

<http://www.gowerpublishing.com/isbn/9780566089206>

Design for Services

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A New Discipline

Service design, as a new discipline, emerged as a contribution to a changing context and to what a certain group of design thinkers (notably Morello 1991,¹ Hollins and Hollins 1991, Manzini 1993, Erlhoff et al. 1997, Pacenti 1998) started to perceive and describe as a new design agenda. In the 1990s the growing economic role of the service sector in most of the developed economies was in clear contrast to the then dominant practices and cultures of design, which still focused on the physical and tangible output of the traditional industrial sectors.

As Richard Buchanan has asserted 'design problems are "indeterminate" and "wicked" because design has no special subject matter of its own apart from what a designer conceives it to be' (Buchanan 1992: 16). This means that the objects and practices of design depend more on what designers perceive design to be and not so much on an agreed on or stable definition elaborated by a scientific community.

The subject matter of design is potentially universal in scope, because design thinking may be applied to any area of human experience (Buchanan 1992: 16).

The growing relevance of the service sector has affected not only design but several disciplines, starting from marketing and management moving to engineering, computing, behavioural science, etc.; recently a call for a convergence of all these disciplines has claimed the need for a new science, a 'Service Science' (Spohrer et al. 2007, 2008, Pinhanez and Kontogiorgis 2008, Lush et al. 2008), defined as 'the study of service systems, aiming to create a basis for systematic service innovation' (Maglio and Spohrer 2008: 18).

This book explores what design brings to this table and reflects on the reasons why the ideas and practices of service design are resonating with today's design community. It offers a broad range of concrete examples in an effort to clarify the issues, practices, knowledge and theories that are beginning to define this emerging field. It then proposes a conceptual framework (in the form of a map) that provides an interpretation of the contemporary service design practices, while deliberately breaking up some of the disciplinary boundaries framing designing for services today.

Given the richness of this field, we followed some key principles to build and shape the contents of this publication:

1. We decided to select service projects that have a direct and clear relationship with consolidated design specialisations (such as interaction design, experience design, system design, participatory design or strategic design)

¹ Morello, A. 1991. Design e mercato dei prodotti e dei Servizi. Document for the Doctorate programme in Industrial Design, Milano: Politecnico di Milano.

or manifesting a *designerly* way of thinking and doing (Cross 2006), despite the diverse disciplinary backgrounds;

2. We aimed at organising the different contributions into a systemic framework delineating a field of practice characterised by some clear core competences, but having blurred and open boundaries. This framework in particular illustrates the multidimensional nature of contemporary design practice and knowledge, apparently fragmented in its description, but actually able to identify, apply and assimilate multiple relevant contributions coming from other disciplines;
3. We recognised how services, like most contemporary artefacts (Morin 1993), are impossible to control in all their aspects, because of their heterogeneity and high degree of human intensity. In this book we therefore applied the principles of '*weak thinking*' (Vattimo and Rovatti 1998), meaning accepting the fundamental inability of design to completely plan and regulate services, while instead considering its capacity to potentially create the right conditions for certain forms of interactions and relationships to happen.

For these reasons the title of this publication is *Design for Services* instead of Service Design (or Design of Services). While acknowledging service design as the disciplinary term, we will focus more on articulating what design is doing and can do *for* services and how this connects to existing fields of knowledge and practice.

This reflection is timely and extremely relevant as more and more universities, design consultancies and research centres are willing to enter the field of design for services; we hope that by proposing an orienting framework and a sort of service designers' 'identikit', we will provide a foundation for these growing initiatives while stimulating further conversations and research.

The book introduces a map (described in Chapter 2.5) that illustrates how designers and design research are currently contributing to the design for services. We generated this map by collecting and reflecting on 17 case studies of design and research projects that have been reported and described in Section 2 of this publication.

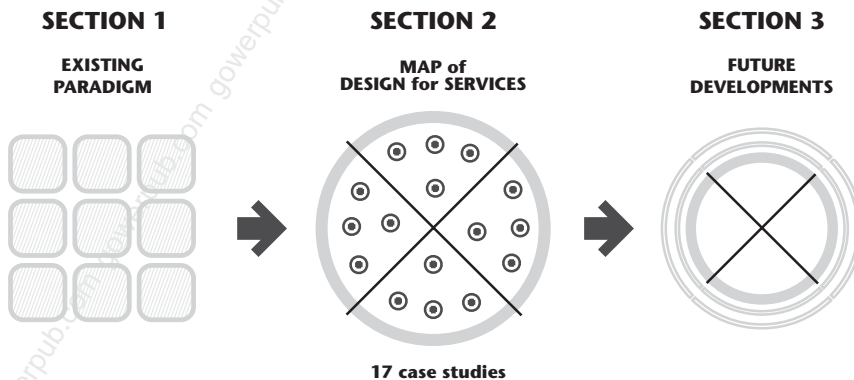


Figure 1.1 The structure of this book

As a support and complementation to the case studies, Section 1 links design for services to existing models and studies on service innovation and service characteristics; while Section 3 projects design for services into the emerging paradigms of a new economy to help us reflecting on its possible future development.

As Kimbell pointed out (Kimbell and Seidel 2008, Kimbell 2009) design for services is still an emerging discipline based on mainly informal and tacit knowledge, but it may develop into a more structured discipline if it develops a closer dialogue with existing disciplines such as service management, service marketing, or service operations. We have opened up and engaged in this closer dialogue throughout this book, in particular considering 'service marketing' as historically encompassing all research study in services (Pinhanes and Kontogiorgis 2008). This book represents a first attempt in that direction that will require further efforts and collaboration across disciplines. Appendix 1 actually opens up reflection on future research on design for services by starting a conversation with a selection of key researchers and professionals of the field of services. Finally, Appendix 2 presents a selection of tools as introduced in the case studies.

Before introducing the case studies that will feed into the map of design for services, we are going to address two key questions that will help us position and motivate this new field of studies: *Why is it necessary to introduce a new subdiscipline in design?* and *How has design approached the realm of services so far?*

As a response to these questions in the next chapters we will briefly consider the role and recognition of services and of design in the current economy and, following a similar path to service marketing in its original development, we will refer design to the IHIP (Intangibility, Heterogeneity, Inseparability and Perishability) framework,² looking at how design developed alternative strategies in dealing with service characteristics to traditional design fields and service related disciplines.

Why Design for Services?

It is widely acknowledged that in recent decades the developed economies have moved to what is called a 'service economy', an economy highly dependent on the service industry. In 2007, services represented 69.2 per cent of total employment and 71.6 per cent of the gross value added generated by EU27³ (Eurostat 2009).⁴ This means that services in their different forms and characteristics have developed a fundamental role for the growth and sustainability of innovation and competitiveness. This role has been fully recognised of late with a flourishing of innovation studies and policy debates and programmes specifically aimed at deepening the understanding and at supporting the development of the service sector at different levels. As a consequence the European Council called for the launch of a European plan for innovation (PRO INNO Europe) that could include and generate new understandings of innovation in general and of service innovation in particular.

2 IHIP is a 'core paradigm of services marketing, namely, the assertion that four specific characteristics – intangibility, heterogeneity, inseparability, and perishability – make services uniquely different from goods' (Lovell and Gummesson 2004: 21).

3 EU27 is the European Union in its latest composition of 27 member states.

4 By services we mean the following sectors: financial, real estate, renting and business activities (NACE Sections J and K); distribution, hotels, restaurants and catering (HORECA), communications and transport services (NACE Sections G to I); public administration, health, education, other services and households (NACE Sections L to P).

Some of the key changes in these late policies have been a growing attention for the role of design and creativity as well as for user-centred approaches to innovation. PRO INNO Europe, the focal point of innovation policy analysis and development throughout Europe, dedicated a series of studies within this platform specifically to 'design and user-centred innovation' and to 'design as a tool for innovation'.⁵ Initial studies at EU levels are suggesting the need for a more integrated and coherent measurement of design impact and design policies; recognition is growing on the role of design for innovation and on the importance to integrate design strategies at higher executive levels as well as to engage users on an early basis as co-designers (Bitard and Basset 2008).

The Community Innovation Survey (CIS), the most comprehensive European-wide approach to measure innovation based on surveys, has been gradually improved to better capture and report service innovation processes. The Oslo Manual (OECD/Eurostat 2005), on which the CIS surveys are based, has been updated since 2005 to include, besides product and process innovations, marketing and organisational innovation, and now considers non-R&D (research and development) sources of innovation as strategic for the development of service industries. A first attempt to produce a common measurement for service industry performance at a national level has resulted in the Service Sector Innovation Index (SSII). Different initiatives on the national level emerged out of this framework. For example, in the UK, the National Endowment for Science, Technology and the Arts (NESTA) has coordinated the development of a new Innovation Index (<http://www.innovationindex.org.uk>) in response to the Innovation Nation White Paper by the Department of Industries and Universities (DIUS 2008), which called for a more accurate measure of innovation in the UK's increasingly important services sectors, creative industries and in the delivery of public services.

The need for a new Innovation Index emerged based on investigations into UK innovation practices, that revealed a gap between what 'traditional innovation' performance metrics – focused on scientific and technological innovation – were measuring and how 'hidden innovation' (NESTA 2006, 2007) was not being captured through them. At the same time it was being recognised that hidden innovation was one of the keys to success for the UK economy. Studies suggested the level of complexity involved in innovation, ill represented by linear models of innovation, the importance of incremental changes, and the role of diffusion. Moreover, further attention was to be given to the adoption and exploitation of technologies, organisational innovation and innovation in services (including public services and non-commercial settings). This example from the UK shows how our understanding of innovation needs to go beyond the traditional 'hard' dimensions of technologies and physical matter. Instead, we need to include the 'soft' dimensions that are directly related to people, people skills and organisations (Tether and Howells 2007).

In synthesis, service innovation is 'more likely to be linked to disembodied, non-technological innovative processes, organisational arrangements and markets' (Howells 2007: 11). The main sources of innovation in service industries are employees and customers (Miles 2001) and new ideas are often generated through the interaction with users (user-driven innovation) and through the application of tacit knowledge or training rather than through explicit R&D activities (ALMEGA 2008). A dedicated study on service innovation by Tekes (2007), the Finnish Funding Agency for Technology

⁵ For more information see the INNO-Grips web-pages: http://grips.proinno-europe.eu/key_topics/2/design-user-centred-innovation, accessed 31 July 2010.

and Innovation,⁶ confirmed how customers have replaced the role of competitors as main source for innovation and how 'customer services' is the main area of service improvement (instead of 'product-service performance' in the manufacturing sector). Given the interactive nature of services, customer services and in general 'delivery (or relationship) innovation' (Gallouj 2002) have been looked at as the most characteristic form of innovation of services; however this practice is still poorly captured and understood. Other successful transformations into service companies often concern their organisational and financial models, moving from improving processes to the reformulation of their value networks and business models (Tekes 2007).

Service innovation is a complex interdisciplinary effort (Figure 1.2). Even if the role of design within this process is still not clear, it is starting to gain some visibility. Tekes for example suggests how design for services can apply design methods to develop a new offering or improved experiences by bringing 'many intangible elements together into a cohesive customer experience' (2007: 18).

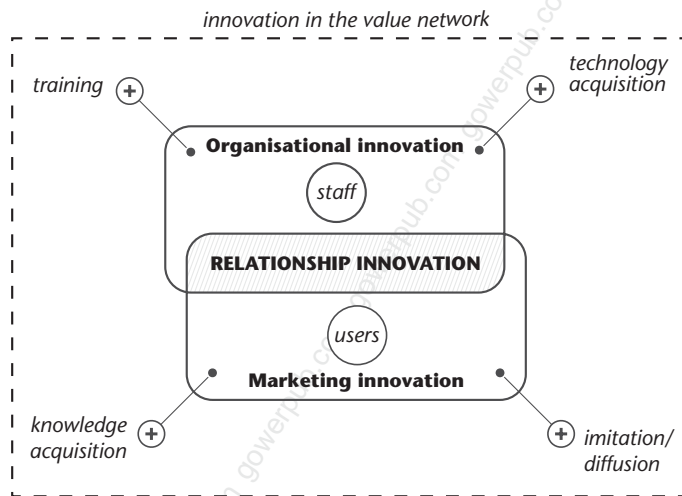


Figure 1.2 A representation of the main areas of and sources for service innovation

THE TRANSFORMATIONAL POTENTIAL OF SERVICES

Among service innovation studies, special attention is being paid to the role services have in supporting the development of a knowledge-based economy; moreover services are often associated with the desired shift from a traditional resource-exploiting manufacturing-based society to a more sustainable one.

Knowledge-intensive Services (KIS)⁷ have been identified as an indicator for the overall 'knowledge intensity' of an economy representing a significant source for

6 Applying the Ten Types of Innovation framework as developed by Larry Keeley at Doblin, Tekes compared the analysis of 12 successful service companies in the USA with a previous investigation into 100 service projects by Peerinsights.

7 KIS can be defined 'as economic activities conducted by private sector organisations that combine technology, knowledge (such as R&D) and highly skilled employees to provide a service to the market' (European Commission 2009: 95). Following the NACE classifications KIS are services such as water and

the development and exchange of new knowledge. These special kinds of services are now considered as connected to the overall wealth and innovation capability of a nation. As a subset of KIS, Knowledge-intensive Business Services (KIBS) have attracted significant attention. KIBS are services⁸ that 'provide knowledge-intensive inputs to the business processes of other organisations' (Miles 2005: 39) to help solving problems that go beyond their core business. Their growth is associated mainly with the increase in outsourcing and the need for acquisition of specialised knowledge, related to, among others, technology advancement, environmental regulations, social concerns, markets and cultures.

Services have been traditionally looked at as a possible alternative to the manufacturing driven model of consumption based on ownership and disposal. The concept of the Product Service System (PSS) developed out of the engineering and environmental management literature as an area of investigation to balance the need for competitiveness and environmental concerns. A PSS 'consists of a mix of tangible products and intangible services designed and combined so that they jointly are capable of fulfilling final customer needs' (Tukker and Tischner 2006: 1552). Research has not yet produced evidence that PSS is a win-win strategy in terms of sustainability. That is, companies employing PSS have not been able to achieve significant or radical reductions in their environmental impact (Tukker 2004). Despite this, PSS has helped to show that service-oriented solutions are potentially better in addressing environmental concerns than approaches that focus on the product when combined with dimensions of localisation (Walker 2009), shared strategies and changes in consumption behaviours (Tukker and Tischner 2006, Marchand and Walker 2008), community engagement (Meroni 2007) or lightness (Thackara 2005).

In addition to the impact on the economy and employment, service innovation is increasingly viewed as an enabler of a 'society-driven innovation' with policies at national and regional level that are 'using service innovation to address societal challenges and as a catalyst of societal and economic change' (European Commission 2009: 70). Tekes positions service innovation as a core lever for transformative changes in areas such as health and well-being, clean energy, built environment and the knowledge society (Tekes 2008).

This transformative potential of services is due to different characteristics: service innovation brings to the fore new 'soft' dimensions that help in reframing artefact and technologically focused innovation paradigms (Miles 2005); services don't imply ownership and therefore can potentially overcome traditional consumption patterns (Lovelock and Gummesson 2004); services depend on users' behaviour and direct participation in the delivery system that can require changes in lifestyles and consumption modes (Meroni 2007); and their focus on providing solutions (instead of necessarily products) means that there is an inherent potential for systemic changes, resource optimisation and value-driven offerings (Manzini and Vezzoli 2003, Manzini et al. 2004).

FINAL CONSIDERATIONS

We can see that the perception of services as a means to tackle society and economic challenges is gaining increased attention. In taking this perspective forward certain

air transport; post and telecommunications; financial intermediation; real estate, renting and business activities; education; health and social work; and recreational, cultural and sporting activities.

8 KIBS services include computer services, R&D services, legal, accountancy and management services, architecture, engineering and technical services, advertising and market research (Miles, 2005). In the NACE classifications are identified with the Business Services (NACE 70–74).

important factors come into focus. For example, we need to understand more clearly how services are and can be innovative, how they complement traditional science and technology based models of innovation, how they can address societal and environmental challenges and finally the role of design and creativity as significant contributors to such innovation and growth. If the relevance of design for services as a field of action and expertise for designers is accepted, then we need to be clear on what it is that design contributes, can contribute or cannot contribute to this context. Considering the multidisciplinary nature of a service project and the current building of a 'service science', it is not easy to identify the role and identity of a 'designer'.

What is evident however, and is documented in this book, is that design and design research are practically and necessarily entering into new 'orders' (Buchanan 2001) of practice and research as a way to answer new project and society demands.

Buchanan (2001), reflecting on the evolution and future development of design, talks about 'places' or 'placements', as areas of discovery and invention that characterise the practice of design; in doing so he suggests a movement from 'signs' (graphic and communication design), to 'objects' (product design), to 'interactions' (interaction design) and 'systems' (environment and system design). These placements, or 'design orders', which are not rigidly fixed and separated from each other, represent perfectly the growing of scale and complexity of design objects and problems in the last two decades. Moreover they represent the interconnectedness of their dimensions, from single products to larger environments of living, working, playing or learning. What Buchanan is suggesting is how the growth of scale and complexity of design interventions is related to the growth of scale and complexity of contemporary challenges. Working on higher scales of interventions allows designers to intervene at an earlier stage and at a more strategic level.

Design for services has been generally identified with the 'interaction' order, where 'interaction' refers to how 'human beings relate to other human beings through the mediating influence of products' (Buchanan 2001: 11) and 'products' can be interpreted as physical artefacts, experiences, activities or services.

If design is entering into new 'orders' of practice, the next question is then how design, being traditionally linked with tangible artefacts, has approached the realm of services. The next section will adopt an existing framework in marketing literature, as a conceptual tool to relate design practice and research to the main characteristics of services, i.e. intangibility, heterogeneity, inseparability and perishability (the IHIP framework); while acknowledging the limitations implicit in this framework in the contemporary debate on services (Lovelock and Gummesson 2004), we suggest how this classification can help to systematise and reflect on the work and knowledge developed in design for services; while doing so we will also aim to bridge and compare its practice with other service-related studies.

Services and Design for Services

As we have demonstrated, the global economy is moving towards models in which a 'service logic' dominates (Vargo and Lush 2004), challenging traditional ways of evaluating productivity, innovation and growth. Along with this change, we can identify shifts in the perception and function of services: for example, service marketing in the 1970s through to the early 1980s conceptualised the nature of services as substantially different from that of products.

These initial studies identified four main characteristics (or shortcomings as compared to products) of services that researchers seemed to agree on. These four characteristics are intangibility, heterogeneity, inseparability of production and consumption, and perishability (Zeithaml et al. 1985, Edgett and Parkinson 1993). *Intangibility* refers to the quality of services that escape our physical human touch. Services are thus described as ‘performances, rather than objects, they cannot be seen, felt, tasted or touched in the same manner in which goods can be sensed’ (Zeithaml et al. 1985: 33). A further distinction has been made between ‘physical intangibility’ and ‘mental intangibility’, this last related to the difficulty of evaluating the service before buying it (Bateson 1979).

The characteristic of *inseparability of consumption and production* alludes to the fact that services require the presence of customers for the service to exist. This means that most services are highly interactive and depend on people-to-people or person-to-person interactions. *Heterogeneity* thus suggests how, in particular for labour-intensive services, the quality of the performance may vary from time to time depending on the situation and service participants.

Finally, a key characteristic identified for services is the fact that services in general cannot be stored and therefore depend on the service provider’s ability to balance and synchronise demand with supply capacity. This brings in elements of just-in-time delivery and relates to *perishability* as services come into being but can also fall back into non-existence.

These characteristics, as Lovelock and Gummesson have demonstrated (2004), have not been grounded in empirical research and can be subject to an ambiguous interpretation.⁹ Nonetheless, as the IHIP framework has served as a basis for the growth of service marketing and the development of dedicated service management strategies, we chose to use its four widely acknowledged parameters to start our reflection on the peculiar contributions of design for services.

Design has been traditionally associated with shaping tangible artefacts. The IHIP characteristics, in particular intangibility, explain the resistance in the practising design community to accepting and understanding design for services. Moving from tangibles to intangibles questions what design is actually designing. If services are defined as acts or performances how can design contribute to their shaping? What is the aesthetic of a performance? And what is the designed outcome?

Design research and practice have approached services from two main perspectives that have represented two main distinct research streams: the ‘interaction paradigm’, which has focused mainly on *how* services are performed, and the ‘functional paradigm’, which has instead considered *what* services represent and can offer. We will introduce both the perspectives and then relate their arguments to the IHIP framework.

The interaction paradigm has considered the *interactive nature of services* as its main focus, applying design methods and skills to improve the user experience. It did so, for example, by better designing the service interface (the visible part of the service through which users can interact and orient their behaviours and choices). By focusing on the interactivity dimension, design for services has identified service experiences as an area of design intervention. Elena Pacenti proposed this perspective

⁹ Lovelock and Gummesson recognise that the IHIP framework helped to generate the impetus for and legitimacy of studies about the new field of service marketing; also, if taken separately, the IHIP characteristics help explain some of the behaviours of specific services. They suggest devoting attention to another property that seems to fully represent service nature, which is ‘non-ownership’: ‘services involve a form of rental or access in which customers obtain benefits by gaining the right to use a physical object, to hire the labor and expertise of personnel, or to obtain access to facilities and networks’ (2004: 34).

for the first time in her Ph.D. research in 1998 where she defined service design as the design of the area and scene where the interactions between the service and the user take place. She made an analogy between the design of advanced interactive devices and the design of services to suggest a shift from the interpretation of services as complex organisations to one that sees services as complex interfaces to the user. The introduction of the interaction perspective has enabled a deeper understanding of the nature of services and of design for services, opening up a liaison with the research and methodology of human-centred interaction design.

This correlation and analogy between interaction design and design for services has been further developed, mainly from a methodological perspective, in a reciprocal way. For example, Holmlid (2007) points out how the service perspective has become a challenge to interaction design, while technology usage has become a challenge to design for services. A set of design tools has been adopted and adapted mainly from interaction design disciplines and practices, including such things as drama, scenarios, service interface analysis (Mager 2004), storyboards, flow charts, storytelling (Evenson 2006), use case (Morelli and Tollestrup 2007), scripts, personas, role play and experience prototypes. These tools and methods support the design practice and, at the same time, contribute to the visualisation and testing of the service experience and interface, from a general description to detailed implementation specifications.

The functional paradigm instead derives from studies about strategies for sustainable consumption and production, conducted by a network of scholars in Europe at the beginning of the Millennium. Among these studies we can mention SusHouse (1998–2000), an EU-funded¹⁰ research project concerned with developing and evaluating scenarios for transitions to sustainable households (Vergragt 2000); a series of research projects funded by the Swedish Environmental Protection Agency and developed at Lund University (Mont 2000, 2002); studies funded by UNEP about Product–Service System sustainability and developed at Politecnico di Milano (Manzini and Vezzoli 2002); the EU-funded¹¹ Thematic Network of industries and institutes SusProNet (2002–04) developing expertise on design of product–service systems for sustainable competitive growth; HiCS (Highly Customerised Solutions), an EU-funded¹² research project (2001–04) aiming to produce methodologies and tools for designing sustainable solutions (Manzini et al. 2004); and MEPPS (Methodology for Product–Service System; development of a toolkit for industry), a European research project coordinated by PricewaterhouseCoopers N.V. (2001–04) aimed at developing a methodology for product service systems bringing together design with sustainability evaluation methods (van Halen et al. 2005).

These initiatives apply the ‘functional thinking’ approach (Mont 2000, 2002), which claims that to reduce material throughput in the economy, ‘functions’ should be provided, not products. The proposed approach is *thinking by functions* instead of by products, using a *solution-oriented* perspective (Manzini et al. 2004). The underlying hypothesis is that it is possible to create offerings that provide consumers with the same level of performance of traditional ones, but using less stuff (dematerialisation) and therefore having a lower environmental impact (Mont 2000: 6). The basis of this approach is the so-called ‘revolution of efficiency’, that is a change of values, consumption modes and lifestyles related to the selling of services instead of products, which enables an optimisation of logistics and distribution (Mont 2000: 15).

10 EU Environment and Climate Research Programme Theme 4, Human Dimensions of Environmental Change.

11 EU Fifth Framework Programme (FP5).

12 EU Growth Programme, Fifth Framework Programme (FP5).

Based on these two original focuses on interaction and functions, design for services dealt with service specificities adopting different tactics. We have used the IHIP characteristics as a trigger and as a framework to reflect on and systematise these tactics. We will outline our considerations in detail below, relating each service quality with current research and practice of design for services as summarised in Table 1.1.

Table 1.1 A summary of design for services approaches in relation to the main IHIP service characteristics

Service characteristics	Description	Design for Services contribution
Intangibility	Services cannot be seen, felt, tasted or touched in the same manner in which goods can be sensed	<ul style="list-style-type: none"> • 'Evidencing' the service offering and service experience • Making the intangible tangible • 'Empathic' design • 'Dematerialisation' as an innovation lever
Inseparability	Most services require the presence of customers for the production of services	<ul style="list-style-type: none"> • Users as sources and not as problems • Co-design approaches • Collaborative services
Heterogeneity	The quality of the performance may vary from time to time, depending on the situation and service participants	<ul style="list-style-type: none"> • Services as 'situated actions' • Design the conditions for possible behaviours and interactions to emerge • System design • Customisation and modular service architecture
Perishability	Most services can't be stored and therefore depend upon the ability to balance and synchronise demand with supply capacity	<ul style="list-style-type: none"> • Replication strategies • Distributed and interconnected service solutions • Enabling platforms

DESIGN FOR SERVICES AND INTANGIBILITY

Intangibility: services cannot be seen, felt, tasted or touched in the same manner in which goods can be sensed.

From an interaction design perspective design for services has been dealing with the intangible dimension of services by mainly working on its opposite, that is endeavouring to make service more tangible by way of 'evidencing' the service offering and service experience. When dealing with intangible performances and interactions that are hard to communicate and anticipate, designers apply one of their key competencies, i.e. the capacity to make things and ideas visible and tangible. In design for services this capacity has proved significant in the design of service evidences (also known as touch-points) or service interface to better guide the interaction process (usability), anticipate service outputs and rules (transparency) and create a coherent service identity. Adopting a theatre metaphor, service designers are described as 'directors' that 'manage the integrated and coherent project of all elements that determine the quality of interaction' (Pacenti 1998: 123). Live|work (the first service design studio based in London) describes design for services as the 'design for experiences that reach people through many different touch-points, and that happen over time' (www.livework.co.uk).

In order to achieve this design for services starts at the service interface, applying methodologies that augment the capacity to deeply understand (*empathise with*) users and service participants' needs and evaluate existing or imagine future interactions (i.e. storytelling, video-based ethnography, observations, interviews, shadowing, emotional mapping, users' diaries).

At the same time in a design process designers use different kinds of visualisations and prototypes to make ideas tangible and let people explore possible future experiences: this helps experimenting with new service models and behaviours, reducing perceived risk for organisations and communities and enhancing the capacity for multidisciplinary teams to engage in co-design processes.

From a functional perspective 'intangibility' recalls the concept of *dematerialisation*, which means lightening the solution in both a physical and cognitive way. Solutions based on 'access' instead of ownership (Rifkin 2000) can actually reduce the human, social and environmental burden of owning and managing products. Design for services has a crucial role in making this change possible: 'thinking by functions' in a creative way can help to imagine everyday life activities and consumption behaviours in completely different ways. It is about *what* a solution offers and not only *how* it works. In this case 'intangibility' is seen as a strategic quality to stimulate innovation. Design capacities to generate visions via scenarios and to redefine service life cycles are relevant here.

DESIGN FOR SERVICES AND INSEPARABILITY

Inseparability: most services require the presence of customers for the production of services.

Design for services has, since its origins, considered the role and presence of users in the service delivery process as its main focus. Design for services generally conceives users as a resource rather than a burden or a problem. Besides being a source of insights and ideas, users have been engaged in design processes to generate more desirable and usable solutions, and to explore new collaborative service models. The relevance of co-production in design for services has been explored in particular in two interconnected fields of study, one oriented to explore more sustainable ways of living (Meroni 2007, Jégou and Manzini 2008, Thackara 2007) and one specifically concerned with the redesign of public services (Cottam and Leadbeater 2004, Parker and Heapy 2006, Parker and Parker 2007, Bradwell and Marr 2008, Thomas 2008).

Research on sustainability has been looking at existing examples of inventiveness and creativity among 'ordinary people' to solve daily life problems related to housing, food, ageing, transport and work. Such cases represent a way of 'living well while at the same time consuming fewer resources and generating new patterns of social cohabitation' (Manzini 2008: 13). The idea behind this research was to consider these as promising signals for a sustainable society and examples of systemic change at a local level that could be replicated and diffused on a larger scale. All solutions were based on collaborative service and business models giving birth to new forms of community and new ideas of locality. Defined as 'collaborative services' they have the potential to develop into a new kind of enterprise, a 'diffused social enterprise', which needs a supporting environment to grow (Stø and Strandbakken 2008). The designers' role here is to contribute to the development of these promising cases by designing 'enabling solutions' – 'a system of products, services, communication and

whatever is necessary, to improve the accessibility, effectiveness and replicability of a collaborative service' (Manzini 2008: 38).

The emphasis on collaborative solutions and co-production – and therefore on a more active citizenship – is strongly linked to the contemporary debate on the redesign of public services. At the centre of this debate is the emphasis on *co-design* as a strategic approach to innovation that brings together the need to identify new sources and modes for innovation (user-driven innovation) with that for radical transformation of service models. A common statement within these studies is the requirement to move beyond simple citizens' consultation toward more participatory design approaches (Bate and Robert 2007), where citizens become co-designers of their services; in this sense design for services has been looking at the longer tradition of Scandinavian studies and practice of participatory design (Greenbaum and King 1991, Schuler and Namioka 1993); what is different from traditional participatory approaches is the addition of the 'co-creation' concept where users are now looked at as the biggest untapped resources in the public service delivery system. The co-creation model, suggested by Cottam and Leadbeater (2004), looking at the open source paradigm as main inspiration, implies the use of distributed resources (know-how, tools, effort and expertise), collaborative modes of delivery and the participation of users in 'the design and delivery of services, working with professionals and front-line staff to devise effective solutions' (Cottam and Leadbeater 2004: 22).

With this perspective the role of designers is moving toward the one of facilitator of multidisciplinary design processes, forging connections among people and organisations, bringing users to the centre of each project and defining the platforms and tools needed to enable and encourage participation (Cottam and Leadbeater 2004).

DESIGN FOR SERVICES AND HETEROGENEITY

Heterogeneity: the quality of the performance may vary from time to time, depending on the situation and service participants.

Design for services has been considering the heterogeneity of service performance looking at service encounters not as abstract processes, but as 'situated actions' (Sangiorgi 2004, Maffei and Sangiorgi 2006); meaning that service performances are affected by the conditions of the service situation, but also shaped by the wider sociocultural and organisational contexts.

Service heterogeneity depends on the interaction among different factors that can't be predicted in advance, but that manifest only during each service encounter; that is people interpret the service situation based on their experience, motivations and personal characteristics, while their actions are shaped by the way the service interface supports or inhibits certain tasks. At the same time the way people behave during the service performance is also influenced by factors that transcend the situation at hand. Klaus (1985) developed an 'interaction framework' representing the service encounter in between two circles, one representing the user's sociocultural context and the other representing the organisational context, both determining behavioural norms, conventions, values, meanings and roles.

Developing models and tools to understand the conditions that influence the quality and heterogeneity of service interactions has become a key issue within design for services: the focus is on not attempting to control or standardise service

practice but rather to design better conditions for possible behaviours to emerge.¹³ This acknowledges that the analysis and the design of service interactions cannot be separated from the overall service system and organisation; nor can it be separated from the user context. As Morelli describes it, reinterpreting Manzini's definition of service design (1993),¹⁴ designers of services need to enter new domains of knowledge (see Figure 1.4): 'the domain of the organizational and design culture and the domain of the social construction of technology' (Morelli 2002: 5).

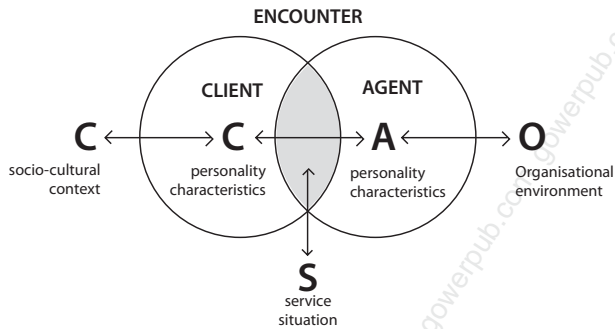


Figure 1.3 The service encounter

Source: Czepiel, J.A., Solomon, M.R. and Surprenant, C.F. (eds) 1985. Lexington, MA: Lexington Books. Reprinted by permission, 1985.

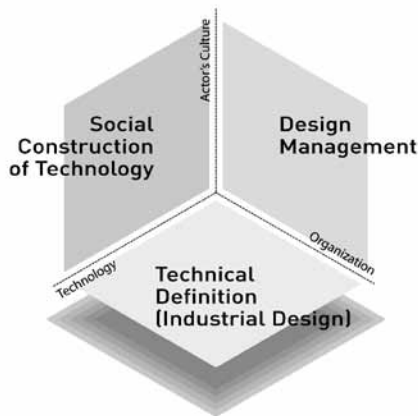


Figure 1.4 Multidimensional values implied in design for services activities

Source: Morelli (2002).

13 This is particularly true for services relying on human interactions where it is fundamental to create the conditions for service participants to empathise with each other (Forlizzi and Battarbee 2004).

14 Manzini (1993) described the design of new services as an activity that should be able to link the technoproductive dimension (what is the realm of the possible?) to the social (what are the explicit areas of demand and what the latent ones?) and cultural dimensions (what behavioural structures should one seek to influence? What values and qualitative criteria should we base our judgments on?).

In the same way interaction design has developed studies and theories to contextualise and locate interactions within wider systems and practices (Bødker and Sundblad 2008), design for services has explored the contextual and systemic dimension of services in different ways and adopted different theories in order to build conceptual models and theoretical frameworks that support designers. These models and frameworks enable the designer to observe, understand and visualise complex social systems of service organisations and to understand their manifestations.

One such research project has explored the application of activity theory¹⁵ to the analysis and design of services (Sangiorgi 2004, Sangiorgi and Clark 2004). In a similar way to interaction design (Kaptelinin and Nardi 2006), activity theory has provided a framework to go beyond one-to-one (user-service interface) and sequential interaction models (service scripts) to include wider systems of action and interactions. The benefit of this approach is that the encounters and potential conflicts among service participants can be better understood when their behaviour is situated within their wider context of action. The success of designing good services can therefore be increased by synchronising the perspectives, goals and existing practices of service participants.

With the similar intent to understand the wider context influencing service interactions, designers have adopted and adapted the concept of 'information ecology' by Nardi and O'Day (1999) to services, introducing the idea of 'service ecology'. An 'information ecology' is defined by Nardi as 'a system of people, practices, values and technologies in a particular local environment' (Nardi and O'Day 1999: 49); Live|work defines a 'service ecology' as a 'system of actors and the relationships between them that form a service' (www.livework.co.uk) considering both direct service participants and people indirectly affected by the service. Understanding and mapping out service ecologies, including artefacts and practices that form them, becomes a way to identify unnoticed opportunities and/or resources to be able to reframe service configurations and interactions; at the same time, as Morelli suggests, adopting interpretations coming from social constructivist accounts of technology (Pinch and Bijker 1984, Bijker 1995), services are the convergence between 'the social, technological and cultural frames of the actors participating in the development system' and the 'technological knowledge embedded in the artefacts used for the service' (Morelli 2002: 6). Understanding these factors helps 'to determine the paradigmatic context in which new technologies, products and services can be accepted or refused' (Morelli 2002: 6).

When designers aim to reframe service systems or ecologies to generate new ideas and improve service interactions and behaviours, they necessarily touch wider issues of organisational change and community development. Studies have explored the role of design inquiries into service organisations as a way to facilitate radical change (Junginger and Sangiorgi 2009, 2011); while a further research strand is applying transformational approaches for socially progressive ends (Burns et al. 2006, Thackara 2007) looking at communities and their resources as part of the design team and as part of the solution as well.

Finally, service heterogeneity can be interpreted as a resource for customisation; the aim is not to reduce heterogeneity, but to valorise and develop service differences to personalise solutions. Services have an intrinsic flexibility that products lack due to the localisation of provision and the variety of contexts and people engaged. This flexibility potentially allows to fit different users' preferences and needs according

¹⁵ Activity theory refers to an interdisciplinary approach to human sciences and to a set of concepts and perspectives for the study of human activity that has its roots in Russian psychology of the 1920s.

to the service situation. Customising the solution requires a change to the actors system and their reciprocal relations; this can be achieved by designing modularity into services, thus supporting economies of scope and scale for the producers, while enabling personalisation for users (Manzini et al. 2004).

SERVICE DESIGN AND PERISHABILITY

Perishability: most services can't be stored and therefore depend on the ability to balance and synchronise demand with supply capacity.

Designers have considered the balance between demand and supply capacity, starting from different perspectives, without necessarily focusing directly on efficiency and productivity issues. Rather reflections are related to the need to replicate, scale up or transfer services and service ideas, maintaining the qualities that characterise the original service model, or to generate new solutions that provide a response to an increased or varied service demand in radically new ways.

The scalability and diffusion of new solutions as well as the need for radical innovation are key issues in innovation studies, with a particular focus on the redesign of public services (Harris and Albury 2009). Here an increase in productivity is a pressing requirement, but there is an increasing awareness that drivers to increase efficiency are not enough any more (Mulgan and Tucker 2007).

To replicate and successfully diffuse new or good solutions is a challenge. Scaled up or replicate service solutions need to consider the interactive nature of services and their local dimensions.

As an example, cultural diversity is a crucial factor when replicating services: in an investigation on case studies of internationalisation of trade services,¹⁶ Morelli and Sangiorgi (2006) report how the immaterial and interactive nature of services requires a transfer process that is flexible enough to adapt the service solution to the specificity of the new context. To transfer services to new contexts both knowledge sharing and codification strategies are required (Rullani 2004a, 2004b). Designers can act as observers, interpreters and mediators (in collaboration with anthropologists) of local and foreign cultures; they work to codify knowledge into the design of signs, kits, manuals, web platforms and space layouts. They can also facilitate the transfer of tacit knowledge (such as skills, competences, values) via sharing strategies mainly thanks to the activity of trained trainers and to the organisation of on-site workshops and pilot activities.

Along with this replication process, interaction qualities can be compromised. Ritzer explains the concept of *nothing* as 'a social form that is generally centrally conceived, controlled and comparatively devoid of distinctive substantive content' (Ritzer 2007: 36). Distinctiveness and authenticity are intentionally or accidentally sacrificed for the benefit of the globalisation of service procedures, and for the convenience of users who can repeat well-known interaction patterns and recognise brand provisions. The relational qualities that belong to people's dialogical capabilities and to the 'intimacy' that a relationship can establish because of a certain degree of

16 Morelli and Sangiorgi investigated how an Italian design studio (Logotel) supported the introduction of the Italian phone company TIM within the Brazilian market acting as observer and interpreter of a foreign culture, and the introduction of the French car accessories retail network, Eurorepar in Italy acting as mediator of its own Italian culture and market.

spontaneity (Cipolla 2006), are impossible to replicate or plan in advance. After the initial enthusiasm, or because of different circumstances, these qualities can perish, just like the service. Engagement and enthusiasm can hardly be replicated. Design for services cannot avoid this limitation, but can work to support responsive and trustful interactions, recognising the person behind each individual (Cipolla 2006).

From a similar perspective Manzini (2008) describes a possible way to diffuse promising solutions¹⁷ trying not to compromise their relational qualities. In his opinion this kind of diffusion can be obtained, rather than scaling up single organisations, by connecting small and diverse initiatives via networks and platforms. This strategy is possible thanks to the convergence of emerging trends, such as distributed systems, social networks and collaborative services. The combination of these three phenomena has the potential to provide small enterprises and local initiatives with the support they need to develop their ideas, gain visibility, acquire tools, knowledge and skills and have a stronger presence in the market.

A radically new model of welfare, defined as *open welfare* by Cottam and Leadbeater (2004), follows a similar direction. Cottam and Leadbeater suggest that the problem of an imbalance between demand and supply capacity, particularly true for the public sector, cannot be solved by improving the efficiency of existing services. Instead of stretching the productivity of existing organisations, open welfare relies on mass participation in the design and delivery of services, while reconfiguring the existing service system by introducing new innovation actors (Harris and Albury 2009).

Designers contribute to these innovation and replication strategies, bringing their capacity to interpret local contexts, design enabling tools and platforms and generate scenarios that provide a vision for different stakeholders to converge and work together.

TOWARD A NEW PARADIGM

This overview has summarised some of the approaches and focuses design has been considering when approaching the service realm: making the intangible tangible and exploring the concept of dematerialisation when dealing with service *intangibility*; engaging users in co-creating services when valuing the *inseparability* of service production and consumption; understanding and designing the factors influencing the quality of service interactions and facilitating service customisation when considering service *heterogeneity*; and defining replication strategy or radically new collaborative service models when dealing with service *perishability*.

This categorisation of design contributions is still valid today and we suggest that it could be used to facilitate a conversation between design research and the different disciplines that are now to converge into a wider 'service science'. What is changing is that the distinction between products and services, as suggested by the IHIP model, is blurring together with the traditional supplier and user distinction. Information technology has multiplied possibilities for service delivery via the Web and ubiquitous computing is reducing the inseparability of production and consumption, and, in some ways, service heterogeneity and perishability. Social technologies and emerging collaborative solutions have generated the conditions for people to interact and collaborate in new ways that can hardly be described as services. Products themselves are increasingly entangled with services as an additional offering, or integrated with service functionalities by becoming smarter and interconnected (see for example digital appliances or GPS).

¹⁷ We consider solutions promising when they are potentially more sustainable and when they are capable of generating social capital.

This has caused design for services to start changing and questioning itself and its main focus of practice. By looking at the emergence of a new kind of underground communities enabled by networking technologies, Singleton (2009) questions traditional definitions of services derived from management science that tries to 'define services purely negatively – in terms of what they lack, that material products do' (Singleton 2009: 3), not contributing much to a real understanding of what a service is. He suggests looking at services as 'regulated forms of exchange' to explore the range of motivations and apparatuses of obligations that bring people to do something for someone else. In a similar way Penin and Tonkinwise (2009) recalls the political dimension of design for services being related to the design of 'relations of servility' and therefore in need of methods able to explore the 'plausibility' and 'ethicality' of service interactions. Manzini considers the growth of community-based services that rely on reciprocal exchanges of benefits as a reason to rethink services. He suggests how the products of what he calls the Next Economy are 'mainly systems based on interlinking services: technical and social networks where people, products and places interact to obtain a common result (i.e. a value that can be recognised as such by all the actors involved)' (see Introduction).

Focusing similarly on the dimensions of exchange and interactions, but adopting a different rhetoric, marketing scholars (e.g. Vargo and Lush 2004) have suggested that a service logic (instead of services) offers a new way to approach marketing and indeed the economy more generally, thus arguing for a paradigm shift in the discipline. At the core of this is a renewed interpretation of value (Normann and Ramirez 1993, 1994). This is achieved by developing two distinct models: the good dominant logic and the service dominant logic. The former is characterised by tangible resources, embedded value and transactions. The latter involves a shift from the exchange of 'goods' (interpreted as *operand resources*) to the exchange of 'benefits' obtained through the application of 'knowledge and skills' (interpreted as *operant resources*). In this framework a service is generally conceived as 'the application of competences for the benefit of others' (Spohrer et al. 2008, Vargo and Lush 2004) and goods 'serve as appliances for service provision rather than ends in themselves' (Vargo and Lush 2004: 13). In this approach there is no more separation between products and services because products are also interpreted as 'embodied knowledge or activities' (Normann and Ramirez 1993). The focus on benefits, knowledge and skills and value co-creation in interaction with users helps to reframe the way we look at systems of production and delivery, blurring the distinctions between users and suppliers. Service systems are interpreted here as 'value co-creation configurations of people, technology, value propositions connecting internal and external service systems, and sharing information (e.g. language, laws, measures, and methods)' (Maglio and Spohrer 2005: 40).

These considerations suggest a paradigm shift in the fundamentals of value creation in the contemporary economy that we will explore further in the last section of the book. It is enough here to say that from a design perspective the service dominant logic suggests a shift of focus and scale that is already happening in design, but not in a systematic way. The exponential increase in interactivity, connectivity and co-production of current offerings (being single artefacts or service solutions) requires designers to work in a more integrated, collaborative and systemic way; this doesn't necessarily mean that designers are currently equipped with the required conceptual frameworks and methodologies to do so. Marketing studies suggest a move from a 'marketing to' toward a 'marketing with', that is to adopt a more collaborative approach and philosophy to businesses (Lush et al. 2008). Design is exploring transformations in its identity, reflecting on its own role and practice, when inquiring for example into

the emergence of the open source paradigm (Leadbeater 2008) or valuing the innate creativity of people in their daily life and within co-design processes (Meroni 2007). Observing designers' practice in Dott07 public design commission projects,¹⁸ Lauren Tan, for example, identifies seven emerging roles: designers as facilitator, researcher, co-creator, communicator, strategist, capability builder and entrepreneur (Yee et al. 2009). This research is part of a wider debate into the future of design industry (Inns 2007).

We have chosen to explore these emerging roles and 'geographies of design' (Inns 2009) in practice, looking at existing research and design projects related to the service realm. The next chapter will introduce the case studies and their relation to design for services as a bridge to the next section where they will be described and commented on in more detail.

Design for Services in Practice

In the previous paragraphs we have explored the reasons why services and design for services have a significant role in today's economy and society; moreover we have applied the IHIP framework to describe some of the contributions design has brought, in theory and in practice, when dealing with services.

Notwithstanding this existing work design for services is still a young discipline where research and theory appear to be still weak and dispersed; in addition the nature and definitions of services are, as we have anticipated, already changing. We decided then to build this book around a collection of 17 case studies, adopting a phenomenological and grounded theory approach, meaning observing and interpreting these case studies to further reflect and theorise on the role and contributions of design within the emergent 'service science'. As a result a map summarising these observations will follow at the end of Section 2.

In particular we have asked six design companies – *thinkpublic*, UK: STBY, Holland; Participle, UK: Strategic Design Scenarios, Belgium; Experientia, Italy; Domus Academy, Italy – eight academic research centres – Carnegie Mellon University, USA; Linköping University, Sweden; ImaginationLancaster and Computing Department, Lancaster University, UK; Saïd Business School, University of Oxford, UK; Department INDACO, Centro Metid and Dept. BEST, Politecnico di Milano, Italy; Melbourne University, Australia – and one company – IBM Research USA and IBM Corporation, Canada – to write about their project experiences. These case studies were chosen as representing significant areas of research and practice such as social innovation, public services, science and technology-based services, interaction and experience design for services.

Having collected the case studies, we carefully read through the project experiences to mark out and group the emergent roles and contributions of design for services in order to identify the main areas of interventions and core competences of designers; these areas have been used to organise the case studies in four groups as they appear in Section 2.

We will here briefly introduce the four areas of intervention and the related case studies before moving to the next section of the book.

¹⁸ Design of the Time (DOTT) is a ten-year programme of public design commissions co-funded by the UK Design Council and local regional development agencies. Dott07 is the 2007 edition conducted in the north-east of England.

DESIGNING INTERACTIONS, RELATIONS AND EXPERIENCES

The projects within this area report on the capacity of designers to understand experiences through empathic conversations and research methodologies. Understanding experiences helps to inform the design of service interactions, relationships and interfaces, to facilitate the engagement of users in the redesign of their experiences (co-design), and to generate service ideas consistent with existing behaviours. The case studies of this area are:

- *Co-designing services in the public sector: Szebeko (thinkpublic) describes the use of an experience-based approach to redesigning health services in a collaborative way;*
- *Developing collaborative tools in international projects: the PoliDaido project: Sancassani and Fabris (Politecnico di Milano) report on the design of an e-learning service platform to enable students from distant universities to co-design;*
- *Designing empathic conversations about future user experiences: Raijmakers (STBY) describes how empathic conversations with citizens can inspire the design of meaningful services for the regeneration of a region;*
- *Driving service design by directed storytelling: Evenson (Carnegie Mellon) describes the use of storytelling as a way to inform the redesign of health services;*
- *Exploring mobile needs and behaviours in emerging markets: Vanderbeeken (Experientia) describes a project on the use of mobile phones to deliver services in emerging markets.*

DESIGNING INTERACTIONS TO SHAPE SYSTEMS AND ORGANISATIONS

The projects within this area illustrate how designing and redesigning interactions between users and the service system are the core activities of design for services; at the same time they also demonstrate how, in order to improve user–service interactions, designers often reach into the organisation, participating in deeper transformation processes and suggesting new business configurations and service models. The case studies of this area are:

- *There is more to service than interactions: Holmlid (Linköping University) investigates into the Swedish Customs' service operations to show how service designers need to deepen their understanding of the service system that is behind user–service interactions;*
- *How service design can support innovation in the public sector: Pacenti (DARC) reflects on how the application of interaction design guidelines at the service operation level can bring to deeper transformation, processes of an organisation service culture;*
- *From novelty to routine: services in science and technology-based enterprises: Kimbell (Oxford University) reports how designers work across boundaries of knowledge domains, therefore helping to reframe business models and service configurations;*

- *Enabling excellence in service with expressive service blueprinting*: Spraragen and Hickey (IBM) explore service design methods to understand employee's behaviours and inform internal service processes.

EXPLORING NEW COLLABORATIVE SERVICE MODELS

This area reports on the role of designers to generate new service ideas, interpreting emerging behaviour patterns and technological potential, whilst dealing with societal challenges. Here projects reflect on the role of participation, on the conditions and methodologies to explore and develop collaborative solutions where users become co-producers of their services, and where resources are accessed and managed in a more distributed way. The case studies in this area are:

- *Service design, new media and community development*: Bury et al. (Lancaster University) observe the emergence of community network-based services and initiatives by providing a rural village with access to broadband;
- *Designing the next generation of public service*: Winhall (Participle) describes and reflects on the application of co-creation principles to rethink the welfare state model;
- *A service design inquiry into learning and personalisation*: Sangiorgi, Gillen, Junginger and Whitham (Lancaster University) describe a design inquiry into issues of personalisation and participation within a secondary school in the UK;
- *Mobile and collaborative. Mobile phones, digital services and sociocultural activation*: Pillan et al. (Politecnico di Milano) comment on students' projects exploring more collaborative solutions to issues related to immigration, identity and social inclusion.

IMAGINING FUTURE DIRECTIONS FOR SERVICE SYSTEMS

The projects within this area explore the role of designers in helping communities and organisations to imagine future scenarios for their regions and businesses while exploring how these visions could transform their activities and lifestyles on a daily basis. In this area services are used as tangible manifestations of wider and systemic transformations. The case studies of this area are:

- *Using scenarios to explore system change: VEIL, Local Food Depot*. Moy and Ryan (Melbourne University) describe the design of food service scenarios for Melbourne to guide producers and consumers' expectations of the future;
- *Designing a collaborative projection of the 'Cit  du Design'*: J gou (Strategic Design Scenario) reports on a collaborative design process to imagine, with the local government and the community, possible futures for the Cit  du Design in Saint-Etienne.

- *Supporting social innovation in food networks*: Meroni et al. (Politecnico di Milano) describe how service design proposals have been used to build a scenario and activate social and economic resources of a peri-urban area of Milan (Italy) and support its sustainable development.
- *Enabling sustainable behaviours in mobility through service design*: Meroni (Politecnico di Milano) and Sangiorgi (Lancaster University) describe service scenarios as a way to support a company, working in the intelligent transport system sector, to imagine business opportunities for the Italian market.

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