows several users to collaboratively design and discuss process models.

Sometime later, the City of X decides to simplify payment procedures for its citizens and to support payment by credit card in addition to the traditional invoicing scheme. Consequently, all administrative processes that involve a payment need to be adapted. Thanks to the SDP, this modification is comparatively simple and the workload for these adjustments can be distributed among the employees. In our example, Egon handles the incoming Registration of a Business requests. As an accountant domain expert he is able to modify the existing process model to choose an alternate payment service, depending on the constituent's selection in the registration form of the city's Internet portal. In the final phase, the modelled process is executed via the SDP. For instance, the Spanish citizen Jose uses the Internet portal to register his newest coffee shop. In order to expand his Spanish business, he decides to invest in a new branch in the City of X. Usually this process would take a considerable amount of time and money, but with the single-point-of-contact principle already implemented, Jose is able to manage the entire procedure via the web interface from his office in Madrid. In the corresponding form of the city's Internet portal, he fills in all required information including his preferred payment method. The resulting administrative procedure is then handled by Egon, who executes any human tasks involved in the procedure while the other steps are executed automatically.

How is Success Measured?

The main advantage of the envisioned SDP in comparison with state-of-the-art solutions is a substantial efficiency gain, because:

- The platform allows the automation of processes and workflows that were (semi-) manual before, without replacing human tasks.
- Civil servants can handle simple process development tasks themselves instead of requiring a more expensive and potentially longer IT development project.
- Development tasks that cannot be handled by end users will be faster and cheaper due to the seamless interaction among parties over the platform.
- The SDP is also a shared process repository so that new processes or modifications become immediately visible to all users, reducing propagation times and costs.
- The modularity of the underlying service-oriented architecture (SOA) allows public administrations to buy only those services they really need, reducing the TCO of their IT infrastructure.

What Success has been Achieved to Date?

Public administrations constantly face new challenges that require adapting their mode of operation, for example to be in line with the EU Services Directive. Implementing such requirements demands a flexible IT infrastructure. Combining the principles and technologies of SOA, semantic web services, Web 2.0, and lightweight process composition, the SOA4All SDP will help to realise such an advanced infrastructure that will allow civil servants with average IT skills to handle typical administrative procedures. Using web-based tools, civil servants can search, model, annotate, modify, share, analyse and execute administrative procedures in the form of lightweight processes. Currently, we have finished the development of a first version of the SOA4All SDP and we have started to evaluate it with end users from the public sector and other domains.

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Theme VI
Extended Case Studies

Introduction to Cases Illustrating the Driving Forces of Service Innovation

Liping Zhao

Abstract This chapter presents four extended case studies on service innovation. These studies show that behind each innovation case is a set of driving forces. An interesting observation of these driving forces is their diversity, as they range from customer needs to market needs to technology to political goals. Although the cases presented here have not identified any conflict forces, a service innovator should be aware of potential conflict forces and find a way to resolve them. This chapter posits that a good understanding of these driving forces can guide the innovator to make the right innovation decision by targeting the right innovation area with the right approach.

In comparison with product innovation in manufacturing industries, service innovation is a relatively new field. The literature in this emerging field suggests that most research effort on service innovation has so far been focused on its approaches and dimensions; see, for example, the introduction to service innovation given by Ian Miles in this book. The authors of these extended case studies have made a new contribution to this growing literature by showing that each innovation case is driven by some specific forces, and a good understanding of the driving forces behind each case can guide the innovator to make the right innovation decision by targeting the right innovation area with the right approach.

Specifically, in 'Circles of Customer Need: A Contribution to Customer-Centric Service Provision in a Local Community', Jane Searles and Bob Snowdon present an innovative service provision case in UK local government. The driving forces behind this innovation are the needs of citizens, business, the environment and public interest groups. The local government has captured these needs and their complex interrelationships and has represented them into a model called 'Circles of Need'. This model then guides the local government to map its service provision more accurately to the needs of the local community. The authors speculate that this form of service provision—need-led service delivery—might be the future of service industries; in such a model, service innovation rests upon the needs of the service consumers.

L. Zhao (✉)
School of Computer Science, University of Manchester,
Oxford Road, Manchester M13 9PL, UK
e-mail: liping.zhao@manchester.ac.uk

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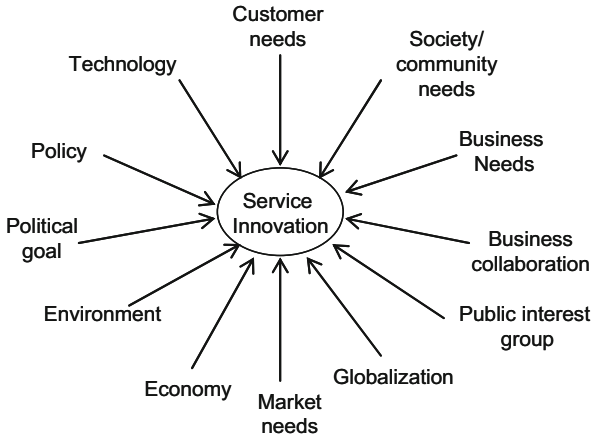

Fig. 1 Some common driving forces behind service innovation

In 'Towards a Deeper Understanding of Public Sector Innovation', Luise Li Langergaard and John Damm Scheuer show that service innovation in the public sector has a different context from that of the private sector in that the public sector operates under government control whereas the private sector operates in a free market. Consequently, public sector service innovation is driven by the needs of a wide range of stakeholders, and by government policy, strategy and political agenda.

The third paper of this theme, written by Marja Toivonen, Mari Holopainene and Tiina Tuominen, presents a case where a Finnish Insurance company has involved its customers in its service innovation process. The company has developed a customer-centric service innovation model and aligned its strategies closely with the customer needs. According to the authors' observation, the insights of the customers have informed the insurance company of its innovation areas and directions.

In the last paper, Lars Fuglsang and John Damm Scheuer present a research project on service innovation networks involving both the public and private sectors. The authors argue that organisations nowadays cannot rely on their own resources and have become more interdependent on their service activities. Nevertheless, collaborating and coordinating service activities across organisational boundaries places a new challenge to the participating organisations. The authors address this challenge by proposing a network infrastructure for inter-organisational collaboration and coordination. Two specific collaboration networks are given to illustrate how this infrastructure can support inter-organisational service activities. The driving force behind these networks is the needs of inter-organisational collaboration.

Figure 1 summarises the driving forces of service innovation identified by the papers in this theme.

Finally, it is important to note that although this introductory section highlights the significance of practical needs in service innovation, it by no means downplays the equal importance of the new ideas and creative thinking. Our human history has shown that the best innovation and inventions are the results of sparks of genius and creative minds. Service innovation is therefore a human design activity that involves the knowledge, experience and insights of the designer.

Circles of Customer Need: A Contribution to Customer-Centric Service Provision in a Local Community

Jane Searles and Bob Snowdon

Abstract This chapter explores the concept of customer-centric service provision in a local community and how it could work. It is based on past projects and on-going work at Chorley Borough Council on Circles of Customer Need. This approach applies holistic living or open-systems approaches to front-line customer engagement.

Introduction

Chorley Council is a top-performing UK district authority renowned for its innovative and modern approach to local government. Located in the county of Lancashire, North West England, and with a population of around 104,800 (Mid-census estimate June 2009), Chorley is known in local government terms as a 'two-tier' area, that is where the district or borough councils work alongside the county council, which provides services on a bigger scale for the whole of the county.

Chorley Council provides local services for residents, visitors and businesses, such as waste disposal and recycling, leisure facilities, activities for youngsters, planning and regeneration, conservation and building control. It also works with other government agencies and local organisations to improve life for the people of Chorley.

The term 'system' used in this paper is described by Katz and Kahn (1966) as a living or open system: "A living or 'open' system is characterised by its dependence for survival on a productive relationship with its environment. It is purposeful, and complex, with differentiated subsystems which interrelate in order to produce the whole. It has the capacity to adapt to changing conditions."

This is not the first time that living or open systems principles have been applied to service delivery. For example, in the 2003 UK national business awards (NBA 2003), Fujitsu Services' Sense and Respond model was awarded best customer service

J. Searles (✉)
Systems Consultant, 83 Ashbourne Road, Leek, ST13 5AX, Staffordshire, UK
e-mail: jane.searles@btinternet.com

B. Snowdon
School of Computer Science, University of Manchester, M13 9PL, Manchester, UK
e-mail: rsnowdon@cs.man.ac.uk

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strategy (Marr and Neely 2004). The radical Sense and Respond approach empowered front-line staff not just to resolve IT issues but also to understand the customer's business and to contribute to it. This was done by recognising the real business impact of IT provisioning issues and opportunities, and aligning IT work accordingly. In Sense and Respond, the role of call-centre staff was expanded to include understanding the customer's purpose and emphasising the importance of listening and capturing the customer's context. This change triggered a number of virtuous circles of improvement, for example, the ability to address customers' real needs, closer customer/provider partnership working and shared strategy, more rewarding work for call centres and innovative service design. Front-line information was used to classify types of demand, leading to initiatives to remove unnecessary demand, and increase delivery efficiency. These changes were derived from the front-line customer relationship, and from there flowed to all aspects of the service delivery process. The changes were the result of addressing IT service delivery from a living or open systems perspective.

There has been a trend in the UK public sector to aim for significant efficiency gains by increasing joined-up working. An example of such an initiative comes from the Treasury (2010). Responses to these initiatives have included changes such as: having a common central contact point for many different public sector organisations, signposting customers to additional service providers, and collaborative delivery of services between organisations. Such initiatives have also included closer working between public sector- and voluntary and community sector-provided services. This whole area is referred to in this chapter as *local area partnership-based service provision*.

The Sense and Respond approach put the customer's business at the centre and re-built the IT support function around it. The concept of *circles of customer* need also comes from this open or living systems perspective. It involved rethinking the customer/supplier relationship, but for a very different context. This context is the local area partnership-based service provision described above. The resulting approach also addresses *joined-up working*, but not by making a number of joins; it involves re-thinking how the whole service delivery system should operate, assuming that the customers' needs are central.

Circles of customer need is therefore a living or open systems-based customer-centric approach, for the world of local area partnership-based service provision, where innovation, co-production and effectiveness gains are vitally important despite significantly reduced budgets.

Section 2 of this chapter introduces the concept of customer-centric service provision and applies it to local areas and the communities that they serve. It describes a systems-based approach to working with customers who have complex related needs. It describes how a knowledge architecture of customer needs (in Sect. 3), a front-line interview template and an area-wide learning process (in Sect. 4) can be used in an evolutionary way to achieve a radically different approach based on customer-centric service provision. Section 5 gives a short introduction to a proof-of-concept implementation project for customer-centric service provision, currently being undertaken

by Chorley Borough Council. The current project strategy is extrapolated to widen the initial project into mainstream service delivery for the area (Sect. 6). Finally, Sect. 7 gives background information on the previous project work which led to the circles of customer need concept.

The article *Call centres of the future: Issues and perspectives* (Theodoulidis et al. 2010) discusses issues of concern with existing call centres and proposes a vision for the future of the call centre in terms of the main issues that need to be addressed and the research perspectives that need to be adopted. The existing issues were identified during a workshop held at the Centre for Service Research in Manchester Business School, based on input from researchers from different disciplines; these were validated through a case study examining the same issues from a practitioner's perspective. This chapter compares customer-centric service provision with the issues raised by Theodoulidis et al. (2010) and identifies where issues with existing call centres are addressed by the customer-centred approach.

Customer-Centric Service Provision

This section introduces customer-centric service provision and then looks at it first from the customer's viewpoint and then from the service provider's viewpoint.

Customer-Centric Service

Service-oriented provision views the customer as someone who requires a service. Either the customer knows that the service exists and explicitly asks for it, or they have a well-defined need and ask what services can be provided to address it. For example, a government department knows what services it can offer, so it knows what needs it can address. On customer contact, it identifies if this customer has one of these needs, and if so, it schedules the appropriate service to address that need and then signposts customers to other service providers. This is based on a simplified model of a customer who has only one need at a time. This simplified model is ineffective for service delivery to customers with complex related needs because no deliverer is addressing the whole customer or identifying how best to help.

In contrast customer-centric service provision starts with the customer rather than the service. The service provider gains a picture of the complex interrelated needs from the customer, understanding what a beneficial change might look like and co-designing a solution which involves both the customer and a potential range of service providers. The same approach is available wherever, in the local community, the customer decides to make contact and so solutions are not limited to a single service provider's services.

The Customer Viewpoint

Whilst service-oriented provision can work well for straightforward situations, it raises two issues for some customers of public and voluntary sector services:

Firstly, the customer may not know what services exist, which organisation they should approach or whether they are eligible to receive them. Issue 13 in Theodoulidis et al. (2010) concerns the level of experience of customers with using services, and the lack of help for those who don't know what service they require. In the public sector there are frequent changes to services and eligibility criteria. To the inexperienced, the hurdles in finding the right service and establishing eligibility can be significant, and the system itself can be a major barrier to reaching help for those in need.

Secondly, the customer may have a set of complex interrelated needs which interact with each other, and this makes it difficult for them to decide which to address first, or indeed if they address one issue whether others may be resolved.

If a customer is also signposted to another organisation, they need to 'tell their story' again and will get uncoordinated service delivery, because the delivery is not based on an understanding of the connection between their needs. They may also get more services than they need. Addressing deeper causes may obviate the need to address current symptoms. They may also need to return on a later occasion because their other related needs have not been successfully diagnosed. The customer can also be left with fears for the future because they lack the opportunity during their interview to plan ahead for likely future needs. Issue 20 in Theodoulidis et al. (2010) concerns the missed opportunities for front-line staff to add value by using customer input to innovate future services by gathering vital business intelligence. Understanding and capture of potential future needs at the front line makes this possible.

For complex situations, it makes sense from the customer's viewpoint to discuss all their related needs with one person and decide with the help of their service providers how they wish to proceed and what services they will receive. An initial exploration of need can open up new opportunities for co-design of solutions, where personal initiatives from the citizen, support from family, friends and neighbours and public and third sector services can all be explored to address the unmet needs.

There is of course still a need to support direct access to straightforward services for the well informed customer, and the addition of both need- and service-based contact routes enables fast access to services which address simple situations.

The Service Provider Viewpoint

Service-oriented provision relies on measures of customer satisfaction to establish the quality of the service delivered. A major risk in this approach is that a high level of customer satisfaction endorses the belief that needs have been met, but it is possible to deliver a high-quality service without addressing the underlying needs.

From a whole local area viewpoint, diagnosing needs and planning service delivery at the front line could create significant efficiencies across the range of public and third-sector service providers. Issue 16 in Theodoulidis et al. (2010) concerns the lack of linkages between business processes. Diagnosis of a set of related needs at the front line provides the essential data required to enable the linkages between back-end delivery processes to function.

Also from a systems viewpoint, the 'presenting' need may not be the most effective need to address. For example a citizen may present with a request to be put on the housing register and there may be an unavoidable delay in provision of alternative accommodation. However, improving heat insulation in their existing cold and damp house now may mean less deterioration in a chronic health condition, delayed onset of a sedentary lifestyle, reduced social isolation and generally increased quality of life for that citizen. It could also result in improved private rental housing stock for the community, contribute to reducing global warming and offset issues of rising fuel costs for the citizen. Gathering evidence of impacts over a range of similar cases would then provide evidence for future strategic funding decisions.

The achievement to further such efficiencies as outlined above, requires a high level of coordination from a local area viewpoint, reducing barriers to cooperation in delivery. It requires practical initiatives to enable one organisation to act on behalf of another organisation, share data, have appropriate skill development and to adopt common standards. It requires a coherent picture to be maintained of service delivery capability and delivery roles.

The major concern expressed about the customer-centric approach is that needs will be uncovered that cannot be satisfied and that delivery costs will spiral up out of control. This is a risk, but without factual evidence of the actual level of unsatisfied needs, strategic decision making is the outcome of ungrounded competing political pressures. Overall systems effects are also expected, whereby the savings from avoiding repeated customer interviews, sharing learning, sharing delivery, making better targeted service selections, increasing innovation, co-delivery and taking higher-quality strategic decisions would allow more front-line service to be delivered.

Needs-Based Knowledge Architecture

'Circles of customer need' is a systems-based approach to delivering customer-centric services. It introduces systems thinking to front-line working and partnership delivery in order to create a more effective outcome for the customer. Circles of customer need utilises a customer need knowledge architecture, which was developed through a series of workshops with front-line staff. Circles of Need® has subsequently been adopted as a trademark by Aperia Government Services (the history is further described in Sect. 7).

The main objective of the architecture is to provide a holistic model of customers' needs that shows where needs are commonly associated together and which services address which needs. The architecture enables the user to start from customer

requirements, identify related needs and assess the set of available services for gaps and overlaps. The architecture was built top-down for completeness. The needs and services had to remain at a high level in order to avoid the architecture becoming unusable due to complexity. The need information and linkages were all developed by a series of facilitated workshop sessions which followed a modelling method. In workshops, the architecture was displayed by projector and front-line staff decided on the wording of needs, the level of decomposition necessary and where connections were needed. For practical use, it was expected that the architecture would be instantiated and maintained by each community using it. It would be tailored based on local knowledge, locally important topics and the range of available services. The circle of customer need is one such instantiation, where the concepts are being extended to create a learning architecture for front-line staff.

So the Circles of Need® architecture is a generic, holistic and conceptual model of needs and how they relate together, encompassing customer types of citizen, business, environment and public group. The architecture also contains links to services, based on the Esd-toolkit's local government service list (LGSL 2010) and workshop inputs. All the relationships in the model are automatically two-way at this high level. It was felt that distinguishing multiple specific causal loops would introduce too much complexity to be useful. An IT modelling tool was used to develop the architecture (ProcessWise Workbench 1996). The top-level knowledge architecture is intended to provide a consistent basis for gathering together need-based learning and to support a consistent approach for decision making across the needs of the whole community.

Once built, the architecture is accessed via views consisting of only the lowest level of decomposition, of needs and services. The Process Wise Workbench enables a need to be selected and the other related needs and services to be displayed in a circle around it (a circle of need). From such a need-centred view, the IT user can select one of these related needs and view its own circle, and then do the same again, thus exploring pathways through the needs and selecting appropriate services. There is also the option to create topics and associate them with one or more needs as a route into the network of needs and services.

Figure 1 is an example of a topic, Assisted Collection (in the centre), with related needs. A number starting '1.' represents the citizen's needs, a number starting '2.' represents environmental needs and a number starting '5.' public group needs.

Figure 2 is an example of a circle of need. The need at the centre represents a 'presenting need', i.e. having inadequate access to democratic processes. The related needs all have the potential to be considered for exploration in building a holistic picture of the needs of the citizen who experiences blocks in accessing their democratic rights, though in practice only some of these needs will apply to a specific citizen. The services are identified by numbers starting '3.'

An architecture developer role is needed to instantiate the knowledge architecture for an area. This role is responsible for applying the learning to the architecture and maintaining its content and consistency, creating outputs for other local teams and individuals to use in the course of their work. To create a need template for a topic, the developer first identifies the core needs of the topic from the total set of needs for the customer type (e.g. citizen). Then, following the needs pathways

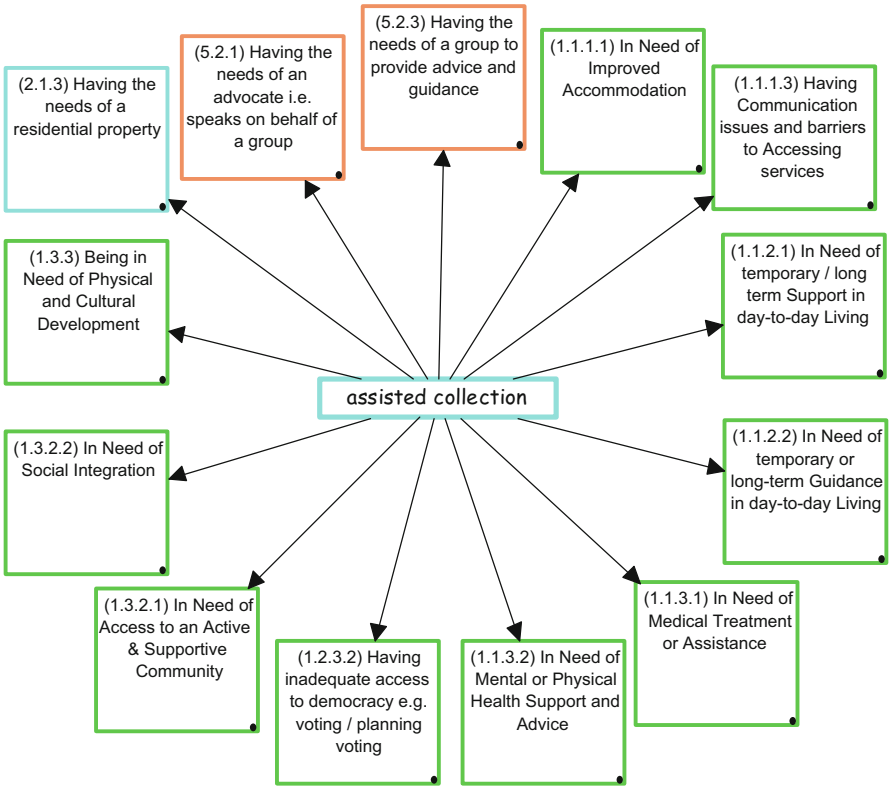

Fig. 1 A topic, assisted collection, surrounded by a circle of needs

through the architecture, the developer identifies the most likely related needs and, third, identifies wider external stakeholder needs. This process produces a front-line template for the topic, formed by three concentric circles, as illustrated in Fig. 3.

The front-line staff record customer contacts as part of their CRM systems or as notes in manual customer records. These would be extended to identify needs as well as services to be provided. The template tool in Fig. 3 is an idea of how the need information could be displayed to front-line staff, to prompt questions and to enable them to select the appropriate needs and then automatically be presented with possible services.

It is expected that having created a much less complex subset of the architecture by addressing a single topic (e.g. Fig. 3), that it will be possible to generate a causal loop model against which customer information can be summarised. Such a model would then become part of the strategic decision-making process for the topic, as described in the next section.

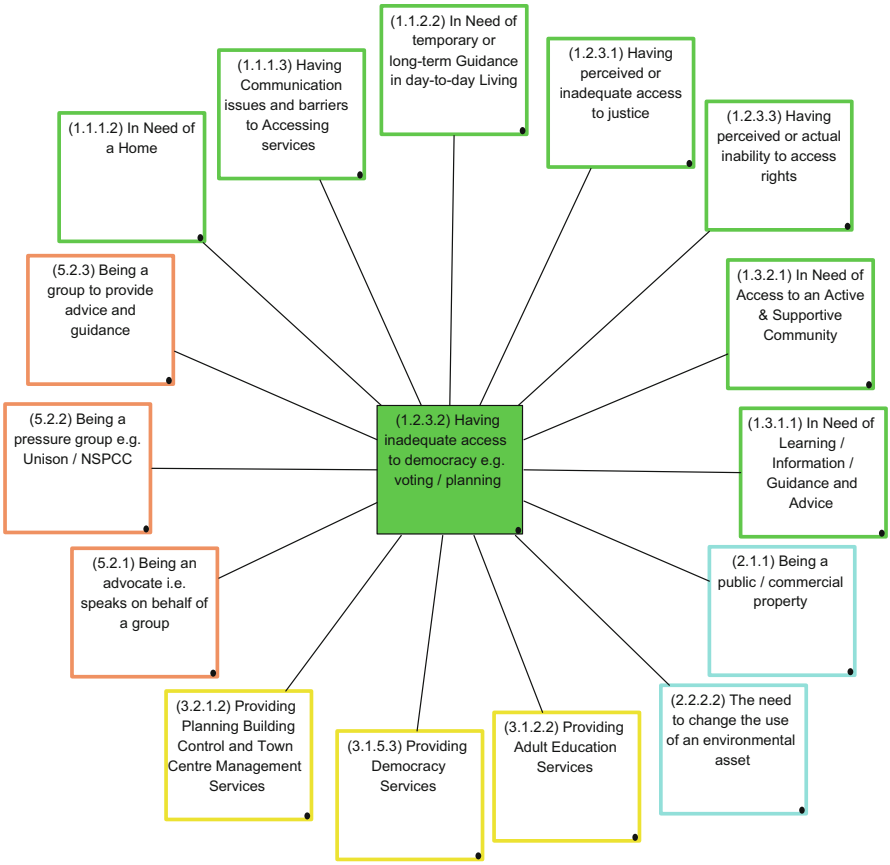

Fig. 2 A presenting need surrounded by a circle of related needs and services

Circle of Customer Needs Implementation Strategies

Learning Loops

Customer-centric service provision is implemented through four linked learning loops. This strategy requires a minimum of initial overhead activity and the opportunities to increase effectiveness and efficiency as a by-product of on-going delivery. The basic structuring for managing the service delivery is based on an understanding of the Viable Systems Model (VSM) (Hoverstadt 2008). Unlike more traditional target-driven approaches, the learning loop strategy operates from the ground upwards into higher levels of the organisation. In Fig. 4:

- Delivering and learning take place with each individual customer. Customer information is summarized to produce information on all customers of a specific

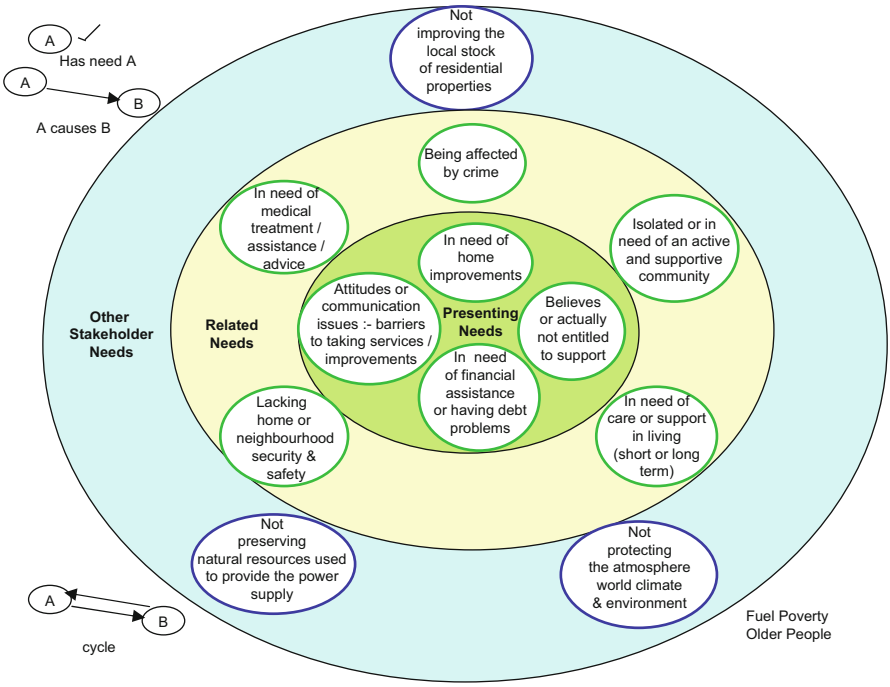

Fig. 3 A circle of customer need front-line diagnostic tool

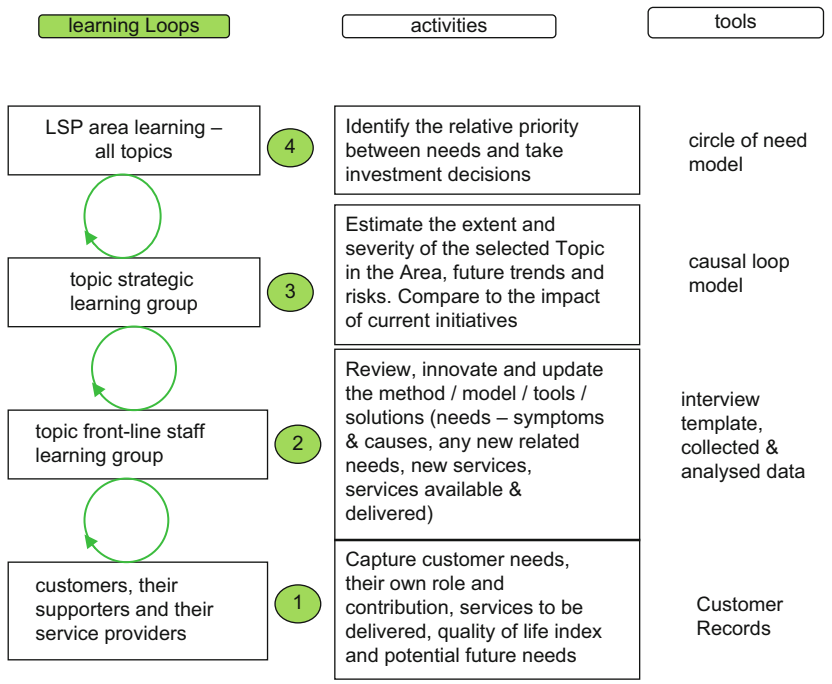

Fig. 4 The circles of customer need learning loops

topic. This information results in improving the methods and tools for the topic, which are then more widely deployed. Where innovation occurs and is successful, this is captured, along with cause and effect relationships.

- The summarized customer information feeds into strategy development for the topic. Here it is compared to the external assessment of the likely number of customers in the area and the level of issue that they are likely to be experiencing, to determine the gap. Also future trends and possibilities are taken into account to establish the nature and severity of future risks to citizens associated with the topic. These conclusions feed back into reviews of operational assignments and priorities.
- The risk information and likely operational success or shortfall associated with the strategy is fed into the local strategic partnership (LSP) area service delivery strategy, where relative priorities between topics are assessed, budgets adjusted and targets agreed with the strategy management for the topic.

In this way the achievements with customers builds a body of evidence that informs decisions on strategic direction. This addresses issue 15 (Theodoulidis et al. 2010), the match between the strategy of the organisation and that of the call centre. In the customer-centric approach, the call centre and all other forms of front-line working provide major inputs to all levels of strategy. Scarce resources can now be focused to address the most pressing needs, and areas of unmet need can be clearly delineated. This is important for staff morale, because it informs the setting of realistic and achievable objectives.

Every community has its own specific set of key challenges, so the actual evidence collected is likely to vary from area to area. However, it should be possible using this approach at a higher government level to identify common cause and effect relationships for the same topic across many areas. This would be implemented by another learning loop above those in Fig. 4. In issue 1 in Theodoulidis et al. (2010), the company interprets what customers want and their concerns. This approach is based on fitting customers to the product. In customer-centric service provision, everything is driven by developing an understanding of local community needs. The learning loops also address issue 19 (Theodoulidis et al. 2010), concerning information capture from the customer interaction, storage in the call centre system and how it is retrieved efficiently.

New Skills for Front-line Workers

The front-line workers become expert in diagnosing and understanding needs and enabling this knowledge to inform the rest of their partner organisations. Sharing an understanding of need with a customer opens up vital innovation and co-creation opportunities. This addresses issue 6 (Theodoulidis et al. 2010), concerning call centre job aspects (autonomy, flexibility).

Growing the Implementation from an Initial Pilot

Implementation starts with a proof of concept. If the initial results look feasible then this becomes an initial pilot for the topic. The knowledge generated from interviews and distilled through the learning process is used to create more effective tools to aid swift and reliable diagnosis and service selection. Thus the cost of diagnosis is reduced and more partners attracted to join in, growing the scope of the pilot.

Second and subsequent topics are based on the related needs of the first topic. They are much less costly to introduce as much of the work is already done. When the number of partners has grown, they should start to realise cost reductions as the total number of interviews with customers with complex issues reduces as the work is shared amongst them.

This approach should provide an evolutionary route into radical change. It is based on and builds from effective teamwork, where the benefits of learning are shared and collaboration demonstrates the value of a wide variety of talents and experience.

The teams will improve their efficiency through developing their tools to include their ongoing learning. Improvements need to emerge from experience and not be arbitrarily imposed in order to ensure that the requisite variety (Ashby 1956) of different communities is properly addressed.

There may in the longer term be a need to make structural changes in the partner organisations, but again the need to do this will emerge from implementation learning.

Example: Fuel Poverty in Vulnerable Older People

Chorley Council is currently undertaking a proof-of-concept implementation of circles of customer need to address fuel poverty in relation to vulnerable older people within their local community. This project is specifically working with Chorley Council's customer services team, strategic housing team, home improvement agency, housing standards, and community engagement team, along with local organisations including Lancashire Fire and Rescue, Chorley Citizens Advice Bureau, Primary Care Trust and voluntary groups.

Fuel poverty can have critical consequences for older people, particularly given the occurrence of 'excess' winter deaths and the rising cost of fuel. They are receiving government funding from the CLG Efficiency and Transformation Capital Fund to enable this work to go ahead.

It has been established from research (Blackpool 2009) and through workshops with local people that fuel poverty is rarely a presenting need at a call centre or a one-stop shop. Whilst fuel poverty (and the wider climate change agenda) is a key area of concern for local authorities, specific cases of fuel poverty are not well defined. The most appropriate channel for this trial in this instance is therefore the local authority case-worker and, in the future, other outreach workers in the public and voluntary sectors in the Chorley community, e.g. the Fire and Accident Service.

The initial facilitated workshops for the project were attended by representatives of both older people and a range of local organisations. The participants were unanimous

in their enthusiasm for the approach and keen that their contribution should be built on by the project. Outreach workers were particularly enthusiastic about this opportunity to collaborate. Their input and other relevant research has been used to create starting versions of the front-line tools for use in the pilot.

It is early days for this proof of concept, but some learning is emerging. The case workers involved in the pilot have been able to use the tools and as a result data is starting to build up from cases of fuel poverty. The pilot is still ongoing and it is hoped that it will remain the normal way of working with fuel poverty.

The project found that there was no single collation of local services to address fuel poverty even as a discrete topic. The project has produced a fuel poverty service directory, which is structured around both the presenting needs and the related needs. It contains an introductory picture of the needs identified in the fuel poverty front-line diagnostic tool followed by a services section for each need. There was concern that the rich information on needs being collected might reduce over time to a sound-bite or index entry, so in the introductory picture, each need has attached to it four specific need sub-topics that it covers, to illustrate and retain the breadth of the concept. The demand for the directory was immediate and it is hoped that this practical outcome will continue to draw case workers from other organisations into the project in the future. A mechanism is being put in place for updates to services to be made by the people who are using the guide.

On a wider front, Chorley has found the project approach useful and is looking to build some of the principles into other projects which address complex needs.

The hoped-for longer-term benefits for citizens from the project are: (1) a better quality of life for older and vulnerable citizens, (2) real collaboration in ensuring that whichever outreach worker discovers the case (in the course of their normal work), the issue will be properly addressed and a better customer experience tailored for the needs of each individual citizen affected.

For the local area, the ultimate aim would be for effective collaboration and proper analysis of needs to reduce the number of calls required for each of the outreach workers, thus allowing time for more in-depth assessments.

The learning loops should enable scarce funds to be targeted effectively to the most vulnerable and those in greatest need, by feeding the local context into evidence-based strategy making in each of the organisations concerned and the LSP.

Glimpse of the Future: Customer-Centric Service Provision

The following sections describe what happens at each of the five stages of service delivery shown in Fig. 5 below:

Diagnosing Needs

When a customer makes contact, the staff call up the shared customer information, regardless of which access route the customer has chosen to use or which organisation

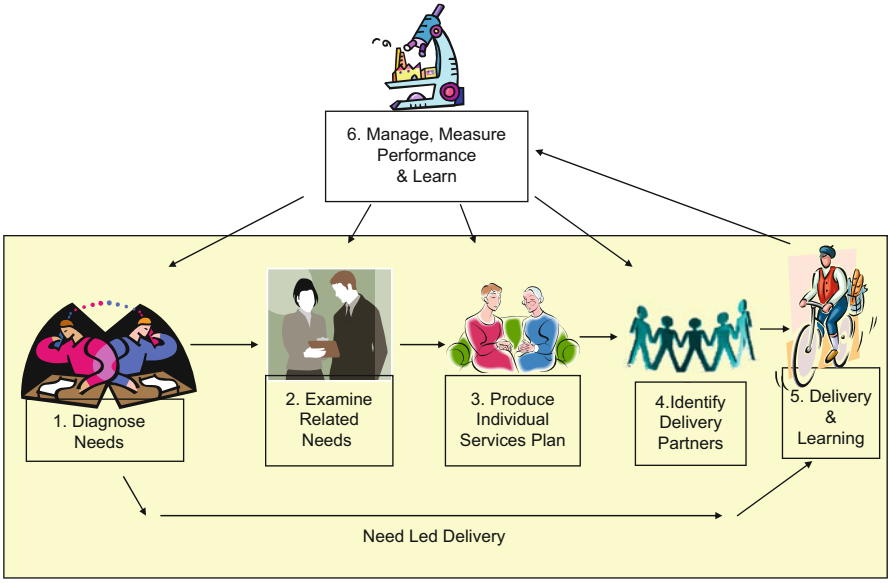

Fig. 5 An outline of the operational process underpinning customer-centric service provision

they have approached. They listen actively and get a good understanding of the customer's presenting needs, regardless of whether their organisation is the one best placed to help. If the customer has a simple request for an available service to which they are entitled and have no related issues, the staff fast-track the request, schedule the service required and charge the customer (where appropriate).

If the customer's presenting need is more complex, the staff identify the topic concerned and, if it falls within the current topics being piloted, use their topic template to select those core needs associated with this topic (in the middle of the circle shown in Fig. 3) which are present for this customer, automatically updating the customer's record. If this is a new customer, they ask them if they are willing for their case to be used anonymously for statistical purposes. If they are and some new intelligence about the topic has been recognised, they highlight this for later analysis.

Examining Related Needs

Next the staff widen the scope of the conversation to find out if the customer also has any of the related needs shown on the second circle of the topic template (Fig. 3) and again select those that are relevant.

They also select any other stakeholder needs (outer circle of Fig. 3; e.g. the environment's need for reduced carbon emissions) which will be addressed by meeting the need.

Producing an Individual Service Plan

The staff automatically access the A–Z of local area services by selecting needs. They receive recommended and possible services with eligibility criteria. The understanding of needs enables the staff to identify what sort of change would be the most effective in the specific circumstances. They discuss what the customer plans to do themselves and discuss service options to arrive at an agreed individual plan covering all initiatives for all involved. The staff discuss concerns for the future, if appropriate, and select possible future needs, e.g. vulnerability to fuel cost increases, and possible future solutions for the customer to consider.

The staff finally ask the customer if they would like to take part in a quality of life assessment. This would involve recording their perceptions of their quality of life via a daily or weekly text message or email for a period (the algedonic meter of Beer 1995). The data would be used to identify whether the solutions implemented are proving useful to the customer.

Identifying Delivery Partners

If the customer is ready to go ahead, the staff take on the responsibility for handing the case over to a nominated delivery team leader to assemble the services solution and to deliver the services element of the solution.

Delivery and Learning

The staff will have updated the summary topic information with respect to any new initial symptoms of the need. Where it appears that one need has been caused by a more fundamental need, or a reinforcing cycle of needs is in operation, this is also highlighted. This information is analysed and fed into a causal loop model, which will speed recognition in the future and feed back to tool improvements. If the conversation has sparked innovative ideas for services, these are also highlighted for analysis.

Project Background

This chapter is based on a local authority initiative called *Circle of customer need* (Chorley 2008) which was led by Chorley Borough Council. Their vision is to: "Tackle the needs of the customer by wrapping the business of the organisation around the customer".

This Circle of Need® project developed an architecture of customers' needs (and the inter-relationships between needs), through workshops involving: experienced

front-line local authority staff, fire and accident service staff, police, primary care trust and the Chorley citizens' panel.

This project evolved over three phases: proof of concept, full architecture of customer need, and training materials to support experimentation. The work has now moved on to a proof-of-concept implementation. The work has been funded by central government and the north-west area.

The main players in the first two phases were: Chorley Council, Cumbria County Council, Fylde District Council, Lancashire County Council, North-West e-Government (NWeGG), Ribble South Borough Council, Salford City Council, Chorley area police, fire and primary care trust and the Chorley citizens' panel. The modelling workshops were supported by Aperia government services. Since the development of the initial architecture, progress has developed through two separate strands: the business process approach entitled Circles of Need® led by Aperia, and the living or open systems approach Circles of Customer Need currently being piloted by Chorley Borough Council, supported by one of the authors, Jane Searles. This chapter has focused on this second strand.

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Towards a Deeper Understanding of Public Sector Innovation

Luise Li Langergaard and John Damm Scheuer

Abstract This chapter contributes to a deeper understanding of public sector service innovation, exploring how it evolves in interaction between actors in hierarchies, markets and networks. A typology of innovations in public sector services is developed and a model of public sector service production is presented. Then, drawing on an in-depth review of the public innovation, public policy and public administration literature, service innovation in three sorts of circuits and relationships between actors is identified. A number of characteristics of public sector service innovation are derived from the analysis, and it is concluded that public sector service innovations may be diverse and varied. They may be initiated top-down or bottom-up, formalised or policy based, organisation or employee led, and initiated by professionals or by users. It is suggested that the public service innovation process may be described as "co-evolution", emphasising the view that change may occur in all interacting populations of public sector service organisations. Innovation is seen as happening in the encounter between people situated in hierarchies, networks and market-led organisations; and as evolving as iterative, interactive and heterogeneous processes where goals are often relatively unclear, resulting in innovations that must often be understood retrospectively rather than as intended outcomes of the execution of detailed plans.

Introduction

The aim of this chapter is to contribute to a deeper understanding of public sector service innovation by thoroughly reviewing and re-interpreting the public innovation, public policy and public administration literature. In Sect. 2 current views and discussions about the public sector context for innovation are reviewed and discussed. It is suggested that innovation activities in the public sector may be related to activities in hierarchies, markets and networks. Then in Sect. 3 an analytical model is

L. L. Langergaard (✉) · J. D. Scheuer
Institute of Communication, Business and Information Technologies,
Roskilde University, Universitetsvej 1, 260, 4000 Roskilde, Denmark
e-mail: luiseli@ruc.dk

J. D. Scheuer
e-mail: jods@ruc.dk

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presented. In Sect. 4 a typology of public sector service innovations is developed. The analytical model is operationalized and used to systematise, review and analyse the public innovation, public policy and public administration literature in Sect. 5. It is shown how innovation is related to different circuits and activities between actors including circuits and activities between the political-administrative stakeholders and the service producing public organisation, activities going on internally in the service producing public organisation and activities related to public service organisations interaction with users and network participants. Section 6 contains a short discussion of the role of public-private partnerships and public-private innovation networks in public service innovation. Finally in Sect. 7 the points and arguments of the chapter are drawn together and an alternative view on public sector service innovation is presented that suggests that innovations in the public sector may be diverse and varied. Initiated top-down and bottom-up. May be formalized and policy based, organisational and initiated by employees/ professionals as well as by users and network participants. It is moreover suggested that the public service innovation process may be described as "co-evolution" emphasizing the view that change may occur in all interacting populations of public sector service organisations.

The Public Sector Context

The idea of innovation in the public sector services is relatively new, going back only a few decades. This can be seen in connection with the fact that innovation in services has received little attention until recently (Miles and Boden 2000, p. 1). Services have been treated as unproductive in the 1960s and 70s, and the demand for public services has been seen as reflecting political, rather than economic agendas. Economic growth was seen as based on innovation in manufacturing mainly (Miles and Boden 2000, p. 6). The shift in the overall pattern of demand in the economy, away from goods and towards services, was followed by a shift in the view on services, which became seen as "superior products" that could meet people's more sophisticated needs (Miles and Boden 2000, p. 3). This view on services makes it possible to talk about innovation in services more generally and in public sector services, as well. The interest in public sector innovation has been increasing over the last 15–20 years (Borins 2001b, 2006; Grady 1992; Becheikh et al. 2007). Previous research and literature on the public sector and public sector organisations has been concerned e.g. with the organisation of the public sector and with the characteristics of public bureaucracies (Nelson 2008), or with reforms, but not with innovation as such. The term innovation is only rarely used in the classic literature on public policy and administration (Røste 2008, p. 155). The literature and research in innovation in the public sector services is however limited and there is still much to learn (Bason 2007; Grady 1992, p. 157; O'Conner et al. 2007, p. 533; Vigoda-Gadot et al. 2008; Windrum 2008a, p. 3). On the other hand, there is a large amount of literature and research on innovation, which has been concerned mainly with private sector business corporations (Koch and Hauknes 2005).

The idea of "an innovative public sector" is often presented as a new notion breaking with the so-called "prevailing myth" (Albury 2005, p. 52) that the public sector has inferior innovative capabilities compared to the private sector. It contradicts previous views on the public sector as regulatory frameworks for innovation activities; as more or less passive providers of output to private sector organisations; or as recipients or users of innovative products generated by private sector agents (cf. Koch and Hauknes 2005, p 4). Literature in public sector innovation often mentions that public sector organisations traditionally have been considered conservative, bureaucratic and reluctant to change (Borins 2002; Earl 2002, p. 9; Fuglsang 2008, p. 234; Mulgan and Albury 2003, p. 5; Vigoda-Gadot et al. 2008; Windrum 2008a, p. 5; Wise 1999, p. 150). This view on the public sector as non-innovative can be encountered in both the modernisation and reform trends in the public sector, labelled New Public Management (NPM), which started from the 1980s and onwards, and in parts of the "traditional" innovation theory, which main focus has been on the private sector. Innovation theory often portrays the public sector as poor at, or incapable of, innovating. According to Windrum (2008a) this has to do with the old legacy holding that manufacturing was the sole source of productivity growth, and with a bias in the innovation literature towards private sector organisations. The supposed superior innovative potential of the private sector has resulted in a view that policy should focus on privatisation of public services, and thereby secure growth and productivity. This has resulted in an outsourcing tendency and adoption of private sector management principles in the public sector in accordance with New Public Management ideas. He says, that this view seems to have unconsciously spilled over into the innovation literature, resulting in a bias towards private sector service organisations, and in views neglecting public sector innovation (Windrum 2008a, pp. 3–5). In parts of the public sector innovation literature, this notion of the public sector as poor at innovating is considered poorly founded or simply wrong (Gray et al. 2005, p. 7; Mulgan and Albury 2003, p. 2; Walker 2007) and as something which needs to be challenged or investigated further (Vigoda-Gadot et al. 2008; Wise 1999, p. 150). The view on the public sector as non-innovative is in other words being challenged in the recent years, and the interest in doing research in public sector innovation is, as mentioned, increasing.

Innovation in public sector services differs in some respects from innovation in the private sector. The complex setting of the public sector means that in order to fully understand innovation in public sector services some of the special characteristics of the public sector environment and the context for public service production needs to be taken into account. The public sector context creates a special environment for innovation processes in the public service organisations. In contrast to private sector organisations, public service providers are not operating in a market. They are often monopolies providing services not to the market or to customers, but to society in general (Røste 2005, p. 23). The main focus of public sector organisations is not sales or profits as it often is in the private sector (Halvorson et al. 2005, p. 11). Instead the public sector service providers are operating in a political environment and are basically working to realise political goals. In Western-style parliamentary democracies the leadership in the public sector is held by politicians; the democratically

elected representatives in parliamentary institutions, Government and local bodies (Røste 2005, p. 23). This gives reason to see public sector innovation as different from private sector innovation in regard to e.g., dynamics, incentives and drivers of innovation.

The public sector organisations are implementing policies that are presented as aiming to benefit society as a whole, by providing basic services for citizens that private market provision is liable to fail to provide efficiently or equitably. The need for the public sector to act in more or less politically legitimate ways creates specific constraints and incentives for the management of public service (Røste 2005, p. 23). The public sector is responsible for these activities in the society, which are meant to serve the common good of the citizens (Koch and Hauknes 2005, p. 1). Drivers for innovation in the public sector can be wishes to improve governance and service performance, including improved efficiency, in order to increase public value (Hartley 2005, p. 527). The innovations in services are justifiable only if they increase public value, e.g. in terms of improved quality and efficiency (Hartley 2005, p. 30). The special role and function of the public sector in society make public organisations subject to a democratic, political rule, which implies that the organisational context is normative (Bason 2007, p. 116), and that democracy is the governing principle (Halvorsen et al. 2005, p. 17). This causes some complexity and ambiguity when it comes to both the definition of problems, which the organisations are trying to solve; to the more specific objectives of the organisations; and to the clarity of roles in the formulation and execution of policies.

Amongst the problems, which the public sector are dealing with are so-called wicked problems (Bason 2007, p. 16; Jørgensen 1999, p. 61), which are characterised by having no simple and definitive solution, but rather just temporary and partial solutions. These problems can be crime, unemployment, or the priority of resources within the health sector. The problems will typically not be easily defined once and for all, and there will often be disagreement on defining them, because of conflicting interests involved. With Jørgensen (1999) one can say that the wicked problems are not necessarily technically complex, but primarily socially and politically complex (Jørgensen 1999, p. 61).

These wicked problems are often subject to political disagreement both in terms of definitions and solutions, which may influence the more concrete objectives and frames for solving tasks related to these problems in the public sector service organisations. The political leadership and the changing of leaders in different election periods may cause the priority of resources and aims to be changeable, which can cause rapid changes for the single public organisation. This political context strongly influences the service producing organisations of the public sector, and their behaviour. The objectives of the public sector services may change with the shifts in political goals and priorities of different political leaders.

In addition to the political goals the service producing organisations have objectives regarding productivity, efficiency and quality of the concrete services to the citizens. The public service providers have production activities, which are aiming at or directed towards the citizens, or users. And just as the political system is central for the working condition of the public sector service production, so are the users

of the service central for understanding the production process (Jørgensen 1999, p. 49). These different objectives and expectations from both the political system and the citizens, or public, may cause pressure on the organisation from several sides.

The production of services can be said to take place in between the users and the political system. In executing political goals, the service producing organisation have to make certain decisions which affect how these political goals are realized, and how the needs of the public are met in practice. According to Jørgensen (1999), it may be fruitful to understand politics functionally, i.e. as an activity, and not as something referring exclusively to certain organs outside the organisation. Central in this view is that politics concern structures and processes in relation to the use of authority and power for influencing the definitions of goals and objectives and the main parameters in the economic system. Politics is conducted at all levels of the organisation, of "street-level bureaucrats", which are workers meeting the service recipients, or of the organisations which have authority to exercise discretion in their practice (Jørgensen 1999, p. 48). The decision-making processes in the public sector organisations are often political (Halvorson et al. 2005, p. 11), and they are in principle political at all levels of the service production, since they influence how political goals are executed. According to Lipsky (1980) the decisions made by street-level bureaucrats, the routines they establish and the devices they invent to deal with problems and work pressure, effectively become the public policies, they are carrying out. This means that public policy is also *made* in the offices and daily encounters of street-level workers. Public policy is thereby also located in these struggles between individual workers and citizens who challenge or submit to client processing (Lipsky 1980), and not only at the formal political level.

More generally the behaviour of public sector service organisations can be understood in relation to these pressures from different sides, which can cause dilemmas for the organisation. The producing organisation is influenced by its political environment, and working to meet the demands for justice and equity in service provision, but is concerned with production and output, as well. This complex setting calls for another understanding of the production system than in the case of market based activities.

Hierarchy, Markets and Networks

The environment in which public service organisations are operating is complex in a number of senses. The purely hierarchical understanding of the public sector context, where organisations are seen as passive executors of political decisions, is today no longer seen as adequate, even though it is important for our political self-understanding (Jørgensen 1999, p. 46). The tendency today is to see public organisations both in terms of markets, hierarchies and networks. In some parts of the public sector, there has been a development within the recent years, where hierarchical contracts have been replaced by market contracts, and the creation of focused and specialised units offering a limited number of services in quasi-market

arrangements within the public sector. These are characterised by a clear separation between contractor and provider, between buyer and seller (Halvorson et al. 2005, p. 14). Still an understanding of public sector service production must presume the political context in order to understand the dynamics of public sector service production and innovation.

Instead of seeing the public sector in terms of hierarchy or market a third option, is viewing the public organisations as organised as part of a number of networks, such as political networks, professional networks, cooperative networks with interest groups and organisations, user networks and the daily work networks (Jørgensen 1999, p. 53). Windrum and García-Goñi (2008) present a multi actor network model containing political actors, public service organisations, consumers, firms and political organisations. They see innovation embedded in institutions and organisations that can hamper or encourage innovations. The key agents shape the introduction and development of innovations, and in turn innovations can alter the competences of these agents. In the public sector other actors may be taken into account than in the private sector, for instance the political system and NGOs play important roles. When studying innovation in the public sector services, such as e.g. health services, one needs to address a number of issues that past studies of innovation have down played, or simply ignored. According to Windrum and García-Goñi (2008) an approach focusing on multi agent interactions, in networks, has the strength that it can cope with a higher degree of complexity compared to other approaches in the innovation literature (Windrum and García-Goñi 2008, p. 650).

According to Jørgensen (1999) the network perspective explicates a number of simple, but important, conditions. Firstly, it emphasises that the organisation can take part of a range of networks in addition to the official one. Secondly, it stresses the dependence between the organisation and the environment and thus the possible influences of values from the environment. Thirdly, the actors are placed in different networks, which have their separate identities, worldviews, values, norms and languages. An important point is, that the networks are both created by and shaping the actors at the same time (Jørgensen 1999, p. 53).

These three ways of viewing the public sector resemble the development over three different paradigms within "public governance" and management theory, identified by Hartley (2005): (1) Public Administration; (2) New Public Management—and (3) Networked Governance. They can each be linked to a specific period in time and to a particular ideological conception of governance and public management. They have different views on the role of policy makers, managers and the population, and they may each be conducive to particular ways that innovation is generated and adopted (Hartley 2005, p. 29). Innovation is not serially associated with each period, but each paradigm engenders and supports particular emphases on innovation (Hartley 2005, p. 30).

The traditional public administration paradigm, which is dated from the post-war period till the early 1980s, views the public sector context as stable and the organisation as a hierarchy, or bureaucracy, resting on legal rational authority, and oriented towards procedures (Hartley 2005; Hess and Adams, 2008, p. 14). The role of policy-makers is that of "commanders" creating legislation and support for

whole-scale changes, and letting the detailed work of implementation be done by officials. The officials working within the bureaucracy take the roles of either "clerks" or "martyrs". The users of the public services are seen as clients with little to say about the public services. The approach is thus holding a top-down view on innovation and is based on a largely legislative, bureaucratic and rule-based approach. Innovation within this paradigm is seen as large-scale national and universal innovations. Improvement is seen as large-step change initially, but with less capability for continuous improvement (Hartley 2005, pp. 29–30).

The New Public Management (NPM) paradigm developed from the 1980s onwards. "Underpinned by a different set of assumptions in neo-liberal economics and a particular form of management theory, the innovations arising through this approach focus particularly on organisational forms and processes such as executive agencies in central government, the purchaser-provider splits seen in health, education and local government, and a 'customer' focus" (Hartley 2005, p. 30). The policy-makers take the role of announcers of change or commissioners of service, the public managers are efficiency-makers and the public takes the role of customers (Hartley 2005, p. 30). The NPM approach in public governance theory is driven by the belief that acquiring and developing private sector management skills and principles will improve the public sectors ability to deal with the challenges it is facing (Windrum 2008a, p. 15). NPM challenges the hierarchical view on the public sector by replacing bureaucracy with quasi-market conditions, and by separating the production organisations from the influence of the political level as far as possible. The service producing organisation is seen as an autonomous unit with independent budgets and results. NPM is often mentioned as something which has led to reforms and innovation in the public sector, and one of the initiatives aimed at improving the innovative capacity of public sector organisations (e.g. Hall and Holt 2008). Veenswijk (2005) describes NPM as the dominant paradigm of public sector innovation, and as the most eye-catching governmental innovation in the past decade (Veenswijk 2005, p. 8).

The networked governance paradigm is an emerging paradigm according to Hartley. This paradigm shows a shift to more networked forms of governance in the public sector. Innovation under networked governance revitalises the leadership role of policy-makers, and is aiming for both transformational and continuous improvement in front-line services. The policy-makers are translating new ideas into new forms of action, and the managers have the role of nurturing innovation as they become "explorers" commissioned by society to search for public value. The public is seen as having the role of "co-producers" of service and innovation (Hartley 2005, p. 30). Hess and Adams (2007) describe an emerging new paradigm in public management, called "community governance" or "community interface", which shares resemblances with "networked governance" described by Hartley. The orientation in this paradigm is towards society, the organisational structure is like networks, and the public sector organisations are aiming for co-production (Hess and Adams 2007, pp. 14–15).

This development towards a network perspective on the public sector implies that the role of the state becomes steering action within complex social systems, rather

than to control solely through hierarchy or market (Hartley 2005, p. 30). The three perspectives on the public sector are taking very different approaches, but still the different forms of organisation of the public sector might co-exist. This means that the procedures of bureaucracy are not completely replaced by the market mechanisms and economic incentives of NPM. As mentioned, the hierarchical organisation of the public sector is closely linked to our political self-understanding, since it is based on a democratic principle, and is ruled by elected leaders (Halvorson et al. 2005, p. 9). Similarly, the view on the public sector as networks is not necessarily replacing NPM but can be seen as "grafted into the NPM ideas and instruments" (Hess and Adams 2007).

These different paradigms or approaches provide us with ways of understanding the organisation of the public sector and public governance more generally, as overall frames for understanding the activities and role of the public sector and the public organisations. To understand innovation in the public sector services more specifically, a model of public sector service production may be useful, in order to more precisely specify the interactions and agents involved in the production and innovation processes in public service organisations. Service production, as well as service innovation, in public sector organisations, must be understood in relation to interactions with other organisations and actors.

A Model of Public Sector Service Production

The public sector service production is characterised by multiple modes of production, providing a wide variety of services, from health services, education, social services, culture support, infrastructure, to running the military/defence and police. The public sector has the responsibility for a number of "control services" as well, even though these might not traditionally be conceived of as services, such as tax payment control, police and customs control. The modes of production in the public sector are similarly varied, and innovation types and processes will vary accordingly to these different production modes and different services produced. A presentation of public sector service production is no simple matter, but nevertheless an attempt to present a heuristic model can be helpful for understanding innovation in public sector services.

According to Jørgensen (1999) public sector service production can be understood in terms of different circuits, in which the service producer figures. The two main circuits are between the service organisation and, (1) political/administrative stakeholders (institutional environment); (2) primary users (technical environment) (Jørgensen 1999, p. 50). The organisation is operating in between politics and the users, and is influenced from both sides, which affect innovation activities, and the different ways innovation can be seen in this production context. The formal basis of a public service organisation is that it is realising political goals, and that it is assigned grants, which makes this possible. On the other side the organisation figures in a circuit with the users and this interaction is concerning needs, demand, distribution,

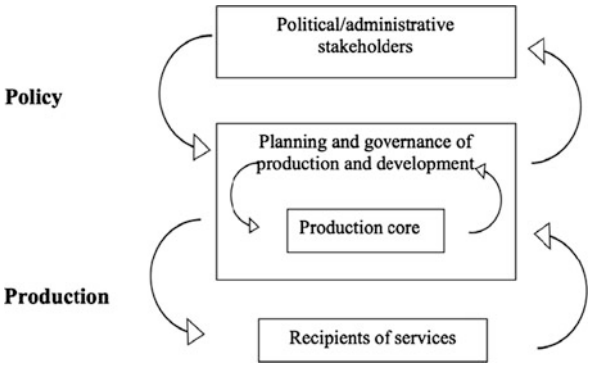

Fig. 1 The circuits of public sector service production. (Adapted from Jørgensen 1999, p. 50)

the effects of production, terms of access for the users, etc. A third circuit which can be included, besides politics and production, is the organisational circuit, where interaction between leaders and professionals take place. This interaction is often concerned with the mission and identity of the organisation, internal administration and distribution tasks, incentives or motivational structures, and development of the professional ideology or culture (Jørgensen 1999, p. 52).

The model, shown in Fig. 1, shows that the organisation is part of two very different circuits, one oriented upwards towards grants and political goals, and one with a downward orientation towards production and consumption. Both of these circuits are characterised by mutual influences and interactions. The political level influences the organisation by setting political goals and assigning grants. At the same time, the organisation influencing the political system e.g. in order to get more grants, and can try to exercise this influence through channels such as the media or by appealing to alternative majorities of parliament. Similarly the users can influence the organisation by filing complaints, demanding customised services or going to the media if they are dissatisfied with the services provided (Jørgensen 1999, p. 51). The different actors and organisations taking part in these interactions all play a potential role in innovation in the public sector services. The actions of the organisations can be understood as related to the pressures these environmental conditions exert.

These two circuits are related to the institutional and technical environments of the organisation. The institutional environments are characterised by the elaboration of rules and requirements to which the organisation must conform in order to receive legitimacy and support. The institutional environments do not emphasise technical, or economic, rationality, product optimisation etc., but rather certain norms, values and demands for certain procedures. In the institutional environment for public sector organisations we typically find the political/administrative authorities of different kinds (Jørgensen 1999, p. 49). The demands can be normative claims about justice and equity in service provision. "*Technical environments* are those in which organisations produce a product or a service that is exchanged in a market such that they are rewarded for effective and efficient performance" (Scott quoted in Jørgensen 1999, p. 49). These will typically consist of users, suppliers, and competitors (Jørgensen 1999, p. 49).

The different claims and conditions for receiving legitimacy create different pressures on the organisations, which may drive innovations in the public sector services.

Defining Innovation in the Public Sector Services

As there are multiple modes of production in the public sector services, a variety of ways in which innovations can happen, and a range of different innovation types. Innovation can be defined in a number of ways, and the innovation theory, as well as the literature on public sector innovation, offers a variety of definitions. A common theme for these definitions is that innovation means newness, e.g. new ideas, services, processes, and that the new element is implemented and results in a new practice. A simple way of defining innovation could be as "the *process* of bringing any new, problem-solving idea into use.... Innovation is the generation, acceptance, *and* implementation of new ideas, processes, products, or services" (Kanter quoted in Hannah 1995, p. 216). Implementation is emphasized, and a new idea is not the same as innovation, but must be put into practice. In regard to newness, the innovation is new to the organisation, but not necessarily new in general. Innovation can thereby also be defined as "a process through which new ideas, objects and practices are created, developed and reinvented, and which are new for the unit of adoption" (Walker 2007, p. 592).

Typologies of innovation show different types of innovations, in terms of what is being innovated, or what is the object or renewal. The typology can be understood as a broad definition of innovation and includes several types of innovation, which are occurring in the public sector:

- *Product innovations/service innovation*: The introduction of a new service, or the improvement in quality of an existing service product (Windrum 2008a, p. 8; Koch and Hauknes 2005, p. 8; Hartley 2005, p. 28). This includes development, use and adoption of relevant technologies (Halvorson et al. 2005, p. 2).
- *Delivery innovations*: Involving new or altered ways of solving tasks, delivering services or otherwise interacting with clients for the purpose of delivering services (Halvorson et al. 2005, p. 2).
- *Administrative and organisational innovations*: Changes within the organisational structures and routines by which front-office staff produces services in a particular way (Windrum 2008a, p. 8). Involves new or altered ways of organising activities within the supplier organisation (Halvorson et al. 2005).
- *Conceptual innovations*: The development of new worldviews that challenge assumptions underpinning existing service products, processes and organisational forms (Windrum 2008a). They can be new missions, worldviews, objectives, strategies or rationales (Halvorson et al. 2005). These innovations resemble those called 'rhetorical innovations' by Hartley (2005), which cover new language and concepts.

- *Policy innovations*: Changes the thought or behavioural intentions associated with a policy belief system (Windrum 2008a, p. 10).
- *Systemic innovation/system interaction innovations*: New or improved ways of interaction with other organisations and knowledge bases (Halvorson et al. 2005, p. 3).
- *Strategic innovations*: New goals or purposes of the organisation (Hartley 2005, p. 28).
- *Governance innovation*: New forms of citizen engagement, and democratic institutions (Hartley 2005, p. 28). This is what Bason calls 'democracy innovation' (Bason 2007, p. 57).

In practice any particular change may have elements of more than one type of innovation (Hartley 2005, p. 28). This means that the different types of innovation should not be seen as mutually exclusive, but rather that one type of innovation is often provoking others.

Innovation Related to the Different Circuits in the Production Model

The political level plays a significant role in the public sector. As seen in the typology, innovation in the public sector can be both policy innovation, product innovation and service innovation to name some examples. These different types of innovations can be initiated by interactions in the three different circuits of the organisation.

The Circuit of the Political/Administrative Stakeholders and the Organisation

The policy-maker is a key agent in the public sector innovation process, and we cannot understand the dynamics of innovation in public sector services without explicitly considering the role played by policy makers (Windrum and García-Goñi 2008). This is closely linked with the societal role of the public sector, and the political decisions and objectives which aim at improving public value or serving the common good for the citizens. According to Hartley (2005), the close connection to the political system means that public service organisations needs to consider governance innovations, such as new political arrangements in local government as well as changes in the organisational and arrangements for the planning and delivery of services. These can be privatization and new collaboratives between public and private sectors to provide services (Hartley 2005, pp. 27–28). They can also be large reforms where the structure of the public sector is changed, municipalities are merged, and services are now being produced either by other authorities or by larger municipalities, as seen e.g. with the Structural Reform in Denmark in 2007. Such reforms or restructurings

may be characterized as policy innovations or as strategic innovations, but might not result in service innovation, in terms of a change of the actual service product. These innovations influence the service producing organisation, and may be accompanied by other innovations, such as administrative or organisational innovations, in order to let the service producer provide services within the new frames.

The innovations or decisions at the political level, which influence the public service producer, may well be regarding the actual services. The politicians may respond to public opinion and to public discontent with existing services. When the public sector services do not live up to the expected quality of the citizens of welfare states they often show discontent, if. e.g. the queues at hospitals, quality of roads, or educational environment at school, are not satisfactory. This may create a push for innovations, which politicians respond to with new policies or reforms and a request for more money at the service level (Halvorson et al. 2005, p. 6).

Risk aversion and fear of public scrutiny and political criticism is a factor, which is often considered a barrier for innovation in the public sector (Altshuler and Zegans 1990, p. 19; Borins 2006; Koch and Hauknes 2005, p. 40; Mulgan and Albury 2003; Ross et al. 2004). The innovations in the public sector are exposed to high levels of public scrutiny (Albury 2005, p. 64), and the consequences of unsuccessful innovations are grave (Borins 2006, p. 7). The question of risk taking in the public sector is according to Bhatta (2003) closely linked with the complex environment of the public sector. This is because the public sector deals with so-called 'wicked problems', and because decisions are made under conditions of uncertainty. Decisions require a political judgment, which makes the environment rather difficult to operate in, and leads to an attitude of risk aversion (Bhatta 2003, p. 2).

But this public scrutiny can lead to innovations as well, and to new political decisions on services based on public discontent, which push the organisations to implement new services or processes of delivery. According to Windrum and Koch (2008) the innovations initiated at this level tend to be general in nature taking the form of genetic political goals, rather than detailed changes in specific services. They are top-down innovations, where the implementation is handed over to the organisation providing the service (Windrum 2008a, p. 13).

In the circuit between political stakeholders and the organisation the professionals in the service organisations may be initiators of innovations, or affect the initiatives from politicians, as well, in a bottom-up manner. They can play an important role in the formation of political agendas and decision making. These service professionals are specialists within specific areas and contain deep knowledge and expertise within their fields. Politicians on the other hand, are often generalists with knowledge in many different fields (Windrum 2008a, p. 14). Professionals in the service organisations can thereby, by appealing to or perhaps by pressuring the politicians, play an important role in policy innovations as well. This can however result in conflicts between professional service employees and politicians. These conflicts may reflect the different viewpoints and perspectives of agents working at different hierarchical levels (Windrum 2008a, p. 14). In this way bureaucrats may, according to Røste (2005), both be a source of innovation and hamper innovation. Their professional background and insights might give them other views than the government holding

power. They may argue that the policies will not work, based on their own experiences of the system, and might actively try to influence decision making processes with their knowledge (Røste 2005, p. 33). What seems to be specific for the role of employees, or professionals, in regard to policy innovation is that the employees might react if the policy, or the grants assigned are not considered proper for them to produce and deliver the public services in accordance with their professional norms, or the needs of the citizens. The issue of controversy can then be the overall financial or policy frames for performing the tasks of the service organisations.

These different innovations initiated at the political and administrative level may not be fully adopted in the service organisations. Walker (2007) argues that because public organisations may innovate in search of legitimacy and not fully adopt an innovation, implementation must occur in order to talk about innovation (Walker 2007, p. 592). Organisations may not fully implement innovations initiated at the political level, or maybe the innovation changes form to fit the specific local organisational context. In a classic study of the implementation of a Federal Programme in Oakland, California Pressman and Wildavsky (1973) showed that there is "a missing link" (Hargrove 1975, 1983) between policy decisions and policy outcomes. They show that civil servants play an important role in the implementation of innovative policy ideas, and that the number of decision points in the process makes it difficult to plan and control the process and that different organisations have to be coordinated in order to implement decisions about innovative policy ideas. Moreover the problem definition and causal theories related to solutions suggested by politicians and administrators might be insufficient.

The "implementation problem" has resulted in top-down oriented implementation research focusing on a search for crucial variables being especially important in relation to implementing innovative policy ideas in practice (Van Meter and Van Horn 1975) (Sabatier and Mazmanian 1980). The studies have resulted in a still longer list of variables that has to be taken into account when implementing innovative policy ideas in practice resulting in the "too few cases too many variables" problem (Bjørkemarken 1995). There is a lot of case studies pointing out variables that seem important in relation to implementing innovative policy ideas but too few case studies to reach general conclusions about these matters.

Bottom-up oriented implementation research has focused on the importance of actions of individual actors (street level bureaucrats) as well as interaction patterns and networks between actors (Lipsky 1980; Hjern and Porter 1981; Elmore 1980). This was in order to try to understand how organisations and people work formally as well as informally together thereby creating policies in different policy areas. The processes identified are evolutionary and learning processes leading to the creation of policies "in practice" or "realized" policies. Wildawsky and Majone has thus suggested that "implementation as interaction" is an alternative to "implementation as control" related to the "top-down" tradition. They describe implementation as an "evolutionary" process and suggest that unintended consequences of implementation are a result of mutual adaptation where "a policy or program evolves in response to its environment as each alters the other" (Majone and Wildavsky 1977).

Later implementation researchers have turned their focus in the direction of designing implementation models combining top-down and bottom-up elements that have proven promising in former research (Winter 2006). Søren Winter (1994) thus contributes with an implementation model that integrates top-down and bottom-up approaches. According to him the implementation of innovative policy ideas depends on how a given policy is formulated and designed and on different elements that may affect the implementation process; organisational as well as inter-organisational implementation behaviour, the behaviour of street level bureaucrats and of target groups.

In accordance with the implementation research mentioned above, Golden (1990) presents two models for successful innovation in the public sector. A "policy planning model" emphasizing the importance of an innovative idea carefully refined into statute and policy. The policy planning process should according to this model include an effort to foresee and avoid implementation problems. The second model presented de-emphasizes the initial policy idea in favour of "rapid action modified by experience". She draws on an idea of "implementation as exploration", by which a public agency's ability to solve a problem in new ways come from step-by-step problem solving and adaptation to an environment. In this model the successful public innovations are stemming from a rather messy process of evolution and adaptation, featuring many changes and wrong turns (Golden 1990, p. 220). According to Golden the last mentioned "groping alone" model best fits the way successful innovations come about in public agencies. Innovative ideas develop through the process, and were changed through action, over time (Golden 1990, pp. 244–45). This point to innovation processes which are not planned in detail and which can be slow and take time. The many decision points that public sector innovation must loop through means according to Hannah (1995) that innovation processes in the public sector can take a very long time (Hannah 1995, pp. 219–220).

Organisational Circuit

Many innovations in the public sector are not top-down and some are processes within the organisational circuit as well. Many see high innovative potentials among the employees of public service organisations. Public sector managers, front-line, or administrative, staff as well as politicians can be initiators of innovation (Sanger and Levin 1992, p. 89; Borins 2001a, b, 2002, p. 469). According to Borins' collected data on who initiates innovations in the public sector, based on innovations recognized by innovations awards programs in North America (Borins 2001b, 2006), it is frontline staff and middle managers who are mostly responsible for innovations in the public sector (Borins 2001b, p. 310). In a survey based on 104 cases between 1995 and 1998: 50% of the innovations originated from middle-managers or front-line staff, 25% from agency heads, 21% from politicians, 13% from interest groups, and 10% from outside government (Borins 2006, p. 25). This challenges previous assumptions, which according to Borins is, that innovation in the public sector primarily comes from the top. The innovations initiated from politicians often seem to be reactions to

crisis, while agency heads tend to be initiators when they take over as new leaders. Middle-managers and front-line staff tend to initiate innovations that respond to internal problems or take advantage of new technologies (Borins 2002, p. 469).

Public sector managers and service staff can be entrepreneurs, or innovators, in their own right. As the professionals can play a role in innovations in the circuit between the political/administrative stakeholders and the organisation, so too can they play an important role in the organisational circuit in the production organisation, in regard to planning and controlling the service production. In the organisational circuit innovations might occur in the interactions between professionals, but strong professional norms can also inhibit innovations. According to Windrum (2008b) political entrepreneurs, who are policy advocates investing time and energy to promote a policy in return for anticipated future gain, are critical of professional resistance to new policy initiatives. They highlight ways, in which a lack of dialogue between different professional groups inhibits innovation. Different professional groups have their own communities of practice and different rationales, and tend to create "silo" mentalities around their own beliefs and practices (Windrum 2008b, p. 232). The public sector is characterized by many different and strong professions, which may also be a source of innovation in the public sector. Professionals are often dedicated to their profession and to finding solutions to problems and challenges in their everyday work in order to improve services for the citizens (for example see Sundin 2002; García Goñi 2005). Innovation is however not only initiated to solve problems, but professionals usually wish to improve the quality of the service provision (García Goñi 2005, p. 23). There might be tension between the drive to innovate to improve the services offered and the "silo-mentalities" inhibiting innovation in certain organisations. As Koch and Hauknes (2005) point out, teamwork and independent thinking are important for innovations to become fruitful. It might be beneficial to co-opt employees and create agents of change to overcome potential resistance from professional staff (Koch and Hauknes 2005, p. 54). Agents of change can be entrepreneurs or champions, which are individuals with vision and determination to push the innovation process (Koch and Hauknes 2005, p. 54).

Innovation in the production function can be initiated by employees in the organisations, which are keen to promote efficiency gains through organisational restructuring, while others are more concerned with improving service quality, while taking efficiency into account. Research shows a close connection between service, delivery and organisational innovations. Creation of new improved services often goes hand in hand with delivery innovations and organisational innovations (Windrum 2008b, pp. 231–3). Innovations can be initiated by middle managers seeing technical opportunities of new technology, such as information technology, which can be used in new ways (Borins 2006, p. 11).

In the production function of the organisational circuit, administrative or organisational innovations may come about in order to solve production tasks better or more efficiently. Innovations in the public sector are thus often said to be rather incremental than radical, and are often not planned changes implemented in a systematic manner. According to Sanger and Levin (1992) innovation in the public sector is typically evolutionary and not produced from scratch (Sanger and Levin 1992, p. 97). They

are often incremental changes that are relatively minor changes and adaptations to existing services or processes (Albury 2005). Innovation and change may thus happen internally in the public service organisation as a consequence of interaction and learning among managers and employees (Fuglsang 2008). This is often related to the specific modes of production (rule administration in a ministry, regional or local authority, teaching in a school or mass production of food for elderly people in a public kitchen facility) in which managers and employees participate. Here research has shown that the innovative ideas, technologies and concepts that may work to improve efficiency in one organisational context or mode of production may not be as effective in producing attractive effects in another organisational context or mode of production (Scheuer 2008).

Administrative or organisational innovations may however also happen as a consequence of external pressures to organize and manage the public service organisation in a particular way. What types of organisational forms and management styles are adopted from the external environment and the reason why has been a major research question in policy and public administration research for years.

Different explanations as to why public service organisations adopt external standards for organizing and managing have been suggested. One type of explanations offered are that external standards for organizing and managing assure effectiveness and efficiency and assure administrative organisations work better and cost less (Pollitt 2001). Other types of explanations are that they are introduced because of coercive, normative and imitative pressures from the environment (DiMaggio and Powell 1983), that they are introduced but decoupled from organisational practice in order to deal with stakeholders' different, inconsistent and conflicting norms, insecurity and ambivalence (Brunsson 1989) or that they are introduced because they serve the interests of certain groups (Pollitt 2001). For example ministers who want to give an impression of being able to act firmly and in a coherent manner, civil servants who needs to find legitimate solutions to complex and potentially unsolvable organisational design problems. Consultants who want to make money and researchers who want something to focus upon in their research.

In recent years different trends in the organisation and management of public service organisations have been identified. One important trend is the organisational forms and management styles associated with the tendencies that Hood (1991) came to label "The New Public Management". According to Vrangbæk (1999) New Public Management is a common label for a number of governance and management tools which are based on economic theoretical ideas about rationality and incentives recommend the use of governance and management tools from private firms and the use of economic market-based incentive structures in public sector organisations. New Public Management focuses upon installing a visible professional management in public sector service organisations, and setting up explicit goals for performance and focuses on outputs. It recommends disaggregation or decentralization of public sector organisations in order to create independent units and introduces competition and marketization in relation to the production of public services. It moreover suggests introduction of management practices from the private sector and focuses on effective use of economic and other resources (Hood 1991, pp. 4–5). Recent research

shows that New Public Management has been implemented in heterogeneous rather than homogeneous ways in western industrialized countries. Thus even though there has been a lot of talk (Brunsson 1989) about New Public Management it has been implemented in many different ways in the different countries studied (Pollitt 2001; Pollitt and Bouckaert 2004).

The Norwegian professor Kjell Arne Røvik has in contrast suggested that modern public service organisations are multi-standard organisations (Røvik 1998). Instead of adhering to one rationale of organizing like suggested by advocates of New Public Management modern public organisations are instead characterized by being organized in accordance with many different types of standards.

As recipes for organizing travel and spread they become standards for other organisations way of organizing. Standard recipes may concern how to formally organize the public service organisation—for instance in a matrix structure, a project, flat or divisionalized structure, they may be recipes for how to create a good organisational culture (a learning organisation/culture), they may concern good management (total quality management), recruiting (headhunting), how to run personnel programmes (competence development, carer planning) and recipes for procedures and processes (business process reengineering, benchmarking, lean) (Røvik 1998, pp. 14–15). According to Røvik, the typical multi-standard organisation is a larger and modern organisation such as a hospital, a local council or a service organisation, that over time has adopted many popular recipes. Analysed at a particular point in time the organisation will be characterized by a loose collection of many components and institutionalised (multi-) standards which have been adopted in an often uncoordinated manner by different actors in different time-periods and from different parts of the environment (Røvik 1998, p. 282).

The governance or management style of public sector service organisations have been discussed and to some degree innovated with New Public Management ideas as a point of departure. Other innovative trends may however be identified in the research literature. According to Bogason (2008) there has been a move from system and hierarchy (rational models) towards fragmentation and empowerment (mutual adjustment) in the theory and practice of managing public sector service organisations. Instead of (only) governing through a controlled hierarchy politicians and administrators are today increasingly trying to position themselves as central nodes in policy or governance networks which they try to govern or "meta-govern" through mutual adjustment and muddling through. Such policy or governance networks may consist of members from public, private, non-governmental, interest and voluntary organisations. In such an environment public sector managers influence rather than control network participants as they try to implement policy decisions and innovative policy ideas. In discussions of "post-bureaucracy" it is suggested that the Weberian bureaucracy does not seem to work properly in the context of networked society when a flattening of hierarchies and flexible structures of governance are now required. Advocates of neo-bureaucracy argue that these new networks require institutionalised coordination and administration in which key personnel in government come to occupy central nodes between networks and come to further promote them (Fuglsang 2009a).

The Circuit of the Organisation and the Service User/Consumers

In the circuit between the organisation and the service users, interactions may result in innovations. These can be either formalized, as initiatives or projects with user-driven innovation, or emerge as reactions on day-to-day meetings with the users. As the services produced by the public sector are very diverse, the innovation types and processes in public sector service organisations are just as varied.

The day-to-day meetings with the citizens bring about reactions and the search for new solutions to service provision and the problems, which the employees encounter in their everyday work. These meetings with citizens can lead to small evolutionary changes in the way services are provided, which may aggregate to more extensive innovations. According to Fuglsang (2008), for instance innovation in elderly care takes place in at least three different ways. Firstly, as a management mediated abstract process about a new idea (such as the building of a new health care centre). Secondly, as a management mediated problem-driven formalized activity, centred on concrete problem-solving (such as shopping arrangements for the elderly). Thirdly, as "bricolage" or "ad hoc" innovation, where the service solutions are gradually adjusted in accordance to the clients (Fuglsang 2008, p. 6). The last two of these takes place in the circuit of the organisation and the users, but one is formalized, while the other is "ad hoc". Innovations can thus be a result of "evolutionary tinkering with existing practices" (Sanger and Levin 1992, p. 88) to better make the service provision work and meet the needs of the users. Tinkering or bricolage implies that innovative programs are often evolved over time through trial and error and not planned from the beginning (Sanger and Levin 1992, pp. 88–89).

Innovation can as well be formalized and user inclusion be initiated in a deliberate attempt to improve the services based in the users' needs and wishes. Examples from Denmark are projects in the health sector, where patients are included in the development of better treatment and pain relief after operations (http://www.regioner.dk). The relationship with the users can be conceptualised in different ways. In recent years a view on service production as co-production, or "joint-production" with users is widely held, emphasising the high degree of interaction between the user and the provider in the generation of service output (Sundbo 1998, pp. 8–10; Gustafsson and Johnson 2003; Windrum and García-Goñi 2008, p. 653). The degree of user co-production may however vary, from low co-production in regard to the most standardised of services, which are designed, developed and offered for sale, and which require no active participation (Windrum and García-Goñi 2008, p. 653). An example when direct participation of the user is required can be found in self-services, such as the Danish Taxation Ministry's "Tast'selv" service, which is an online solution where citizens and companies can give information for the tax authorities about their income and deductions.

This influence from the users on the production and innovation in services, whether formalized or "ad hoc", represent a bottom-up process of innovation, and challenge a purely hierarchical, top-down view on service organisations as purely executing political decisions. The service organisations may develop a service culture, focusing

on user need instead of on rules and procedures (Røste 2005, p. 35). Policy as a pure top-down process is challenged as well, and is replaced by a view on policy making as an interaction and negotiation between several actors, including the citizens and the service professionals of the organisations.

More generally in recent years the desire to involve or engage with the public, patients, or service users, has been a key aspect of innovation in social care and public policy. This has led to increasing choice and control for service users through "user-led" and "user-focused" approaches to service (Beresford 2008, p. 2). User-involvement is seen as a way to innovate in public sector service (Dibben and Bartlett 2001). This interaction or involvement of users can be seen in different ways.

The three paradigms presented by Hartley (2005) are implying different conceptions of the public or population. As mentioned, the traditional public administration conceives of the population as clients, while NPM views the citizens as customers, and the networked governance paradigm sees them as co-producers of services (Hartley 2005, p. 29). The perception of the characteristics of the population differs between the three paradigms. In the "traditional public administration" the population is viewed as homogeneous. The NPM paradigm view the population as atomized, which is in line with the customer view, where needs are expressed through the market (Hartley 2005, p. 28). The idea of the atomized population is linked with a perceived need for differentiation of public services. The "one-size-fits-all" of the traditional bureaucracy and public administration is seen as out-dated and not compatible with an individualized population. Lastly, the population is seen as diverse in the "networked governance" view (Hartley 2005, p. 28).

User involvement in relation to public sector innovation is from an NPM perspective viewed mainly as a customer relation. The term "user-driven innovation" is usually associated with a NPM approach and the emphasis on "responsiveness" to user needs seen in NPM.

But user involvement in public sector service production can be seen in other ways. The history and literature of user involvement can be divided into two different strands. One is called the "consumerist" approach, while the other is labelled the "democratic" (Beresford 2002, p. 96) or "collectivist" approach (Dibben and Bartlett 2001, p. 45). While it can be argued that at a point the two approaches to involvement may blur into each other and at some points overlap, it can also be seen as resting on very different and distinct philosophical and ideological approaches (Beresford 2002, p. 96). The consumerist approach to user involvement has been most clearly identified with the political right and the welfare and social care system, and it reflects and interest associated with the market on maximizing profitability and effectiveness. User involvement in the consumerist approach is often framed in market research terms of improving the product through market testing and feedback (Beresford 2002, p. 97). While the consumerist approach focuses on the role of the service user as a mere consumer of services, the collectivist approach emphasizes a clearer role in decision making (Dibben and Bartlett 2001, p. 45). Where the consumerist approach regards them as customers, the collectivist approach perceives the public as citizens (Dibben and Bartlett 2001, p. 46). The democratic approach to participation has been particularly linked with organisations and movements of disabled people and

social care service users. It is particularly concerned with people having more to say in the agencies, institutions and organisations, which impact on their lives. The interest in participation is here part of broader political and social philosophies, which emphasize people's inclusion, autonomy, and independence, and the achievement of their human and civil rights (Beresford 2002, p. 97).

Conceptualising the relationship between the service provider and the user of the public services in terms of "co-production" is an approach, which is sometimes said to replace the ideas of "engagement" or "participation". This approach reinterprets the role of policy making and service delivery in the public sector, and sees policy making, not as a top-down process, but rather as a negotiation among a number of policy systems. Policy is a negotiated outcome of many interacting policy systems, and the users and communities are seen as central in the shaping of decisions and outcomes. Co-production means that the services are not just delivered by staff, but are co-produced by users and their communities. This is a break with previous "provider-centric" models of the welfare state, where the managers and professionals were the primary decision makers in regard to the services provided. In the co-production view it is presumed, that the users and their communities can and should be part of the planning and delivery of services. Co-production can be linked to movements favouring direct participation in public sector services (Bovaird 2007, p. 846). King and Martinelly (2005) use the term "citizen engagement" linked to the production model of governance, meaning that citizen engagement comes out of a co-production model of governance, where citizens are an essential part of the production process. In the co-production model, the engaged citizens are in theory committed to some larger sense of the "common good" beyond their individual and independent selves. Engagements is linked to a notion of citizenship that extends beyond what individuals get or own, to some larger notions of the roles and responsibilities of individuals as part of a collective (King and Martinelly 2005, p. 2). The co-production view is thereby closer to democratic understandings of involvement than to the consumerist view.

The trend seems to be moving away from the more "traditional, provider-centric" view on public sector service production, towards models of co-production and notions of the citizens as part of communities. These different views on the interrelation between the service producing organisation and the users of the services are not merely regarding a conception of the users and the producing organisation, but are implying different views on the role of the state as service provider and of democracy. For example, some argue that the consumerist view replaces the democratic controls (rules and regulations) to govern the production and distribution of services with market-type controls that are based on consumer satisfaction. This "consumerization" raises according to Windrum and Koch (2008) a number of issues, such as the replacement of citizens by consumers. The rights and responsibilities of citizens, and the relationship between the citizens and the state are very different to that of customers (Windrum 2008a, p. 15). This means that the interaction circuit between the users and the service organisation is more complex. The users can be viewed as part of the technical environment, and in terms of production, efficiency, effectiveness, consumption and demand. But it may as well be understood in the terms of

involvement, participation, democracy or co-production, which implies values, and concerns for equity and justice in some sense. This makes the relationship complex, since there are other concerns related to the citizens, which are best understood as institutional environment expectations. These different trends influence how the organisations are perceived by the user of the services, and can lead to different ways of interaction and models of more or less direct user inclusion.

The interactions in the circuit between the service producing organisation and the public can thereby lead to different types of innovations. Firstly the interaction can result in new services or service innovations or delivery innovation. But, as far as policy is seen as a negotiated outcome of interactions between a number of actors, policy innovations may as well be the result of the interactions in this circuit. Lastly, governance innovations understood as new form of citizen engagement, and democracy innovations, are closely linked to the interactions in this circuit and to the different view on the relationship between the citizens and the service providing public organisation.

ServPPINS, PPPs and the Circuits of Public Sector Service Innovation

ServPPINs may primarily be seen as an organisational innovation related to the organisational circuit. The development and use of ServPPINs is legitimized as well as in good accordance with the credo of New Public Management emphasizing the superiority of private sector over public sector organizing, management and production modes. An increased use of ServPPINs is also in line with neo-bureaucracy and civil servants attempts to become central nodes in public-private policy or governance networks which they try to govern or "meta-govern" through mutual adjustment and muddling through.

Politicians as well as public administrators are under pressure. The demand for qualitative services delivered by cost-effective organisations is high. One way of making sense of ServPPINs is thus to see them as one of several types of experiments made by public sector service organisations in order to find new qualitative and cost-effective ways of organizing public service production.

Public private partnerships and public-private innovation networks may thus be seen as two types of innovative collaborative experiments found in the public sector. Following Campbell (2001, quoted by Hodge and Greve 2005, p. 5) "a PPP project generally involves the design, construction, financing and maintenance (and in some cases operation) of public infrastructure or a public facility by the private sector under a long term contract". A ServPPIN may in contrast be defined as a collaborative arrangement between public and private organisations which promote change and coordinate cooperation between public authorities and private business in an attempt to combine productivity and welfare increases (Fuglsang 2009a). They are collaborative communities characterized by iterative, interactive and heterogeneous innovation processes (Fuglsang 2009b).

Table 1 Characteristics of public sector service innovation

Context of innovation	Process of innovation
Actors interacting from politics, hierarchies, market based organisations, networks and users	Process is "co-evolutionary". Change may occur in all interacting populations of the public organisation. Is the outcome of managerial intentionality, environment and institutional effects
Highly professionalised and institutionalised	
Value changes and value struggles	
Influenced by media coverage	Change may be diverse and varied—top-down, bottom-up. Formalized and policy based, organisational and initiated by employees/professionals. With the inclusion of the users in a formalized manner, or as "bricolage or tinkering" that is more informal trial-and-error processes leading to improvements over time
Influenced by fashionable ideas (NPM)	
Influenced by ideas emerging top-down, bottom-up, through networks and users	
Characterised by varied types of professional knowledge and production technologies	
Influenced by many internal and external stakeholder	
Organisations are governed through authority, market relations and networks. With different buffers and liaison mechanisms between organisation, production core, technical and institutional environment	Is interactive, iterative, heterogeneous and with goals that are often unclear and may (sometimes) only be understood in retrospect

Conclusion: Toward a Deeper Understanding of Public Sector Service Innovation

The present analysis of the public innovation, public policy and public administration literature suggests that public sector service organisations have certain characteristics which make them distinct from private sector organisations. These characteristics influence the process of service innovation in the sector. That suggests that a more complex understanding of innovation and change in public sector service organisations is needed. The identified characteristics are summed up in Table 1.

Public sector service organisations are operating in highly professionalised and institutionalised settings. They are influenced by political value changes and struggles which are accentuated in situations with intensive media coverage and public interest in the specific organisations activities. They are influenced by time-space situated trends about how to organize and manage which spread among politicians and administrators that are implemented top-down as well as by changes and innovations emerging bottom-up as well as horizontally—that is through networks and network collaboration. Public sector service organisations react to user needs and preferences through the day-to-day interaction with citizens at the service level, bottom-up. They also react to democratically decided and administratively top-down implemented policy initiatives. Public sector service organisations are moreover production units where production may vary from regulation and resource allocation to service and welfare (Jørgensen 1999). They are operated using distinct types of professional knowledge and production technologies varying from rule governed administration to production in governmental, regional or local council institutions providing road

maintenance, assuring water supply, teaching school children, providing care for the elderly or sick and more. These organisations operate in one or more networks that may consist of administrative and/or political representatives, stakeholders from interest organisations, personnel, professional and competing organisations as well as the users/recipients of the services produced. The organisations are regulated through different types of governance tools spanning from authority to network and market relations. They have different types of buffers or liaison mechanisms between the organisation and the production core and the technical and institutional environment.

The external and internal environments of public sector service organisations may thus be characterized as complex. The complexity of innovation in public sector service organisations is reflected in the research literature. Public sector service innovations can be diverse and varied—top-down, bottom-up, formalized and policy based, organisational and initiated by employees/ professionals. With the inclusion of the users in a formalized manner, or as "bricolage or tinkering" that is more informal trial-and-error processes leading to improvements over time. Thus; instead of theorizing innovation in public sector service organisations in limited terms of top-down or bottom-up processes a more relevant and fruitful way of understanding innovation and change in public sector service organisations may be to understand such processes as co-evolutionary processes.

Co-evolution may be defined as the joint outcome of managerial intentionality, environment, and institutional effects. Co-evolution assumes that change may occur in all interacting populations of organisations. Change can be driven by direct interactions and feedback from the rest of the system. In other words, change can be recursive and need not be an outcome of either managerial adaptation or environmental selection but rather—"the joint outcome of managerial intentionality and environmental effects" (Lewin and Volberda 2005, p. 587). To analyse and understand organisational change and service innovation as co-evolutionary processes suggest that organisational adaptation should be studied over longer periods of time, within a historical context of the organisation and its environment, assume multidirectional causalities between micro-and macro-coevolution, as well as between and across other system elements, incorporate mutual, simultaneous, lagged, and nested effects, path dependence, which enables and restricts adaptation at organisational and population level, incorporate changes occurring at the level of different institutional systems in which organisations and industries are embedded and accommodate economic, social and political macro-variables that may change over time and influence structures within which micro-macro evolution operate (Lewin and Volberda 2005, pp. 584–585).

In a co-evolutionary perspective it is in the encounter between people situated in hierarchies, networks and/or market led organisations that new public service innovations are designed and implemented. Innovation takes place as interactive processes between changing actors from different places in heterogeneous networks. The innovation process is characterized by being iterative, interactive, and heterogeneous just as goals are often relatively unclear resulting in innovations that must sometimes be understood retrospectively rather than as planned in detail (Fuglsang 2009b)

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Involving Customers in the Service Innovation Process

Marja Toivonen, Mari Holopainen and Tiina Tuominen

Abstract This chapter examines practices of involving customers in the service innovation process. Even though customer-centric views are increasingly gaining ground in the literature, there is not much research into the organisation of innovation processes in which customers actually participate. In this chapter we describe an action-research project where we, together with a case company, developed and tested several methods for customer participation. The company is a medium-sized Finnish insurance company which has developed several incremental service innovations during recent years. As the next step it wanted to adopt a systematic, genuinely customer-oriented innovation model.

Introduction

In today's business models, customers have been raised to the centre of strategy. Core questions are what new value a firm can offer to its customers and how it can do this. A reason for the adoption of this kind of a strategy is the fact that it considerably extends the creative scope of the provider. The provider need not compete for a share of a given demand, but it can redefine customers' problems, discover hidden demand or stimulate new demand (Hoover et al. 2001; Kim and Mauborgne 1999). In services, the customer-centricity has an even deeper meaning: several studies have confirmed that customers participate to a greater or lesser extent in the service production. Various concepts, e.g. servuction and co-production, have been developed to account for this phenomenon (Gallouj and Weinstein 1997; Miles 1999; Sundbo and Gallouj 2000).

Innovation was for long seen as the provider's activity, customers coming into the picture only at the launching stage. Von Hippel (1988) was one of the first

M. Toivonen (✉)
VTT Technical Research Centre of Finland, P.O. Box 1000, 02044 VTT, Finland
e-mail: marja.toivonen@vtt.fi

M. Holopainen · T. Tuominen
BIT Research Centre, Aalto University, P.O. Box 15500, 00076 Aalto, Finland
e-mail: mari.holopainen@aalto.fi

T. Tuominen
e-mail: tiina.tuominen@aalto.fi

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researchers to point out that customers often play a role much earlier: they are sources of innovation. Von Hippel's writings mainly concern the material world and focus on situations where a customer has developed the original form of a product innovation. Later on, researchers became interested in those situations where an innovative idea originates from the provider but is co-developed together with customers (e.g. Prahalad and Ramaswany 2004). The third possibility is a situation where customers modify and 'reinvent' novelties after their launch in the markets. Authors focusing on these cases highlight that novelties are actively interpreted and appropriated by the users, and they can have different meanings for different user groups (Tuomi 2002). Sundbo (2008) calls this phenomenon 'after-innovation' and has perceived it to be common in e-services, for instance.

In this chapter, we examine in more detail the situation of co-development. The chapter is based on a case study in which an action-research approach was applied for the increase of customer input in the innovation processes of an insurance company. We have structured the chapter as follows. After this introduction, we briefly summarise the literature concerning the co-development of services, i.e. ways in which customers can be involved in service innovation. Thereafter we introduce the case and the methodology used. In the fourth section, we describe the customer-oriented approaches, tools and methods that were tested during the case study, and analyse the findings. Our chapter ends with the concluding discussion.

Customers as Co-Developers in Service Innovation

The perspective of co-development presupposes that firms can and should interact with customers in the development of their offerings. Working closely with customers generates more value in terms of new knowledge and ideas than a traditional transaction process. Co-development leads to better identification of customer needs and the close interaction process between providers and customers favours creativity (Abramovici and Bancel-Charensol 2004; Wikström 1995). Recent ideas about the initiation of innovation activities, which point out the blurring of boundaries between firms, follow the same line of thinking (Chesbrough 2004). As regards service innovation in particular, customer involvement has been emphasised in the studies of consumer markets where personalised experiences should be available for evermore well informed customers (Prahalad and Ramaswamy 2004).

Despite the arguments concerning the benefits of co-development, there is not much research into the organisation of innovation processes in which customers actually participate. In the service context, we can identify two frameworks that have tackled this topic to some extent. The first is the NSD (New Service Development) framework, which examines innovation as a formal process with clear stages: idea generation, screening, commercial evaluation, development, testing and commercialisation. In addition to stages, the idea of formal checkpoints or gates for making 'go/kill decisions' has usually been included (Cooper and De Brentani 1991) Emphasis on careful in-house planning before the launch is characteristic of these

models. Some researchers have, however, created models where the involvement of customers is combined with the basic idea of a systematic process. For instance, Alam and Perry (2002) have built a model which shows how the input from customers can be taken into account at every stage of the NSD process. An important benefit achieved is speeding up the development: instead of separate market research exercises, ideas are received directly from the participating customers.

While NSD is often regarded as a 'school', the second framework is looser. It consists of authors who have criticised NSD, arguing that planning and implementation should go more hand-in-hand, not as sequential stages. According to Eisenhardt and Tabrizi (1995), the stage-gate model may be a relevant way to manage an innovation process if there is a predictable path through well-known markets and technologies. On the other hand, if the path goes through shifting markets and technologies, then a more experiential model is effective. This includes the merging of planning and execution, and the application of intuition and flexibility. Moorman and Miner (1998) point out that an experiential approach is reasonable, not only when a firm faces environmental turbulence, but also when planning cannot provide all the details needed in implementation.

Engvall et al. (2001) argue that stage-gate models have concentrated on the systematisation of the form of the innovation process, but say very little about the content. However, it is just the content which is the main problem: the idea is still immature and difficult to express in words. Constructing a plan for something which is not well-known and involves abundantly tacit knowledge is not a reasonable approach. Much more effective is a strategy which enables the creation of shared experience of the object to be developed. This can be done by putting the idea into practice right from the beginning in a preliminary or small-scale form. Cooperation with customers is essential here: in this way, a common understanding is created of what customers really desire and need, and what the result should look like in order to fulfil this desire and need. In a deep customer relationship, innovation processes may also be quicker.

In our earlier studies, we perceived that 'the model of rapid application'—as we call the innovation process which goes hand-in-hand with implementation—is common in knowledge-intensive business service companies (KIBS) in particular (Toivonen 2010). KIBS are expert companies that provide services to other companies and organisations, typically working in the sectors of IT, R&D, technical consultancy, legal, financial and management consultancy, and marketing communications. KIBS have aroused broad interest due to their active role as innovators and as facilitators and carriers of the innovations of other companies (den Hertog 2002; Miles 1999). In other kinds of service context (customer services and industrial services), we have found 'mixed models' to be more typical; these models show features of both a stage-gate and experiential approaches (Toivonen 2010). In the present study we wanted to deepen our understanding in this regard: in addition to the ways in which customer input can be strengthened in service innovation, we examined how this input influences the innovation model of our case company. Originally the company had applied a systematic in-house oriented development, which resembled a typical stage-gate model.

The Case Company and the Study Methods

We carried out our case study in a medium-sized Finnish insurance company. The company has developed several incremental service innovations during recent years. Two of them are worth mentioning in particular: online application and decision concerning indemnities, and a specific mapping service concerning insurance needs.

- As regards the former, the innovation is in the decision-making: the customer gets the decision during the same on-line session when he/she makes the application. (Online application is widely used in Finland nowadays.) Thus, the company does not require medical reports or receipts before making the decision, but asks the customer afterwards if the situation is unclear.
- As regards the needs mapping service, the innovation lies in its comprehensive nature and its different applications for different age groups, including seniors who are often considered less attractive to the insurance business. (Again, in its basic form, a needs mapping service is provided by all insurance companies in Finland.) The service is carried out as a one-hour face-to-face discussion with the customer, and it covers broadly the issues which may influence the economic security of the customer. The service is free of charge and it does not put the client under any obligation to purchase new insurance products. However, the discussion often reveals gaps or overlaps in the customer's insurances, deposits or loans, and in this way leads to seeking solutions which may benefit the service provider.

The company's innovations had been based on broad, systematically gathered customer information. Nevertheless, the company considered its innovation processes still too product-oriented: innovation efforts were targeted first and foremost at the development of insurance products and IT systems. When our case study started in 2008, the company desired a visible change towards genuine service and customer orientation. The managers participating in the study were not only interested in increasing customer-oriented attitudes in general, but they also wanted to develop a new type of process model for service innovation which would support the systematic implementation of a strong customer perspective. Over the last 2 years we have carried out an action research-based case study where these aims have been pursued. The final model is still under construction, but we have abundant material which illustrates experiences of the interaction with customer representatives in innovation.

It was the needs mapping service that led the company to realise that there was still much to be done in its customer orientation. In the development of the new model, concreteness of the discussion was a goal, and its achievement was facilitated by analysing the company's earlier innovations and the development needs of its other services. Two services were selected for deeper analysis: term assurance and the next generation health insurance.

In term assurance ('savings-based endowment insurance'), a customer or his/her beneficiaries receive compensation in the case of illness or death and the customer

is simultaneously saving up money. This money can be withdrawn either during the validity period of insurance or at the end of the period. Despite the multiple benefits that the service should provide, customers were not aware of its advantages compared to separately made savings and insurance contracts. From the viewpoint of the provider, a central challenge was how the customer relationship would smoothly continue when the insurance period expired.

In the next generation health insurance, the idea was to develop a future-oriented service which would better correspond to the changing needs of healthcare. The opportunities for development were much wider in this than in the first-mentioned case; thus, new ideas were sought, with no limitations.

While developing these individual services, the case company wanted to collect experience for the creation of a more general service innovation model. It defined three starting points that should be characteristic of the model: the model should rapidly lead to practical applications, it should be future-oriented, and it should involve customers as actors in the innovation process. The achievement of these goals was supported by the action-research approach, whose basic principles are summarised in the following paragraphs. Also, more specific methods of foresight, service blueprinting and socio-drama were used as supplementary means; we will comment on their use when presenting the actual research process in the next section.

Action research is an application of the case study methodology. According to Yin (1994), case study research can be defined as scholarly inquiry that investigates a contemporary phenomenon within its real-life context. Action research differs from the mainstream of case studies in that instead of being a distant observer, the researcher is an actor and agent of change in the case firm (Evered and Louis 1981). Action research can be described as a process where "the researcher and the client engage in collaborative cycles of planning, taking action, and evaluating" (Coghlan and Brannick 2005). The primary purpose of the action-research approach is to produce applicable knowledge through combining research and development, action and reflection, theory and practice (Johansson and Lindhult 2008; Reason and Bradbury 2001).

In addition, our study aimed both to create new knowledge and to help practitioners in their developmental work. People in our case company participated actively in the study. The issues examined were defined together and interaction was a cornerstone of our research. We followed a typical action-research cycle, which consisted of the steps of defining the context and purpose of the research, diagnosing the current situation, planning action, taking action and evaluating action (Coghlan and Brannick 2005).

The Action Research Process and its Results

After the initial discussion with the case company, we started the diagnosis phase with five semi-structured face-to-face interviews, which mapped out current service innovation practices in the company. The results were analysed in a workshop with

the company representatives, and they confirmed the existing concern that innovation activities in the company were not genuinely service or customer oriented but focused on individual insurance products. Thus, there was a clear need for development. Thereafter the actions were planned to be taken in two sequential processes. The first process concentrated on increasing customer understanding, and the second process was targeted to modify the innovation model. The main material consisted of individual ideas, group work and other outputs produced in workshops where customers participated. The actions undertaken and the results achieved were evaluated throughout the processes in separate workshops with the company representatives.

Co-Development Workshops as a Way to Increase Customer Understanding

The process focusing on the increase of customer understanding consisted of a series of workshops where representatives of customers participated. Term assurance was the concrete service to be improved, but more general development needs and ideas were also mapped. The company has regional and age group-specific 'customer juries', from which the workshop participants were gathered. As a rather small group was judged best for the development work, only six customers from the juries were invited. In addition, five company representatives who were involved in the administration of term assurance took part. The development process itself consisted of four customer workshops, each having a specific focus and each being followed by an intra-firm workshop. In the latter, the preceding cooperation with customers and its implications for the next step were judged, and ideas for the development of a more general innovation model were gathered. Customer workshops lasted three and half hours and in-house workshops 2 hours.

Active participation was stimulated by different types of group work techniques. The *first workshop* was future-oriented. After the introduction of the aims of the work and of the service under discussion, the task of the participants was to identify important phenomena that are linked to the term assurance service at present and in the future. Work was carried out in two groups and in two stages; between the stages there was a common session where groups had an opportunity to exchange ideas. The participants were asked to structure the analysis of future phenomena using the concepts of trends and weak signals. In addition to the case company's own desire to start the development with a futures workshop, this was a useful approach from the viewpoint of the researchers: the significance of foresight has been emphasised in innovation research and in innovation management (e.g. Eerola and Holst-Joergensen 2002).

The mapping of trends and weak signals is one of the focal tools of foresight. Trends belong to established concepts in foresight, whereas a more extensive application of the concept of weak signals has emerged only recently. A trend is the general direction found in the long-term development of the phenomenon studied (Godet 1994). A weak signal is the first indication of change. When it occurs, a

weak signal does not necessarily seem important, nor is it extensive, but it may have a decisive impact on the formation of the future (Ansoff 1984). A combination of these two concepts enables a simultaneous consideration of the prevailing settings of development and the emerging phenomena which may shake these existing settings. As the analysis of trends and weak signals does not necessarily require an extensive foresight process, it was readily applicable in the company context where lack of time was a key problem.

In the *second workshop*, the participants addressed the question of how the term assurance service should be revised in order to make it correspond to customer needs in the best possible way. The foresight perspective was included in this workshop too: instead of merely focusing on the immediate necessities for change, the customers were asked to imagine the service after 5 years in its ideal form. In this workshop, service blueprinting was used as the main tool assisting the work. Researchers, together with company representatives, had drawn up beforehand a blueprint describing the process of term assurance service in its existing form, and this blueprint was presented to the customers at the beginning of the workshop. Thereafter the customers were asked to draft their own version of the service according to their own preferences. Corresponding to the practice of the first workshop, this workshop was also carried out in two groups, and in the middle of the work the groups gathered together to share information on each other's ideas.

Blueprinting is a technique which was already being applied in service development in the 1980's in order to visually compare the customer process against the provider's organisation. In recent years, blueprints have been further developed in several ways. Whereas blueprinting was originally a process-control technique aiming at more rigorous planning and identification of failure points in service operations, nowadays blueprints first and foremost reflect firms' increasing customer focus. Five components are typically included in blueprints: customer actions, onstage-contact employee actions, backstage-contact employee actions, support processes and physical evidence (Shostack 1982; Bitner et al. 2008). Our study followed this regular pattern of blueprints, with the exception that we put even more emphasis on customer actions (adding a separate category for customer preparatory actions), and analysed in less detail the provider's in-house actions (merging the categories of provider backstage and support processes). Our aim was to reveal as concretely as possible what the service should look like from the customer perspective. Figure 1 shows the blueprint in the form it was used in our study.

Using the blueprint to illustrate how the term assurance service was currently organised aroused active and critical discussion among the participants, as it revealed very concretely the product-focused orientation of our case company. The first steps in the process included active co-production: if a customer was interested in the term assurance service, the frontline staff presented carefully the options available and sought, together with the customer, a solution suitable to his or her situation. However, after the finalisation of the service contract, the company did not contact the customer before the contract period was coming to its end; interim contacts were dependent on the customer's own activity and needs. Actually, there were very few active steps in the service process and most of them took place in the back

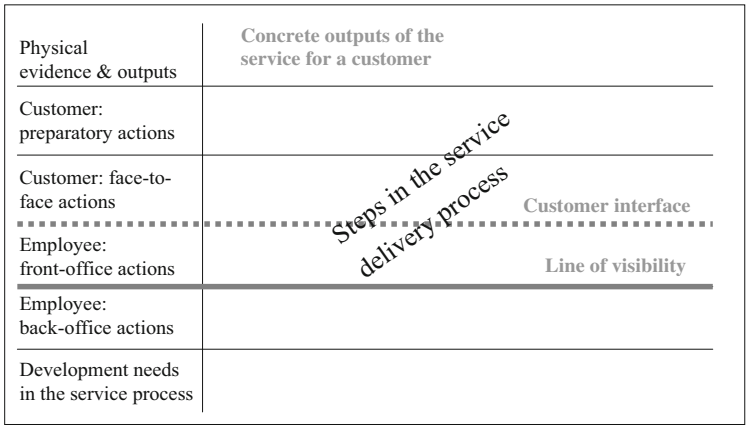

Fig. 1 Service blueprinting model used in this study

office and were administrative in nature. Our idea that the customers could draft an alternative blueprint was one way in which we aimed to encourage them to participate in the actual innovation process. The working groups were not, however, ready to concentrate on a description of the service process. They considered it a too detailed task, the responsibility of the company. Both groups judged that their contribution should be more holistic. One group described ideal term assurance in different phases of the life of the customer (childhood, student life, working life, retirement age). The other group studied the lifespan of 'customership' (becoming a customer, maintaining the customership, diversifying the customership) and considered ideal term assurance within this whole.

The *third workshop* focused on the ways in which the case company could promote the continuation of customership when the period of term assurance was expiring or when a customer wanted to terminate the contract. Also, the situations in which customers wanted to use a part of their savings were taken into consideration, as they often provide opportunities to present the company's other services to the customer. The workshop started with an individual task: each participant identified some situations which might result in spending savings or terminating the contract. Four types of situations were recognised: a customer wants a long-term dream to come true, faces a crisis in his/her life, needs money for urgent (small) expenses, or finds opportunities for choice; the last case may include dissatisfaction with the service. After a common discussion about these different situations, the participants were again split into two groups. Their task was to describe what a good service means in each situation. Both groups regarded in-depth understanding and respect for the needs and desires of the customer as the most important expression of a good service. However, information in the form of clearly 'packaged' solutions (instead of quantities of details) was also considered highly important.

Based on these results, the *fourth workshop* analysed further the characteristics of a successful customer encounter. Socio-drama was the method applied in this

workshop (Moreno and Borgatta 1951; Torrance 1975): the participants went through four types of customer encounter. Three of them represented the customer situations previously identified (a dream, a crisis, and urgent need for money). The fourth encounter was linked to the issue of how the customership could continue at the end of the assurance period. For socio-drama, customers (and in one case company representatives) formed pairs—one person played the role of a customer and the other the role of service advisor. The rest of the participants formed an audience and their task was to seek answers to the following questions: What does a genuine understanding of the customer's situation mean in practice? How can the respect for the customer be expressed? What type of information is useful for the customer and what form should it take? What does offering a solution for a customer actually mean? Each 'piece' of socio-drama was followed by lively discussion and resulted in many new ideas for the development of the service.

Modifying the Innovation Model on the Basis of Customer Understanding

Both customers and the case company judged that the above-described process was very useful and successful. In addition to the emergence of new ideas and deeper mutual understanding, the customers stressed that an invitation to participate in a company's innovation process is in itself an important message about the striving for customer orientation in that company. A concrete innovation process was considered even more valuable than the gatherings of customer juries where the conversations usually stay at a general level. Also, the approaches and methods applied in the workshops were found to be successful, firstly because they were variable and engaged motivation. As regards group work, the two stages and the interim common meeting were especially perceived as valuable: shared preliminary ideas stimulated discussion during the latter part of the group work. Service blueprinting was a good tool to reveal weaknesses in the current service, even though it did not inspire customers to actively use it for drafting an alternative.

On the basis of lessons learned in the customer workshops, our case company concentrated on the development of its service innovation model. As the company had carried out systematic R&D for years regarding its insurance products, it wanted to keep the stage-gate model as the starting point in both its service- and customer-focused processes. In addition to the experience gained via collaboration with customer representatives, the development was supported by systematising the existing ways of gathering customer knowledge: sources, types and applications of this knowledge. This second action-research process included twelve interviews and six intra-firm workshops. In the interviews and workshops not only was attention paid to the explicit knowledge stored in customer databases and gathered via feedback surveys, but also the efficient use of the tacit knowledge accumulating at the customer interface aroused particular interest. Continuous interaction between the personnel in R&D services and the personnel in customer services was identified as a central

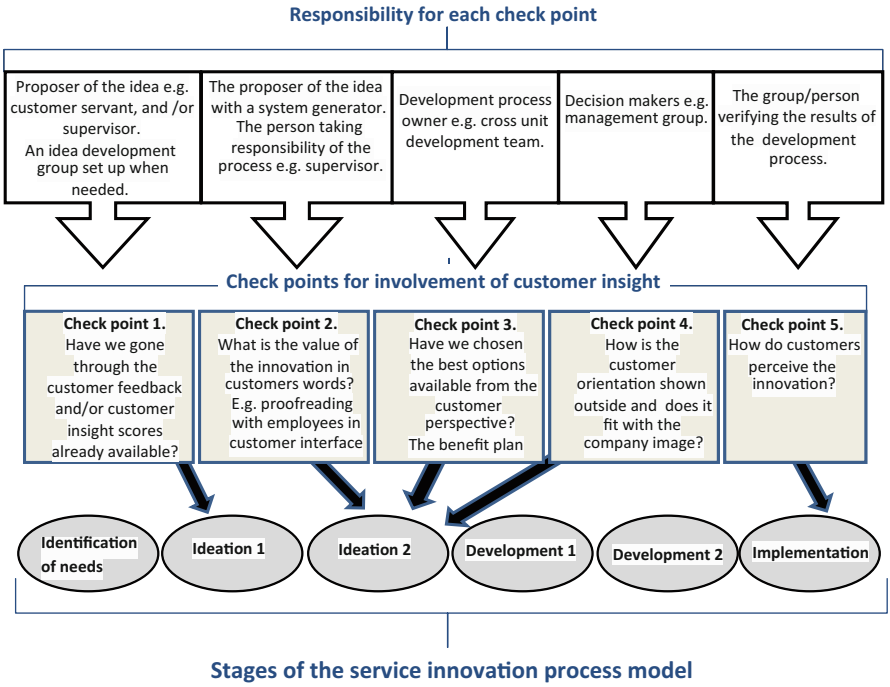

Fig. 2 Check points for customer input in service innovation

development task. The results of the work were summarised in the description of the check points at which customer input should be actively sought in the innovation process. A core question testing the customer-orientation and the responsible party (e.g. a team or a unit) was defined for each check point (Fig. 2).

The figure shows that during the construction of the new service-oriented innovation model, the front-end of innovation became emphasised as the stage where customer input should be acquired. In order to take this specific viewpoint into account, one further customer exercise was conducted. This exercise pursued insights and know-how about the creation of ideas, next-generation health insurance serving as the example. Four customers were recruited into an intensive workshop, and another similar workshop was organised for the company representatives. Both groups had to build a future-oriented concept of health insurance, and the differences between the approaches of the customers and the company experts were compared. The groups were not aware of each other's choices. At the beginning of the workshop, we again applied trend analysis, but in this case using ready-made cards that illustrated twelve trends related to health care. The participants selected three trends that they considered most important for the future health insurance service.

The selected trends provided the starting point for the second part of the workshops: the concept formation using physical materials (modelling paste, sticks, etc.).

The task of the participants was to create a three-dimensional model of the next-generation health insurance service for the year 2025. All the elements and actors linked to this concept had to be modelled. This technique, which derives from the world of product R&D, compels the participants to think about the immaterial service concept as concretely as possible. Interestingly, there was a clear difference in the ways in which the customers and the company experts built their concepts. The former concentrated on modelling their health-related social network, whereas the latter built a network including customers as 'members' but controlled by the company.

Concluding Discussion

Our study indicates that the participation of customers in concrete innovation processes brings up issues that cannot be reached with the help of questionnaires or other traditional methods of acquiring customer knowledge. In our case, these issues included:

- the versatility of customer situations in relation to the service,
- the ignorance of customers about the content of many available services,
- the importance of solutions instead of detailed pieces of information,
- the significance of customer care through the lifespan of customership,
- the decisive role of service encounters when customers evaluate the success of the service.

Concerning the first three issues, the methods that we applied in workshops provided completely new information to our case company. For instance, it was surprising how little customers actually knew about the characteristics of the term assurance service, about the options related to it, and about its advantages compared to other services. Thus, the clarification of the value propositions of services arose as one of the core challenges. Another point where a need for change was clearly identified was the development of solution-oriented service practice instead of the presentation of numerous options with slightly different details. Our case company had thought that it is just the provision of a great variety of choices which expresses customer-orientation, but it turned out that thinking over these options can make services troublesome and time-consuming from the viewpoint of customers.

Customer relationship management had been a central target of development in our case company before the present study. Consequently, the emphasis put on service encounters and customer care was not as new issue as the above-mentioned points. However, the approaches applied in workshops also provided deeper understanding, which the case company experienced to be useful, not only for the development of the services in question, but also for other services. An important notion, among others, was that even when the development is focused on a single service, this service should be considered as a part of the total offering. Another point in which the case company realised a need for improvement was the maintenance and care

of customership even when 'nothing special is happening', i.e. when there is no acute need for contact between the customer and the provider. In that sense, term assurance was a good example since insurance combined with long-term savings does not necessarily require interaction before the term ends. A company could, however, show interest in its customers in these types of service, too, informing them for instance about the amount of accrued savings.

It was also interesting that the customers' view of a good service seems to require both the emphasis on customer relationships and a clear understanding of the nature of the service in question. Thus, strengthening a service orientation does not mean that the service provider can give up detailed analysis of the elements of the service and its link to the whole portfolio. Customer orientation and service 'productisation' are not opposites, but it is important to separate the ways in which a service is described in-house and in which it is presented to customers.

The futures perspective proved to be a successful choice. The analysis of trends helped to break off the discussion from the limits of the existing service. It also introduced the wide spectrum of customer needs and the necessity to respond to very variable situations in the case company. The future-oriented concept building encouraged the customers to criticise existing health insurance services: they were described as bureaucratic and old-fashioned. Including the foresight perspective in this study was also significant from the research point of view, since futures studies in the context of services have been rare until now (Toivonen 2004). The typical customer metrics, such as surveys concerning customer satisfaction, focus on feedback on services already offered. It is hard to achieve a longer-term forward-looking view or opportunities for innovations with these types of metrics (Zeithaml et al. 2006). However, in service organisations it is also be important to include a futures perspective both in daily practice and strategies. Linking foresight with innovation activities provides an opportunity to promote this goal: innovation activities are at the core of companies' strategies, and the aim of innovation processes is to lead to practical applications.

Due to the case study nature of our research, the observations described above are not generalizable as such, but a reasoned judgement is needed about the way in which our approaches and methods can be applied in other studies. Our case company was genuinely willing to develop its services and to allocate time and personnel resources for this purpose. It was also ready to test different types of research settings and ready to receive even hard criticism concerning its existing ways of working. These conditions are not self-evident and if they are missing, a study may require a modification of our concrete solutions. Also, the existence of 'customer juries' was a facilitating factor in our study; in their absence, identifying suitable customer representatives and motivating them to participate in the work would have required more effort.

Finally, we briefly evaluate the realised process and its results in the light of the criteria set for the success of action research (Eden and Huxham 1996). The first criterion is the implications beyond those required for action in the project. Here we can refer to our original research setting, which included a goal to develop methods for involving customers in the service innovation process. The second criterion is the

requirement for explicit concern for theory, in addition to results that are usable in everyday life. Regarding this criterion we can see that our study includes elements for further development of theories on the service innovation process, especially the co-development approach. Our aim is to continue the work started in this chapter, and this further work includes the elaboration of these theoretical approaches. Thirdly, action research often includes outputs regarding tools, techniques, models and methods. Here again a criterion of a successful study is an explicit relation to theory. The methods applied in our study are partly established group work techniques (including socio-drama), and partly newer tools of foresight, service blueprinting and materials-based concept development. These newer tools are also linked to the theoretical basis. Academic research concerning the nature of future knowledge and methods to acquire this knowledge is rapidly accumulating. The blueprinting technique is based on one of the most established schools in services research: theories on services marketing.

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Public-Private Innovation Networks: The Importance of Boundary Objects, Brokers and Platforms to Service Innovation

Lars Fuglsang and John Damm Scheuer

Abstract Collaboration across organisational boundaries is becoming more important for service innovation. But coordination across boundaries is not unproblematic, as shown in the literature. Actors have different working routines, different practices, time schedules, values, frames of reference, specialisations, cultures, habits, and so on. This is especially true in public-private collaboration where people have different professional roles, professional values and different conceptions of the user/citizen/client. Following the literature on boundary objects, it is argued that actors in such a context must collaborate in a disunified way by constructing a boundary object that can tie them together. The contribution of the chapter is to examine, in two Danish case studies, organisational aspects of this collaboration by looking into the specific roles of the broker and platform organisation, and the links between them, for shaping inter-organisational collaboration. The chapter compares innovation activities in two public-private innovation networks in services (ServPPINs) and discusses the role of brokers, platform organisation and boundary objects in the two cases.

Background and Theory

Organisational research has lately focused various aspects of inter-organisational coordination and collaboration (Kellogg et al. 2006; Heckscher and Adler 2006; Styhre and Lind 2009; Obstfeld 2005; Vlaar et al. 2006). It is generally suggested that organisations are becoming more interdependent and that they must increasingly collaborate and coordinate activities across boundaries. They cannot rely only on their own resources, but must mutually adapt to and coordinate their activities.

Coordination of activities across boundaries is not unproblematic, because these actors have different work routines, practices, time schedules, values, frames of

L. Fuglsang (✉) · J. D. Scheuer
Department of Communication, Business and Information Technologies,
Roskilde University, Building 44.3, 4000 Roskilde, Denmark
e-mail: fuglsang@ruc.dk

J. D. Scheuer
e-mail: jods@ruc.dk

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reference, specialisations, cultures, habits, and so on. They come to work in a pluralistic context (Denis et al. 2001, 2007; Jarzabkowski et al. 2009; Kraatz and Block 2008; Nachi 2004) and constitute different heterogeneous resources that must continuously be worked together. Furthermore, they are often working in a context of swift changes, intangible services and multiple hierarchies. Therefore, they cannot easily understand, trust and oblige each other and their mutual capacity for sense making and arriving at a consensus about how to frame a situation (Callon 1998) becomes limited.

In the context of public-private collaboration, this can be even more complicated, because public and private sectors have different regulative structures, different professional values and different conceptions of the client as user or citizen. Public-private collaboration has been investigated in different ways, but most often in the context of New Public Management (NPM) and Public Private Partnership (PPPs) (for an overview see Hodge and Greve 2005; OECD 2008). In this context, partnership between private and public organisations usually refers to partnerships where private organisations design, finance, build, operate and maintain a large public infrastructure or institution based on a long-term contract. These partnerships are more fixed and better framed with more controlled overflows (Callon 1998) than those referred to in the present chapter, which deal with emergent strategies and innovations in public private innovation networks in services (ServPPINs).

ServPPINs can be defined as networks among public and private service organisations. They can also involve representatives of public authorities. 'Public' refers to service organisations owned by central or local government or to public authorities or government representatives. 'Private' is private business ventures which may operate on the market or be funded through contract with public authorities. Networks can be formal agreements among the parties (through mutual contract or contracts with government) as well as informal collaborative relations. These new types of collaborative frameworks across public-private organisations are different from the PPPs because they are more broadly defined.

Research has suggested different concepts that can capture how people relate to each other in complex collaborative structures. Examples are swift trust (Meyerson et al. 1996), boundary objects (Star and Griesemer 1989), trading zones (Galison 1997, 1999; Kellogg et al. 2006; Styhre and Lind 2009) and platform organisation (Ciborra 1996). These different concepts all stress how people can relate to each other in multiple ways, enacting different interpretations. Many of these concepts and theories tend, however, to stress cognitive and emotional aspects of coordination. By cognitive we mean that there tends to be a focus on knowledge boundaries and the need to cross them. An example is boundary objects, which are objects that have "different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation" (Star and Griesemer 1989:393). A boundary object can be: a repository (such as a database), standardized forms and methods (for example classification systems), objects or models (e.g. sketches), and maps. Similarly, the trading zone (in physics) refers to knowledge boundaries; it is a "social, material, and intellectual mortar binding

together the dis-unified traditions of experimenting, theorizing, and instrument building" (Galison 1997:803, here quoted from Kellogg et al. 2006:39). In most of these cases creation and management of boundary objects and trading zones therefore refer to management of knowledge boundaries, and management is often operationalized at the level of interaction and interactional expertise (Collins et al. 2007).

Following Ciborra (1996) and Ciborra and Lanzara (1994), we think there is a need to focus both cognitive *and* organisational aspects of inter-organisational collaboration. By organisational we mean that there may be organisational boundaries too that hinder people in collaborating: people who may have, in essence, the same knowledge and expertise, such as employees in the same type of public or private service organisation, for example in healthcare. For them, to collaborate becomes a question of crossing an organisational boundary rather than crossing a knowledge boundary. In some cases an organisational boundary may even be understood to pass through the same physical person, for example a doctor working in both a public and a private hospital.

Ciborra and Lanzara (1994) introduce the concept of 'formative context' in an attempt to bridge cognitive and institutional aspects of collaboration. Formative context is "what binds, in a loosely connected texture, an individual or a collective (group, organisation) to an established world of objects and relations". Hence, it is a kind of common workspace (cf. also Fujimura 1992). Ciborra (1996) also introduced the related notion of a 'platform organisation' to describe a specific form of dynamic formative context. A platform organisation is "a shapeless organisation that keeps generating new forms through frequent re-combinations", "a formative context that melds structures", hence a context for moulding knowing and doing.

Nevertheless, Ciborra and Lanzerra are not very specific about how to define the organisational and institutional structure of a formative context or a platform organisation. Furthermore, the platform organisation is mostly thought of as an epistemology for studying intra-organisational structures. In this chapter, we discuss how a platform organisation can also be an epistemology for studying how inter-organisational frameworks are constructed around boundary objects (Star and Griesemer 1989). Conversely, we also discuss how organisational and institutional aspects in an inter-organisational framework are important elements of a boundary object. We use the concept of platform organisation in a somewhat elaborated way as an organisational set-up that may also include a broker.

Hence, what we suggest is that both cognitive and organisational aspects play a role in the construction of boundary objects across organisations in innovation networks. The organisational aspect is captured by the idea of a platform organisation as an organisational context for a broker between two or more organisations, for example public and private organisations. The broker is an actor who binds two or more organisations together around a boundary object. The platform organisation as we understand it is a specific place where the broker is ascribed a more specific role.

The particular situation of inter-organisational coordination we investigate in this chapter is that of public-private innovation networks in services (the ServPPINs, http://www.servpinn.com). Innovation we take to mean development and implementation of new services (for a discussion of the definition of public innovation see

Windrum 2008; see also Fuglsang 2010). The research question which is examined is how public and private organisations are engaging in common innovation activities across boundaries in a public- private innovation network (ServPPIN) through brokers in platforms.

In the following, we first briefly define the concept of the broker based in Obstfeld (2005). Then we briefly define the concept of the platform organisation as a place where the broker can operate. We finish this section by discussing how a broker operating with or without a platform can construct boundary objects.

In sections two, three and four of the chapter we discuss two case-studies of ServPPINs in healthcare that in different ways have been constructing cognitive and organisational aspects of the boundary object.

Broker

While we want to investigate platform organisations as places where the broker between organisations achieves a more organisational role, we first want to define the concept of broker using insights from broker theory more generally. For the purpose of the present chapter, we use Obstfeld's (2005) two concepts of broker as *tertius iungens*, the third who joins, and *tertius gaudens*, the third who enjoys, to explain what a broker does and how the broker creates relationships among actors. In Obstfeld's paper, the broker is seen as an individual person. This person is someone who connects and/or coordinates information among actors.

Obstfeld seeks to explain involvement in innovation activities as a function of a person's *tertius iungens* and *tertius gaudens* orientation. This implies that he attempts to change the perspective of social network theory from a static description of social network relations towards a more dynamic perspective giving attention to the "active role that individuals can play to link different parties and advocate for innovation" (ibid.:101). *Tertius iungens* and *tertius gaudens* are two different types of broker.

The *tertius iungens* is someone who connects people or facilitates coordination: "the *tertius iungens* orientation is a strategic, behavioural orientation toward connecting people in one's social network by either introducing disconnected individuals or facilitating new coordination between connected individuals. Such activity is central to the combinative activity at the root of innovation." (ibid.:102). In this way, the *tertius iungens*, or, as we prefer, *the facilitator*, is a broker who literally puts disconnected persons together in the same room and makes them communicate mutually.

By contrast, "*tertius gaudens*, or 'the third who enjoys"' corresponds to Burt's (1992) description of the entrepreneur in a 'structural whole' who can play people off against one another for his own benefit. This role is "based on the inherent benefit of a position between two disconnected parties. These two parties, because of their unfamiliarity with each other, can be manipulated to the third party's benefit. Simmel's use of the *tertius gaudens* concept, then, refers to an active separation of the two parties tied to the third." (ibid.:102). The *tertius gaudens* is therefore a person

who keeps the connected people separate. All transactions have to pass through the *tertius gaudens*.

In this way, a broker can be seen both as someone who facilitates coordination and collaboration between separate individuals or organisations and as someone who connects people indirectly by providing a connection between people or organisations who remain separated.

Following this framework, we argue that *tertius iungens*, or the facilitator, can be critical to a collaboration about, and coordination of, innovation activities between organisations because such a facilitator can help create relationships and construct a common boundary object among the actors. By contrast, the *tertius gaudens* can be potentially damaging in a public-private innovation network for the creation of a common framework.

The broker in the form of a facilitator can be thought of both as an entrepreneurial type who is mainly self-motivated and operates on his own; and as a more professional role. By professional role we mean some degree of formalisation and codification of the required qualifications and competencies, defined from within or from above but in any case linked to an organisational context where these qualifications and competencies are subjected to some degree of regulative behaviour and resources are allocated to this function. We see the platform organisation as a specific place where this role can be organised.

Platform Organisation

According to Ciborra (Ciborra 1996) a platform organization is "a shapeless organization that keeps generating new forms through frequent re-combinations" (ibid.:104), "a laboratory for rapid structuring" (ibid.:104), "a formative context that molds structures" (ibid.:103), and "a virtual organizing scheme, collectively shared and reproduced in action by a pool of human resources, where structure and potential for strategic action tend to coincide in highly circumstantial ways, depending upon the transitory contingencies of the market, the technology and the competitors' moves" (ibid.:115). "Schematically the platform can be regarded as a pool of schemes, arrangements and human resources" (ibid.:115).

In other words, the platform is a formative context for experimentation, communication and innovation. The notion of formative context is an attempt to bridge institutional/organisational and cognitive aspects of boundary work. The platform can be seen as an organisational context for exchanges of knowledge and information across similar or different practices that are otherwise separated by knowledge boundaries or organisational boundaries, or both.

The platform organisation is not (necessarily) an inter-organisational framework. It is, rather, a structure inside the single organisation. In this chapter, we want to use the platform organisation in an inter-organisational context. In this way, it is a place where practices from different organisational settings can be brought together. This

platform organisation may also require some degree of formalisation, whereby we refer to codification of inputs and outcomes in a broad sense (Vlaar et al. 2006).

Extending the definition of the platform organisation, it could be described as a place for pulling together actors from different organisational contexts. For example, it could be a non-profit organisation or an organisation established by government or local government to provide a continuous meeting place for relevant actors around a particular idea or project in the making. In this way, such an organisation would have access to certain resources, techniques and materials (buildings, etc.) for organising and structuring meetings between the relevant actors with the purpose of framing a situation or creating a network around a boundary object. The platform organisation could be an organisational space that could underpin a broker of the *tertius iungens* type. We argue that the platform organisation provides an organisational context for the broker's interaction with actors and thereby helps the broker to construct boundary objects in inter-organisational collaboration.

Boundary Objects as Outcomes of Organising

According to Anselm Strauss and his associates, humans are embedded in social relationships and universes of discourse (Mead 1938:18) which he calls social worlds. Social worlds are groups of people "with shared commitments to certain activities, sharing resources of many kinds to achieve their goals, and building shared ideologies about how to go about their business" (Clarke 1991:131; see also Strauss et al. 1964; Strauss 1978; Becker 1974, 1986). They are interactive units, a "universe of regularized mutual response, communication or discourse which is not bounded by geography or formal membership 'but by the limits of effective communication"' (Shibutani 1955:566, quoted by Clarke 1991:131). Through extended communication, participants in social worlds generate, adopt, or adapt ideologies about how their work should be done; they debate about their own activities and others' actions that may affect them (Clarke 1991:127). An organisation may be a social world of its own or consist of several sub-worlds. Social worlds may also be composed of a number of organisations and a number of cross-cutting sub-worlds wherein members of those organisations and others participate. Members of social worlds may decide that they care about an issue and that they want to act upon it. If issues involve other social worlds they will meet them in issue-related arenas. In these arenas "various issues are debated, negotiated, fought out, forced and manipulated by representatives" of the participating worlds and sub-worlds (Strauss 1978:124, quoted by Clarke 1991:133). Platform organisations, as mentioned above, are one such more formalised type of arena where a broker may interact directly with a larger number of different representatives from other social worlds in order to develop a robust boundary object. Meetings between a broker and representatives from involved social worlds constitute another type of arena where the broker only interacts indirectly with actors in social worlds; namely through the few selected representatives of these social worlds.

Boundary objects are things/objects that exist at the junctures where varied social worlds meet in an arena of mutual concern (Clarke 1991:133). They ". . . have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is a key process in developing and maintaining coherence across intersecting social worlds" (Star and Griesemer 1989:393). Boundary objects can be treaties among countries, or software programs for users in different settings, as well as concepts. In the two cases focused upon, the boundary objects are constituted by the concrete innovations developed in Case One in relation to care of the elderly, and the Health School developed in Case Two. Boundary objects are translated to address the multiple needs or demands placed upon them by the different social worlds that 'meet' around the boundary object. When a boundary object is mutually constructed, it is an exercise in negotiated order, and a robust boundary object achieves this status by satisfying both the particular, local demands of users and the wider demands of all the worlds involved (Clarke 1991:134). In the analysis that follows it will be demonstrated how different social worlds and communities of practice worked hard to construct viable and robust boundary objects. It will moreover be demonstrated what the consequences were of these construction processes taking place in a platform organisation as opposed to in each participating organisational unit each representing different social worlds.

Method

The case studies presented in this chapter were, as mentioned, made as part of the ServPPIN project. The ServPPIN project focused on the role of public and private services in growth and welfare and the particular role of public-private innovation networks (PPIN) in that connection. Researchers from 10 countries (Norway, Denmark, the UK, the Netherlands, Germany, Spain, France, Austria, Slovenia and Hungary) conducted case studies in the areas of health services, knowledge-intensive services and transport services.

All case studies were conducted in accordance with a case study guide developed by the project management and workgroup leaders of the ServPPIN project. Key research questions were translated into five key dimensions which should be described by all researchers doing case studies: (1) The type and process of innovation, (2) The type of innovation network, (3) Drivers and barriers to innovation, (4) Institutional factors influencing the innovation process, (5) Impacts and policy issues related to the innovation process. This more deductive top-down approach was supplemented with an additional bottom-up inductive approach where anything interesting but not included in the key dimensions was marked and included in the case reports.

The criteria for selecting case studies were that (1) all cases had to have a concrete innovation aiming to lead to an improvement in service characteristics, (2) there had to be a constellation of public-private interests, and (3) there had to be an innovation network of organizations that were central to the realization and development of the innovation in focus.

Concrete methods used for assembling data varied from one case study to the other. The data collected in connection with the two case studies presented in this chapter were based on document studies and in-depth interviews lasting 1–1 ½ hours. Informants related to the innovation process were identified using a roll-up technique where each informant was asked to point out other informants who had been of significant importance to the innovation process. The interviews drew on the ideas in the so-called 'critical incident technique' (CIT) (Flanagan 1954; Fuglsang 2007). The basic idea in CIT is to inquire into critical events, i.e. pronounced situations and events, which the interviewed subject believed to have striking significance for the formation of priorities and the course of events. All interviews were recorded on a digital voice recorder where after a preliminary summary was written. Shortly afterwards the main parts of the interviews were transcribed and/or transformed into notes describing data corresponding to the five key dimensions. Moreover, anything interesting but not included in the key dimensions was noted and written down.

In accordance with the critical incident technique, a timeline was established in which the sequence and connections between the most relevant events (incidents) were made. Then a report was made with the following content: (1) The case in a nutshell, (2) The context, (3) The five key dimensions, (4) Unexpected results, (5) Discussion.

In order to assure validity, the analysis is divided in two. First we present a reconstruction of the innovation processes in focus and the contexts in which they took place, organized under four headings related to the main dimensions identified in the theory section: context of case, network actors and identification of broker, organizing of interaction and development process of boundary objects. We then make a comparative analysis which represents our interpretation and analysis of case data organized under the following headings derived from the content of the data: (1) Two types of broker, (2) Platform versus no-platform organization, and (3) Boundary objects as outcomes of organizing. Reliability of case data and reports was secured by sending case reports to and getting feedback about factual faults from interviewees.

Analysis

Case One: Development Partnership in Gribskov for Care of the Elderly

Context of Case

Case One is about 'Development Partnership', a public-private innovation network created in 2005 between a Danish municipality, Gribskov, and three contractors (two private and one public): Attendo, Aleris and PlejeGribskov. Together these three companies ran the municipality's five nursing homes. They were now requested to

collaborate about service development. The network was facilitated by Momentum, which is a private association. Members of Momentum include several municipalities, and several public and private enterprises. Hence, Case One consisted of five participants: Gribskov, Momentum, Alleris, Attendo and PlejeGribskov.

Gribskov is the municipality in Denmark which has been most active in launching a process for awarding public contracts to private or public firms. It aimed to privatise public services and create more competition between public and private service providers (Konkurrencestyrelsen 2009).

The interesting aspect of Case One is, however, the attempt of Gribskov to change its approach to public-private collaboration from focusing on price, efficiency and the disaggregation of a public hierarchy, towards including development, innovation and collaborative activities. Development Partnership was created precisely to generate collaboration about service innovation and trust among the three contracting companies and the municipality.

Network Actors and Identification of Broker

The three service providers, Attendo, Aleris and PlejeGribskov, were obliged in their contracts with the municipality to collaborate on innovation in this Development Partnership. More precisely, they were required to allocate time and money to this activity. Momentum, the private association, was asked to manage and facilitate the collaboration on a professional basis. Momentum was responsible for various resources and means for facilitating collaboration, such as Idea-house, a building with an indoor architecture specially designed to stimulate development processes, as well as experienced project managers who could initiate and manage change processes in collaboration with the three partners.

The role of Momentum in Case One is similar to several other initiatives in regional and industrial policy in Denmark. It seems critical that, in a network, someone has the responsibility and resources for making collaboration happen. The partners themselves are sceptical about collaboration, they do not trust each other and they do not have time for this.

Momentum therefore took the lead in bringing the partners together and organising the interaction among them. In the beginning the partners were sceptical and could not see what was in it for them. The consultants at Momentum organised several meetings with structured idea generation, and eventually a number of projects about service development were initiated. In this process, the consultants at Momentum were brokers and Momentum as a whole became a platform and formative context for innovation.

Organising of Interaction

In the first stage, the network was organised by top politicians and senior civil servants in the municipality. They operated in a climate favourable to public-private collaboration and with several years of experience in this area.

According to one interview, the municipality found it inspiring and relevant to operate increasingly in a climate of 'wikinomics' in Development Partnership, which means that "no one can alone find the best solutions to problems, but should seek solutions in collaboration with others". Furthermore, policy-makers saw a need for integrating the private partners more with the municipality in order to create a more trustful environment and infrastructure for communication, which could ensure that the three service providers could eventually be responsible for quality assurance themselves rather than producing pre-ordered packages for the municipality.

In this way, policymakers played an important role in Case One in initiating more public-private collaboration and interaction. But the important point here is that they had the formal power and organisational tools, together with Momentum, to carry out these ideas, and that the partners were bound by their contracts.

In the next stage, Momentum became a platform for various meetings which the service providers were obliged to attend. This requirement was, as already mentioned, built into their contract, stipulating that they had to participate in this platform, and had to allocate a specific amount of money and time to it.

The outcome was not specified at the outset, and the members were free to interpret and use the results as they wanted to. They were supposed to identify relevant problems to work with along the way. Each participating enterprise then had to see if it could work with or integrate some of the results into daily operations. One characteristic of Development Partnership, according to interviews, was that it had to work with various dilemmas between standardisation and differentiation, experimentation and financing, internal and external requirements. Therefore, it was not possible to spell out clear-cut purposes for service innovation and how these innovations should eventually be used by the partners.

Development Process of Boundary Objects

Four projects were developed in Development Partnership. They were interpreted and used in different ways by the partners but they were also seen as a common focus for them. In this way, they were boundary objects that connected the partners in a multifaceted way, allowing them simultaneously to do different things. The first project was an investigation of the concept of care undertaken by anthropologists who, among other things, concluded that other people than care personnel, such as hairdressers, postmen and grandchildren are important in care of the elderly. Then a programme was set up which could diffuse some of these results, leading to discussions about the concept of care in the partner companies. The concrete results of this exercise were not so clear to the partners. Next, a social network project was set up. It used some of the results from the care project: it attempted to involve volunteers into actual care projects by mobilising them around specific projects (like a memory room that was built in one of the nursing homes). This led to a number of specific activities for the elderly. Following this, a Care Academy was created which pooled resources for common education programmes and competence development for employees. Most

recently, a project was initiated about 'differentiation', trying to identify positive examples of client-differentiation in Gribskov's elderly care programme, for example using an electronic whiteboard to keep track of clients' individual needs and plans.

A more indirect effect of Development Partnership was that it increased trust among the partners. This should, according to interviews, lead to decreased bureaucracy among the companies and the municipality. The three companies can run their own quality assurance systems for the services they provide to the elderly at a given price. This could replace the present system where the companies must deliver specific service packages ordered by the municipality.

In the construction of these boundary objects, Momentum's role was not to create a strong consensus among the partners about purpose and goal. At the beginning of the project there appears to have been more talk about the purpose and relevance of Development Partnership, but only when concrete projects and project groups were formed did it become meaningful for the partners in an ongoing sense making process. The facilitator's role was to build up Development Partnership from different sets of projects that were meaningful to the partners.

Momentum, as well as the partners, all felt that Development Partnership became more successful over time, as the partners became more trustful and it became clearer how they could gain new insights about care from projects that could generate value for all partners in the long term. In the first stages, by contrast, the partners seemed more sceptical—they were competitors and they were more oriented towards immediate results—and reluctant to collaborate.

The outcome of these different projects was not so clear-cut, but some of the projects, such as the network project and the Care Academy, led to new concrete initiatives in the companies. Another way of putting it is that Development Partnership allowed for an experimental, common sense-oriented and multifaceted approach to innovation, taking a series of small steps and testing out possibilities in an incremental way.

Case Two: Næstved Health School

Context of Case

The context of Case Two is the municipality of Næstved in Denmark. A new health act was passed in 2005 and structural reform of the Danish municipalities took effect in January 2007. The health act stipulated that Danish municipalities, like Næstved, were responsible for establishing services for citizens in the area of disease prevention and health promotion. Næstved Health School was an attempt to meet this requirement. The Health School was a collaboration between the municipality of Næstved and a private company called Falck Healthcare.

About one third of the population in Denmark are considered to live with one or more chronic diseases and 80% of public expenditure on health is used to deal with chronic diseases (Sundhedsstyrelsen 2005). There are several reasons why it seemed

relevant for the government to promote disease prevention. First, if people can be motivated to take more care of their own health, this may increase their quality of life. People will have fewer chronic diseases. Fewer persons with or without chronic diseases will have to be hospitalised. This could also lead to a lowering of absence from work. Good health offerings in a municipality may also encourage people and companies to settle there.

Falck Healthcare, the private partner, was a division inside the larger enterprise group, Falck. Falck is a private limited company which was established in 1906 by Sophus Falck (1864–1926). Its main focus has been rescue and emergency services which include ambulance services (including pre-hospital treatment), transport of patients, fire fighting and other safety- and rescue-related services for the public authorities. Falck Healthcare was created as an independent unit within Falck in 2005.

Case Two is thus about the experience, in 2005–2008, of Falck Healthcare and the municipality of Næstved, and about the Health School they created together for people with chronic diseases. This Health School organised training courses of 10 weeks for patients with chronic obstructive pulmonary disease (COPD), type-2 diabetes and heart failure. The innovation of Case Two can be characterised as a pedagogical innovation. The novelty lay in the particular framework used, grouping people with different chronic diseases on one common course and making use of pedagogical tools that had been developed by Falck Healthcare. The innovation can also be characterised simultaneously as a process innovation, a conceptual innovation and a marketing innovation.

Network Actors and Identification of Broker

The development of network relations between Næstved and Falck Healthcare originated from a good personal relationship between a manager at Falck and a manager in Næstved. It was further developed, however, because a new manager at Falck Healthcare and politicians and civil servants in Næstved Municipality found that the Health School project could serve their broader interests and economic goals.

The new manager took over the Næstved project in Falck's Healthcare division. He and Falck reasoned that after the Danish structural/administrative reform, Danish councils did not have the competences necessary to solve the new tasks in relation to disease prevention and health promotion, and would either have to buy them in or develop them themselves. This point of view was backed up by a marketing analysis made by a private consultancy firm. Falck therefore decided to continue the Health School project in Næstved in order to develop a service that could be sold to other municipalities.

Civil servants and politicians on Næstved Council wanted to develop their expertise in disease prevention and health promotion in relation to chronic patients, and to find a way to deliver these services as economically and effectively as possible. They decided to join the project when the Ministry of Health and Prevention, administering a pool of money aimed at the establishment of local healthcare centres, showed an interest in the public-private collaboration around the Health School situated in

the same building as the Næstved Health Care Centre, as suggested by Falck and Næstved Municipal Council. The decision was accordingly made to fund the Health School from September 2006 to June 2008.

In chronological order of their involvement, the actors who mobilised and/or became involved in the development of Næstved Health School were:

- Two managers from Falck Healthcare
- The manager of health and politicians from Næstved Municipal Council
- A physiotherapist employed by Falck Healthcare to develop and manage the Health School
- A project manager temporarily employed by Næstved Municipality
- Employees recruited to run Falck's Health School
- The former and current manager, as well as employees, of Næstved Health Care Centre
- The general practitioners and
- The patients.

Falck had the resources to recruit some of the best professionals in a given area and use their expertise as well as their personal and professional connections to further develop their networks with both customers and employees. Accordingly, a well-qualified leading physiotherapist from a smaller hospital in Copenhagen was recruited to develop the Health School concept for Falck. This physiotherapist became the single most important broker in the development project since she was the only person who had personal face-to-face contact and interaction with all the above-mentioned actors except the patients.

Organising of Interaction

The physiotherapist's interaction with other actors was organised as follows:

In the development phase she worked intensely and face-to-face with a project manager employed by Næstved Municipality to develop the Health School concept in collaboration with Falck Health Care. After the Health School concept had been developed the project manager was employed elsewhere. Managers from Falck Health Care and the physiotherapist met regularly with the manager of health in Næstved Municipality.

The physiotherapist also communicated with, met and coordinated with employees running the Health School and contacted and tried (with the help of Health School employees) to involve general practitioners. Employees on their part were responsible for the Health School's relations with the patients with whom they interacted face-to-face. They also interacted on a daily basis with employees from Næstved Health Care Centre with whom they shared training facilities. Two managers from Falck, the physiotherapist, the manager of health of Næstved Municipality and—at the beginning—the project manager employed by Næstved Municipality, met four times a year in the steering group of the project.

Development Process of Boundary Object

The health-related content was developed by the physiotherapist from Falck Health Care and the project manager employed by Næstved Municipality to help develop the Health School. The concept and the content were later modified only to a limited degree by other actors including employees in the Health School. In the Næstved case, however, different actors representing different social worlds had different perspectives on and goals and interests in the Health School. It turned out that these different perspectives, goals and interests were more important to the actors than the specific content and concept developed by the physiotherapist and the project manager, even though the patient-related outcomes of the concept were successful.

As a for-profit company, Falck's representatives saw the construction of the boundary object/the Health School project as an opportunity to experiment, and perhaps to develop a new profitable service for Danish councils who lacked expertise in disease prevention and health promotion and would therefore have to buy in or develop this expertise themselves. For the politicians and civil servants in Næstved, however, the Health School project had another meaning. Here the boundary object/the Health School project was seen as an opportunity to develop a new and obligatory task area at the lowest possible cost to Næstved. The Health School employees recruited by Falck chose to work on the Health School project for yet other reasons: for them, the construction of the boundary object/Health School project offered an opportunity to obtain a higher degree of freedom and job satisfaction as well as an arena where services could be developed on the basis of employees' own professional ideas about best practice, and what they thought might 'make a difference' to the patients. For the managers of the Næstved Health Care Centre, organising work effectively, solving boundary conflicts and dealing with questions of authority were seen as more difficult than if the Health School had been structurally integrated into the Næstved Health Care Centre. General practitioners, for their part, did not mobilise to participate in the construction of the boundary object/Health School. For them the Health School activities represented a potentially time-consuming and peripheral activity which competed with other activities for their attention. As a consequence, information about Health School activities and the role of GPs in relation to the Health School remained 'a drop in the ocean' of information for them. Patients' roles in the construction of the Health School as a boundary object were more indirect. Their views were sought and acted upon by the Health School employees as they learned more about the special needs and characteristics of the patients who attended the School.

In order to establish the Health School as a robust boundary object it should have been constructed in a way that satisfied both the particular, local demands of users and the wider arena demands of all the worlds involved (Clarke 1991:136), especially if the project was to survive in the long term. The representatives of the different social worlds in the Health School project did not, however, succeed in doing that. The Falck representatives did not succeed in developing a Health School concept that could be sold to other councils, which resulted in their losing interest in the project. Selling consultancy services was considered a minor business compared to the business of running Health Schools for municipalities. The representatives from

Næstved Municipal Council did get what they wanted: a cheap way of developing expertise in a new task area. However, they did not perceive Falck Healthcare as an organisation that would be able to deliver Health School services better and cheaper than themselves after the government funding ran out. The Health School activities were seen as meaningful and highly motivating by its employees, but the employees did not have the power to influence the decision process that led to the termination of the collaboration between Falck and Næstved. The managers of Næstved Health Care Centre found it difficult to handle the organisational aspects of the Health School. The GPs and patients were only mobilised and engaged in the development project to a limited degree. In relation to the GPs, Falck Healthcare and the Health School's employees' inability to convince them became a problem for Falck Healthcare, because too few patients were sent to the Health School; this made the representatives from Næstved dissatisfied with Falck Healthcare's service since the Health School's costs per patient came to be considered as too high.

Comparative Analysis

Two Types of Broker

In Case One (Development Partnership), the brokers were those people hired by Momentum, professional project managers and process consultants who could create and direct new projects in collaboration with the three partners. It was part of their job to facilitate relations among organisations and to create value through collaboration. They organised meetings where representatives from the different partners were present in the same room. In the beginning, these were very sceptical about each other and about the project as a whole. The project consultants used various structured techniques in these meetings to make the network more meaningful to the partners and to release energy, build trust and create an honest atmosphere where interests could be more openly discussed. They also applied for funding of actual projects, and ensured that the projects were experimental and developed in the making, rather than being defined from above, which made them more meaningful to the participating companies.

In Case Two (Næstved Health School) two managers with a good personal chemistry facilitated the collaboration between Falck Healthcare and Næstved Health Care Centre. When a new manager took over in Falck Healthcare this collaboration was continued and resulted in a successful application by the Health School for government finance aimed at supporting the development and establishment of healthcare centres.

The physiotherapist employed by Falck Healthcare, however, did not continue playing the role as facilitator. Instead, she (with Falck's blessing) enacted her role in a way that made her the single most important broker in the development project, since she became the only person who had face-to-face contact and interacted with all the involved actors except the patients. Instead of bringing these actors together, as

happened in Momentum, she provided a link between them, although they remained separated from each other.

The two cases illustrate two types of broker performing their role differently. In Case One the brokers facilitated coordination and collaboration between separate individuals and organisations; that is, they were *tertius iungens* and thus facilitators. In Case Two the broker provided a connection between people and organisations that remained separated; she was *tertius gaudens*, no more than a connector.

Platform Versus No-Platfrom Organisation

In Case One, the collaboration took place in an arena that we called a platform organisation, a framework imposed by the municipality but further developed by the three participating companies. Momentum was responsible for resources (consultants for instance), techniques and materials (the creative building of Momentum) which became a context for network relations between the partners and for co-constructing workable boundary objects.

In Case Two the physiotherapist organised her interaction with other actors as meetings where she met them separately. Instead of proactively coming together and constructing the innovation, as happened in Momentum, the content of the Health School concept was developed by the physiotherapist and partly by the project manager employed by Næstved Municipality. The later interaction between the physiotherapist and other actors was aimed at trying to mobilise them, and assure information sharing and coordination of activities, but it did not contribute to making the other actors co-constructors or developing a feeling of 'ownership' of the project, as happened in the Momentum case.

Momentum became a place where brokers facilitated development and new projects, but in Case Two no such formative context was created. The broker ensured that information was flowing between the actors and coordination was taking place, but since they did not meet in more formalised ways no co-construction of the innovation/the Health School took place.

Boundary Object as Outcomes of Organising

Constructing boundary objects that are meaningful can mobilise and hold together actors from all the social worlds involved in a project. This is essential in constructing workable innovations in network contexts. Robust boundary objects achieve their strength by satisfying both the particular, local demands of each group and the wider, arena demands of all the worlds involved (Clarke 1991:136). In Case One such robust boundary objects were eventually co-constructed while in Case Two they were not.

In Case One, the boundary objects (the actual service innovation projects) were continuously negotiated through the broker interacting with the parties in the platform organisation. Sense making, negotiation and assessment of results were performed

Table 1 Two types of inter-organisational coordination in ServPPINs

	Case One	Case Two
Broker	A facilitator	A connector
Platform organisation	Yes	No
Boundary object	Common projects	Health School
Robustness of boundary objects	Robust	Not robust

in a collegial relationship and atmosphere; responsibility for the projects was maintained by the participants together with the broker. In the beginning, the different parties were worried about company secrets and they were reluctant to participate and share information because of a lack of mutual trust. But because the specific development projects and innovations were constructed in a collegial atmosphere from within, rather than being imposed from above, the whole event was seen as a positive and successful journey through which the actors had gained new practical insights about care of the elderly.

In Case Two the lack of a broker who functioned as a facilitator, and of a platform organisation providing a formative context for the construction of boundary objects, resulted in the actors each constructing their own versions of the boundary object, in accordance with the specific social worlds from which they originated. The concept of the Health School was thus not co-constructed by involved actors but constructed by the physiotherapist from Falck Healthcare and the project manager employed by Næstved Municipality. Since most actors had no place to meet and only indirect connections with each other through the physiotherapist, their individual understanding of goals and interests, problems and solutions, interpretative frames and ideologies, norms, values and routines were not honestly and trustfully shared and taken into consideration in the construction process. As a consequence, neither a boundary object that united actors because they had agreed on its content, nor a boundary object which had different meanings in different social worlds but was sufficiently common to make it attractive to most social worlds, was constructed. As a consequence, in the end, the collaboration between Falck Healthcare and Næstved Municipality was terminated.

Conclusion

The chapter has discussed how people relate to each other across boundaries in an inter-organisational context of public-private innovation. The study investigated two Danish public-private innovation networks in services (ServPPINs), Development Partnership (Case One) and Næstved Health School (Case Two). These types of network are interesting because they try to facilitate and manage collaborative practices across organisational boundaries of public and private organisations. As the literature shows, in inter-organisational frameworks, people are attached to different occupational routines and practices, rather than being attached to the formal framework in which they are supposed to relate to each other and share experiences. Table 1 summarises the differences between the two cases.

The literature stresses that in these complex collaborative structures, actors relate to each other in a dis-unified way. They are working in the same context from different perspectives, and collaboration does not come about easily but must be encouraged and facilitated. This is captured by concepts such as broker, facilitator, trading zone, boundary object and platform organisation. What has been proposed in this study is to differentiate the concepts of broker, platform organisation and boundary object and analyse the interactions between the three as an epistemology for understanding inter-organisational collaboration.

A broker is someone who interacts with people from different social worlds, convinces them to collaborate in a network, and eventually organises the network. The participants in the network can themselves be sceptical about the network (what is in it for them?), or they have little time or resources for it. We have investigated how a broker can be of the *tertius gaudens* type, connecting separated people, or of the *tertius iungens* type, bringing them together in the same space.

The *tertius iungens* type can be conceptually linked to the notion of the platform organisation. Platform organisations have responsibility for certain resources, techniques and materials for organising and structuring meetings between the relevant actors in the network. The platform organisation can be a non-profit organisation or an organisation established by government or local government. It is a formal arena, but as defined here it is also formed through continuous interaction among the participants. It is a governance structure but also a structure for occupational development, collegial interaction and trust-creation across organisational boundaries.

The two cases studied in this chapter, tentatively summarised in Table 1, can be distinguished by their different types of interaction among broker, platform organisation and boundary object. In Case One, a platform organisation was constructed in the shape of the non-profit association Momentum. The people who were employed at Momentum appeared to be able to co-construct common projects and concrete service innovations together with the other participants in the network. These projects were eventually seen as success stories by the participants. In Case Two, the different social worlds tended to remain separated from each other, being connected only through a broker. In that case, a boundary object was constructed (the Health School), but it was not very robust, and it tended to become a symbol of failure rather than a symbol of success.

Trust is important for the collegial climate in a platform organisation. If the parties can say they trust each other, they may be more honest about their own interests, values, norms, and routines and thus more likely to construct boundary objects and eventually innovations that can help them maintain regulatory responsibility, image and identity. A broker who is facilitator (*tertius iungens*) interacting with people in a platform organisation, can contribute to the creation of trust and the building of social capital, which is not the case of the *tertius gaudens* who keeps people separated. Trust developed in this way can be critical in developing common projects and even in creating common social worlds across the organisational boundaries.

Further research could therefore explore in more detail how professional development and innovation inscribed into a network framework can be linked to

occupational development and collegial trust. One aspect that seems especially interesting is to investigate how trust and honesty is constructed in such a framework. Since issues of development and innovation are imposed on the networks from above, there may, at least in principle, be a tendency to stress authority structures rather than trust. How, then, are people going to become trusting, honest and caring in such a framework?

From a practical point of view, the chapter suggests that platform organisations that have resources to bring people together across organisations and help them generate common projects could be a practical solution to the need for inter-organisational collaboration between public and private partners. Such platforms would have to be organised around certain issues, like, as in this case, care of the elderly. They would consist of a secretariat where brokers are hired specifically to recruit relevant actors around the issue-area, bring them together and help organise relevant projects among them. Such platforms already exist in many places, but their governance structures remain under-explored.

The implication for service innovation is that the creation of boundary objects and how they interact with brokers and platform organisations should be given more attention in innovation management. When a broker plays the role of facilitator and is part of a platform organisation, more robust boundary objects seem to be constructed. However, when a broker plays the role of connector and is not part of a platform organisation, less robust boundary objects might be constructed. Moreover, innovation projects must construct boundary objects that are wide enough to mobilise many supporters but also allow them to do different things. In the arena of health, discussed here, service innovation often requires complex collaborative projects involving doctors, health professionals and patients. These different groups must be allowed to participate in projects that they can co-define from the inside out. Creating and maintaining collaborative projects as broad boundary objects combined with a narrowed workspace where collaborative activities are facilitated—a platform organisation—may be operationalized at the level of service innovation management.

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