

**Service Design in the context of Service -
Dominant logic for healthcare:
a Design Project**

Mariepi Manolis Cylwik
July 2018

A thesis submitted in partial fulfilment of the requirements of the
Royal College of Art for the degree of Masters of Philosophy

COPYRIGHT STATEMENT:

This text represents the partial submission for the degree of Master of Philosophy at the Royal College of Art. This copy has been supplied for the purpose of research for private study, on the understanding that it is copyright material, and that no quotation from the thesis may be published without proper acknowledgement

ABSTRACT

In the service economy, there is increasing focus on the development of innovative services and healthcare systems are not an exception. Health care organisations, such as hospitals, are finding themselves in a position of needing to design new services that are suitable to the current challenges, such as the management of chronic illness and a shift toward salutogenic models of health.

Simultaneously the design discipline of Service Design, has been gaining increasing attention with regards to service improvement and delivery, due to its human oriented and creative approach to problem solving. Design scholars have aligned its principles with a Service Dominant logic of conceptualising services.

In this dissertation, I explore the contributions of service design to the development of new health services (New Service Development), with particular emphasis on the initial stages of the process: the service concept.

I use a design-based project which was undertaken in collaboration with the innovation unit of a new Danish hospital, to conceptualise new decentralised services for citizens with chronic illnesses, that would take place in 2030.

The design project is discussed with respect to how service design added value to the process of concept generation, how this is relevant to New Service Development and I relate it to a Service Dominant Logic for healthcare.

Keywords: service design, healthcare, service dominant logic, service innovation

TABLE OF CONTENTS

Abstract.....	3
Table of contents.....	4
List of tables.....	7
List of figures.....	7
List of images.....	8
List of appendices.....	8
List of accompanying material.....	8
Acknowledgements.....	9
Author’s declaration.....	10
Chapter 1: Introduction	
The structure of this MPhil Thesis.....	13
Chapter 2: Context	
I. Rethinking Hospital Services	
Systemic Health Challenges and Hospitals.....	14
Paradigm shift in designing health services.....	16
II. Service Design and Service- Dominant Logic	
Design	
Design and the evolution of the design object.....	22
Design Thinking.....	23
Services and Service Dominant Logic.....	25
Service Design.....	28
III. New Service Development and Service Innovation	
Design in Service Innovation Research.....	35
Service Dominant Logic for Service Innovation.....	35
New Service Development.....	36
The service concept.....	37

Service Design in Health Innovation.....	37
--	----

Chapter 3: Research questions and methodology

Research Question and personal motivation.....	42
Research Through Design.....	44
Action Research.....	48
Limitations.....	53
Data Collection and Analysis.....	55
Ethical Considerations.....	56
Challenges and Limitations.....	58

Chapter 4: The design project

Aim.....	61
Team and methodology.....	62
Scoping workshop.....	63
COPD project	65
Phase 1.....	67
Phase 2.....	71
Phase 3.....	74
Project outcome: Konstell.....	76
Reflections on Konstell.....	79

Chapter 5: Discussion

I. Methods and tools	
a. Visualisation and Narrative.....	86
b. Relational aspects.....	93
II. Impact on the organisation	
a. Impact on process of patient involvement	102
b. Service concept as strategy.....	105

III.a Relating Service Design activities to SDL

Value of patient involvement.....	108
Limitations of GDL with regards to patient involvement.....	111
Design project and value from SDL perspective.....	113
Theoretical framework.....	124

III.b

The contribution to New Service Development.....	128
The contribution to Innovation.....	134

Chapter 6: Conclusion.....

138

Appendices.....	142
-----------------	-----

References.....	151
-----------------	-----

LIST OF TABLES

Number	Table	Page
1	Foundational Premises of Service Dominant Logic	26
2	List of post-project evaluation interviewees	55
3	Interview participants in Field Trips 1 and 2	72
4	Workshop Participants	73
5	Feedback for Konstell (the service concept)	78

LIST OF FIGURES

Number	Illustration	Page
1	The structure of the MPhil Thesis	13
2	New Service Development cycle (Adapted from Johnson et al., 2000)	36
3	Service Design Project: Overview	62
4	Design Council ‘Double Diamond’	63
5	Transforming Insights into Project Goals	70
6	Living with Chronic Obstructive Pulmonary Disease	74
7	A model of the service concept experience, in relation to touch points and health environments	79
8	A framework for linking the service concept to implementation, as used in the service design project NHN	82
9	The overall practice activities, leading to concept generation	84
10	Experience as a pillar for project research	97
11	COPD as an exploratory lens	99
12	Traditional relationship of the hospital to the patient and the service concept (Adapted from Wetter-Edman, 2011)	103
13	Relational model of the service concept, patient and stakeholders in this project	104
14	A theoretical model for the incorporation of the overarching service concepts, to projects stemming from it, and NSD in NHN	106
15	Service Design as a dynamic capability	117
16	Schematic representation of research questions	124
17	Theoretical Framework of how Service Design adds value to NSD in accordance with SDL	126
18	Service Design in New Service Development in NHN	129

LIST OF IMAGES

Number	Images	Page
1	Innovation Unit of NHN	67
2	Some of the interviewees and using a visual prompt	68
3	Patient hospitalisation journey, as a visual prompt for interviews	68
4	New Hospital Virtual reality tour (left) and ward observation	69
5	SDRCA sense making activities	70
6	Homecare Futures, workshop invitation	72
7	Homecare Futures workshop	74
8	Konstell workshop: Provocation posters and workshop images	75

LIST OF APPENDICES

Number	Appendix	Page
1	Scoping workshop details	142
2	Personna examples	144
3	Homecare futures Workshop	145
4	Konstell Workshop	147
5	Final presentation	148
6	NHN instagram photos	148
7	SDRCA interview about working with NHN	148
8	Participant Information Sheet and Consent form	149

LIST OF ACCOMPANYING MATERIAL

USB stick entitled 206957 (Student number) with:

Konstell Video 1

Konstell Video 2

Konstell Final Presentation

ACKNOWLEDGEMENTS

I would first like to express my sincere gratitude to my supervisor Qian Sun, of the Service Design Department at the Royal College of Art, for her continuous support. She consistently allowed this thesis to be my own work, but steered me in the right direction whenever I needed it.

I would also like to thank my Service Design colleague, Estefania Trisotti, with whom I conducted the Service Design Project, mentioned in this thesis. Her endless positive energy throughout the project, made the work really enjoyable.

Lastly, I want to thank my husband Chris Cylwik, as without his immense support, this would not have been possible.

AUTHOR'S DECLARATION

During the period of registered study in which this thesis was prepared the author has not been registered for any other academic award or qualification. The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

Signature:

Date:

CHAPTER 1: INTRODUCTION

Healthcare is high on the political and social agenda of most countries. It is widely recognised that the health landscape has drastically changed in the past century, with the main challenges faced globally relating to changing demographics, the prevalence of multiple chronic illnesses and distribution of healthcare resources (WHO, 2000). These challenges are creating a pressing need for health service and system innovation.

In current literature, there is evident need for more detailed investigation of service innovations (e.g. Ciasullo, 2017) and understanding how value is created in healthcare (NESTA, 2016). To this end, understanding the role of the patient in this process seems to be pivotal, as emphasised by the wide-spread adoption of principles of patient-oriented care (Bate, 2006).

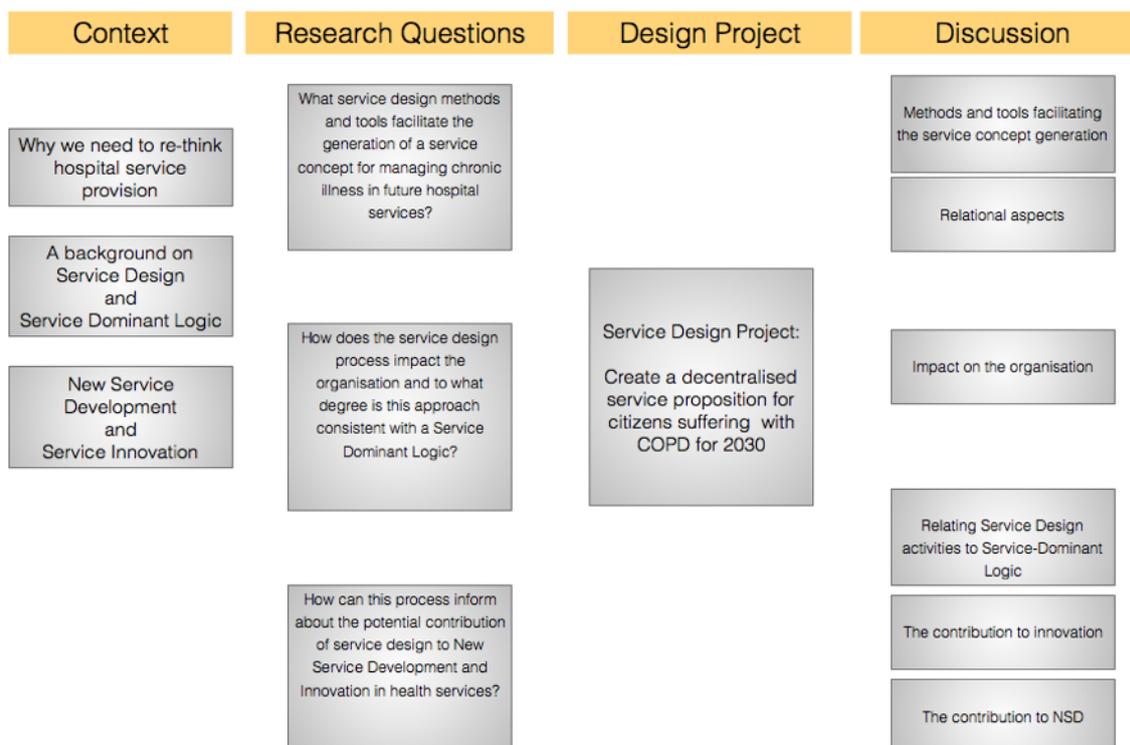
Services have been conceptualised via different frameworks that have gradually shifted from a Goods-Dominant Logic (GDL), to a Service Dominant Logic (SDL), with the expansion of the service economy (Vargo & Lusch, 2004). In this paradigm service providers have an opportunity to engage with their customers and co- create value with them (Gronroos & Gummerus, 2014). Studies into New Service Development (NSD) and its role in innovation have increased (Zomerdijk & Voss, 2011). Alongside these, a new design discipline, Service Design is gaining increasing attention with regards to innovation due to its human-centric and creative approaches to problems (Meroni & Sangiorgi, 2011). Given the above considerations, how healthcare organisations develop new services and create value, has become an area of interest.

There is scant literature about how Service Dominant Logic principles can be applied in healthcare service delivery or how Service Design can be linked to NSD in health. The aim of this dissertation is: a) to explore the contributions of service design process, in the concept generation phase of NSD for health services for the future and b) to examine how service

design aligns itself with a Service Dominant Logic (SDL) in Health. I present a service design project which was set up in collaboration with a Danish Hospital, which is the project-based foundation for addressing the research question, combined with conceptual frameworks from service design, health management and innovation and service management literature.

The contribution of this dissertation is that it highlights Service Design practice as a capability for NSD and innovation in two ways. In this design project, it altered the degree of patient involvement in the process of new service development for future healthcare services, as well as developed a service concept that was used as a strategic tool for future service development. I demonstrate that the participatory nature of the process, as well as the service concept are aligned with SDL. The value added is that the patient is viewed as a knowledge rich operant resource, who is able to determine how the service is conceptualised, as well as how it should be experienced.

Figure 1: The structure of the MPhil Thesis



CHAPTER 2: CONTEXT

SECTION I: Rethinking Hospital Services

Systemic Health challenges and hospitals

Health services can be tracked back to the early medical traditions of the Egyptians, Babylonians and Greeks, and have existed long before there was a formal service sector. Societies might have changed their approach, priorities and conceptualisation of health, wellbeing and illness, but what has remained unchanged is that health is one of the most important factors in how individuals perceive their quality of life.

In most countries, alongside the economy, it is high on the political and social agenda as a matter of human rights and social justice, as well as a major economic sector in its own right. It is regarded as a major investment sector for human, economic and social development (Ciasullo et al, 2017). Health care costs billions, significantly affecting economies across the globe as well as directly affecting the quality of daily life (Berry and Bendapudi, 2007).

It is widely recognised that the health landscape has drastically changed since the current health systems were developed, when healthcare models were geared to survival (WHO, 2000). The main challenges faced globally are related to changing demographics, the prevalence of multiple chronic illnesses, distribution of healthcare resources and the integration of new technologies (Radnor et al, 2012). Therefore healthcare systems globally are undergoing extensive macro level reforms, to address what are considered as outmoded and deficient models of care (WHO, 2000), to improve quality of life and tackle the economic impact of the aforementioned challenges.

Global system challenges are creating a pressing need for health service and system innovation. The report of the *Global Diffusion of Healthcare Innovation Working group* (2017), identifies the need for innovation as a response to the challenges faced by frontline

health workers and to improve patient experience. Similarly the *NHS 5 year Forward Review (2014)* outlines that new models of care are needed for the future. This is in light of the traditional divide between primary care, community services and hospitals- unaltered for decades- increasingly becoming a barrier to the personalisation and coordination of health services.

Why hospitals matter: The Hospital in the wider healthcare system

Hospitals are an important component of the wider health care system. I suspect few readers need a definition of what a hospital is, as everyone has experience of one directly or indirectly. I highlight a definition by Miller, to emphasise how healthcare shifts have had an impact to the role of the hospital, as an institution of care. According to Miller, it is:

‘an institution which provides beds, meals and constant nursing care for its patients while they undergo medical therapy at the hands of professional physicians. In carrying out these services the hospital is striving to restore its patients to health.’ (Miller,1997:p 3)

There is timely attention to hospitals, since in the face of wider health system challenges, hospital capacity is reduced, and there is a shift to models of decentralised care (Saltman & Figueras, 1997). Financially, they account for a substantial proportion of the healthcare budget, approximately 50 per cent in many western countries (McKee,2002) Organisationally, they are in equilibrium with their external environment by defining access to specialised care, such as outpatient clinics, day care, admissions and discharges. Therefore, any systemic changes in policy and health service design will impact the hospital system and services and vice versa. As physical entities, they are centres of resource- rich specialised care, containing specialty equipment and staff. Hence, new types of care will have an impact on hospital design and service provision, as they will require new configuration of buildings, human and capital resource allocation.

Traditionally, healthcare services existed in primary and secondary care, with the majority centralised in hospitals (Hensher, 1999). This model worked well when hospitals concerned themselves with acute single level problems, however this no longer holds true. The complexity of managing co-existent multiple chronic diseases, has blurred the boundaries

between hospital and primary care. Therefore, the above definition of the hospital begs the question: *Does a hospital cover services and activities only undertaken within its walls?* Emerging schemes such as Mercy virtual hospital¹ and outreach teams such as Patch in St Mary's London², challenge that notion. The implication for safe and high quality service delivery is that these transitions need to be carefully designed, to avoid causing harm to patients, or increase hospital readmissions, as these will negatively impact patient experience and increase workload and cost. The value of understanding the patient journey in this context, is equally important for patient experience, as well as a template to understand the transitions between the shifting primary and secondary care dynamics.

In the context of healthcare challenges, sociocultural shifts and the possible integration of digital technologies, the role of the hospital is evolving and its new position in future healthcare models remains uncertain. Since hospitals are an important component of the wider system, with major impact on the overall healthcare, it can be argued that they are central to processes of health innovation and changes in hospitals can have a deeper impact than other institutions (McKee, 2002).

Paradigm shift in redesigning health services

The above systemic landscape, render the design of future health services challenging. There are two important shifts to be addressed when considering the future of healthcare provision: the evolving patient roles and the digital technology evolution.

With regards to sociocultural shifts of health perception and the roles of the patient, in a recent Harvard Business Review article, Bhatti et al, mention that the healthcare industry has long relied on traditional, linear models of innovation often with limited input from patients (Bhatti et al, 2018). Since the turn of the century, the way health, wellness and illness have been understood is changing, therefore challenging the longevity of traditional models of health service delivery. These models have been underpinned by the concept of *ill health* which have dictated the design of health environments and services (WHO, 2000). They have also defined measures of success and value in health (Porter, 2010). The shift in perception of

¹ <http://www.mercyvirtual.net>

² For details, refer to <https://www.cc4c.imperial.nhs.uk/our-experience/blog/patch>

wellness, has been recognised by the World Health Organisation, who have adopted a more salutogenic model in re-defining health ‘not as the absence of disease but the presence of physical, mental and social wellbeing’(WHO, 2000: accessed via https://www.who.int/governance/eb/who_constitution_en.pdf)

In addition, the relationship between citizens and healthcare services has evolved. Healthcare providers often refer to patients as consumers of health (Levine, 2015)³. In the UK for example, the *NHS Five Year Forward View* proposed that the NHS would need ‘new relationships with people and communities that mobilise their energies in order to create better health and wellbeing’ (*NHS Five Year Forward View, 2014: p 2*). This notion is echoed by health care professionals, especially those working close to the community, which recognise that there is overwhelming need to remove more traditional institutional frameworks. ‘Public involvement will only get so far when connecting to services that are modified versions of traditional top down delivery models. Professionals and users could achieve a huge amount working together, if they operate within a new framework’.(Burns et al, 2006: p 9).

The introduction of terminology such as *patient-centred care* in health service literature (e.g. in NHS 2030 2015; NHS 5 year forward view, 2014), is a recognition of a widely accepted departure of patients as passive recipients of care (Donetto, 2015). Initially taken to mean an approach that focuses on patient involvement in consultation,s to uncover what is meaningful and valuable to the patient (Epstein, 2011), now it is used within context of designing healthcare processes from the patients’ perspective. This has ben a key concept in contemporary improvement efforts in which patients are regarded as active co-creators of their healthcare service experiences (Danaher & Gallan, 2016). Although there is criticism about the way this phrase is understood by health managers in service planning (e.g. Danaher & Gallan, 2016), which I will address in the discussion, the demand to redesign the system around patient needs to deliver a more personalised service, is indisputable (NHS 5 year Forward Review, 2014).

³ As used in <https://catalyst.nejm.org/we-are-all-patients-we-are-all-consumers/> Accessed 2/3/ 18

The above consequently, has led to a different understanding of how value is created in healthcare (Akama, 2015). The NESTA 2016 report on *New approaches to value in Health*, questions the current approach of addressing the nature of value, individuals and society need to achieve through healthcare services and the process for appreciating the impacts that are meaningful to people. They call out for the need for new value frameworks, which are likely to ‘consist of financial information, stakeholder experience and person reported outcome as well as qualitative information, bound together by narratives that make sense of the various octane as a whole.’ (NESTA, 2016: p 9)

Which leads us to consider the ambivalent term of value, as understood in healthcare. In financial terms, for example, Michel Porter’s concept of value as health outcome/cost, has been widely explored and adopted academically (Porter, 2010). However the concept of what is meant by outcome, remains problematising. Is outcome a disease related metric, as for example the efficacy of a treatment? And if so, how is outcome defined in chronic illness, where management is not about the cure? Or is outcome related to the perception of value as defined by the end recipient?; since the latter is also a recognised measurement of quality of healthcare (Danaher and Gallan, 2016; Bate, 2006). As notions of value shift from costs to quality, it is argued that health service planners need to give way to a new approach where users are seen as an integral part of the innovation process (Bate, 2006; Stickdorn, 2010). Maxmin and Zuboff argue that organisations are struggling to adapt, reflecting a disconnect between the individual and the organisations designed to serve them. They argue that incremental innovation within old institutions will not create the required change but they have to completely reinvent themselves (Zuboff and Maxmin, 2003). It is not sufficient to simply apply market research techniques that perceive citizens/ patients as clients and the way that changes happens will need to be different (Bate, 2007). Therefore when it comes to defining patient/ citizen relationship to the health services and understanding value, we need to start looking at new paradigms for envisioning outcomes. In this thesis, the focus will be on exploring service design in the context of Service-Dominant logic, as an approach to this question.

A second important paradigm shift with regards to health service delivery and value creation, is the rise of digital technology. Technology advancement has undeniably been a founding pillar of contemporary healthcare provision, which is an expression of centuries of

accumulated medical science and pharmaceutical research. Despite of this, health organisations and systems have been slow to respond and exploit the potential of digital technology in service innovation (NHS 5 year Forward Review, 2014). In the NESTA report *NHS 2030*, it is argued that digital technology should be assessed in the context of healthcare to create technology- enabled services, ‘redefining new services and changed new institutes of care’(NHS 2030: p.9). Similarly the NHS 5 year view, acknowledges that harnessing technology can equalise care and quality gaps and reshape care delivery. It highlights that there is an ‘unexplored opportunity to combine different technologies and change ways of working to transform care delivery’ (*NHS 5 year Forward View*, 2014: p32).

Other scholars have been more cautious in the position technology has the potential to occupy, with Jones quoting that ‘It appears the the rebellion against medical paternalism is a future driven by technological determinism, where the answer lies in low-cost networked computer technology owned by consumers’ (Jones, 2013: p 12). We thus have to ask ourselves: *What is the purpose of disruptive healthcare innovation?* Is it to improve efficiencies, costs, practices or patient experiences and therefore how we integrate the system to address value for the users, utilising technology. With particular focus to the design of hospital services, Lee argues that technology can enhance patient experience (Lee, 2017). Texeira, Patricio et al similarly argue that face to face interactions is insufficient and interaction across various channels is preferable in health. (Texeira, Patricio et al, 2012).

My medical experience, leads me to consider that we need to be cautious about overemphasising technology as a solution in the healthcare landscape. Decentralised propositions may articulate radical changes in technology, but must not fail to address the cultural meaning of doing so. By that I mean that we cannot ignore the complexity of the psychosocial context of wellbeing and illness. Or the complexity surrounding clinical decision making, therapy and more fundamentally the principles of caring, which cannot be substituted by the creation of health digital platforms alone.

Conclusion

This section has offered a summary the current systemic challenges in healthcare, as well as the specific evolving context of the hospital in the face of these challenges. It was also

highlighted that two important paradigm shifts in the role of end-recipients and use of technology are having an impact about how we think about the design of health services. Bate, who has extensively worked on Experience based design in healthcare, has argued of different ways of thinking about delivering services (Bate, 2006;2007). With increasing attention to design thinking, the need of integrating design thinking and service design specifically, in hospitals and healthcare service has been identified by Ostrom, who highlights that a:

‘Critical challenge of design in healthcare would recognise complex patient needs, emotions and behaviours, the efficiencies and cost implications of variations in systems and processes, the roles of service providers and the capacity for technology to support and deliver across innovative service platforms’. (Ostrom, 2010: p 17)

SECTION II: Service Design and Service- Dominant Logic

Berry and Bendapudi point out that healthcare is a ‘fertile field for service research’ (Berry and Bendapudi, 2007; p 111). Prior to addressing the role of design disciplines in the context of healthcare, I dedicate this section to understanding design and its link to services. The first section (A) is dedicated to design, the second (B) to understanding services and finally in (C) I bring these concepts together to consider service design as a design discipline concerned with services.

A. DESIGN

Design and the evolution of the design object

Design is a heterogeneous field and therefore it is not surprising that the term *design* is proving to be fluid and elusive. In the immediate post-industrial era, it was concerned with tangible objects, production and trade. With those priorities, design often concerned itself with the *form* of things, as Christopher Alexander highlighted back in 1971, or specifically the physical object that designers create. However the economic shift from products to services, generated a shift in design from tangible outputs (products) to intangible services and the systems that deliver them.

Drawing from Herbert Simon (1969), Heskett (2002) and Krippendorff (1989) on their view of design, we can expand the definition of design into the intangible world of systems and services. Simon sees design as the processes that respond to various problems, while Heskett defines design as ‘the human capacity to shape and make our environment in ways without precedent in nature, to serve our needs and give meaning to our lives’ (Heskett, 2002; p 5). This view is echoed by Krippendorff in examining the etymology of design which ‘goes back to the latin de+ signare and means making something[...]giving it significance, designating its relation to other things, [...] users...’ (Krippendorff, 1989 in Verganti 2009; p 142). In these definitions, design is used as a verb which is synonymous to creation. It is positioned as creating for change, functionality and meaning, a notion which is obviously applicable to intangible processes. This is echoed by Friedman, who argues that these wide range of definitions have in common, that its a goal oriented process with the aim of ‘solving problems, meeting needs, improving situations or creating something new or useful’ (Friedman, 2003; p 507).

Buchanan (1992; 2001) structured design into four orders in relation to what is being designed which were meant to correspond to emerging design disciplines 1) symbols- Graphic design 2) things- industrial design 3) action- interaction design and 4) thought- system design. Kimbell (2010b) also addresses this fourth order of design, who argues that in design for services, it is the relations between things and the actors within the systems are the focus of

the design activity, rather than the objects themselves. Buchanan explicitly points out that these disciplines cannot be seen as separate, but as a uniform entity of design thinking:

‘In fact, signs, things, actions and thoughts are not only interconnected, they also interpenetrate and merge in contemporary design thinking with surprising consequences for innovation’. (Buchanan, 1992; p10).

Design thinking

Thus design is a very heterogenous field which may concern itself with tangible and intangible creation. Referring back to Heskett's and Krippendorff's definition of design, a common denominator is the creation of meaning. During the past decade an increasing interest for design in the context of innovation has developed in the form of *design thinking*, which is closely related to Buchanan's fourth order of design. The understanding of this term seems to be context dependent relating on its use between the design and management discourses, but it is the later that has created the hype around the term in the past decade.

First introduced by Rowe in 1987, it has become a widely accepted “umbrella” term to encapsulate the processes and methodologies of various design disciplines. Although design thinking is not a design discipline, it was popularised by Tim Brown and Roger Martin as a method that concerns itself with creative problem solving. The former describes it ‘...as a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity’ (Brown, 2008). This notion of design thinking within the management discourse describes the use of design tools or methods used by non-designers (Martin 2004). It can be linked to Simon's definition of design in the sciences of the artificial : “everyone designs who devises courses of action aimed at changing existing situations into preferred one” (Simon, 1996). Its appeal lies in the context of problem solving and innovation, with Roger Martin advocating design as a ‘better way of thinking’ in business (Martin 2007) who states the benefit of ‘approaching managerial problems as designers approach design problems’ (Martin, 2007).

This focus on the approach of design problems is down to the latter being recognised as ambiguous. (Buchanan, 1992; Cross, 1982; Dorst 2001). In this capacity design thinking is the capability to work with *wicked* problems, being open to ambiguity and an iterative process (Martin, 2009). The concept of *wicked problems* has its roots in the 1960s, as formulated by Rittel who defined them as ‘a class of social system problems which are ill formulated, where the information is confusing, where there are many clients and decision makers with conflicting values...’ (Rittel, 1973; in Buchanan, 1995; p14). Buchanan later took this *wicked* problem approach to apply it to the problems designers face: ‘Design problems are wicked because design has no special matter of its own [...] the designer must discover or invent a particular subject out of the problems and issues of specific circumstances’ (Buchanan, 1992; p 16), which he further contrasts with the disciplines of science.

These theorists alert us to a frequent property of design problems, where the state of the world is partially or completely unknown to the agents, at the start of the problem solving process. Therefore design problems of this kind are open ended, with the problem requirements being incomplete (Cross, 1982). Wicked problems of design are therefore similar to the open, multifaceted complex issues that society and business face today, where the totality of the information will not and cannot be collected. With the information from section I, this concept can be applied to the complex challenges of healthcare, which have no obvious and immediate solution and can therefore be conceptualised as *wicked*. These are the most critical and costly issues, such as ageing populations, chronic disease management, integration of health and social services. They occur at a scale that has considerable financial and societal impacts. Reaching an agreement on how to solve these problems remains difficult, but they require action in the face of incomplete knowledge.

The conceptualisations of design thinking, presented above, stems from management literature. In design terms, it is not a discipline in itself, but refers to the practice based approach that designers use. The practice based approach stems from Schon’s emphasis on the tools and methods used by designers with specific emphasis on empathy and the use of iterative processes that allow alternating between detail and the whole (Schon 1987). The visualisation process used to describe possible future solutions are highlighted as especially important (Brown, 2008; Lawson, 2006). In this capacity, design thinking is used for its characteristics of being able to problem frame at an abstract level, visual skills and iterative

processes that attempt to envision possible futures (Kelley, 2001). This process can therefore be relevant to reframing and addressing health challenges.

B. SERVICES

In view of the fact that healthcare provision is based on service encounters, before I examine design in health, it is crucial to have an overview of the literature regarding services. A huge amount of interdisciplinary work from disciplines as diverse as economics, management engineering (Secomandi, 2011) and now design (e.g. Sangiorgi, 2014; Kimbell, 2010c) has been done to understand, characterise and quantify the complex nature of services, their development and innovation. This emerging field of service science is defined by Ostrom as ‘the interdisciplinary field of inquiry that focuses on fundamental science, models, theories, and application to drive service innovation, competition and well being through co-creation of value’ (Ostrom, 2010: p 5).

Two frameworks for thinking about services

Management’s and marketing’s interest in services emerged in the 1970s (Brown et al, 1994) with Shostack’s seminal paper *Breaking Free from product marketing* (Shostack, 1977). In the early years the literature is defined by the goods versus services dichotomy. The IHIP framework (Zeithaml, Parasuraman et al, 1985) dominated and formed the basis for service marketing and management. It is an abbreviation of the four qualities that distinguish services from products and stands for Intangibility, Heterogeneity, Inseparability and Perishability (IHIP). Intangibility is self explanatory, referring to the fact that services cannot be touched compared to products such as a surgical instrument. Heterogeneity recognises that a service procedure cannot be standardised in the same way as goods production, as the people that take part in the service delivery process are different in each occasion. Inseparability identifies the simultaneous production and consumption of services. Lastly perishability highlights that services cannot be pre-produced and stored for later use. With this in mind, Edvardsson, Gustafson and Roos (2005) provide two approaches when thinking of services: a “market offering” or a “perspective on value creation” (Edvardsson, Gustafson and Roos, 2005). The former looks at services in their key differences from physical goods and manufacturing, whereas the latter focuses on value creation.

Service Dominant Logic (SDL)

IHIP was critiqued mainly because of its comparison of services to products, therefore subsequently, its influence on how services are perceived in literature has diminished (Zomerdijk et al, 2010).

Instead, Vargo and Lusch's emergence of a service dominant logic (SDL) framework, focused on service as perspectives for value creation (Vargo and Lusch, 2004). Drawing and combining theories such as the relational aspects of service encounters (Gronroos, 2000; Gummesson, 1995) and value creation as a constellation, rather than a chain (Normann & Ramirez, 1993), they brought an end to the product-service dichotomy by defining services as: 'the application of competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity (Vargo and Lusch, 2008b: p.26). In this capacity, SDL echoes anthropological views on service which defines them as 'part of the human condition, existing before a formal service sector and a way that humans adapt involves providing services to one another' (Bloomberg & Darrah, 2015: p. 173)

Vargo and Lusch developed Ten Foundational premises of S-D logic to clarify value creation as shown in table 1.

Premise number	Table 1: Foundational premises of S-D logic (as taken from Vargo et al, 2008: p148)
FP1	Service is the fundamental basis of exchange
FP2	Indirect exchange masks the fundamental basis of exchange
FP3	Goods are a distribution mechanism for service provision
FP4	Operant resources are the fundamental source of competitive advantage
FP5	All economies are service economies
FP6	The customer is always a co-creator of value
FP7	The enterprise can not deliver value, but only offer propositions
FP8	A service- centred view is inherently customer oriented and relational
FP9	All social and economic actors are resource integrators
FP10	Value is always uniquely and phenomenologically determined by the beneficiary

The authors revisit early economic theory to state: ‘The S-D logic view of exchange fundamentally challenges the foundation of economics (Vargo & Lusch, 2004), though in a real sense, it recaptures Smith’s (1776) original notions of applied, specialised knowledge and skills (service) and value-in use (real value) as primary’ (Vargo et al, 2008: p.147). The main emphases are in value-in-use and context, as well as the co-creation of value. Similarly Gronroos & Gummerus support that service providers have an opportunity to engage with their customers and co- create value with them (Gronroos & Gummerus, 2014) in three different value spheres:

“**a provider sphere** that is closed to customers, where the service provider compiles resources, including potential value-in-use, to be offered to the customers to facilitate their value creation; **a joint sphere** in which the service provider and customers interact directly, which enables the provider to engage with the customers’ value creation and co-create with them; and **a customer sphere**, which is closed to the provider and where the customers independently create value and may socially co-create value with actors in their eco-system” (Gronroos & Gummerus, 2014; p. 209, emphasis mine)

Therefore we can conclude that service is understood as a way of thinking and doing business (Gronroos, 2006) rather than tied to a specific design object or offering, which we can relate to the problematisation over value creation in healthcare.

C. DESIGN AND SERVICES

Service design

When referring to the term Service Design, debate exists in literature of whether it is design *for* or *of* services (Junginger, 2009). The reason for this, is that the term has been used in multiple contexts, in service marketing, management and design discourses, having emerged from a combination of them (Wetter-Edman, 2009; Stickdorn and Schneider, 2010). Its growth has accompanied the large scale developments which have been outlined in the above sections, namely the shift from goods to service and experience based economies (Reason et al, 2009), and the growth of digital technology.

Service design has gained a lot of attention over the years, due to its affinity to design thinking, as a new way of creating innovation, particularly through the management academics (e.g. Kimbell, 2009a; 2011). Before I examine service design and innovation, I will frame service design as a discrete discipline, with respect to its academic and practice based directions.

Academically, the term has existed in service marketing and management literature since 1970s, when the initial descriptions of services and their differentiations from goods were emerging. It does not start appearing in the design literature until the 1990s (Hollins & Hollins, 1991; Buchanan, 1992). Sangiorgi places its roots in Interaction Design, emerging as a contribution to the evolving economic landscape of services versus goods (Sangiorgi, 2009). Its point of departure from interaction design is that it does not solely focus on the design of the user-service interface, but evolves to concern itself with services as a whole, in the changing relationship between users and services (e. g. Sangiorgi, 2008; Kimbell, 2009c). The UK Design Council defines it as being ‘all about making the service you deliver useful, usable, efficient effective and desirable’ (Design Council, 2010, accessed from <https://www.designcouncil.org.uk/sites/default/files/asset/document/Design%20methods%20for%20developing%20services.pdf> on 25/ 6/ 2018).

Service Design as a practice based activity within the designers' competence is relatively new (Wetter- Edman, 2009). It emerges as a new design profession in 2000s, with the first service design studios Live work and Engine opening in London. It is interesting to note that recently there has been a trend of merging service design studios with leading management consultancies, therefore creating in-house Service Design capabilities. Examples include McKinsey which bought Lunar and Accenture acquiring Fjord (Reason et al, 2016). Sectors such as banking and healthcare are starting to follow suit with examples Capital Bank acquiring Adaptive path (Reason et al 2016) and the Mayo clinic, after a long term collaboration with IDEO, has now established its own design practice (Brown, 2008). Outside the commercial world, in academic institutions Service Design is also featured as a postgraduate degree as for example the Service design course in the Royal College of Art, and London College of Arts.

It is now considered a distinct discipline which has generated its own disciplinary foundations in the design field (Junginger and Sangiorgi, 2015) and is a continuously evolving area of research, practice and profession. Having borrowed and absorbed descriptions and perspectives on service and service development from service management and marketing, it integrated them with ideas of design thinking and *designerly ways of knowing* (Cross, 1982) to create value in the services market by improving offerings.

Service design principles

Recent literature (Kimbell, 2011; Patricio and Fisk, 2013) has argued that service design should be viewed as a holistic, multidisciplinary field that helps to innovate services so that they offer value to the customer, are effective and efficient. Many organisations are starting to examine their customer experience and the value it can bring (Akama, 2015). Particular emphasis has been paid on its contribution to innovation, through a holistic approach that includes end-users and stakeholders in the process. (Stickdorn and Schneider, 2010; Donetto, 2015; Akama, 2015). Scholars have therefore paid increasing attention, to the principles and tools of the design processes, that might facilitate this.

Central pillars of service design have been highlighted to be a human- centred approach of the design process (Kimbell, 2009c), iteration as the facilitator for problem solving, co-creation,

visual communication and prototyping (Stickdorn et al, 2010). While reviewing the literature on Design Thinking, Service Design and Service-Dominant logic, I noticed that there was terminology that was used in both discourses with a different meaning (e.g. co-creation), or that there were overlapping notions (e.g. the role and value of the user or consumer). In this section I summarise the service design principles and where applicable, compare them to terms encountered in SDL literature. This is mainly focused on co-creation and human centricity (or the position of the user/customer).

Perception of the user

Design Thinking talks about users as human beings, emphasises being empathetic with their needs and situation, as a guide to the design process which adds value. There are two prevalent terms in the literature that capture this: User and human centred design, which will be elaborated on, in the discussion.

A user centred perspective is frequently advocated, in service design literature. By placing the user in the centre of the service, service designers are able to discover how the user experiences the service in its wider context, which are frequently and commonly visualised with journey maps. Ethnographic approaches, borrowed from anthropology, such as interviews, observations and field research, add another layer of qualitative data are thought to foster an *empathetic* view point. (Stickdorn, 2010; Akama, 2015, Brown, 2008). The design process is described as

‘a set of techniques and approaches that puts users at its heart, works from their perspectives, engaging with articulated knowledge, latent perceptions and emotional responses. This set of techniques provides a language for dialogue that will be central to the co-creation approach.’ (Burns et al, 2006; p. 9)

There is a question mark about how these traditional user-centred design practices can be applied in more complex settings, such as healthcare systems, as these have multiple users and stakeholders. In these situations, the relational aspect between users or actors of a system is emphasised as a way in how design can add value (Sangiorgi, 2009; Homlid, 2007). Moggridge states that it facilitates to ‘create sustainable service ecologies, where the actors involved exchange value in ways that are mutually beneficial over time’ (Moggridge, 2007).

So the value of the design practice lies in the relationship with the user. In SDL, it is customers and beneficiaries that are defined rather than users and value is perceived in the way that the customers relate to the service. To understand this further, the concepts of co-creation and participation are examined below.

Co-creation or participation

The concept of co-creation has two different meanings in the design and marketing/management literature. In SDL, it specifically refers to value generation, where the user is part of this creation, as seen in the previous section. However, in design literature, co-creation refers to the process of involving stakeholders not only in the design of the solution but also in the production of development (Bate, 2006; Freire and Sangiorgi, 2012).

We have established that service design is described as being focus on the human perspective (Homlid, 2009b). As an extension of this, designers involve stakeholders and end-users (non-designers), to take part in the idea generation process (Hans, 2010; Stickdorn 2010) and in the design of the output (Burns, 2006). Junginger makes the distinction of designing with people rather than designing for people (Junginger, 2011). There is literature on the spectrum of user participation in the process of design, that I am not expanding on here. Examples of other terms used in relation to co-creation and relate to non-designer participation are co- design, and participatory design. One consequence of participatory practices are that they expand the designers' skills to relational and facilitating (Han, 2010), which are noteworthy as another aspect that can add value to design processes.

Having examined the user or customer and co-creation, I take a parenthesis to briefly look at value as understood in SDL and design, before continuing with the remaining service design porkpies of visualisation, prototyping, iteration and interdisciplinarity.

Value

I have briefly problematised the ambivalent notion of value in healthcare. The nature of value is also much debated in marketing and management literature and in the diverse

interdisciplinary field of service science which is particularly focused on how when and where value creation happens in services (e.g. Vargo and Lusch, 2004; 2006).

The different ways of thinking about value reflect the dichotomy of the Goods Dominant logic versus the Service Dominant logic and is indirectly related to the degree of separation between the roles of *consumers* and *producers*. Vargo et al, differentiate the concepts *value-in-exchange* versus *value-in use* (Vargo et al, 2008). The former reflects a G-D logic, where theories of consumers and producers are distinct and value creation is dominated by a firm producing a good which is exchanged in the market place for money. Therefore value is measured by the exchange transaction. *Value-in-use* is tied in with SDL, where the roles of producers and consumers are not distinct ‘meaning that value is always co-created, jointly and reciprocally in interactions among providers and beneficiaries through the integration of resources and the application of competencies’ (Vargo et al, 2008; p2). In Vargo and Lusch (2006), they link the value-in use to the concept of experience and state that ‘there is no value until an offering is used-experience and perception are essential to value determination’ (Vargo et Lusch, 2006; p 44).

They hence take *value-in-use* one step further and differentiate *value-in-context*, as reflected in FP9 and FP10, where ‘value is uniquely and phenomenologically’ determined by the beneficiary (Vargo et al, 2008; p148). They define the service- system as the value- creation configuration of resources such as people, information and technology (Vargo et al., 2008).

From a design perspective, I cannot find explicit literature that addresses value. It is however implied, for example in the definition of service design by the design council: ‘Service design is about making the services we use usable, easy and desirable’ (Accessed from <https://www.designcouncil.org.uk/sites/default/files/asset/document/Design%20methods%20for%20developing%20services.pdf> on 25/ 6/ 2018). Literature that ties it in with problem solving that is meaningful to the user (e.g. Brown, 2008; 2009), inherently implies its value. Value is also related to experience, as for example Løvlie stating that services are ‘experiences that reach people through many different touch-points’(Løvlie, et al, 2008; p174). In general, the connection designers have with the users when it comes understanding needs and desires, is thought to be a starting point for designing with user experience in mind. The nature of value

becomes particularly interesting when relating to service innovation, as will be seen further down.

Visualisation

Visualising techniques are considered “hard” skills and a given for designers and in this context, their value lies beyond the aesthetic. Tools and methods are often described as core in design (Kimbell, 2009a) and are used with a dual aim: for designers’ own understanding, what Schon calls reflection-in-action (1983), but also as a communication tool. Specifically in services, making the service tangible, as achieved by visualisation has become an important aspect of service design (Stickdorn, 2010). Examples include blueprints, user journey mapping, storyboards, system mapping, stakeholder maps (Segelstrom & Homlid, 2011). Tools to visualise complex structures and systems from different perspectives, enable the designer to present issues from different viewpoints. They facilitate dialogue between participants who do not share a common language, make ideas more tangible and less complex and support communication (e.g. Selgezstrom & Homlid, 2011)

Prototyping

Prototyping and its advantages are extensively covered in literature (e.g. Brown, 2008; Akama, 2015). I will use Brown’s words here to summarise them as a “good risk management technique: commit a little and learn a lot; fail early, succeed sooner. The culture of trying things out quickly and getting feedback in-situ and then iterating the idea is a fast and low-cost way of moving project forward” (Brown, 2008; p 2). In other words, it is not about avoiding mistakes but exploring them early on, making prototypes and probes of services and testing them on end users and stakeholders, which can ultimately prove to be a cost saving exercise (Akama, 2015).

Iterative process

Iteration is crucial for problem framing, as well as identifying whether there are aspects that have not been explored yet. In Rittel’s words: ‘One cannot understand the problem without knowing about its context; one cannot meaningfully research for information without the

orientation of a solution concept; one cannot first understand and then solve.' (Rittel, 1973; p161).

Interdisciplinarity

Finally, one dominant description of service design, is its interdisciplinary character, which holds true of service research generally (Olstrom, 2010). A good design process recognises that complex problems cannot be addressed from a single point of view or a single set of expertise knowledge. It focuses on the inter-relationship between users, workers, professionals and services, as a means to enable a wide range of disciplines and stakeholders to collaborate and develop solutions that are practical and desirable. Design becomes the critical process that facilitates the combination of knowledge and expertise that will underpin the new possible solutions, as these are co-created with all the users in mind. It draws in a range of disciplinary perspectives that will include not only designers, but policy and professional expertise. This concept of inter-disciplinarity (Sangiorgi, 2009; Burns et al, 2006) in turn, facilitates an approach that can cut across traditional institutional boundaries and hierarchies.

Conclusion

In this section I have overviewed the evolving nature of the design object, to relate it to services and understanding service design as a discipline. I have summarised some of the key principles of service design and have related aspects of them to the perception of value as it is understood in SDL.

SECTION III: Service Innovation and New Service Development

Design in service innovation research

Existing studies in service innovation highlight the importance of incorporating Service design and design thinking and visual and performing arts (Ostrom, 2010). Recent literature has argued that service design should be viewed as a holistic, multidisciplinary field that helps innovate services so they offer value to the customer and are effective and efficient (Kimbell, 2011; Patricio & Fisk, 2011).

Research in service innovation, mirrors the early discussions within the service marketing field of the differences in innovation processes between products and services(Gallouj and Weinstein, 1997). This journey from a goods dominant logic to a service dominant logic has seen the emergence of two broad approaches: technological and non- technological, as seen in Droege, Hildebrand et al (2009). Referring specifically to non- technological innovation, Djellal & Gallouj (2010) recognise the multidimensional character of innovation and service innovation specifically. Other service design theorists such as Sangiorgi, also embraces this character and identify innovation with the Gallouj and Weinstein (1997) description ‘as the combination of changes in factors such as service characteristics, service providers competences, service provider technology (tangible or intangible such as models), and client competencies (including co-production abilities)’ (from Sangiorgi, 2014; p 2429). The above authors also recognise that innovation in service is most often a process leading to a ‘renewal of human behaviour’ (Sundbo, 2008).

Service-Dominant Logic for service innovation

One of the implications of SDL for service innovation and design, is that of the positionality of the *customer* in the various stages of the service development process. Ostrom states that

“a key characteristic of service innovation is that it often changes the roles of providers, coproduces, and customers of services and alters their patterns of interactions...service innovation creates value for customers, employees, business owners, alliance partners and communities through new and/ or improved service offerings, service processes and service business models” (Ostrom, 2010: p 5).

The connection of service design with service innovation and the development of new and improvement of existing service is therefore obvious (Selgestrom and Homlid, 2009).

At this point it is important to distinguish the concepts of service innovation and service development that can be used interchangeably in literature (Menor et al, 2002). The latter focuses on the practicalities of developing a service and service quality, as emanating from service marketing and management literature.

New service development, Service innovation and Service design

In service innovation research the concept of new service development (NSD) (Figure 2) has attracted attention. NSD describes the entire “process of developing service offerings” (Johnson et al, 2000) as characterised by a set of activities, tools and competencies (Sangiorgi, 2014) ranging from idea to launch (Cooper et al, 1994). In relation to NSD, service innovation has been applied from idea generation (Edvardsson, 2000), to the whole process of development (Sundbo, 1998).

NSD process has been described with different models, initially following a similar structure to new product development (NPD) of linear and sequential steps (Booz and Hamilton, 1982). The most referred to current model however, is that proposed by Johnson et al (2000), which reflects a more open and iterative approach. In this view, New Service Development consists of four cyclic phases: design, analysis, development and launch.

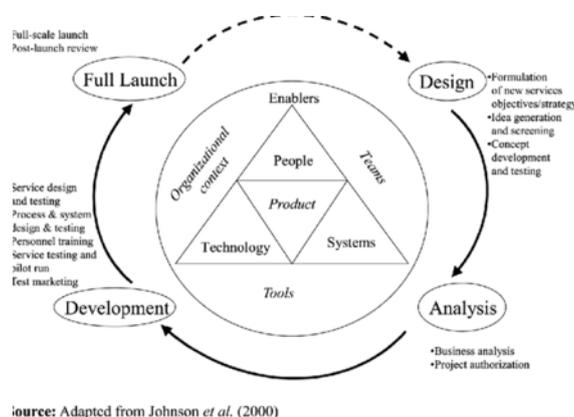


Figure 2: New service development cycle (Adapted from Johnston et al 2000, as can be found in Menor et al 2007)

In the above model, *Design* relates to the service concept development and *Development and Analysis*, to the service delivery, built upon the service concept and specifications. In other words, how service concepts are realised (Roth & Menor, 2003) and translated into service specifications.

The service concept

In NSD, Edvardsson and Olsson (1996) define service concept as a prototype for the service, whereas Johnson et al (2000), put concept development and testing at the heart of service design (as defined from the management and economic perspective). Many authors refer to the service concept as a central component in designing services (e.g. Goldstein, 2002). Goldstein et al suggest that the service concept is the ‘missing link’ in service design research, ‘mediating between the customer needs and the organisations strategic intent’ (Goldstein et al, 2002; p121). The service concept needs to be clearly defined and shared with stakeholders before the process proceeds to the operation phase, because well defined service concepts can help organisations translate abstract ideas to concrete operational information (Goldstein et al, 2002; Clark et al, 2000). From the management/ marketing literature perspective, service design (with reference to the design stage of NSD in this discourse), is considered a critical stage for service development as it works towards achieving quality (e.g. Edvardsson, 1997). This understanding of service design implies a distinct phase of NSD (Wetter-Edman, 2009), which is different from the views of Service Design from design literature, as a vehicle to service innovation and a discipline with a holistic nature (Stickdorn & Schneider, 2010). However Sangiorgi (2014) states that in this capacity, service design (design discipline) has not been fully explored in terms of capabilities and competencies to contribute to new service development as an approach to service innovation.

Service design in health innovation

There is recognition that service design can improve healthcare by bringing new service ideas to life (Ostrom, 2010), through a human-centred approach to creating new services (Blomkvist & Homlid, 2010). Therefore there is potential to strengthen the link between healthcare design and design.

Design has been applied to health practice historically and predominantly at the level of product design, as for example drug delivery pumps and surgical equipment. Design at the level of complexity suggested by Buchanan is now materialising in the redesign of public services and health systems (Burns, et al 2006; Parker and Heapy, 2006).

The recognition that current challenges in healthcare are caused by multiple factors that interact in complex ways, has led to an alternative practice emerging to traditional linear models of innovation, that place emphasis on utilising the design principles of human-centred design and co-creation (Bhatti et al, 2018). In their recent Harvard Business Review article, they bring three examples of the Helix centre at Imperial College London, the centre for innovation at the Mayo clinic and the consortium for medical technologies at Massachusetts General Hospital. Each locates interdisciplinary innovation labs within/ near hospital environments, involves a diverse stakeholders beyond clinicians, such as designers, professionals and patients, early in the innovation process and engages end users in customising solutions for their own needs.

The report of the *Global Diffusion of Healthcare Innovation Working Group* (2017), similarly identifies the need for innovation as a response to the challenges faced by Frontline Health workers and patient experience. Service design is interestingly mentioned in the report in the context of ‘generating cost efficiencies’ (GDHI, 2017; p 5), rather than in its human-centred nature. However, the report acknowledges that expertise resides with users and front-line workers and that a top-down innovation strategy, might not be appropriate for the complex healthcare problems. They emphasise the more participatory nature that front line providers and citizens for generating solutions.

There are examples in literature of service design in healthcare with varying degrees of success, organisational impact or being embedded in the processes for designing new services. Such examples include projects such as Violence in A&E (Design Council), reducing time needed to diagnose breast cancer patients (Anderson, 2018), post stroke rehabilitation (Chamberlain et al, 2017), better outpatient services for older people (Chamberlain et al, 2017).

It is not in the scope of this thesis to elaborate on the success or levels of impact of those projects in isolation. Sangiorgi has reviewed healthcare projects (2011; Sangiorgi & Freire, 2009) and identifies some key issues in terms of organisational impact and strategy. From personal experience, it is important to note that having worked in more than 10 leading London Hospitals and being involved in health service improvement, I have never witnessed the collaboration of designers in service development in hospital settings. This is leading me to believe that the principles of service design have not adequately penetrated the layers of hospital service planning and execution needed to make a widespread difference. I am not going to examine whether this reflects the ability of service design to make an impact in this setting, or it is because of outdated managerial models and organisational barriers in hospitals. Perhaps it is a combination of the above. This project is different because rather than examine improvement of services, it has taken an opportunity to involve a service design team in new health service development, from the the initial stages.

Conclusion

Section I outlined the clear need to establish service innovation in healthcare, in view of current systemic challenges. The complexity and co-existence of chronic disease and how these are managed in a “dated” system have proven to be problematic both for citizens and healthcare providers. There is an argument that hospitals are a vital part of a complex structure of healthcare delivery. Their position define the boundaries of the degree of (de)centralisation and call for a need of smooth integrations amongst the constellation of components necessary to navigate care. In addition the rapid growth of technology, allows the exploration of new opportunities of the role of hospitals for the future, and new service systems.

Maxmin and Zuboff argue that organisations such as these, are struggling to adapt, reflecting a disconnect between the individual and the organisations designed to serve them. They argue that incremental innovation within old institutions will not create the required change but they have to completely reinvent themselves (Maxmin and Zuboff, 2003). With regards to healthcare organisations, there is need for transformation and health model disruption in how we envision healthcare delivery in the future. More specifically the need to create new environments and design new services for the healthcare sector, making healthcare a good field for service research, as identified by Berry and Bendapudi (2007).

Therefore the necessity of new service development as well as careful service design are obvious, to create value both on a personal (experience) and systemic level (societal, financial). In Ostrom’s research priorities, there is recognition that service design can improve healthcare by bringing new service ideas to life (Ostrom, 2010) through a human-centred approach to creating new services (Blomkvist & Homlid, 2010). Therefore there is potential to strengthen the link between healthcare design and design.

With regards to the service and design literature, in section II, I have outlined the conceptual framework for SDL which has difficulties achieving concrete development and service implementation. On the other hand, Design thinking and service design which is rooted in

practice, has difficulties reaching managerial and strategic levels with recognised difficulty in implementation and embedding (Wetter- Edman, 2009; Sangiorgi, 2015).

Sangiorgi has identified an opportunity of positioning Service Design within New Service Development Framework for Service Innovation, to answer *How are new services designed and developed and could service design principles, methods and tools be a facilitator of new service development?* Although service design is closer to the business world (Sangiorgi, 2014), it can be argued that it needs to adapt to the hospital context and convince managers about the power of patient experience and the effectiveness/ value of service design.

CHAPTER 3: RESEARCH QUESTIONS AND METHODOLOGY

Introduction

Responding to the research call by Ostrom (2010) and Sangiorgi et al (2014), the purpose of this research is to better understand how service design methods and tools can contribute and act as facilitator to new health service design and development. The research will focus on the evolving role of the hospital and how design can contribute to health service innovation, bearing in mind the combination of emerging technologies, new human experiences and alternative social practices.

Research question

Explore the contributions of service design process, methods and tools in the concept generation phase as part of New Service Development (NSD) proposition, for the role of hospitals in managing chronic illness in the future, and to examine if this approach is aligned with a Service Dominant Logic for healthcare.

Subquestions

- a) What service design methods and tools facilitate the generation of a service concept for managing chronic illness in future hospital services?
- b) How does the service design process impact the organisation and to what degree is this approach consistent with a Service-Dominant Logic?
- c) How can this process inform about the potential contribution of Service Design to New Service Development and Innovation in health services?

Personal motivation for this research

My interest in the research question is not abstract, but grounded in 15 years of experience of working in National Healthcare System (NHS) as a medical doctor. As a front line health practitioner, the challenges that are often mentioned in literature, take on a different meaning for both myself and my patients as we experience them as our daily reality. It was obvious to both parties that things could be done differently, so I started looking at design, as a way of creating a meaningful impact.

The link between design and healthcare is not immediately apparent to a lot of my medical colleagues. The sectors' understanding of how services should be designed is focused on efficiency and integration, but with limited understanding of the qualities of the service that are important to users. I hope that through this research I can create a bridge between design and healthcare service design, to make its contribution understood by healthcare managers. I want to attempt to break the conceptual barriers that see the two as separate and work towards the notion that health service design requires interdisciplinarity to create change and innovation.

Methodology: Research through Design (RtD)

In order to address the research questions, I present a service design project which was set up in collaboration with a state-run Danish Hospital, which I will refer to as NHN. The purpose of the design project was to deliver a service proposition for future decentralised services, in relation to citizens/ patients with chronic conditions. This acts the project-based foundation for addressing the research questions, in line with Research through Design (RtD) methodology. Research through Design has been used as a methodology within the design community in the past two decades (Zimmerman, 2010), but is less familiar to external academics. In the next section I offer a brief overview of RtD and why it is fitting with my research questions and aims.

Setting RtD in the context of Design research

Design research started establishing its academic foundations, in the beginning of the 20th century, which saw a marked effort by designers to legitimise design as a discipline in its own right. The 60s and 70s can be classified as the Design sciences decades, where design research aimed to match the processes of established scientific processes, which were seen as being intellectually robust. Writings such as Herbert Simon (1969) Archer (1965) etc, influenced this period which aimed to make the design process intelligible to non-designers, in the context of industrialisation. The following decades of the 80s were influenced by Schon (1983), Cross (1982) and reflective practices, came into focus as part of research methodology.

In this period of design research exploration, Frayling's introduction in the Royal College of Art Research Papers (1993), of Research for design, Research into design and Research through design (Frayling, 1993), were highly influential and have been heavily discussed.

Alain Findeli, redefined the three forms of design research as follows (2004):

- “Research for design” aims at helping, guiding and developing design practice. Those researches document the processes and concerns of professional designers and treat designers and their practice as the object of their study.

- “Research into design” is mainly found in universities and research centres contributing to a scientific discipline studying design. It documents objects, phenomena and history of design.
- “Research through design” is the closest to the actual design practice, recasting the design aspect of creation as research. Designer/researchers who use RtD actually create new products, experimenting with new materials, processes, etc.

(Cited from Godin et al, 2014: p. 1668)

Research Through Design

Findeli’s proposition formalised the academic merit of RtD and although the nature of RtD is still debated and discussed with no uniform definition (Godin, 2014; Zimmerman, 2010; Zimmerman, 2007), the above definition is often cited in literature. It has acted as the foundation for much work in the field and is adopted for this thesis.

The common characteristics in this form of research, is an approach to scientific inquiry that is project- grounded. In differentiating research ‘about’, ‘for’ and ‘through’ design, Findeli (2008a) argues research through design combines both research ‘for’ and ‘about’ design, through the application and use of design practice in a manner which is embedded, engaged and situated. It distinguishes itself as unique in the way in which it creates knowledge about the world, by utilising the insights gathered through design practice.

In the previous chapter (pages 22-25), I set the context of design as a way of change, which addresses wicked problems. With this in mind, we can better understand that the focus of the intended outcome, links RtD to Simon’s definition of design in *Sciences of the Artificial* as ‘changing existing situations into preferred ones’ (Simon, 1996, p. 111). In an attempt to distinguish RtD as separate from science, Zimmerman et al (2007), link RtD with Rittel’s concept of “Wicked Problems” (Rittel, 1973; Buchanan, 1995). Consequently, it ‘provides an opportunity for the research community to engage in discourse on what the preferred state might be’ (Zimmerman et al, 2010, p 310), and to provide a better understanding of complex and future-oriented issues in the design field (Godin, 2014).

Knowledge is gained by the practice of design activity, revealing research insights (Zimmerman, 2010). More specifically, by conducting a design exercise and continuously

reacting on direct and indirect observations, beliefs and experiences. The approach has a highly iterative character, switching frequently between a theoretical and a practical perspective (Zimmerman, 2010).

In pages 24, I have established how healthcare challenges with regards to service design, can also be viewed as wicked. In addition, my research questions, involve driving change in the process of designing new services for the future. These questions represent complex, real life situations, that are future facing and can be regarded as wicked. Therefore, using a more iterative design research methodology would be appropriate. The object of this thesis is concerned with the contribution of service design in concept generation for New Service Development, in healthcare and therefore merges fields of healthcare management, service management theory together with design practice, as a way to examine the contribution of design in hospital service development. In this sense it is trans-disciplinary, as it integrates practice based knowledge that is generated through the design process with specific aim of transforming and challenging the current practice of constructing health services. RtD is intrinsically multidisciplinary and enjoys both conceptual and methodological contributions from other disciplines bringing different assumptions, expectations, and practices to the table for discussion. In addition there is lack of comprehensive empirical material in this area of study at present, which also makes this empirical- based methodology appropriate for addressing the research questions. Hardyman et al. (2015) advocates for more research of an ethnographic nature on how value is co-created in healthcare, based on the healthcare customer value co-creation practice styles proposed by McColl-Kennedy et al. (2012).

For the purposes of this research, I share Jonas's view, who proposes design research as a second order cybernetic mode of inquiry, where the 'embodied observer inside a design system, generating knowledge and change through active participation in the design/ inquiring process' (Jonas, 2014; p. 31). In this model, the object of design is to generate human centred-innovation, with design being the process of adaptation towards a preferred state, which are additional reasons why RtD is seen as an appropriate method, as a way of generating knowledge.

This is suited to my research aims which involve:

1. Learning by doing
2. Research grounded in practice to produce design knowledge through practice
3. Practice which is collaborative and oriented towards driving change within the process of New Service Development in healthcare
4. The use of experimentation and iteration to build new knowledge and to challenge existing theory of healthcare service development

To understand how the design project is linked to the research, Basballe and Halskov (2012) distinguish three phases that are characteristic of the flow of the Research through Design as related to the design project: coupling, interweaving and decoupling. Coupling refers to establishing the basic frame that 'unites research and design interests' (Basballe & Halskov, 2012; p.65). In this case, this phase preceded the design project and it was similar to what is described as gaining entry, in social sciences. It consisted of finalising a proposal in exploring the design of decentralised services for the future, together with NHN. The phase that is described in Chapter 4, reflects the interweaving phase. At this point research interests and design interests influence each other and the project as processes, methods and validation are established. In the final phase of decoupling, the designer/researcher typically focuses on either the design or research aspect. In this case, it happened after definition of what projects will be taken forward, where the focus became the final evaluation of the project.

Research through design as action research

RtD is related to methodologies such as grounded theory and action research, both of which are recognised for conducting research through design or project- grounded research (Feast & Melles, 2010). With respect to this design project, action research was chosen as the most compatible with the nature of the research questions as well as the positionality of the researcher. Grounded theory was considered, however the distant role of the observer as well as the iterative, and potentially transformative nature of the design project, lend itself to an action research approach.

Action research is characterised by a dynamic ongoing interaction between the development of theory and the pursuit of practice. From a design research perspective, Jonas (2012)

suggests action research is ‘aimed at the modification of reality, while observing and processing theory modifications’ (Jonas, 2012:p.21), and therefore is concerned with projecting change. It is aligned with the iterative nature of the specific service design project “creating conditions that facilitate people's control over the determinants of their health” (Holter & Schwartz-Barcott, 1993; p 299) and as an approach that promotes innovation in healthcare. Furthermore it is grounded in local problem solving (Argyris et al., 1989) it bridges the gap between theory, research and practice (Holter et al., 1993).

These aspects of the embedded, engaged and participative nature of action research in terms of creating change, fit in with the thesis objectives within the healthcare service design sphere, as well as with my personal motivation for conducting this research in order to view the context through the lens of service design rather than a medical practitioner.

Action research definition

The foundations of action research lie in the 1940s and the work of Kurt Lewin, a social scientist whose work was concerned with intergroup relations and minority problems in the United States. His approach to problem solving employed worker- centred, participatory techniques which lead him to coin the term in 1946, to provide a framework to describe a methodology in which to ‘solve practical problems through a research cycle involving planning, action, and investigating the results of the action’ (Lewin, 1946: p.37) and theory grounded in local problem solving.

This methodology has evolved in divergent ways since the 1940s creating what Argyris and Schon describe as an ‘action research family’ (Argyris & Schon, 1989) and the plethora of definitions of action research lead one to conclude that this “umbrella” term is used to describe a style of research, rather than a specific method (Meyer, 2000).

Although there's no universally accepted definition (Dickens & Watkins, 1999), there are certain features and characteristics of this methodology that make it recognisable and unique as a style of research and with which there's a general consensus within the research community. One of these is that the inquiry is done by, with or for insiders to an organisation or community, rather than research done on them. (Herr & Anderson, 2015).

In *The Handbook of Action Research*, Reason and Bradbury (2006) defined action research as

‘A participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions of pressing concern to people and more generally the flourishing of individual persons and their communities’. (Reason and Bradbury, 2006; p.4).

In a systematic review of action research for healthcare, which was commissioned by NHS Research and Development, Waterman et al (2001) similarly propose the following definition, which is going to be the preferred definition for the purposes of the dissertation:

‘Action research is a period of inquiry, which describes, interprets and explains social situations while executing a change intervention aimed at improvement and involvement. It is problem focused, context-specific and future-oriented. Action research is a group activity with an explicit critical value basis and is founded on a partnership between action researchers and participants, all of whom are involved in the change process. The participatory process is educative and empowering, involving a dynamic approach in which problem identification, planning, action and evaluation are interlinked. Knowledge may be advanced through reflection and research, and qualitative and quantitative research methods may be employed to collect data. Different types of knowledge may be produced by action research, including practical and propositional. Theory may be generated and refined, and its general application explored through the cycles of the action research process.’ (Waterman et al, 2001; p11).

Carr and Kemmis (1986) in their seminal work, further describe the key characteristics of action research as a) Participation b) democratic impulse and c) contribution to social science and social change. This is to say that the roles of participants and researcher are more cooperative and less hierarchical. Participants not only play an active part in the research and the change process, but also contribute to the validation of study findings, so as to inform decisions about the next stage of the project. The action researcher acts as a facilitator to change, consulting participants across traditional boundaries, which applies to this case study, as will be seen in subsequent chapters.

The final characteristic of action research refers to knowledge generation. There is a lot of debate on the knowledge generation aspects of action research and one of the main criticisms of this methodology is whether the findings are generalisable and transferable to wider

settings. There is a differentiation between knowledge generation, versus whether that knowledge can be generalised and transferable. Drawing on the work of Geertz's (1983) in anthropology, Cohran-Smith and Lytle (1993) make a distinction between local and public knowledge. Echoing Argyris & Schon (1989) who state that action research 'takes its cues from the perception of practitioners within a particular local practice context' (Argyris & Schon, 1989; p. 613), they argue that practitioners generate knowledge based on action within one's situation, and this aspect represents one of the major strengths of action research (Koshy, 2010; Parkin, 2009). In relation to the context of this case, the knowledge was generated with particular aim of transforming the local knowledge. In the process of comparing and contrasting this local knowledge to existing literature, as is done in the discussion, a theoretical framework is created in pages x.

Action research and healthcare

Whilst action research has long been used in a variety of disciplines (Kingsley, 1985), within health care settings it started gaining momentum and increasing popularity in the 1990s (East & Robinson 1994), at a time when there was increasing concern that research evidence is not sufficiently influencing practice development (East et al 1994). It is thought to bridge the gap between theory, research and practice, 'creating conditions that facilitate people's control over the determinants of their health' (Holter & Schwartz-Barcott, 1993: p.302). Its suitability to identifying problems in clinical practice and helping develop potential solutions has made an argument for its use as a strategy for implementing and managing change (Burns, 2007; Parkin 2009). Coughlan and Coughlan link action research to the practice of strategic management:

“Action research is fundamentally about change. it is applicable to the understandings planning and implementation of change in business firms and other organisations. ... Such knowledge informs how a large system recognises the need for change, articulates a desired outcome from the change and actively plans and implements how to achieve that desired future.” (Coughlan & Coughlan, 2002: p.225)

Furthermore Hall (2006) argues that action research may be more fruitful than models of change as the responsibility for it lies with teams in their workplaces rather than with centralised policy-makers who may be far removed from the situation where change is needed.

The difficulty and challenges in implementing change in healthcare is widely documented. Because of power imbalances among healthcare stakeholders, action researchers invite a more participative, egalitarian, and practical approach, especially with respect on two key stakeholders: the citizen (or patient) and healthcare practitioners, encouraging both to participate in a change process whilst giving them a voice.

With regards to the role of the patient, there is a paradigm shift being recognised by most governmental bodies. The emergence of new language to reflect this, is apparent in healthcare publications where outcomes and care are described as patient-reported outcomes, patient-centred care, patient-led care (e.g. in NHS 5 year Forward Review, NHS 2030). For the purposes of this dissertation, I am going to refer to citizens rather than patients, when referring to people that will at one point of their lives need to interact with healthcare services. Although there is an argument that patient is reminiscent of more paternalistic and traditional models of care, to avoid confusion, I will use patients when referring to citizen that are in the active process of engaging with healthcare services for the management of a specific condition, in lack of availability of better vocabulary. Historically, although citizens are central, they are usually not sufficiently involved in the development of their actual care systems (Bate, 2007). If we are steering a future into systems that challenge the possession of power away from healthcare institutions and navigated more by the citizens, the citizens need to be equipped and adequately supported to take on this role and more importantly be instrumental in creating a system that reflects their needs. This change process requires citizen participation and therefore need to utilise research methodologies that reflect and can enable this. Similarly health professionals need to feel valued and active participants in implementing changes for a system where they are expected to deliver the care. Interestingly Bradbury offers a 10 year review of action research in Swedish healthcare, in which she argues that action research can be an approach that promotes innovation in healthcare:

“An action research orientation to healthcare exemplifies a shift in mindset that redefines traditional notions of expertise and distributes authority to all key stakeholders, often across multiple complex systems and directly engages participants in personal reflection on their experiences” (Bradbury, 2016: p. 273).

The NHS Research and Development Programme commissioned a systematic review of the action research which concluded that:

‘The review demonstrates that not only can action research produce evidence (or knowledge) that is similar to that produced through traditional quantitative or qualitative research methodologies (that is descriptive, theoretical or evaluative), but it also produces types of evidence and knowledge that can inform healthcare practices, services and organisations. The findings indicate that action research can play a role in changing healthcare practice, because it crosses the ‘boundaries’ of research and action (or development).’ (Cited from Koshy, 2011).

It further highlighted that action research would be appropriate in innovation and the development of new services, development of knowledge and understanding in practitioners and other service providers. Rather than establishing and verifying conventional truths about what currently exists, the idea operating in this action research approach to healthcare is to interrupt habitual practice by exploring and inspiring innovative alternatives.

Therefore, action research seemed to be the most fitting methodology for the practical evaluation of service design as a practice of transformation, which has its principles rooted in design and therefore working with stakeholders to understand the context, and create solutions, in an iterative way.

In summary, Reason and Bradbury suggest

‘Action research is only possible with, for and by persons and communities ideally involving all stakeholders both in the questioning and sense making that informs the research, and in the action which is its focus’ (Reason & Bradbury, 2013: p.4-5).

Despite originating from different research epistemologies, both action research and research through design use sense making to explore how people construct their realities and build mental models to understand and justify their actions in the world (Krippendorff, 2007; Sanders & Stappers, 2012). Research through design might not follow a participative

approach in the strict sense of how it is defined in the social sciences, which involves continued collective action and reflection. However, design interventions aim to construct new realities with the capacity to foster social change (Manzini, 2013), and thus highlight clear parallels between action research and research through design.

Methodology limitations: Critique of RtD

The uniqueness of RtD, lacking specific protocols, descriptions, and guidelines for its processes, procedures, and activities, exposes it to critique about whether it meets the standards of good research, when it comes to its knowledge production and transferability, rigour and validity. Much like for action research, validity in RtD cannot be evaluated by the reproducibility of the results since ‘there can be no expectations that two designers given the same problem, or even given the same problem framing, will produce identical or even similar artefacts’ (Zimmerman et al., 2007; p. 499).

Action research has its own validity criterion to make-up for replicability: recoverability, a criterion that can be applied to RtD. Although rigour and validity are not the same, they are directly linked. This would mean that a rigorous process leads to valid outcomes and therefore recovering the process and establishing its rigor would lead to granting validity to the outcomes of the research.

Authors such as Biggs & Bucher, Findeli address those concerns by proposing that ‘rigor in research is the strength of the chain of reasoning, and that has to be judged in the context of the question and the answer’ (Findeli, 2007; p. 69). With regards to validity in RtD, Godin et al also suggest that ‘the designer/researcher is using the project as her or his field for data collection and the validity of the choice of this field comes with the success of the design project’ (Godin et al, 2014; p.1672)

I have established how RtD is a separate entity to science with respect to addressing wicked problems, that are by definition not approachable using scientific or engineering modes of inquiry (Zimmerman, 2007; Rittel, 1973). In both cases, researchers acknowledge that the goal of solving a wicked problem is a solution that is optimal for the current situation and not a focus on the discovery of truth (Binder, 2006; Zimmerman 2007). In a similar reasoning,

Gaver (2012) highlights that design activity involves many different decisions, dealing with many different factors of an artefact, all situated within the specific circumstances of production and use (Gaver, 2012). Therefore he proposes that theory by necessity under-specifies design activities and the implication of this is that the theories produced by research through design, are not falsifiable in principle.

In RtD, design becomes a resource for new knowledge through the empirical effects it produces. Glanville (1999) has suggested that what is produced is no longer just knowledge about a phenomenon; it is knowledge about how a design intervention and a phenomenon interact, accepting that as the two meet, they are both transformed. In this sense, design in research allows you to acquire new knowledge and offers insights into alternative realities. This can be problematic for those concerned about producing objective universal knowledge about certain realities, but it is very useful for those concerned with experimenting with and improving realities.

Finally some design researchers claim RtD should always be done with a “theoretical scaffolding” (Godin, 2014) so as to distinguish RtD from design practice, which I have aimed to do for this project by drawing on literature review within the fields of service design, healthcare, innovation and service management, to gain a theoretical framework of the impact of service design in new service development in hospitals, in term of value. This framework is presented in pages x of the discussion. It is common for Design researchers to often “borrow” conceptual perspectives from other disciplines and discuss their applicability for design. Examples that are widespread in the design community include notions of affordances, context and situatedness (Zimmermann, 2007).

Having trained in a strongly positivistic tradition and participated in a RtD methodology, I have formed the belief that the projective nature of research through design, with a human centred imperative moves design research debates beyond the critiques often associated with more relativist and constructivist perspectives. The participative nature of action research methods, in turn, provide an important counterpoint the self-reflective nature of enquiry in research through design. For the purposes of my thesis, this ensures the research action and analysis are not only the result of introspective deduction, but are also situated in a larger project for collective action and change.

The applicability of the knowledge generated to other settings, is a consideration given the nature of action research. I have not aimed to generalise the themes that have emerged, as the project was concerned with envisioning future service propositions in the local Danish context. By contextualising them in the extant literature, it has allowed me to propose a theoretical framework that is relevant to the challenges that health systems face and how service design can add value in their approach.

Design project evaluation

The Design project was evaluated throughout the process with the users in workshops and feedback and the design concept was constantly iterated. Following the completion of the design project, a series of eight evaluation interviews were conducted, to establish the post-project action plan, as shown in Table 2. They formed part of the reflection stage of the overall research and supported the meta-analysis of findings to create new knowledge about design and new service design and development in healthcare. Interviewees ranged between those directly affected by the design project to those who were not directly involved in the design projects, but had a active involvement in the sector.

Table 2: List of post-project evaluation interviewees		
Users	Clinician, NHN	1
	COPD citizens	2
	COPD Hospital Nurse	1
Other stakeholders, working in the sector	Citizen with chronic illness	1
	Design Council service designer	1
	Policy Lab	1
	Senior Partner in Management Consultancy	1
Total		8

Data collection and Analysis of the research

The project was the basis of qualitative data collection, with all artefacts produced in the process used as data, after they were photographed. These took the form of drawings, artefacts created in workshops, transcripts, audio, video recordings, photographs, presentations, field

notes and a personal diary of all activities undertaken during the field trips and the documentation of the SDRCA process. Bowers, promotes the use of many artefacts for RtD. This series of linked designs, once combined, constitutes what he calls a 'portfolio', which presents interwoven features that can be used for analysis or any other form of research inquiry, making the portfolio an 'annotated portfolio' (Bowers, 2012). The final stage of the analysis was an iterative process of reflection and thematic analysis to evaluate and assess the unique the contribution of design for healthcare services. This involved:

1. Evidencing impact (potential and actual) and outcome of design projects to the specific healthcare context
2. Evaluating how design interventions were impactful for healthcare new service development, with specific reference to value as understood by Service Dominant Logic with reference to patients.

To undertake this, I engaged in a number of distinct activities. The first involved the revision, reflection and reinterpretation of raw data, ongoing mapping and pattern recognition of overall project findings. Second, the findings from the evaluation interviews and the analysis were contextualised by the supporting literature, to create a theoretical framework for addressing the research question.

Ethical considerations

One of the founding premises of the service design project was user participation in the process of design of future healthcare services. The necessity of having this degree of participation, acknowledged the risk to participants of contribution to qualitative health services research. In line with the risks highlighted by (Richards & Swartz, 2002), these were identified to be:

Possible anxiety and distress, feeling of exploitation, misrepresentation, identification of the participant, inconvenience and opportunity cost. To reduce the risk of harm, ethical approval to ensure ethical standards were met, was sought both by the research Institution (Royal College of Art) Ethics committee as well as meet the local standards. Exclusion criteria included any children (defined as less than 18 years of age), adults that lacked capacity, adults

that needed a translator to participate. Commercial or for-profit stakeholders were excluded from workshops with patients and medical staff.

Participant recruitment

A project information booklet, with an invitation to take part was created and disseminated in public spaces within the hospital. Contact was initiated by prospective participants and participation was entirely voluntary.

Consent

Written consent was obtained by participants, following a discussion about the following issues: the purpose of the research, what material will be collected (including audio-visual), ways the participant can take part (workshops or interviews), anonymisation of interview transcripts and the possibility that certain quotes from transcripts will be used in an anonymised manner, to avoid identification by others. Interviews were confidential, transcribed and anonymised. Photographic material used, was done so with permission.

Emphasis was placed that the research was being done by a design team, which was not intended to be therapeutic or an adjunct to their medical care. Participants were reassured that refusal to participate would not jeopardise their healthcare. The participants had the opportunity to withdraw consent at any time, as well as participate to various degrees, depending on interest and availability. They were given details of a liaison person from the innovation unit, should they require additional support.

Participants details and contact

Participation in either workshops or interviews was initiated by the participants, after making contact with a designated member of the team and expressing interest. Participants would be given a choice of dates to participate in either interviews or workshops. Their contact details were not stored. Participants were given a link to a medium account to follow the progress of the project as well as be invited back to scheduled workshops to review the findings. No financial rewards were offered.

Workshop structure

Care was taken that patients, citizens and medical staff were not brought into contact with non-governmental, for-profit or commercial stakeholders in the process.

Design Project Challenges & Limitations

This research was not without limitations because of some challenges in setting up and conducting the design project, as summarised below.

Timeframe

As is true of other action research projects, the long gaining entry process, impacted on the time available to participate in subsequent stages of the New Service Development Process and therefore the dissertation is contained to discussing the initial stage. Secondly the Design Project was conducted within the MPhil/ MA RCA context and therefore had to respect the organisational deadlines for conclusion. It has been argued that timeframe is especially important to RtD since smaller timeframes tend to lead to less leveragability in the results (Dorst, 1995). The counterargument to this, is that the timeframe available for concept generation, was what would be expected in the real setting of a hospital and in that sense, the results represent the realistic pressures that exist.

Location

The design project was conducted in Denmark, a different country to the one the design team resided in. This was challenging in the following ways:

1. Design of the process was careful and deliberate to maximise data collection during the field trips. However there was a limit to what was feasible
2. Time limitations on the extend of ethnographic research in terms of observation, participant recruitment
3. Logistical difficulty in conducting workshops that involved multi-functional teams
4. Cultural context
5. Linguistic barriers

To overcome these challenges, the option of having a local designer collaborating was extensively explored. However, a combination of time and funding limitations did not make this feasible or cost effective. The practical ways the team overcame this was by having a design liaison within Innovation Unit to assist with organising interviews and workshops, provide cultural context and careful mapping out of the design activities in each field trip to maximise time efficiency and output. In terms of linguistic barriers, where translators were not available, candidates that did not have basic conversational English, would have to be excluded. The second impact of these factors on fieldwork planning is that the team did not manage to conduct home observations as initially intended.

Human, financial resources and external

A project of this magnitude was complex, however the core team consisted of two people with a finite end point. Therefore doing field activities, research together with balancing project management and the administrative aspects, became quite challenging and impacted on limiting the number of activities, stakeholder recruitment and workshops the team could run. In addition the number of on-site trips were decreased from four to three, because of difficulty recruiting during a period where the hospital was implementing a new Electronic Patient Records (EPR) system. As a result of this, medical staff engagement and participation was also challenging. Their clinical responsibilities often had to take priority over participation in lengthy workshops.

Positionality

The team were aware that having a IUNHN team member present during interviews and workshops might influence the quality of the information provided by users, both citizens/patients and hospital staff. Although IUNHN were external to the hospital, SDRCA noticed that they were frequently perceived as internal by staff and patients. Therefore the SDRCA team operated independently and tried to conduct workshops where one participant that would be seen as a peer to the group, would be fluent in English and almost act as an ambassador or representative, to translate and help the others freely express their thoughts. Visual prompts and sketches were also used to give an overall picture of what was communicated and

occasionally the use of internet translating applications. This situation was advantageous in that the team became more astute in non-linguistic cues and had to get more creative in the ways they would explore a situation to elicit information.

Bias

The issues of subjective interpretation and personal bias were acknowledged, especially as I am a medical doctor, with extensive experience in the British healthcare system. This was factored in the fieldwork analysis to ensure data validity. This was achieved by multi-source data collection and triangulation (Mason, 2002; Hopkins, 2002) so to obtain multiple perspectives. The Design Project sense making was independently done by both members of the SDRCA, with themes discussed collectively. In addition these insights were communicated back to IUNHN and participants as a feedback loop for iteration. External to the project loop, RCA weekly tutorials and peer presentations worked like validation meetings (Lomax et al.,1996) and post-project evaluation interviews were done to ascertain impact.

CHAPTER 4: The design project

Aim

To explore the practical nature of the research question, a collaboration was created between the Service Design School of Royal College of Art and the Innovation Unit of a hospital set in North Denmark. The latter was involved in the process of merging three peripheral hospitals in North Denmark, into a newly constructed acute hospital (NHN), scheduled to open in 2021 (Figure 3). The construction of a new hospital site was seen as a unique opportunity to examine New Service Development, given the future healthcare challenges, the technological opportunities and the new social practices emerging around organising the access to wellbeing. The researcher articulated a proposal for exploring decentralised models for care for chronic illness for the future which was accepted. The intention of the project was to help the Innovation Unit of NHN (IUNHN), medical professionals and hospital managers understand how service design could contribute in the creation of new decentralised services for NHN, that would take place in 2030. The deliverable in this collaboration was a new service concept for the NHN hospital as part of New Service Development for chronic patients of the future NHN hospital. The intent was to conduct the study in the current setting, in preparation for the new hospital services of the future. Data collection for the project presented in this dissertation took place between February to May 2017.

Team

The service design team (SDRCA) which was responsible for conducting the project, consisted of two service design students from the Royal College of Art: myself as the researcher and a second year MA student. SDRCA collaborated with the Innovation Unit from NHN (IUNHN), as shown in Figure 3.

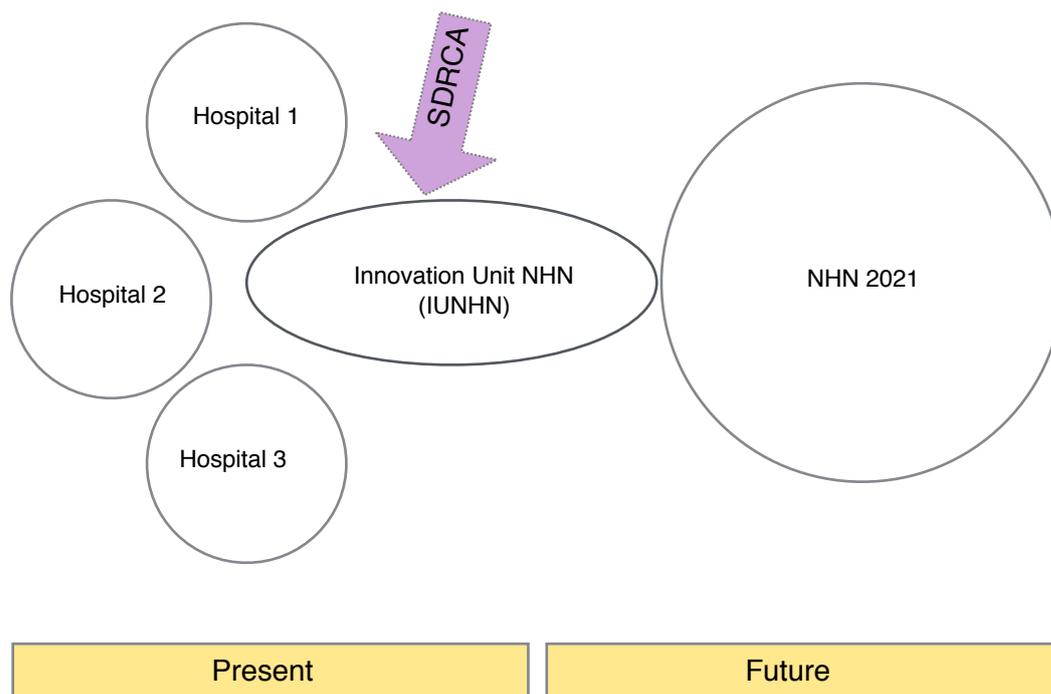


Figure 3: Service Design project overview

Project Methodology

The SDRCA team applied the Design Council ‘Double Diamond’ framework (Figure 4) for tackling the project, which is divided into four distinct phases: Discover, Define, Develop and Deliver, with diagram illustrating the interlinking of the subsequent phases through iterative cycles.

The project spanned over four months and prior to it commencing, SDRCA organised a scoping workshop with IUNHN, to co-define the brief. Subsequently the work was organised into three field trips, where SDRCA employed user centred research methods such as

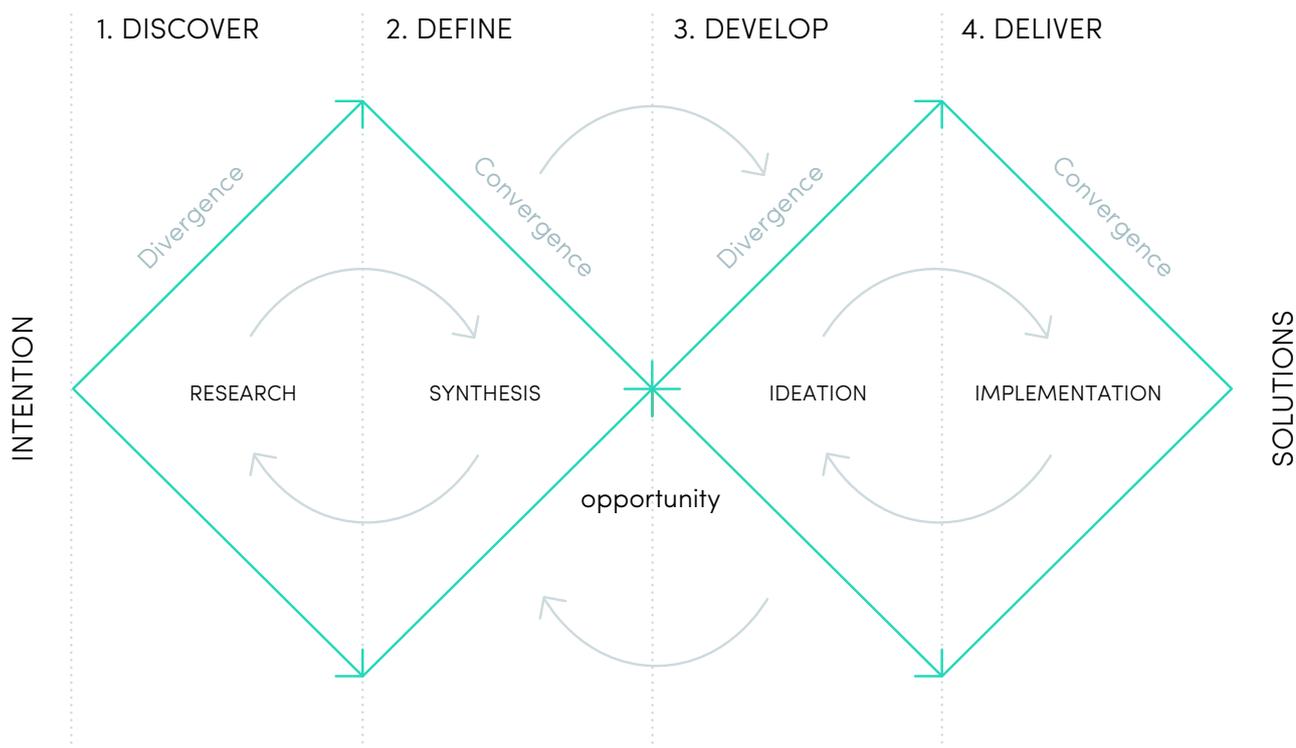


Figure 4: Design Council 'Double Diamond'

interviews and non-participatory observation, as well as co-design methods such as workshops and rapid prototyping techniques. In the next sections I give a more detailed overview of these activities.

Scoping workshop: Brief co-creation

The design brief was co-created between SDRCA and IUNHN, in a creative one day design workshop, the details of which are in Appendix 1, organised by the SDRCA team. The interaction through creative exercises were the foundation of gaining an understanding of the organisational context and priorities. The resulting discussions guided the design brief and strategic direction of the project.

It was agreed that the aims and deliverables would be:

1. SDRCA would be involved in the initial stages of the NSD cycle.
2. The design object was to create the service concept for citizens with chronic respiratory conditions. Given the practical nature of the project, the particular focus were citizens with

Chronic Obstructive Respiratory Disease (COPD)⁴, as they had been identified as a ‘hard to reach’ group, with poor experience, high hospitalisation rates and frequent readmissions.

Participants

In order to explore a new service proposition for the future of chronic illness management, the SDRCA team was eager to involve as many participants reflecting the variety of healthcare system users, as possible. SDRCA worked with participants from the following groups: Innovation Unit, hospital and community medical staff, hospital management, technology experts, citizens and patients. The participants varied in their level of participation in the project. Some of the medical staff played a significant role in the conduct of the project, for example, by initiating new ideas or solutions, recruiting other participants and helping to interpret the data. Others took a less active role and were involved in interviews and/ or workshops. All participants were voluntarily involved in the project, as seen in the Methodology chapter.

At this point, I will clarify the nature of the participants especially in relation to the terms users, patients or stakeholders, which appear frequently in the dissertation and might seem to be used interchangeably. For clarification, I define how I have used these terms in this segment. Every person who is a part of the service system is a stakeholder of the system (Lyons and Tracy, 2013), making all project participants stakeholders, such as patients, citizens, front line health providers, quality managers and technology expert groups. I take the position that users of the healthcare system, are stakeholders but at a given point in time, the reverse does not necessarily hold true. In this context users are a group of stakeholders who share their involvement in its delivery and execution, such as front line health providers, citizens and patients. Barile and Polese (2010) identified four types of prominent stakeholders which are: customer⁵, provider, authority and competitor. During the project SDRCA

⁴ COPD describes a group of lung conditions that cause respiratory difficulty, secondary to airway narrowing. It is a chronic progressive disease, most commonly diagnosed in smokers, which worsens with age. It is characterised by fluctuations of symptom severity with gradual deterioration over time. In the Danish context, despite it affecting approximately one tenth of the population, it is the most frequent cause of hospitalisation.

⁵ For the purposes of NHN and in the context of health, I do not use the term customer, unless related to concepts from other work. Instead I use *patient*, for citizens that are actively involved in ongoing interaction with healthcare systems, to differentiate from citizens, whose healthcare needs in relation to providers might be dormant.

acknowledged the psychological wellbeing of both customer i.e. patients and their families, and providers (e.g. doctors, nurses, support staff) as a recognition that front line workers are also users of the service, albeit in a different role.

COPD Project Overview

During this period, three week-long trips to Denmark took place for carrying out the fieldwork with the trip objectives set as:

Trip 1: Problem Framing

Trip 2: Insight validation and brainstorming

Trip 3: Service concept validation

Fieldwork and non- fieldwork research was conducted throughout the project aiming to create insights into the context, the people and the experience. In the later stages, the aims of research shifted from information gathering to idea generation, validation and iteration.

During the fieldwork, the SDRCA team conducted over 43 interviews, carried out non-participatory ward and outpatient clinic observation and run 5 workshops. Furthermore they participated in two immersive experiences: a) to gain a better understanding of the layout of the new hospital, they used Virtual Reality (VR), b) they immersed themselves in the patient experience by staying in the hospital-run patient *hotel*. The subsequent section predominately focuses on the overall process as related to the fieldwork.

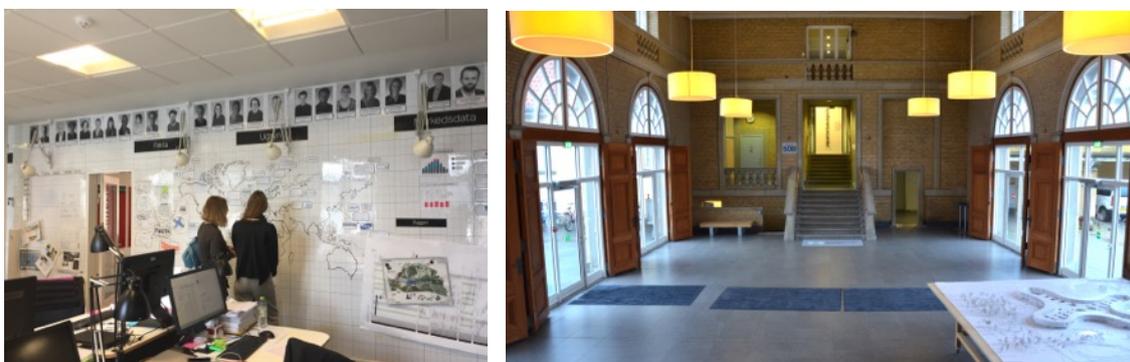
In the trip-interim periods SDRCA activities were focused on ‘sense-making’ of the fieldwork, non-fieldwork research, creative work (such as prototyping, creating visual materials for interviews, workshops) and administrative for organising the trips ahead. I am using the term non-fieldwork research, to describe research that was undertaken in a non-local context, such as desk research and semistructured interviews to gain expert opinion. The documents reviewed during this phase consisted of reports, articles, policy documents, government initiatives and case studies grouped in four broad categories: Medical condition, Danish health system and hospital information, technology benchmarking, and innovation. These exceeded one hundred documents and local quantitative reports. Expert opinion was also sought in the domains of emerging health technologies and innovation and design.

A linear, sequential process is described which does not truly reflect the reality, where at each stage, findings and existing understanding of previous stages were validated and iterated. Therefore these phases do not represent closures, but serve to describe a spectrum where each phase is in a continuous intentional semi-finalised state, allowing it to be modified by subsequent findings.

Phase 1: Discovery and definition

The first trip focused on conducting ethnographic research, through interviews, non-participant observation, and two immersive experiences. In the initial problem framing phase, the stated SDRCA objectives were to:

- Build a preliminary understanding of the systemic contexts, user needs and stakeholders involved in the healthcare service innovation process for the new hospital.
- Understand the literature and state of the art in healthcare innovation and the design of health environments.



Images 1: Innovation Unit of NHN

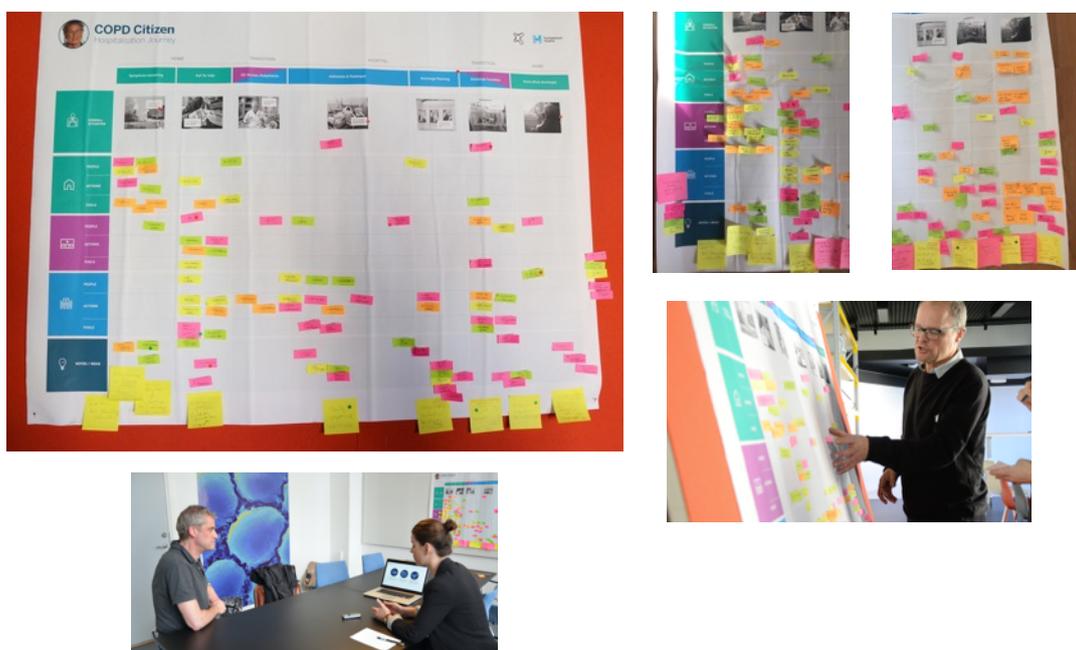
Interviews

A total of 21 interviews were done as outlined in Table 2, which were audio-video recorded and later transcribed. The format of the interviews varied according to the participants. A combination of semi-structured or narrative approaches were used, which were flexible depending on what the team felt would provide better information. For interviews with

healthcare staff and patients a visual prompt was used, as illustrated below in images 2 and 3, to gain specific understanding of the experience and sequence of events.



Images 2: Some of the interviewees (left) and using a visual prompt (right)



Images 3: Patient hospitalisation journey as a visual prompt for interviews

Non- participant observation and immersive experiences

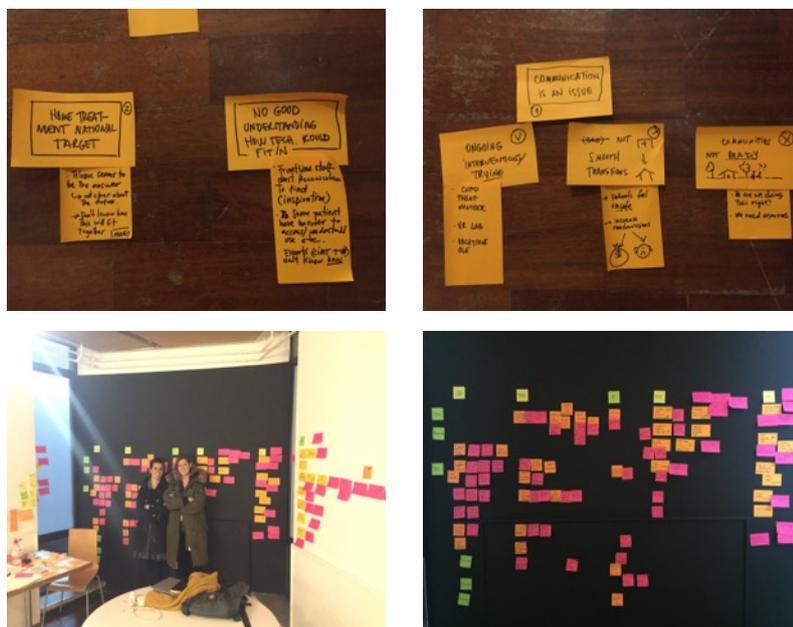
Six to eight hours were spent on acute wards and outpatient clinics, where SDRCA observed and had informal conversations with staff, patients and their families. Data collection was through field notes and audio-video recording was not used, to protect patient and staff privacy and confidentiality. Furthermore, the team participated in two immersive experiences to understand user experience: they spent 2 days living in the patient hotel, where they got the opportunity to informally talk to patients and staff and they spent 2 hours walking through the new hospital by using VR, in the virtual reality room, set up by the hospital.



Images 4: New Hospital Virtual reality tour (left) and ward observation

Data collected during the field trip, consisted of audio-video recordings, photographs, field notes and collection of material from the hospital such as patient information sheets. Once the material was grouped and transcribed, SDRCA started a process of sense-making, where the material was interpreted by both members of the team, then during collective work it was grouped into emergent themes, insights, in images. The resultant insights were iterated and validated with the users via a) Skype presentation to IUNHN b) email and a medium blog link to users and other stakeholders c) Stakeholder presentation in field trip 2.

Design tools such as citizen personas⁶, user journey narrative and service blueprint⁷ of the existing system, were used to visually articulate and condense those insights into service concept goals (Figure 5). The project goals, which were defined and validated by the participants, acted as the pre-requisite elements of the resulting service concept.



Images 5: SDRCA Sense making activities

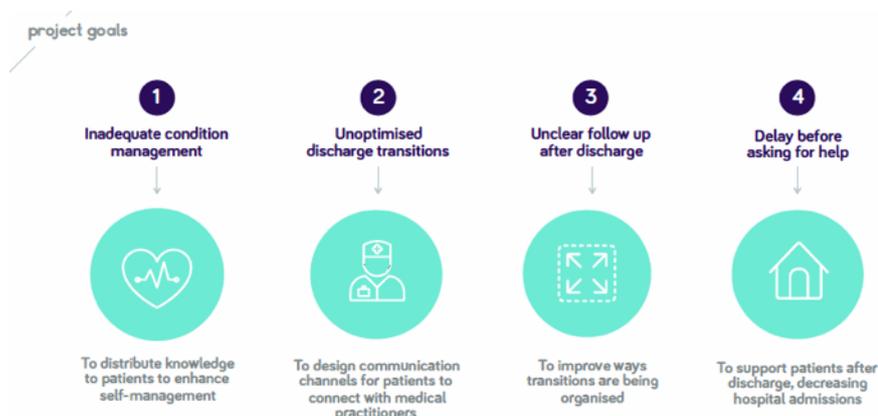


Figure 5: Transforming Insights into project goals

⁶ The use of personas was not extensive and was mainly used to combine with narratives of experience (user journey), of what having a chronic lung disease meant to the person and how it shaped the life and interaction with service providers. Examples of persona sheets in Appendix 3

⁷ This was used as a visual prompt in subsequent interviews in field trip 2, for prompting information out of stakeholders of how the different elements of the system collectively work together. It was also compared against the service the citizens *felt* they had at their disposal. Any resulting discrepancies were examined in more detail.

Phase 2: Ideation and development

This phase was predominantly concerned with idea generation. A round of further interviews was followed by a series of three creative workshops. Non-fieldwork research focused mainly on researching the success of design interventions and remote healthcare interventions that had been applied elsewhere globally and in Denmark, such as the mercy hospital, local tele-medicine work on COPD patients, etc

Interviews

A further 8 interviews were conducted in this phase as outlined in Table 3 . They were structured around the COPD citizen hospitalisation journey visual prompt, a large poster which combined persona, narrative and patient journey, which the interviewees talked through, expressing any thoughts, feelings, areas of improvement, challenges and personal experiences (Image 3).

Trip	Interview participants	No
1	Innovation consultants.....	2
	Architect.....	1
	Clinical staff	7
	Quality and development managers.....	2
	Medical Technology stakeholders.....	3
	Remote care teams.....	3
	Patients.....	3
	Total	21
2	COPD hospital lead.....	1
	General Practitioner.....	1
	Hospital COPD nurse.....	1
	Community COPD nurse.....	1
	Respiratory physiotherapist.....	1
	Quality and development manager.....	1
	Patients.....	2
	Total	8

Table 3: Interview participants in Field Trips 1 and 2

Workshops

A total of 3 workshops were run, entitled Homecare futures. The workshops were open to new participants, as well as the ones that had participated in phase one with an invitation being circulated to all hospital and community staff, patients and stakeholders. The aim was to combine different stakeholders⁸ in each workshop, as detailed in Table 4.



Images 6: Homecare futures, workshop invitation

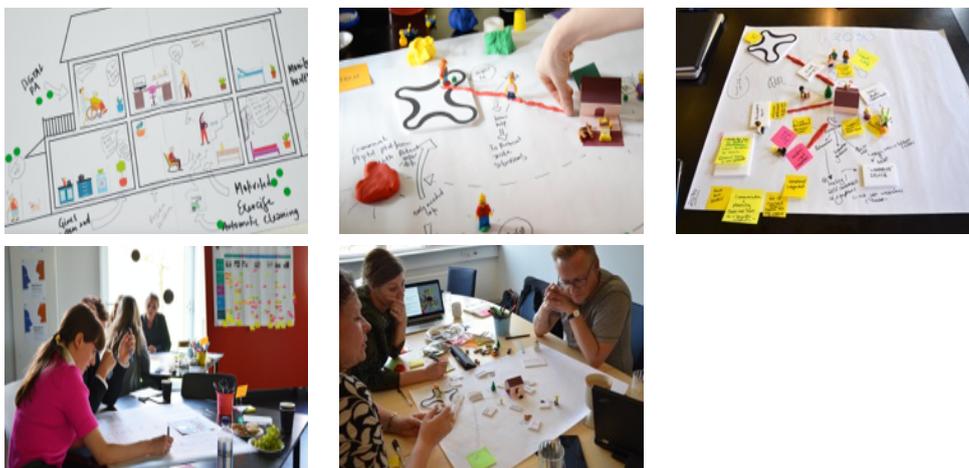
⁸ As clarified in the methodology chapter, commercial or for-profit stakeholders were excluded from the workshops

Workshop	Participants	Number
Homecare Futures	Innovation consultants.....	7
	Architect.....	1
	Clinical staff	5
	Quality and development managers.....	2
	Medical Technology stakeholders.....	3
	Remote care teams.....	2
	Patients.....	7
	Total	27
Konstell	Innovation consultants.....	7
	Architect.....	1
	Clinical staff	5
	Quality and development managers.....	3
	Medical Technology stakeholders.....	3
	Remote care teams.....	2
	Patients.....	7
	Total	28
Table 4: Workshop Participants		

The SDRCA workshop goals were to:

- Explore people's mental model and aspirations about distributed healthcare
- Explore possible solutions and how those fulfil different needs
- Understand people's concerns by using the narrative of three fictional characters and scenarios based on real journeys

Details of the workshops can be found in Appendix 3. They were creative in nature and consisted of using personas to illustrate a desirable user journey for managing chronic illness, rapid prototyping home environments with props, such as strings, legos, colour, foam boards to make objects. The participants created new systems, by using props such as playmobils, legos, plasticine and then narratives of the people that would be using them and be part of them. Each workshop consisted of 3 participant teams, completing several creative tasks and lasted approximately 90 mins-120mins, with the SDRCA facilitating the activities. The workshops concluded with participants voting on the ideas they found more interesting, with the top 5 were chosen as points of open discussion.



Images 7: Homecare futures workshop

Phase 3: Prototyping and delivery

SDRCA lead the design of the service concept, following the analysis of the fieldwork data. Visualisations like the ones illustrated in Figure 6, helped to identify problem areas and show experience of living with a chronic illness.

living with COPD

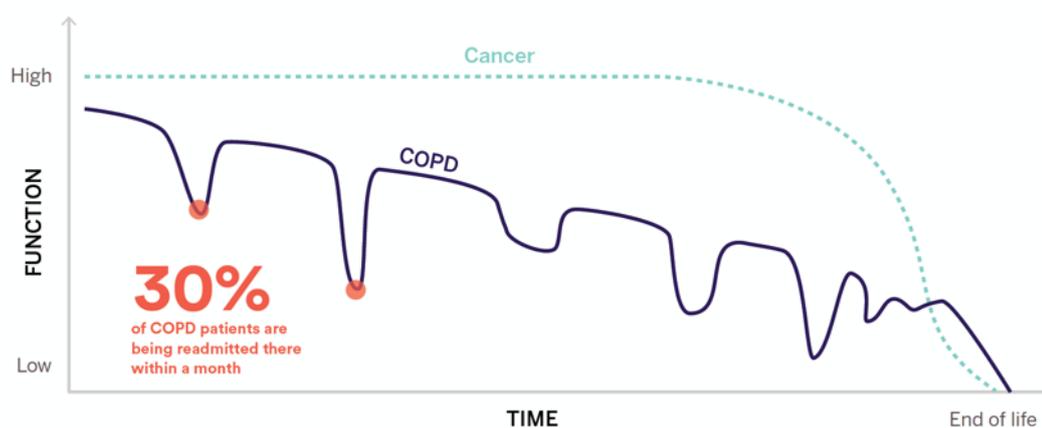


Figure 6: Illustration showing the variability of Living with Chronic Obstructive Pulmonary Disease (adapted from www.lunge.dk)

By doing a series of brainstorming sessions, which included role play, use of existing narratives and personas and storytelling, SDRCA started creating a proposition for a future healthcare ecosystem. Storyboards were used to illustrate the experience through the system and define its components. Touchpoint were also rapidly prototyped to test the system and user interactions. The output of these sessions were a series of illustrated storyboards, a blueprint and system overview for a new model of care. A series of provocations were also generated, which were used as a basis for the trip 3 workshops. To create a concrete proposition, the new system was named Konstell, with the team also devoting time in branding the service by creating a website and a quick prototype of how it might work.

Konstell was presented in two workshops aimed at healthcare workers, citizens affected by COPD and their families, innovation consultants and quality improvement teams. These sessions were run in an “exhibition” format, where the provocations and the vision in the form of a narrative were presented. The participants had 2 tasks:

- a) to write any thoughts/ emotions that the story evokes on post it notes and stick them to the boards
- b) Stick coloured-coded dots by the concepts they strongly liked or disliked.



Images 8: Konstell workshop. Provocation posters (above) and workshop images below

Project outcome: Konstell

The project outcome, was Konstell, a new health service model designed for citizens affected by chronic respiratory disease. Konstell was presented as a service proposition for improving the experience of citizens affected with COPD, while decreasing their hospitalisation and readmission rates. The SDRCA presented Konstell as system that:

“supports COPD citizens to understand and easily manage their condition in everyday life, by capturing data from various devices and wearables, konstell detects early changes and triggers a prompt response to avoid hospitalisations where possible. It also supports healthcare providers to quickly access relevant information from other databases, coordinate interdisciplinary care and arrange appropriate follow up”. (Final presentation in Appendix 6)

Konstell was based on 3 key principles, as they emerged from the ethnographic research: care that was personalised, predictive and decentralised and was closely linked to the aforementioned projects goals (Figure 5), as they emerged in the discovery phase.

The service concept was communicated in two videos, which have been attached in the USB stick, which formed the foundation for extracting projects for implementation. These videos describe the new ecosystem, through Marianne’s story (a citizen) at three different points of her life: being diagnosed with a new chronic condition, daily life with it and the interactions with the ecosystem, and hospital transition. The other describes the evolution of the roles of healthcare staff in the future and focuses on how they would use the ecosystem, to facilitate safe care delivery to Marianne. Touchpoint prototypes also featured in the videos. The videos were formally presented to the collaborators during their visit to London for the RCA graduate exhibition and were distributed to participants through an email link to the Konstell website. The SDRCA team presented the project and vision to peers, the public and industry during the RCA graduate show and the project was shortlisted for the Helen Hamlyn awards.

Longevity of Konstall

The service concept was a proposition for a service system for long term management of citizens with chronic conditions, for 2030. The proposition was not intended to be implemented in the present time, but to act as long term strategy, from which the IUNHN and the hospital could work backwards, identify aspects that can be developed currently, using the existing hospitals as test beds. In the discussion I highlight how a model for implementation was created. The Innovation and management teams for NHN, decided to use the future vision tool in a collaboration with the Danish Design council, to explore the future landscape of healthcare. Given its future scoping nature, it could not be adopted in its entirety, as it would require a total reconstruction of the healthcare system for the particular Danish county, with national implications. It was however based on elements that were being developed nationally (such as a shared medical database) and therefore not representative of a utopia, but a space for 2030 that is plausible, given the current trends and policy developments in health. SDRCA argued in their final presentation that their contribution also made it “desirable and preferable”, as the new reality and constellation of resources, took into consideration the needs and experiences of its users.

The service concept acted as a roadmap for the future and IUNHN decided to take forward three concepts, to develop as projects: the virtual ward round, procedure for leaving the hospital and the data driven patient room. In addition to the service concept which is future focused, areas for immediate improvement, as identified during the research phase were proposed to IUNHN. These revolved around two key areas: discharge planning and pre-admission service optimisation and prevention.

Project Feedback

The feedback for the project was overwhelmingly positive and some quotes, as extracted from post-evaluation interviews, have been included in Table 5.

Users	<p>“ It’s great to see how service design makes sense in the real world and really can make a difference” (Clinician, Danish hospital)</p> <p>“ I really like the ideas. Having something that I could press and connect to my nurse without having to travel would help me so much. But I want to decide what and when to share.” (COPD citizen)</p> <p>“ I have been hospitalised twice and going back home hasn’t been easy. If I could get some extra support and be looked after, it would make a difference. I even use Skype to talk to my friends, so why not do that with my doctor?” (COPD citizen)</p> <p>“ I like all the stories and concepts because they address the real challenges our parents are experiencing. I hope someday patients will receive as much support as you are proposing” (COPD hospital nurse)</p> <p>“ I was very impressed with your project to help COPD sufferers. I have a diagnosis of ME or Chronic fatigue syndrome. I think your Konstall service platform could work well with ME patients who need regular monitoring of their stress/energy levels so they don’t fall into serious relapse. I just wanted to let you know that the same coordination of inter disciplinary care could work really well for M.E.The last thing we sufferers need is a stay in hospital” (citizen with chronic fatigue syndrome)</p>
Other stakeholders	<p>“It is amazing how you’ve managed to explain something so complex with so much simplicity, that it is easily understood” (Policy lab)</p> <p>“This is impressive. We are doing a project in XXX with the Design Council about transforming ageing and we are trying to use design methods just like that, to start a conversation and create a shared vision in the community” (Design council)</p> <p>“I think this is amazing, it’s really really cool. Basically this is the incubation phase for future treatment patterns. It’s pragmatic but inspiring. I love that it’s predictive and event driven. I think that’s the big shift. What I like about Service Design as a concept is that you use customer empathy to find the big shifts, then you design around it. And for me a good shift is event driven at the intervention points.” (Senior Partner McKinsey)</p>
Table 5:	Feedback for Konstall (the service concept)

Reflections on Konstell

The design object, output and deliverable in the NHN project was the service concept, which SDRCA presented as the idea of Konstell:

“...based on the idea of how different constellations of people and data can be better organised to support patients living with a chronic condition”. (this and all following extracts are from the concept presentation to the clients in June 2017⁹.)

In the explanation of what Konstell was, SDRCA presented it as a way that:

“Patients understand and easily manage their condition in everyday life. By capturing data from various devices and wearables, konstell detects early changes and trigger a prompt response to avoid enable hospitalisations where possible....(also) supports healthcare providers to quickly access relevant information from other databases, coordinate interdisciplinary care and arrange appropriate follow up such as virtual ward rounds.”

For the concept a lot of attention was paid to both patient and provider experiences, at the touchpoints. These were not limited to interfaces such as the konstell dashboard, or artefacts such as wearable technology. They included encounters with health providers (e.g. Hanna wellness nurse), where the patients/ citizens interact with the service. This was a result of the process and focusing on experience, where human contact was valued and technology acted as a facilitator to that. During the final stage workshops, the focus was on iterating the concept with particular attention to the touch points and impact on overall experience.

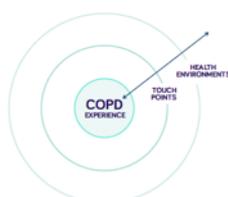


Figure 7: A model of the service concept experience, in relation to touchpoint and health environments.

⁹ Presentation in Appendix 5

In assessing the service concept as design output, SDRCA, took into account the collaborative views of all stakeholders and their experience and addressed the values organisation as perceived in the scoping workshop. In that respect it fulfilled the criteria of a successful service concept according to Clark et al (2000), who envisage the service concept as a “mental picture” held by all stakeholders. In addition, it defined the benefits a service offers its customers (Edvardsson et al., 2000) and is the organisation’s service proposition (Heskett , 1986), which Konstell in its communication achieved. Goldstein presents it as ‘a means of “concretising” the nature of a service so it can mediate between customer needs and the organisation’s strategic intent’ (Goldstein, 2002: p 122). The feedback on the service concept below, is testament to that:

“...materialising the idea of distributed healthcare into a language and branding that is easy to understand, imagine and respond. it is a service vision that has triggered interesting conversations and from which further projects will be defined for development.” (MS Innovation consultant in post project de-brief)

It furthermore, expressed a radically different health model for the delivery of care for patients with chronic conditions, in that it is decentralised from the hospital setting, changing the position of the hospital of the future, and the relationship wants to pursue with the citizens and patients. This was in line with the perception and overarching vision the hospital had, as seen in the scoping workshop and previous chapter.

“I was very thankful for visiting the exhibition for Konstell, which I think is a great pioneer project, that visually gives us a tangible picture of the future for home treatment, not only for COPD patients but for all kind of home treatment” (RM-IUNHN post project de-brief)

One of the client’s objectives when it came to the service proposition, was for it to be “a bold starting point to bring together different perspectives” and “create excitement”, which was achieved. Aspects of the process, like the last Konstell workshop, gained attention from the hospital social media platform¹⁰, the head of Innovation was invited to a national conference to present his experience of the collaboration of the hospital and the service design team, in terms of process and outcomes and SDRCA were interviewed about it.¹¹

¹⁰ Some posts are in Appendix 6

¹¹ Interview can be found in Appendix 7

Konstell also served its purpose as a service concept that leads to implementation. It was presented to the hospital expert panel in order to approve the next set of projects that would stem from it to take forward, which were determined as the following:

(From an update email 25.7.17)

- 1) Future vision tool, for boosting the innovation in the healthcare sector (Which possibly could be a collaboration with the boxing health initiative, by The Danish Design Centre.)
- 2) Test lab for home treatment. This could be developed and tested further by test lab like "Virtual Wardround", "Procedure for leaving the hospital", "An everyday life with home treatment for chronic diseases."
- 3) The data driven, patient room. Which is a project that we will start up in august, which will focus on the digital platform that you use when you are hospitalised in the hospital as a patient with The ideas/and visualisations behind Konstell, to implement this project

SDRCA was not directly involved in the above process, something Sangiorgi has highlighted as a limitation in DeSID report (2015): 'Half of the case studies do stop at a Design stage, where designers define and visualise ideas for their evaluation and further development by the client organisation' (ibid, p. 52). There are however two differences in this case:

- 1) IUNHN asked SDRCA to take the lead in what ideas should be presented and opinion on what to take forward in the form of a report. The team did not feel they had a complete information set to write the report in terms of metrics hospital expected to see i.e. admissions, readmissions and cost saving at this site and proposed certain elements of the service concept to be taken forward as independent projects for NSD. Instead they proposed a further workshop with users and hospital management to define value, measures of success to make this a collaborative decision together with health economists. They also proposed to take a different approach in terms of selection, which was to create a value based business case for a Minimum Viable Service, for implementation.

- 2) IUNHN pursued a longer term collaboration with SDRCA for the next stages of project development. In the scoping workshop, collaboratively with SDRCA an innovation framework was discussed with respect of how concept generation would be linked to implementation. The proposed framework was based on a modification of the innovation funnel as seen in Figure 8. This positioned the concept generation as a pre-ject phase (before project), from which aspects would be extracted to test as projects in a pilot form. These pilots

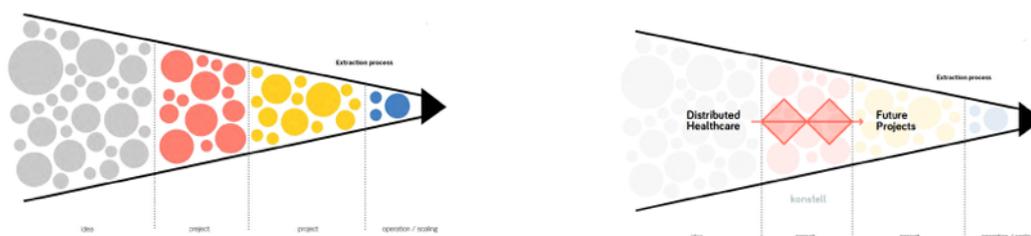


Figure 8: A framework for linking the service concept to implementation, as used in the service design project NHN.

would be further assessed then could scale up and be implemented in a more mature form in the new hospital, with the current hospitals acting as test beds.

This theoretical model was tested with this case, where the pre-ject phase was concerned with concept generation, i.e. Konstall. The fact that three aspects of Konstall were taken forward to the project phase, is a marker of success for this stage at least. A follow up study would be necessary to evaluate the success of this model with regards to the service concept:Konstell.

Limitations of assessing the service concept

There are two important limitations when it comes to assessing the service concept. One is generic regarding the ability to assess user experience in a concept and one is more practical, with respect to the assessment of the service concept for implementation.

a) Assessing experience of users

As Konstall is a concept for a future service, it is difficult to directly assess what the impact on user experience is, which can only be assessed in a lived context. At a hypothetical level it can be said that factoring in experience from the start can have a strategic advantage for targeting emerging issues and prioritise aspects that are important to the users. Therefore having a huge impact on overall experience of service, once that is launched. It also changes and reframes the mindset for approaching the service development process. SDRCA designed the new concept by targeting areas of bad experience found in research, and constantly iterating with the users, using storyboards. Theoretically this is also validated by Homlid &

Evenson 'a key aspect of design is to systematically use expressive methods to explore a design space, as viewed from the human perspective' (Homlid & Evenson, 2008: p.343).

b) Expertise limitation

Creating a service system concept in healthcare and taking elements of that forward to implementation is very complex, because of the intricacies of the current system. Using the service concept as a foundation for the service development is one aspect for it. The multidisciplinary approach to its development, by involving patients, healthcare providers, hospital management personnel, architects and innovation consultants in the process needs to continue for embedding the concept generation to the development cycle. However, it has to be recognised that design expertise is limited when it comes to factoring in other dimensions of service development in healthcare. Other expertise needs to be sought, such as health economists and behavioural specialists. Designers are not experts in health management, which imposes limitations in smoothly transitioning the project to implementation, unless this transition is carefully orchestrated involving different specialists. In this case for example, NHN had difficulty evaluating the service concept as SDRCA could not propose any traditional metrics as measures of success. e.g. by how much the admission rate would be decreased. This is a general problem in assessing innovation solutions that are radical, especially in the public sector which have not been tried before. Here there is necessity to rethink financial estimations in a long-sighted way, create a value based business case and think about implementing minimum viable services.

In conclusion, the service concept fulfilled the requirement as set in the scoping workshop and gained attention with regards to how healthcare organisations are thinking about the type of services that they will need to deliver in the future. Bearing in mind that the nature of the concept is forward facing and therefore not intended to be implemented in the present, it was also successful in its aim to be a roadmap for the future, as three projects were identified to be taken forward by NHN. The limitations of assessing the nature of future scoping innovations are not discussed in this thesis, but the limitations in terms of the design team to contribute to specialised areas of practice, such as health model implementation, were highlighted.

CHAPTER 5: DISCUSSION & REFLECTION

Introduction

The intention of this project was to help the hospital understand how service design could help medical professionals and managers to innovate services and facilitate in New Service Development, for future services. In the previous chapter, I gave an outline of the design project.

To summarise, the design activities were structured in four iterative phases, as per the design council double diamond: Discover, define, develop and deliver. This follows a commonly used approach in the British Service Design sector (Sangiorgi, 2014) and as this was not a control study, it is difficult to evaluate this approach versus other iterative models of design.

In this project, the double diamond was predominantly articulated into two phases:

Information gathering (Discover) and idea generation (define, develop, deliver). In the former, user-centred research methods such as interviews and non-participatory observation were predominantly used as sense making activities. The information and ideas from this phase, informed workshops in the latter phase, where co-design methods such as workshops and rapid prototyping techniques, were used (Figure 9). In the define phase the team facilitated workshops with the stakeholders, entitled Homecare futures.

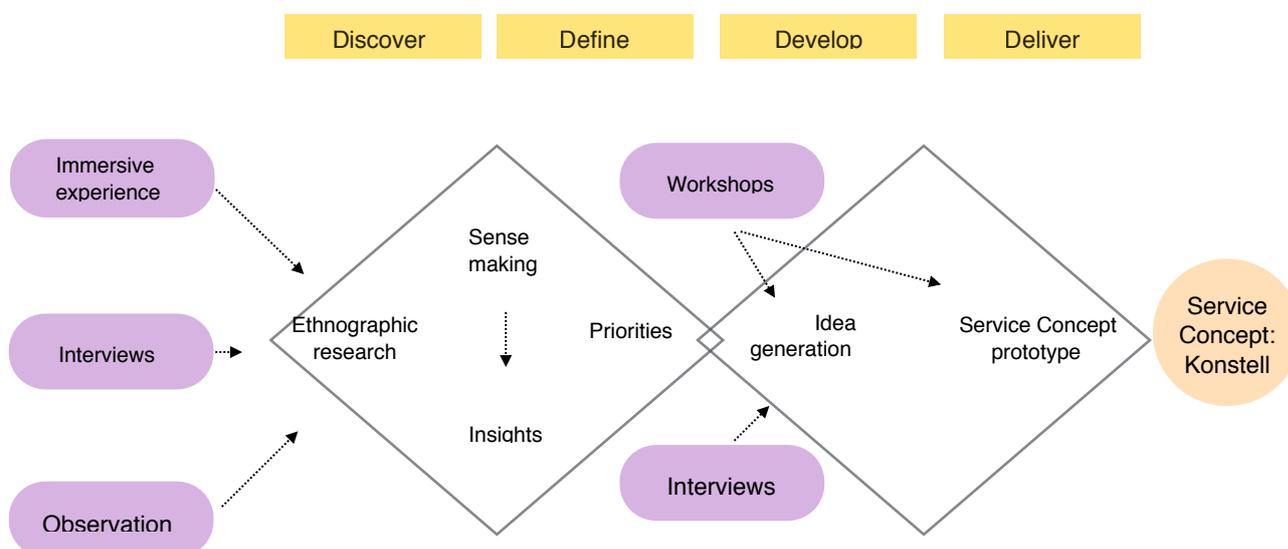


Figure 9: The overall practice activities, leading to concept generation

In the develop phase, SDRCA conducted internal brainstorming, to develop the service concept, which was shown to stakeholders for feedback, iteration and validation, in field trip 3. In the deliver phase, SDRCA prepared a presentation and two videos, to communicate the service concept and a rough prototype of the service. This aimed at securing funding for the service development process and encourage other stakeholders to participate, expand the existing IUNHN network. Both stakeholders and users were involved in these phases, sharing their knowledge and prototyping with the team.

The SDRCA priorities in the process were information gathering, understanding the context and idea generation. The SDRCA team had not predetermined which tools were going to be used in the process prior to the project starting. They were developed and adapted in an iterative way throughout the process, depending on the audience, to enhance engagement and data collection through fun and accessible exercises. The purpose of the tools were to find out different ways to approach users needs and expectations as well as understand the stakeholder needs, limitations, challenges and resources.

In this section, I start with an overview of the building blocks of the practice: the methods and tools that acted as facilitators to the process, I elaborate on the outcome: the service concept and finish with the impact the service design process and practice had on the organisation.

The following sections are organised as follow: Section I (page 86) addresses subquestion a. Section II (page 102) addresses the first part of subquestion b, on the impact of the service design activities on the organisation. Section III (a) concerns itself with whether these activities are aligned with SDL and III (b) how this process contributes to NSD and innovation in healthcare.

SECTION I:

There were two main facilitators in the process of designing the service concept for the new hospital. These were a) The methods and tools used by the service design team in the process and b) the relational character of these practices, as established by the design team.

a. Methods and tools

The four main methods that were used were interviews, non-participant observation, workshops and immersive experiences. I am not going to focus on the specifics of these design tools which are extensively covered in literature (e.g. Segellstrom & Homlid, 2009) but on the two key aspects that were most frequently used in this process with the users and stakeholders: visualisation and narrative. Both these approaches were used for problem and solution knowledge accumulation, i.e. information gathering, sense making and idea generation.

Visualisation and Narratives

The use of visualisation is widespread within service design (Mager, 2008; Homlid 2007), with Holmlid drawing the conclusion that service design is a highly visual design discipline (Holmlid, 2007). In the NHN project, visualisations spanned the project from the scoping workshop between IUNHN and SDRCA (stakeholder maps/ influence matrix), to communicating the service concept proposal in the presentation to IUNHN and the graduate RCA show. Narratives are stories that are based on the unfolding of events from the perspective of a participant's life experience. Narratives have started to be used more in healthcare especially in relation to the effects of chronic illness in daily life or perceived quality of life (Charon, 2003), as for example in citizens with diabetes and is a recognised method in quality improvement research (Greenhalgh, 2005). In the NHN project the use of narrative was constructed around visual prompts, as for example in narrative interviews for information gathering. It helped extract participants stories of using or working in the service and either capture experience (Bowen, 2010) or in creating customer journeys for the future (concept generation) convey a “feel” for a future experience. These two techniques were

linked throughout the process and were frequently combined in activities such as interviews, workshops, sense making as well as communication practices.

Interviews

In the majority of the interviews, especially the ones with either health providers or patient/citizens, a visual prompt was used, in the form of the COPD citizen hospitalisation journey. This was a large poster which combined persona, narrative and patient journey, which the interviewees talked through, expressing any thoughts, feelings, areas of improvement, challenges and personal experiences (Images 2, 3) . Inadvertently some interviews, especially those with patients, took a more narrative form, which SDRCA embraced and worked to capture the experience with emotion maps.

With specific reference to patients, SDRCA found that this technique gave them a depth of understanding of the person, what triggers them to engage with the services, at what point as well as the emotional triggers and journey that is associated with the experience. It became evident in the process that patients would respond better to a visual cue rather than openly acknowledge vulnerability or any problems. It allowed SDRCA to ask questions such as: ‘Have you had experience of any of these instances?’, ‘How did you feel’ and ‘How did it affect your life?’. I illustrate an extract from an interview transcript below:

Early on in the interview

SDRCA: Have you ever felt that your needs were not met by the health teams?

Interviewee: No, they have all been amazing and I trust them. I do what they say. I feel good about the relationship.

Later on in the interview the team decides to focus on the visual prompt, the COPD hospitalisation journey, where they have mocked up an imaginary persona and narrative based on desk research. This is shown to the interviewee who is encouraged to express their thoughts.

Interviewee: No, that’s not right. (Referring to a point on the journey map where the patient is shown feeling unwell and calling their General Practitioner).

SDRCA: Tell us your experience of what happens

Interviewee: I don’t call. ...it’s embarrassing... I feel like such a burden... you know, this disease is there all the time. Some days are better and some are worse. So I wait and hope that things will improve...because sometimes they do. I don’t even call my daughter...I don’t want to cause anybody any more worry.

A bit later on

....And if it was really bad and I couldn't take it... it get’s scary... I’d come to hospital.

This example illustrates that narrative interviews have a role in healthcare settings, as one's relationship with their health, is inherently linked to their identity and perception of (in)dependence. This has been highlighted elsewhere in literature as for example Galarza-Winton et al (2013), who highlight that healthcare interactions can create experiences marked with uncertainty, vulnerability, helplessness, and even guilt. Healthcare services are highly emotional and intimate experiences (Kemp et al., 2014) and elicit strong emotional responses from consumers (Berry, Davis, & Wilmet, 2015).

When used with providers, using the visual prompt helped highlight gaps of knowledge or inconsistencies in perceived roles or what was actually happening. For example, using the above tool highlighted that for the discharge process, there was an assumption from the hospital doctor that the hospital nurse handover to the community nurse and GP, however this did not always happen (e.g. community nurse away or does not get the referral fast enough). As the main actors possessing information were the providers, this interruption of information flow, left the patients vulnerable at home and increase risk of them being re-admitted to hospital. In subsequent interviews (with patients and community providers), this was highlighted as leaving the patient vulnerable. Specifically when patients would call the GP, they would be sent back to hospital, as they had inadequate information for assessment. One G.P. felt that this was disempowering, stating:

“I feel uncomfortable to make a decision about what the right course of action is, as often I do not have sufficient information. So I feel that the best way to act on the patient's best interest is to send them back to hospital, where everything is on record and they can assess if this is a new state”.(H.J. GP in Hillerod area)

It is worth highlighting that exchanges such as the above, demonstrate that in narrative interviews, there is an important collaborative feature. The “story” emerges from the dialogue between interviewer (SDRCA) and interviewees (Muylaert et al, 2014) and therefore there is mutual collaboration for knowledge generation. That is in contrast to the use of questionnaires, which are commonly used to trace patient experience, where the participant is solely responsible for providing answers.

Workshops

The workshops that took place were predominantly concerned with idea generation e.g. in Homecare futures (Field trip 2), and concept validation and iteration in Konstell (Field trip 3). In the former, narrative, visual exercises and rapid prototyping, using legos, strings and foam boards were used in a constellation of creative exercises to engage users and provide inspiration. In the latter, posters with provocations and the service concept in a series of sketched storyboards were presented (Images 8). In both workshops, creativity and narrative was a way of engaging with users and stakeholders. These techniques helped in collective creativity, and acted as prompts for discussion amongst different stakeholders. It seemed that it aided both parties to break free from constraints and as one citizen stated: “has allowed me to think what is possible”. One of the innovation unit consultants who participated, fed back that: “you start with a vision and then get bogged down in technicalities and forget what trying to achieve. This is a good reminder of what we are all trying to achieve and why.”

Sense-making and Communication

Internally, the team used visualisation and narrative for reflection, sense-making and brainstorming. Although personas generally had limited use in this project, they were used internally to create a narrative thread, which was acted out in scenarios and role play between the SDRCA team, particularly in the concept generation stage. It created an understanding of how the interaction with providers affected citizens, could be shaped to add more value to their lives and how the integration of multiple provider elements could be orchestrated around the user.

Externally, these techniques were used in presentations with a two fold purpose: clarity of communication and knowledge transfer. When it comes to the latter, the emphasis in literature is that it enhances the understanding of users reality from providers. “Creating empathy” (Segelström et al., 2009) is often held forward as one of the key goals of user research in service design (Segelström et al., 2009; Zomerdijk & Voss, 2007; Parker & Heapy, 2006). This phenomenon was observed in the project with transferring user knowledge to the organisation IUNHN, hospital management or other stakeholders e.g. CIMT. One example

was highlighting the fact that “shame” and “being a burden” were important factors for not seeking help earlier at points that might have prevented hospital admissions.

However, there were also aspects of the project, where visualisations with/ out the use of narrative, were fundamental to knowledge transfer, which were not limited to the flow from users to organisation via the designers. Some examples include organisation to designer and user-to-user. For example the stakeholder maps and influence matrix from the scoping workshop, were strategically used by the designers to liaise with and bring in contact various stakeholders in the system, creating a network. Similarly, when it came to user- user knowledge, during customer journey discussions, it became apparent that not all users were familiar with resources available to them e.g. community rehabilitation programmes and the Lung foundation programmes.

Finally, these techniques were essential for simplifying complexity and making the service concept tangible for communication purposes, particularly at the points when the SDRCA team were concerned with the iteration and validation of insights and concept.

Presentation of service concept with reference to above techniques

When it came to the iteration and communication of the service concept, SDRCA used storyboards to illustrate the experience of Marianne, a fictional character, as it would happen at different points of her life when interacting with healthcare providers. The narrative takes the audience through Marianne’s journey and the experience front line users would have through the new service system. The resulting videos highlight the new professional roles, as well as the role of technology and the hospital. The videos were oriented to the description of the experience Marianne has through the future service, so it can be perceived as a form of experience prototyping. The touch points were low fidelity aimed to be developed at a later stage of specific selection of projects, but the storytelling, conveyed the main features, creating a general atmosphere and relaying the experience of the use. It made the service concept tangible and understandable to the users and the benefits the proposition would have to them.

When SDRCA questioned the users whether the concept was clear, some of the feedback is summarised below:

“It is simply explained, i understand the overall vision and can specifically say which elements like and dislike” (P.M citizen)

“It feels realistic and inspiring. i would like to be part of that system” (M.L COPD nurse)

“I feel the hospital should start working towards that....would be happy if that was how i was cared for” (J.J. COPD patient)

Interestingly when the NHN project was presented at the RCA show, aspects of the storyboards appealed differently to external stakeholders. For example digital technology experts focused in avatar development, pharmaceutical companies in integrating technology to inhalers etc. It was clear to them how the service system was designed in a way where potential stakeholders, could identify a role and opportunity and be able to offer a specific value. As a result of the project exhibition in this format, NHN were able to expand their stakeholder network and started creating new commercial relationships e.g. with an avatar development firm, to explore an aspect of Konstell.

Therefore, visualisation and narratives were important facilitators in the design process. They were based on collecting and interpreting user and stakeholder knowledge and acted as the tangible representation of that. They enabled communication between multiple actors (e.g. in workshops) and knowledge transfer, therefore played a part in facilitating actor relationships (Kimbell, 2008). A key contribution to the process was described as the capability to then translate the collected data into manageable visualisations, able to summarise complex systems (e.g. stakeholder map) or intangible and subjective matters (e.g. persona, journey maps) into a tangible outputs (video), for facilitating dialogue and/ or other co-creational activities. These visualisations were appreciated by the client organisation as they acted as evidence for change, as well as shape the client organisations understanding of the problem sphere.

The two most commonly used service design visual tools that were used were the storyboard and customer journey. Segelstrom and Homlid point out that these methods are strongly correlated with generating *value -in- use* knowledge, which is in line with Service Dominant logic (Segelstrom and Homlid, 2009).

Other methods such as non-participant observation and immersive experiences (eg SDRCA staying in the patient hotel) were also very important aspect of fieldwork in generating an understanding of the user experience. The design team did not limit themselves in asking about experience, but tried to experience it for themselves, or as close to it as possible. Living the life of a patient for two days was an “eye-opening” experience for SDRCA. Being in hospital is an intense situated experience which has to be lived in order to appreciate the depth of impact it has on the individual. Although of course the design team did not have the stress of illness, they felt they understood a lot more what everyday life is like for a patient when hospitalised, its emotional aspects and particularly appreciated what the building blocks of normality (e.g. having dinner with family) might be, that are lost through the process. This undoubtedly influenced future brainstorming in the team and when conceptualising Konstall, they tried to safeguard as many aspects of everyday life as possible, from being knowingly influenced by medical intervention.¹²

In conclusion, the SDRCA team tried to enhance the understanding of the patients and medical teams, through creative ways, using narratives and creative workshops. This strategy was based on the fact that early on in the research, it was apparent that it was difficult for users to express what they felt they needed by direct questioning, so the team tried to “uncover” those aspects by using different methods. This is not unique to these set of circumstances, with Edvardsson highlighting the need to enhance the understanding of customers, who often have limited capabilities to express their latent needs and desires (Edvardsson et al, 2000). Zomerdijk & Voss, also identified that innovative methods were more appropriate techniques for doing so (Zomerdijk & Voss, 2011).

In summary, visualisation and narrative was used in a sense-making and co-creative capacity, as well as a communication tool with its roots embedded in conveying either current experience or “wished for” experience.

¹² For example, the system is designed in such a way that everyday life isn't interrupted to go to the hospital or a doctor for example, rather the medical team fits in the rhythm of the citizen's life.

b. Relational aspects

Relational aspects between the designer team and the various stakeholders involved in the process of co-design, are worth mentioning as they facilitated a change towards a *preferred state*. The three relationships that I focus on are designer-user, Designer-Client and broader Designer- Stakeholder relationship.

Designer- User Relationship

In the context section, I outlined how one of the principles of design activities is the inclusion and involvement of users (in this case medical providers and patients) in the process. There is debate in the literature about the degree of user participation in design activities and its impact on innovation. In design practice user centricity is a term reflecting the priority of meeting the needs of the user (Brown, 2008). This was also the case in the project, however SDRCA interest was not limited to front line health providers and patients. During activities of information gathering, sense making and idea generation, SDRCA involved and invited a breadth of stakeholders (e.g. managers, innovation unit consultants, teams responsible for technology integration such as CIMT) to participate in design activities.

The team took the view that all stakeholders were in an equal position of adding value and contributing to the process, aligning the project with some of the principles of Human Centred Design (HCD). Krippendorff emphasises HCD as a perspective that takes the criteria from stakeholders and makes them available through the process of design (Krippendorff, 2006). In this project, activities such as co-creating brief with clients, workshops with a variety of stakeholders, evidence that and relate to what Krippendorff (2006) describes as the design activity as a meaning creating activity. This is relevant when we consider that the chronological and execution space of the project was future facing, after the launch of the new hospital. Therefore the value of understanding the context, was not focused on generating realistic solutions for the present, but to create relationships between various actors that have the potential to shape the transition from current to future state.

Design driven vs human centred design

There is an ongoing debate of Design Driven Innovation (DDI) over Human Centred Design (HCD). There might be criticism that the team were designing *for* rather than *with* users (Sanders and Stappers, 2008), as it was the design team that took the lead in planning the activities, sense making and brainstorming for solutions. Although the users were engaged in design activities for idea generation, they did not take the lead in their creation. Instead the information gathered helped the team present some ideas that were iterated with users in the final workshop. The design team took on a role of an expert, teasing meaning out of participants, interpreting it and making it concrete again in visual or narrative form, as will be seen in the next section. Co-creative and co-participatory processes, such as those highlighted by Sanders and Stappers, have successfully been used in the public sector (Homlid, 2009b), where the role of the designer is to facilitate the activities and produce material artefacts. These involvements have clear emancipatory goals, with Han arguing that the designer plays an important role in establishing the community that will ultimately use the service. (Han, 2010).

In my view, these opinions are not contradictory when we consider the overall process of service development, from concept generation to launch. The debate of designer as facilitator (HCD) versus expert (DDI) is only applicable, if the role and contribution of the designer is limited to a specific aspect of the service. For example, in the spectrum of concept generation to service launch, innovation might be more desirable in the former whereas facilitator skills more appropriate for the latter. If the designer is involved in the former process, DDI might be prevalent over HCD which might be more applicable in service implementation. If however we argue that the designer has a role throughout the entire process, then those skills are complementary and can be used in different aspects of the process. Different stages of the process need different skills, so I maintain that co-creation participatory principles as defined in design literature, are more applicable in later stages, when more concrete aspects of the service are designed. The concept generation phase can be viewed as an exploration phase, where the design object is to understand the context of both stakeholders and users and act as a bridge to bring ideas together for a service concept proposition. In addition this project was not concerned with improving current services but creating new services for the future and therefore service innovation. Therefore it poses the question of optimal degree of user involvement for innovation.

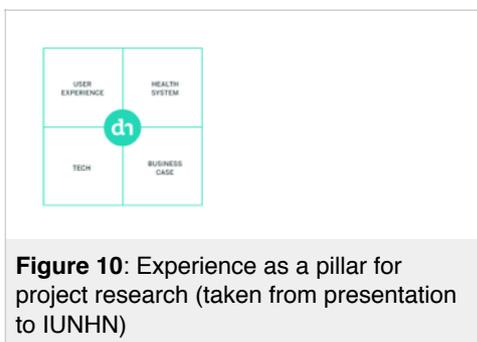
Given the complexity and future planning scope of the project, a lot of the project activities were related to sense making of the context, as for example ‘What are the reasons that there are many readmissions or deteriorations?’. SDRCA took the approach that co-creating with users might limit the innovation potential for radically new solutions. In literature this is echoed by Norman who argues against close interaction with users for reaching innovative results (Norman & Verganti, 2014), and Verganti (2003; 2008) who influenced by Krippendorff, introduces the concept of Design Driven Innovation (DDI). In his opinion, designers should take and reclaim their expertise, so designers can propose solutions to the customers. He argues that in this way new meanings can be brought to the market. In the NHN case, the new meaning was to drastically alter the position of the hospital in delivery of care and how technology and community can be harnessed, which produced a radically different model of care compared to the existing one. Thus by taking charge of the process, while respecting the users desires, the designers produced innovation in the meaning of a hospital and delivery of care. This moves the focus from technological or functional innovation, to meaning innovation, which connects well with understanding the proposition of service design considering the focus on value creation.

To conclude, I find myself in agreement with Verganti (2008) that the designer in this context takes an interpretative and propositional role rather than merely functioning as a facilitators between the users and the company. To illustrate this I make an analogy from my medical background: a patient and doctor can jointly have a conversation about symptoms, but it is the doctors expertise that interpreted these, problem frames, proposes what the differential diagnoses are and what tests will be useful to do. Similarly when consulting experts, one wants to be active in decision making but rely on the experts to make sense of things and propose solutions, if that is more appropriate at that stage. In later stages it might be the patient who needs to take the lead. E.g. in my medical analogy, in the decision of various treatments, as it is his/her life that is influenced. Similarly in service design, once the service concept is concrete and in the developing stage, then users should assume a more leading role.

Experience

The experience based approach is slightly different from the principles of user centricity seen above. If we consider user/ stakeholder participation as a spectrum, with little participation on the left, then experience-based co design is to the far right of this spectrum. Bates argues that good design of healthcare services, leads to good experiences (Bate, 2006). In his paper, he adapts Berkun's components of good design to healthcare. These are named as performance (functionality) engineering (safety) and aesthetic experience (usability). The latter relates to how the interaction with the service feels or is experienced. Bates argues that healthcare has been associated with the first two with experience not being distinguished as a separate entity. As the project was involved in concept generation, I cannot directly assess the impact on experience, but I can examine to what degree the process in these early stages of new service development, considered experience.

Understanding experience can be problematic, in that it is a subjective phenomenon. It can be assessed indirectly, through narratives and language people use when reflecting back (Greenhalgh, 2005). As was detailed in the previous section, in the NHN process, the use of narrative and storytelling was prominent. It was a tool for information gathering, in internal brainstorming sessions, in idea generation with users and concept iteration. Taking into consideration that storytelling and narrative are the basis of experience design (Greenhalgh, 2005), it is evident that user experience was a high priority for SDRCA. The team treated experience as a type of knowledge and with their techniques, were able to gain access to it and use it for the service concept, which was also constructed around the intent of improving user experience. The importance with which the team treated experience, can also be evidenced from the fact that they attempted to come as close as possible to the patient reality, by living in a patient 'hotel', as also seen in the previous segment. Furthermore experience was presented to IUNHN as one of the four pillars of approach to the design process, as can be seen in Figure 10.



With regards to healthcare, the importance of experience has been highlighted (Charon, 2003) and as a notion, it is often used interchangeably with patient centricity, or patient engagement. Common tools thought to gauge patient experience, come in the form of patient satisfaction surveys, which Bate (2007) criticises as methods to capture an attitude or perception, rather than experience. Bate in contrast, uses principles of Experience Based Design which is focused in utilising user knowledge, as integral in the innovation process (Bate, 2007). An example experience design from the U.K., is improving patient experience at the Evelina Hospital London, by taking cues from patients in what makes a visit good. Furthermore, when discussing experience, Charon (2003) states the potential of narrative in creating a positive end interaction between the person and the service. The work of Bate and Charon, both support the utilisation of experience in knowledge generation and as a foundation in the construction of services, which was apparent in the NHN project, through the techniques used and the fact that it was used as an axis for concept generation.

In this project, the final service concept tried to address the insights relating to experience that had been identified during the initial research phase. An example from the project would be addressing the bad experience of transitioning out of hospital for patients. This was a common theme, with one patient stating:

“ I don’t feel safe when i go home...I don’t know what to expect. It’s scary cause i’ve obviously been discharged because I no longer need help. It makes me think whether its all in my head...”

Doctors as the other users in this transition, interestingly might also demonstrated a negative experience at this point, feeling they are sometimes taking a risk at discharging patients. One doctor during a ward observation told the team:

“He is medically well, and could go home. but i’d like to keep him in overnight. I think he might be still psychologically fragile and risk coming back in”. In response of how this decision makes him feel: “I feel vulnerable at having to discharge him, I don’t want the responsibility that maybe when he’s home he gets another attack...The recovery period is tricky, it has it’s ups and downs. It’s better for patient recovery to be at home, but I have no way of monitoring him there.” (H.H Ward doctor, during observation)

In concluding this section, it can be seen that the team took a human centred approach in their process, with experience as one of the axis in which to understand the context and how to alter the future. Through this approach, the team established a relationship with the users in the process, with specific aim to change current state and design a new service concept.

Designer- Client Relationship

I pay separate attention to the designer relationship with the client organisation from other non-user stakeholders. The reason for this is that this relationship, acted as a facilitator in the design process, contributing to a framework for developing service innovation. IUNHN was viewed as a design client, affording SDRCA access to the organisation. This relationship was important not solely on the grounds of access, but because of IUNHN’s position. It was partially embedded in the hospital, being regarded as an inside “outsider”, sitting in the periphery of the existing hospital, and acting as a bridge between the present and future¹³. Therefore SDRCA were sensitive to the working practices of the client organisation, which were explored initially in the scoping workshop and then throughout the interactions with IUNHN.

The scoping workshop for brief co-design was important in setting the tone of the relationship, as it allowed SDRCA to explore IUNHN’s overarching vision, values and strategy. SDRCA viewed the construction of the new hospital, as an opportunity for service designers to be engaged from the early stages of service conceptualisation for the new hospital. The creative nature of the workshop established the partnership with IUNHN:

“The workshop gave a representation of how you worked and we really liked it. It’s exactly what we need to start thinking differently about how we plan services for the future” (R.H. Head of Information and Technology at IUNHN).

¹³ as illustrated in Figure 3

The design team were able to creatively explore the organisational perspective on services and what a successful outcome would look like, through the first creative exercise of the scoping workshop, entitled ‘Healthcare awards’¹⁴. Some of the outcomes of success for IUNHN were articulated as:

“Good patient journey”
 “A better experience”
 “To understand the specific things that make the quality for the recipient better”
 “Clinicians experience take into account”

With respect to the process:

“A bold starting point to bring together different perspectives”
 “Be open”
 “Create excitement”
 “Bring in new skills”
 “Inspire the following projects”

These responses highlight that the organisation was not only open to exploring new ways of doing things, but create something new and “exciting”. They had also prioritised the important of user experience, in services to be delivered. These priorities were in alignment with SDRCA and created a shared understanding between the clients and designers. These creative exercises acted as a trigger to start a conversation around the focus of the design project, which was agreed to be on citizens with Chronic Obstructive Pulmonary Disease (COPD). As can be seen from Figure 11, COPD would act as a lens through which to explore the people and their experience for the future service.

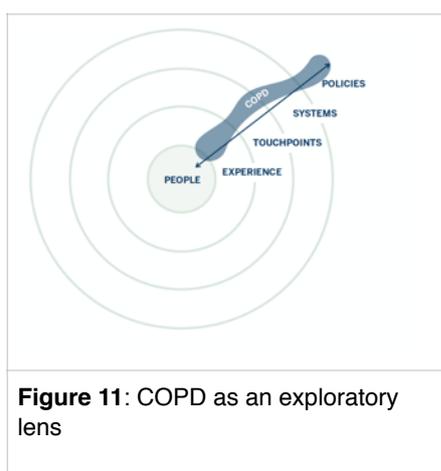


Figure 11: COPD as an exploratory lens

During the process, the relationship between IUNHN and SDRCA remained close, with the latter updating the former in weekly Skype meetings. In addition, IUNHN were not just

¹⁴ Appendix 1

gatekeepers, but took an active interest in the process and participated in the design activities that SDRCA organised throughout the process, such as collaborative workshops. It allowed IUNHN to engage with the project and the users and to build trust in the SDRCA team and their process.

The importance of good client- designer relationship for the success of the service is highlighted in literature (Yu & Sangiorgi, 2018) and an organisation's relational orientation towards customer experience and proactive approaches to solving problems are regarded as important facilitators for successful service performance (Johnston & Kong, 2011).

Verganti (2003) also argues that the degree to which designers full potentials are realised depends on how designer- client relationships are managed. When this phase of collaboration ended with the service concept, IUNHN were keen to continue the SDRCA relationship with the next phase of project launch, which can be taken as a demonstration of the degree to which service design and the team were valued in NSD.

This stage of the NHN project, can be considered as the beginning of the innovation process, because of the following reasons, which will be expanded in later sections:

- a) Established the project where the service design methods for a new service concept for the future hospital can be used
- b) Embedded the design team at the early stage of the new service development
- c) Collaboration resulted in a proposed a framework of how the work could lead to implementation, as seen in page 82, Figure 8.

Designer relationship with non-user stakeholders

Other non-user stakeholders, with which the SDRCA established relationships with, can be seen as internal and external to the organisation. The former were stakeholders from the hospital, such as quality and development managers, whereas the latter involved Medical Technology stakeholders such as CIMT.

The creative exercises during the scoping workshop, acted as the starting point to identifying which stakeholders SDRCA prioritised in approaching. However establishing these contacts proved problematic during the process. I cannot relate the design background as the reason for

the difficulty, as efforts were initially promising, but fell through mainly down to limited timeframes. The SDRCA team was resident in London with finite field time. SDRCA did have informal meetings with a VR based consultancy, a wearable technology company and an established digital technology provider in London, but as these meetings were not in the Danish context, they were not included in this research and insight from these were classified as desk -research, or seeking inspiration.

The fact that SDRCA managed to engage with hospital management and CIMT, was considered a success by IUNHN, as these were two stakeholders IUNHN had been trying to actively involve in the NSD process for the future hospital. What was also perceived as a success by IUNHN, was that based on the stakeholder analysis, mapping and the conversations that stemmed from the scoping and *Homecare Futures* workshops, the organisation started prioritising relationship building with stakeholders:

“ that we had not previously considered, like a pharmaceutical company, an insurance company and a mobile telephone company. We would never have thought of that if it did not come up in the workshops while talking to users” (R.H., Head of Innovation).

In addition, after the presentation of the concept in the RCA show, some stakeholders who saw a value proposition of their industry in this project, made contact with NHN for a further collaboration. Focusing on the relationships SDRCA established with the aforementioned stakeholders, they were involved in information gathering, interviews, idea generation and both participated in all workshops. I present an interesting quote from the head of hospital quality management, after the *Homefutures* workshop.

“This was one of the most valuable uses of my time. I go to meetings all day long to talk about patients and very rarely sit down with to discuss “OK how can we approach this? what matters to you? let me explain my side” have this two way relationship.... definitely need to do more of that... and the playfulness was good... fresh... i could see how it can diffuse tension.” (Head of hospital quality management)

In conclusion, in Section I, I have reflected on tools such as visualisation and narrative, as well as designing with all stakeholders in mind, as important facilitators in the design process. In this project, the latter created positive relationships between the design team and various stakeholders, which might be one of the reasons the service concept was able to act as a foundation for further projects, as will be seen in pages 105-106.

SECTION II: Impact on Organisation

This section focuses on the impact of the design project and the service concept on the organisation organisation. The process employed by SDRCA changed the stakeholder (and specifically the patient) relationship to the service concept. The service concept itself, was used as a strategic tool to design new services for the future. This resulted in a organisational cultural shift, where the process of involving patients as well as more ethnographic and creative tools were valued and incorporated in their processes. I will examine this impact in the following pages as a. Impact on process of patient involvement and b. service concept as strategy.

a. Impact on process of patient involvement

In section IIIa, I expand on patient involvement in the design of services in detail. In these pages I highlight the fact that NHN, like other hospitals, find themselves in a tricky position. They recognise the benefits of utilising patients (Van de Bovenkamp, 2009) in the process of developing or improving services, but do not know how to. Patient contribution to service development and quality management in healthcare has had limited impact and been confined to service improvement (Liang, 2017). In NHN, the approach of involving patients was done either through questionnaires or involving a patient representative in quality improvement committees, once the improvements to the service had been designed. Utilising the example of patient representatives in committees, it can be said that in this approach, hospitals bring the patient into their own context. In NHN, by bringing a patient representative into committee meetings “where they have a chance to have an input” (quoted from service quality manager NHN), meant that the dominant hospital logic dictates the pre-conditions for the interaction, rather than the patient’s context. (Magnusson, 2003). Wetter- Edman (2011) describes this traditional firm/ user relationship in service marketing/ management in an illustration that has been adapted for the purposes of this context, in Figure 12.

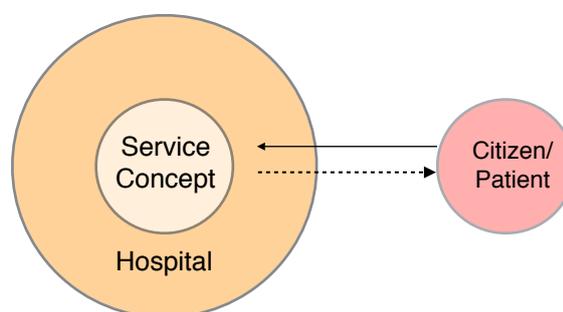


Figure 12: Traditional relationship of the hospital to the patient and the service concept (Adapted from Wetter - Edman 2011)

Traditionally the service concept , with in this project was the design object, lies within the hospitals’ logic and construction processes, where the patient has some input in the form of being able to have a small influence on the offering, as for example give an opinion of preference.

The first section demonstrated how SDRCA was concerned with concept generation, the design object. In this process, it involved and formed a relationship with end-users (patients), the hospital and other stakeholders. Therefore SDRCA involvement in this project, changed the established provider- patient relationship, illustrated in Figure 13. The design object was taken out of the hospitals logic, processes and territory and brought it close to the patient and user, which created a new ‘neutral’ design ‘space’ where the service can be conceptualised. Design activities (small arrows) facilitated the process and created a common ground for establishing relationships between the designer and the service concept. As these activities were shared with hospital care providers and representatives, it brought these groups in a new proximity. The process of designing a service concept, acted as the basis for forming new relationships between the groups, in relation to the service.

“The way you are doing things is so new, even to us [the innovation unit]. we have closely followed how you approach things and the team will start adopting some of these methods for the projects we are and will be working on” (R.H., Head of Innovation, post project debrief)

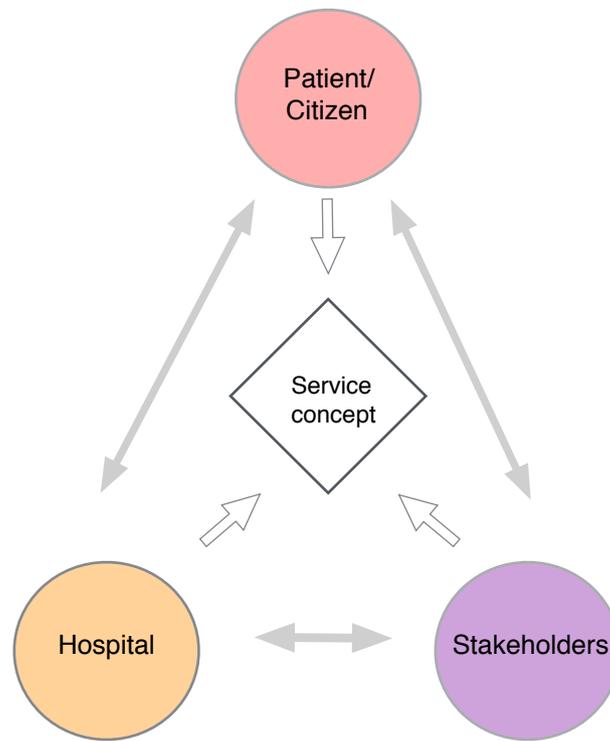


Figure 13: Relational model of the service concept and the hospital, patient and stakeholders in this project

The type of relationship that a firm wishes to pursue with customers, in this case a hospital with patients, is a critical decision in service strategy development (Goldstein, 2002) as it affects the conceptualisation and development of the offering and might further affect patient experience of the offering. In this case the workshops proved an inspiration for the hospital to reach out and explore forging relationships with new stakeholders as a means of achieving new ways of healthcare delivery. Finally the process created the space to explore new stakeholder networks, as well as unite all stakeholders in the contribution of the design object, the service concept, in an egalitarian and democratic way. Thus human centred design added value by redefining the relationships between health institutions and their patients. In the next section, I examine how the service concept was utilised as a strategic tool by the organisation.

b. Service concept as strategy

A second impact of the service design insolvent in the project was that the resulting service concept, acted as a strategic tool and a road map for creating and considering the design of future health services. In terms of bridging the concept to the delivery process or execution, NHN and SDRCA created a framework, positioning the service concept in a continuum for delivery, as seen in Figure 7. This positioned the service concept as a driver for new service development, planning and implementation.

In this case, Konstell was a pre-ject, from which three projects were taken forward for development. These were: a) The data driven patient room, b) Virtual Ward rounds and c) Integration of the discharge transitions. Importantly the organisation saw the value proposition of the SD approach and asked the team to further participate in the development of the projects. Therefore for each of those projects, the NSD cycle will be applied. The service concept, will not need to be redesigned, rather refined for the specific application of the project.

The dissertation has been concerned with the initial stages of service concept in hospital services and for this case, the process is ongoing in terms of the development aspects of the service concept. To appreciate what this might mean for the contribution of Service Design in NSD for future hospital or healthcare services, we need to understand the function of the service concept in healthcare and how a modified NSD might be more applicable.

In NHN, Konstell as a service concept offered a new proposition of healthcare delivery, a new model of care. It is easily understood how new models of care, are not straightforward to develop in their entirety, which is the reason it was defined as a pre-ject, and after analysis, projects were extracted from it.

The relevance of applying this to healthcare, relates to the need of establishing new delivery models. I have already highlighted how the existing ones are considered outdated in terms of adequately catering for living with multiple chronic pathologies (WHO, 2000), or establishing value for the users (McColl- Kennedy, 2012). It is not surprising therefore, that one of the

predominant challenges in the design of new service systems is addressing service fragmentation and achieving vertical and horizontal integration between healthcare sectors. In my opinion, this is why there is a pressing need to create overarching service concepts that can act as a unifying proposition to provide specific direction for sub-projects in them. In addition, the process by which the service concept is created, defines the relationships and priorities between stakeholders, something which is important for subsequent development. Therefore, combining the NSD cycle with the innovation framework that was applied in NHN, a modified NSD cycle might be more applicable in healthcare, as was applied in NHN, which has been visually depicted in Figure 14.

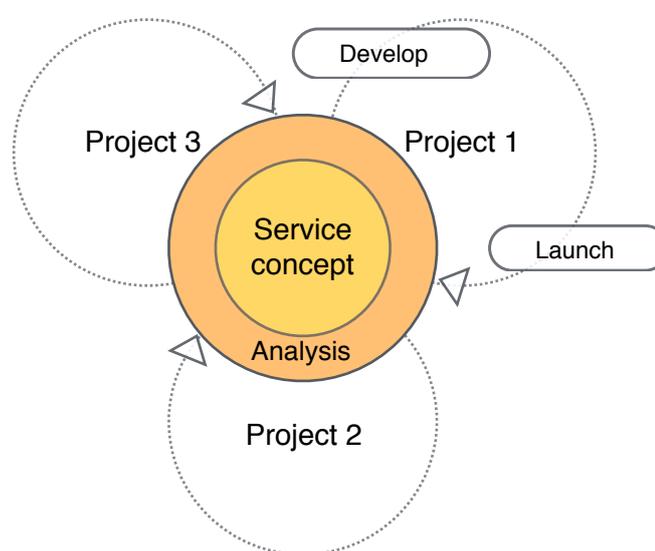


Figure 14: A theoretical model for the incorporation of the overarching Service concept to projects stemming from it, and NSD in NHN

The overarching service concept is placed in the middle of the NSD cycle, with the analysis stage being in-between the planning and execution phase of Development and Launch. Therefore the service concept and analysis of each project has already been defined in its majority, and the rest of the cycle is devoted in the development of the project. This area will need more research and will be interesting to revisit the NHN projects that are currently being developed from Konstall.

SECTION IIIa.

Relating Service Design Activities to Service Dominant Logic

Introduction

The term value is an ambivalent term, which has been much debated in the context of philosophy (e.g. Gordon, 1964), anthropology (e.g. Munn, 1986), economics (e.g. Porter, 2010), marketing, management and service research (e.g. Grootenboer, 2013).

In healthcare the concept of value as traditionally understood, has emerged from economics. One of the prevalent conceptualisations of value has been the one suggested by Porter as the ‘health outcomes achieved, per dollar spent’ (Porter, 2010: p. 2477). I have outlined the problematisation about this definition in page 18 of how it is a dyadic based evaluation of costs and benefits. In this view, the perception of value in healthcare has been based on a management perspective rooted in goods-dominant (G-D) logic, as captured in goods and delivered by the firm to the consumer and is more aligned of the firm offering of what value entails.

Recent reviews however, have challenged this view, by describing the multidimensional aspects, including utility, emotional appeal, trade off between benefits and costs (Morar, 2013) where value is a constellation rather than a chain. These views are infiltrating healthcare and relate value to the role of the patient to the creation of such value, outcome and experience (Better value in the NHS, 2015; Nesta, 2016; Joiner, 2016). This creates a binary between value as determined by the organisation, as opposed to value as understood by the patient. On one hand, influenced by GDL it suggests that healthcare service is a product manufactured by healthcare systems for use by healthcare consumers. On the other, the changing rhetoric suggests that value creation entails a process that increases the patient’s well-being, such that the user becomes better off in some respect (Grönroos, 2008; Vargo et al., 2008).

Given Contemporary dialogue about how patients add value in healthcare is pertinent, we need to examine other ways of involving patients in what they might perceive valuable. The past two decades have witnessed the most notable shift in patient role within the healthcare

system, reflecting the strong focus on patient-centred care (Van de Bovenkamp et al., 2010). Although the general consensus seems to be that patients should participate in health decision making, their added value is limited to the micro-level of clinical treatment plans and preventive healthcare measures such as cessation of smoking, exercise etc.

Batalden (2016) suggests that participatory efforts might be compromised by an implicit GDL paradigm. Therefore in trying to understand how we might re-perceive this inherent paradigm, SDL becomes relevant, in integrating patients in the co-production of services. In this thesis, the value in healthcare is outlined as patient participation in health service design in the NSD process. Service design as understood from a design perspective, being the platform through which this change might be facilitated, leading to process innovation. The following sections are organised as follow:

1. Value of patient involvement
2. Limitations of GDL with respect to patient involvement
3. Service design activities as facilitators to SDL in healthcare, as understood from the design project.

Value of patient involvement

The past two decades has seen patients have the most notable shift in their role within the healthcare system, reflecting the strong focus on patient-centred care. Patient involvement in healthcare, is mentioned frequently in literature. The multiple levels of conceptualisation of the role of the patient as it appears in health care research and service research, have been summarised by McColl-Kennedy (2016). These are namely: (1) Traditional Medical Model; (2) Biopsychosocial Model; (3) Patient Centeredness; (4) Patient Participation; (5) Shared Decision- Making; (6) Patient Empowerment; (7) Person-Centered Care; (8) Collaborative Care; (9) Self-Managed Care; and (10) Health Care Value Co-creation.

Most of the above conceptualisation of the patient role, are limited to the micro-sphere of the clinical interaction and therefore exchange of healthcare advice. Research suggests that at this level, practices that encourage the active involvement of the individual and promote collaboration between healthcare provider and citizen, are more likely to succeed in terms of

management of chronic diseases, such as cancer (Holman & Lorig, 2000). Unsurprisingly, good outcomes are more likely if the clinician and patient communicate effectively, develop a shared understanding of the problem and generate a mutually acceptable evaluation and management plan. (Gummerus et al., 2004; Tian et al., 2014; Topol, 2015).

Linking patient involvement at this micro level to conceptualisations of value, it can be said that the involved patients are co-producing the service with health care professionals. They are contributing a range of personal resources such as information and knowledge and by engaging in a range of activities by themselves and with others, improve their health and well-being (McColl-Kennedy et al., 2012; Ostrom et al., 2015).

Customer participation and engagement is being increasingly recognised as an important factor in achieving the objectives of preventative healthcare and wellbeing strategies (Zainuddin et al., 2013). Even at this micro level, this shift from the Traditional Medical Model, expands the role of the health care citizen from passive to active, with the latter being given greater responsibility for managing their own health. Therefore, the citizen is an active co-creator of value and a collaborator in care and aligned with the principles of SDL as applied in healthcare (McColl-Kennedy et al., 2012; 2016; Tian et al., 2014).

The implication of the above work can be extrapolated to the macro service level, which is the focus of this thesis in relation to future services design. In a 2018 BMJ essay by Batalden, it is stated that ‘Rethinking healthcare as a coproduced service adds depth to our understanding of how we might better design and make services, improve them, and ultimately increase their contribution to better health’ (Batalden, 2018: p. 363). This becomes increasingly important when we consider that health services are characterised by a uniqueness about the planning process, that might not be encountered in other industries. To name a few, there are emotional dimensions of users and complex relationships between separate entities of care, often operating in an almost uncoordinated manner. The above beg the question of how healthcare delivery systems can facilitate co-creative relationships between patients and healthcare organisations, which is related to my overall research question of whether Service design can have an impact in this domain?

As was the case in this design project, NHN hospital aimed to have a patient-centred outlook. In its overarching vision document, this is stated as ‘Patients should be looked at as human beings, not as defective machines. We must build a hospital that is active in the prevention of disease and involves patients, giving them influence and responsibility’. In the NHN case, as in a few hospitals that I have experienced, the organisation wanted to design with the patient in mind. They did however lack the tools of achieving that and therefore patient engagement came in two main forms: improvements based on patient satisfaction questionnaires, or the patient was invited to offer their opinion from a patient perspective, once a service pathway was designed. Patients for example, were invited to be representatives in committees towards the end of the process, rather than be actively and equally engaged along with other stakeholders in the design. This was not due to deliberate exclusion of the patient groups. However, having been used to operating within a more GDL mindset, they had limited tools and understanding of how to utilise patients as resources, especially when it came to bridging the patient and organisational perspectives of the services.

Limitations of GDL with respect to patient involvement

GDL has been widely adopted in healthcare and has made sense both in terms of quality and safety improvement efforts (Flynn et al., 1995) but also from an organisational perspective in terms of costs and efficiency. Systemic quality improvement efforts in healthcare have been based on standardisation practices reducing unnecessary, unintended variation (Batalden, 2016). An example from NHN Design project would be the standardisation protocols and pathways in treating pneumonia in the over 60 age group. This also makes sense from an organisational perspective that is focused on efficiency, as standardisation is seen as a necessary and effective way to meet business objectives, as for example productivity measured in how many patients can be seen in a respiratory Out Patients clinic. Radnor et al (2014) note that public management theory, despite its service core, consistently draws upon generic management theory derived from the goods-dominant logic of manufacturing. I believe her insight applies to healthcare services, where improvement methodologies and frameworks (such as Lean and Six Sigma) developed in manufacturing often dominate (Batalden, 2018).

A G-D logic framing of the relationship between the provider and the patient views the provider as experienced, knowledgeable, innovative, creative, and the source or creator of value. This view has been prevalent in health care (Berry and Bendapudi, 2007; Holman and Lorig, 2000). This represents a logic of separation between producer and consumer or in health care between health care providers and patients, which does not maximise consumer well-being (Fitzsimmons et al., 2013). It becomes problematic when these developments do not correlate with user needs and expectations, provide solutions to their health care problems and contribute to a sense of wellness.

Furthermore this model has its limitations, particularly bearing in mind that it does not harness the patient as a key stakeholder in service design processes. Batalden (2016) states that this co-production of healthcare service challenges standardisation, as it invites variation in healthcare services. It is my central belief that one cannot co-produce services if in a GDL mindset, as one cannot produce the product (service in this case) and then add patient participation. Rather as we come to recognise this essential co-productive character of healthcare services, we introduce methods and practices that allow for co-productive activities

as new opportunities for innovation and improvement. Changes in the positionality of the patient in the process of development can create changes where and how value is created.

Service Design activities facilitating S-D logic for health

Although value creation is not explicitly defined, extant literature on SDL generally treats it as co-creation, in that it emphasises a process that includes actions by both the service provider and customer (and possibly other actors). Grönroos and Voima (2013) conceptualise value-in-use as “the extent to which a customer feels better-off (positive value) or worse-off (negative value)” (Grönroos et al., 2013: p 134) based on the experience related to the use of the service over time. Therefore, according to this literature both the service provider and the customer are always considered co-creators of value. In thinking of services from this perspective, McColl-Kennedy states that ‘When value is perceived as value-in-use for the customer, the focus is no longer predominantly on a customised bundle of products or services exchanged for a price’ (McColl-Kennedy, 2012: p. 371). Thus for healthcare organisations, they are not able to create a customised bundle of care that the patient acts as passive recipient of, unless that patient has co-designed and had input in this process.

It can be argued, that co- production in relatively direct service provision activities, such as service design and new service development (Vargo & Lusch, 2011), can be translated to participation, which is the space where this design project occupies. We have seen how co-creation in SDL vs design practice differs in pages x, however in the design project they converge, as co-creation of service process (co) creates value for both patients and organisation. The value is assessed in terms of patient involvement in the NSD. In this project through the design activities, the service concept which would traditionally belong in the institutional sphere, was re-conceptualised in a joint sphere, as outlined in pages 103-104. This sphere acts as a platform for co-creation, with the patient regarded as a stakeholder contributing to its formation. Value creation becomes an ongoing process that emphasises the customer’s experiences, logic, and ability to extract value out of products and other resources used (create value-in-use). To that effect, this is in line with what Ramaswamy (2011: p. 195) observes in an analysis of co-creation in management literature, ‘co-creation is the process by which mutual value is expanded together.’

Design project and value from SDL perspective

Batalden (2015) expands to suggest that failure to recognise the aforementioned limitations of GDL, 'may limit our success in partnering with patients to improve health care'(Batalden, 2016: p.509). To address the above problematisation of value in healthcare services, the design project, as seen in previous chapters has followed the principles of service design as understood from the design perspective. Efforts of patient involvement so far in healthcare have been primarily focused on the micro level relating to disease management rather than the macro level of involvement the overall services. With regards to the latter, in service research studies the focus has been limited to aspects such as patient satisfaction (e.g. Choi et al., 2005) and responses to health messages (Keller, 2011).

The design project in contrast, introduced a set of principles and tools through the lens of design practice. The SDRCA team, initiated a set of activities and tasks aiming to produce a service concept as part of NSD for the new hospital. These activities, were patient focused with the patient being a central stakeholder in the process. Problem framing activities were patient centred, using ethnographic research tools such as narrative interviews and observations. Through workshops, constant validation and iteration methods, emphasis was on understanding existing and desired experience and defining the service goals and priorities with patients. The facilitator was the service design team, being able to utilise design practices, which brought the service concept out of the organisational sphere and allowed patient participation in the process.

In accordance with Joiner and Lusch (2016), a major marker of shift towards a Service Dominant logic in health has to do with the organisation's ability to involve the patient in the process of NSD, which I have demonstrated in this project. These efforts in healthcare, have not previously been described, to my knowledge, from a design research and SDL perspective. In an attempt to do that, I focus on patients as operant resources, and link that to Service Design as a dynamic capability for innovation. Then I focus on Health Service Design for experience and how that ties in with SDL. Lastly I outline how the service concept is aligned with SDL.

a. Patient involvement in NSD as an operant resource

I have deliberately focused the above sections on the role of patient involvement in service design, as these actors have traditionally had a more vulnerable and dormant role in health service development. It has to be acknowledged however that in current healthcare service design landscape, there is also a divide between management, which will lead and take ownership in the service development, with medical staff only been involved in theatre stages. This is another remnant manifestation of GDL. In this project the views and experiences of both patients and healthcare providers were core in the design process, but for discussing value co-creation in the specific context of healthcare, I will here-on focus on the patient as end user.

Patient involvement utilises tacit and explicit knowledge that patients have with regards to the needs the service has to meet, their expectation that can be used two-fold. In that respect, their value is focused on what the organisation gains in the former instance and what the value is to the patient for the latter. Both aspects utilise the patient as knowledge rich resource.

Operant resources and Knowledge creation

When it comes to service improvement, one of the most practiced and notable models is Total Quality Management (TQM), otherwise known as Continuous Process Improvement (CPI). Despite the fact that the customer focus is one of the hallmarks of TQM (Dean & Bowen, 1994), in a literature review by Engstrom (2012), patients were not seen as a resource in quality improvement efforts. Of course in the design project the focus is service innovation for the future, however, this example highlights the organisational mindset when it comes to utilising patients as resources. If the mindset is such that patients are not considered as resources in services that already exist and they currently experience, their inclusion for designing for the future is also going to be minimal.

The value of operant resources in marketing literature has been highlighted in SDL foundational premise 4 'Operant resources are the fundamental source of competitive advantage' (Vargo and Lusch, 2008a).

Competitive advantage can be understood in service marketing literature but how does it translate in healthcare? Again this can be viewed by both the organisational and patient perspective. Creating services that meet patient needs and expectations is a competitive advantage in inherently creating efficiency. From my experience it also has the advantage of minimising complaints, as those frequently stem from unmet service provision needs. In order to understand the value of patient participation and involvement, through a SDL, I am going to link it to the notion of operand versus operant resources.

Vargo and Lusch (2004;2008) distinguish between operand and operant resources. The former is a resource on which an operation or act is performed to produce an effect. Although these resources are primarily physical, it can be argued that models where patients are not involved until the end product (the healthcare service) is on offer, can be viewed as operand resources. Adopting S-D logic, patient is an operant resource, who can act and create value in a way exceeded by the concepts of patient engagement and activation, as they are currently articulated. These are related to healthcare outcomes and metrics, where the value for the patient is largely perceived and defined by the health care system. In contrast, operand resources act on other resources to contribute to value creation (Vargo and Lusch, 2004).

In this context, the SDRCA team created opportunities, activities and communication channels to facilitate rich and intense interactions among individuals as well as harness the experiential knowledge of the patients regarding the services they were interacting with. The Service design team created and facilitated a process of co-creation which utilised patients as knowledge rich resources, as they experience the full pathway of a problem, from first symptom to a health intervention. (Elg et al., 2012) and as a result, as seen in pages 103-104, it created a joint sphere of the service concept, which was not owned by the organisation.

Knowledge co- creation is an important element of patient participation. As defined by Blackstock, Kelly & Horsey (2007), co-creation is the development of new knowledge through sharing experiences and views between relevant actors towards a common goal. The opportunities of involving patients as resources in the development of healthcare processes are highlighted by some scholars (e.g. Epstein, 2000), who argue that patients have important knowledge that can be utilised in the development of healthcare. This is in line with work by service marketers, who suggest that organisations cannot gain access to, understand and meet

customers' needs only by using traditional methods such as surveys and interviews and that an important aspect in the development of service is to get closer to the patients' context (Matthing, 2004).

This knowledge that was extracted throughout the process, was re-invested in the process with the patients defining their needs and goals and experience they would like to have. This was constantly communicated to the organisation and the value of this harnessed knowledge can be summarised from a quote below:

“The way you are doing things is so new, even to us [the innovation unit]. We have closely followed how you approach things and the team will start adopting some of these methods for the projects we are and will be working on” (R.H., Head of Innovation Unit)

Additional evidence is that in the projects that stemmed and are being piloted from the service concept, patient participation has become a key component of the process.

Linking this to NSD which requires a knowledge creating process, on a theoretical level we can draw on Nonaka's (1994) dynamic theory of new knowledge creation. Which is based on the premise that organisational knowledge is created through a continuous dialogue between tacit and explicit knowledge. I argue that new knowledge is developed by individuals and in this case the source of tacit knowledge is the patient, and the means through which this knowledge was harnessed and articulated was service design.

SD as a dynamic capability for innovation

Linking these service design activities to innovation, The hospital can be viewed as service system, which constitutes the resources that are required or are available to the service process in order to realise the service concept. Poppelbuss (2011), takes the stance that service innovation is:

‘a dynamic capability enabling the adaptation of service processes to changing environments. In line with this perception, we argue that scholarly models for new service development, service engineering, service innovation, or service design can be seen as specific descriptions of the dynamic capability service innovation’ (Poppelbuss ,2011: p.546)

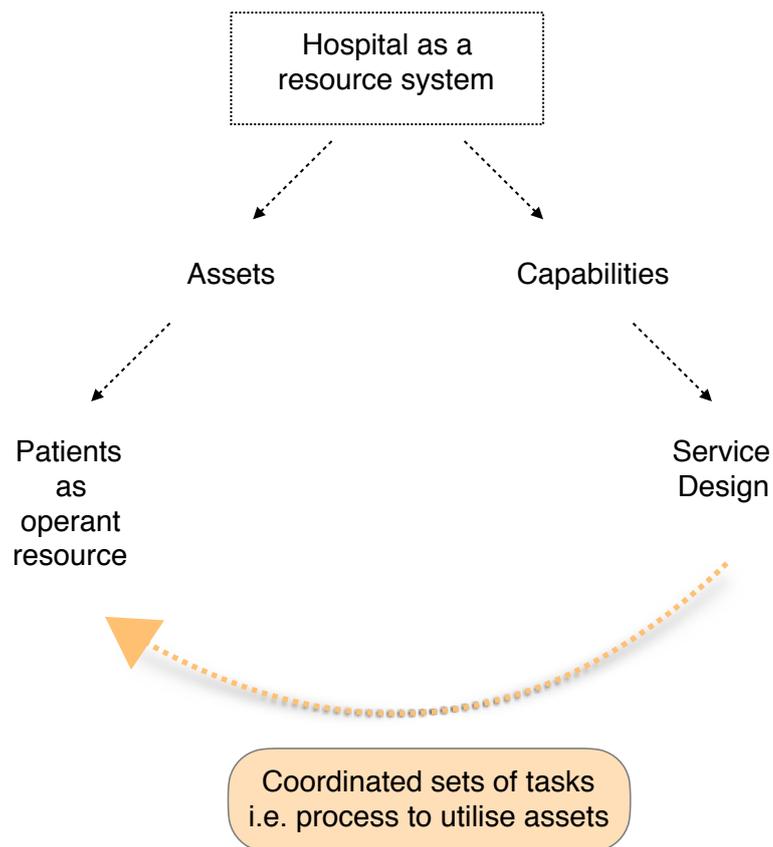


Figure 15: Service design as a dynamic capability

This perspective is based on the Resource-Based View which argues that organisations can be seen as collections of distinct resources (Den Hertog, 2010), made up of assets and capabilities. The former are anything tangible or intangible that can be used by an organisation (Wade, 2004). In contrast, capabilities utilise assets as input (Wade, 2004; Helfat 2010) and refer to the ability of an organisation to perform a process (Helfat, 2010). Jens argues that organisations need capabilities that enable them to adapt their resource configuration which he calls dynamic capabilities (Poppelbuss, 2011). Relating that to NHN, the organisation was dealing with planning and designing for the future which is an uncertain activity, characterised with adaptation of resource configuration. Service design did introduce a new process to the organisation, by treating users as knowledge and experience assets. Therefore according to the above definitions and theory framework, service design acted as a dynamic capability in the organisation, as referred in Figure 15.

Service innovation frameworks identify three types of activities relating to innovation: Sensing, seizing and transformation. Berardi-Coletta et al (1995), differentiate problem knowledge from solution knowledge. From a dynamic capability perspective, sensing focuses on identifying that innovation is needed and therefore addresses problem knowledge. In seizing, on the other hand, solution knowledge is needed.

‘Sensing refers to the management of different sources of information and knowledge that need to be translated into leading problems and unmet service needs before a more focused conceptualisation of new service solutions follows in the seizing phase’ (Poppelbuss 2011:p. 548).

Relating this theory back to NHN, SDRCA managed different sources of information and knowledge (sensing), that it then translated into insights or "leading problems and unmet service needs" (Poppelbuss, 2011). It then focused on the service concept development as a seizing activity. Therefore the design activities of SDRCA can be seen to contribute to a process of service innovation.

In summary, I have demonstrated how in this project, service design activities in utilising patients as operant resources, can be aligned with SDL and contribute to NSD and innovation in healthcare services.

b. Health Service Design for Experience and SDL

In the previous section I examined knowledge value that was utilised from patients to shaping the service as value to the organisation. Here I present the other side of the coin, of how part of this tacit knowledge possessed by the patient is linked to experience. Which in turn is linked to value as perceived by the patient and how that is related to SDL. I also argue that design activities are central to being able to harness this experiential knowledge and be able to articulate it and utilise it in the context of designing services and NSD.

SDL links experience to value

In the Foundation Principles of Service dominant logic, FP 10 mentions that ‘value is always uniquely and phenomenologically determined by the beneficiary’ (Vargo and Lusch, 2008a). This phenomenological character is defined as being the experience, in their subsequent

papers (e.g. Joiner and Lusch, 2016; McColl- Kennedy, 2012). Recent empirical work (e.g., Tynan et al., 2014) has highlighted the need to acknowledge service experience as a complex and dynamic value creation process that is related to the service offering but not entirely determined by it. In presenting the design project in chapter 4, I have outlined how SDRCA design activities were centred around understanding user experience and designing with this as an axis for the concept development, together with the patients.

Healthcare experience

It is hard to imagine a more important and personal service experience that impacts more people than healthcare, especially as these are services that they need rather than want. (Danaher & Gallan, 2016). In pages 96-97, I have outlined some of the work of Bate (2006; 2007) and Charon (2003). Bate argues that good design of healthcare services, leads to good experiences (Bate, 2006). In his paper, he adapts Berkun's components of good design to healthcare and relates them to coordinating them in a balanced triangle of functionality, safety and experience. He also argues that healthcare has predominately focused on the first two with experience not being distinguished as a separate entity. Bate further criticises commonly used tools thought to gauge patient experience (such as patient satisfaction surveys) as methods to capture an attitude or perception, rather than experience. In contrast, in their work Bate et al, use principles of Experience Based Design which is focused in utilising user knowledge, as integral in the innovation process (Bate et al., 2007). The work of Bate et al. and Charon (2003), both support the utilisation of experience in knowledge generation and as a foundation in the construction of services.

Design as sense making

Given that understanding experience can be problematic, in that it is a subjective phenomenon, I argue that Service Design is a method that has the tools and capabilities of sense making in understanding and designing with experience in mind. In pages 94-95, we have seen the principles of HCD and DDI. Krippendorff emphasises HCD as a perspective that takes the criteria from stakeholders and makes them available through the process of design (Krippendorff, 2006), with the design activity as a meaning creating activity. Given the complexity and future planning scope of the project, a lot of the project activities were

related to sense making of the context from the patient experience point of view, as for example in asking: ‘What are the reasons that there are many readmissions or deteriorations?’, or when designing for the future asking: ‘What would make this a better experience?’

In the design project the use of narrative and storytelling was prominent. They were a tool for information gathering, in internal brainstorming sessions, in idea generation with users and concept iteration. Taking into consideration that storytelling and narrative are the basis of experience design (Greenhalgh, 2005), it is evident that user experience was a high priority for SDRCA, as seen from figure 11. The team treated experience as a type of knowledge and as one of the four pillars around which they constructed the service concept. Therefore, the design team took on a role of an expert, teasing meaning out of participants, interpreting it and making it concrete again in visual or narrative form. In this context, SDRCA took on an interpretative and propositional role to propose a radically different model of care compared to the existing one, based on the insights relating to experience that had been identified during the initial research phase.

c. The service Concept proposition as a reflection of SDL principles

In the previous sections, I showed how the process of designing the service concept proposition, Konstall, was the outcome of participatory activities from various stakeholders including utilising patient knowledge and focusing on experience. Therefore its alignment to SDL is two-fold: both as a result of the process, as well as some of the core elements, which were derived and iterated by patients. These were based on: home based care, utilising technology with a web based platform. These core elements represented patient desire to have greater access to knowledge and potentially fuller understanding of their illness and suggested activities that they can perform themselves to improve their health outcomes (e.g. Joiner & Lusch, 2016 ; Choi et al., 2004, Zainuddin et al., 2013). The service concept also incorporated other actors, such as families and support systems, as part of the management process. In this project, the final service concept tried to address the insights relating to experience that had been identified during the initial research phase. An example from the project would be addressing the bad experience of transitioning out of hospital for patients. This was a common theme, with one patient stating: ‘I don’t feel safe when I go home...I don’t know what to

expect. It's scary cause i've obviously been discharged because I no longer need help. It makes me think whether its all in my head...'

Other examples include:

a) During the exploratory phase of the NHN project, it transpired that positive outcomes of living with chronic disease and enhancing health, were activities that were not directly related to healthcare, such as the ability to have 'lunch with a friend', 'go to church' (as quoted by two citizens). These are experiences linked to citizens feeling more enabled, as a result of their good healthcare journey. The findings also included intertwined negative experiences that citizens were "relieved" of, as a result of health care treatment, such as no longer having to make frequent transport arrangements to visit a health care professionals in hospital. Joiner & Lusch (2016) argue that 'the relieving of these generally negative experiences that result in something of positive value to the customer' (Joiner & Lusch , 2016: p. 28).

b) When working with COPD patients, one of the questions SDRCA asked patients that had recently been discharged, was whether they had a better understanding and/or knowledge of how to prevent future health problems or if they believed they were able to integrate their learning from a hospital stay, into their daily lives to enhance their wellness. The answers were predominantly negative and based on this understanding, aspects of konstell were designed in a certain way. I will contrast this approach, to the other aforementioned and commonly used tool to evaluate patient "experience", the patient satisfaction surveys, where these types of questions are in stark contrast to those asked by the design team.

Konstell (the service concept) represents a value proposition offered to the customer. It was presented as the experience journey¹⁵, through touch points and encounters, which facilitate decision making through information and data flow from environment to citizen, as well as citizen and health provider. The other aspect that was incorporated in the conceptualisation of Konstall, was linking to existing citizen communities. This in combination with information feedback loops build in wearable technology, alters the information asymmetry that has previously characterised the consumer-provider interaction. The patient is not only a source of knowledge during the development phase, but is supported in augmenting the health-

¹⁵ (as attached in the original thesis USB)

specific knowledge they require to facilitate their decision making. According to Joiner and Lusch (2016), the focus on support and community, organising themselves to help each other, is consistent with S-D logic. They are co-creating value by integrating their resources and experiences. In addition Topal et al (2012) argue that the most direct application of S-D logic to health is through devices that permit patients to acquire and transmit information of their physiological data, without interrupting daily life. This view point was validated in the project where citizens positively embraced that aspect of Konstall:

“I use apps on my phone, speak to my daughter on skype, why not do it for my health? Th only thing is that I want to be able to choose what information is set and when...like an on/off switch” (COPD citizen with severe disease as quoted in the final workshop)

Although examining the role of technology in the future of healthcare delivery is beyond the scope of this thesis, it is worth mentioning that data privacy was much discussed during the project. One of the main insights from users perspectives regarding this, was about the level of control they had over the quantity and quality of information shared, which is that main focus of research around blockchain technology in health. Determining the quantity, quality, and form of the information that is desirable and acceptable, both for the patient and provider, and understanding the relationship between the information provided and subsequent consumer behavioural modification, is what will optimise the consumer and provider experience. For example, in the Konstall video, the device that wirelessly transmits blood glucose levels, to providers gained a lot of attention (and positive votes from providers and patients in the final series of workshops) and would be considered an example of individualised, patient-centred care. I take the view that the information generated and/or transmitted is not intrinsically value producing as it is only a number. Like in the practice of medicine, the value derives from the consumer determining the value of that information and embedding that value in their decision-making activities and activities of daily living. Therefore the value of the proposition for the citizen is the enhancement of self-efficacy.

Grönroos and Voima (2013) in their analysis of value creation shows that customers are not only co-creators/co-producers jointly with service providers but also act as independent value creators of “real” value. Real value emerges outside direct interactions with the service provider, with the real value creation process influenced by the customer’s own ecosystem of customer-related actors. Customers may integrate resources to achieve benefits from sources

other than the focal firm, from private sources such as peers, friends, family, even other customers (Vargo and Lusch, 2011). I argue that the patients' self-generated activities (e.g., by accessing their own personal knowledge and data, contribute to and that ultimately become part of this co-creation.

So far I have demonstrated that both the process and the end service proposition, can be thought to align with patient participatory activities, as conceptualised by value in terms of SDL. I have also outlined that service design activities were pivotal in helping the organisation design healthcare services that were patient-centric.

Theoretical Framework

To date research on health care has been carried out largely along disciplinary lines, with little sharing of knowledge between medicine, nursing, and allied health on one hand and service research on the other. However, there is much to be gained from integrating findings from the disparate literatures. (McColl- Kennedy, 2016). In this thesis I propose a theoretical framework for addressing the research question, that looks at the integration of service design practice in New service development in healthcare.

In chapter 2, pages 28-34, I traced the principles of Service Design practice as it is practiced through Design perspective with its main principles being user centricity, participatory, creativity, iteration and prototyping. I also explored New Service Development as an approach to Service innovation, in pages 35-39. This process is characterised by a set of activities, tools and competencies, and one of the research aspects is to examine how Service Design can act as a capability and competency, within this framework. The specific focus will be how it contributes to new service development as an approach to service innovation, responding to Sangiorgi's research call (2014).

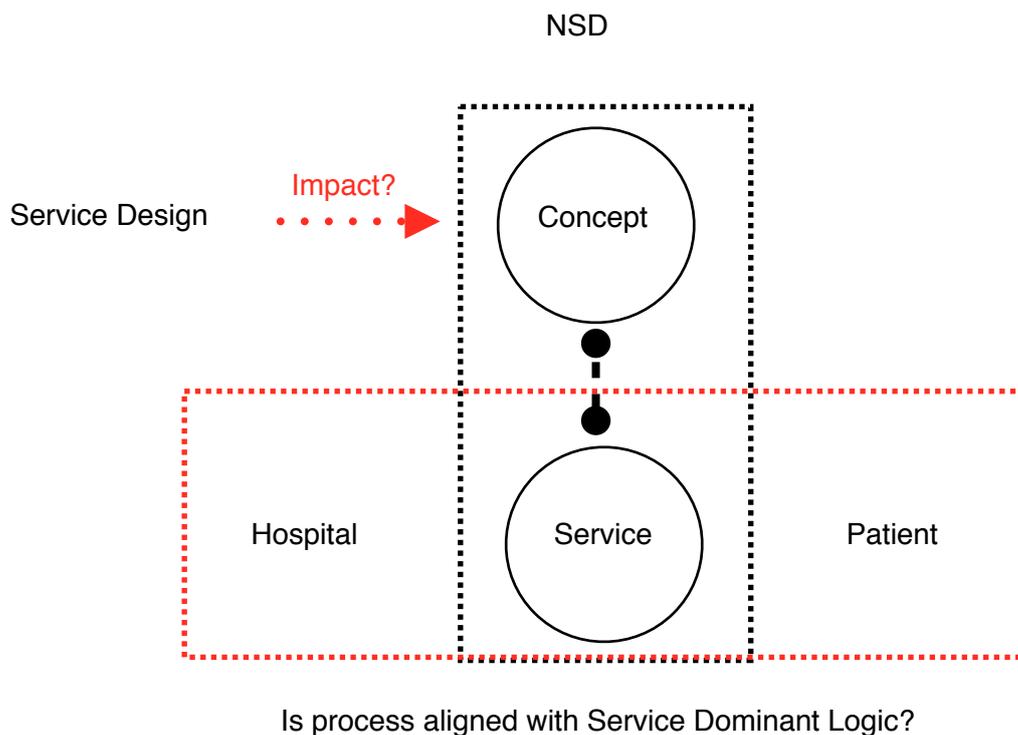


Figure 16: Schematic representation of research questions

Finally, when it comes to the service proposition, the interest is to examine whether the role of the patient changes in the process and to what degree it adds value. As value is an ambivalent term that can be examined from many epistemological perspectives, the specific lens of this enquiry will be that of Service Dominant Logic, as has been overviewed in pages x. Figure 16 is the schematic representation of the research questions and summarises the theoretical lens used in the analysis and evaluation of the design project.

Bearing in mind the above theoretical framework, the contribution of this project in terms of value as defined by S-D logic, can be summarised in Figure 17. The patient is of value to the NSD as an operant, knowledge rich resource, and the resulting service proposition meets the patient needs with regards to the experience they want to have. It is the co-design process as facilitated by service design activities that allowed the materialisation and shift to a SDL in the institution. Therefore Service design contributed to S-D logic in healthcare, which provides a different paradigm for the conceptualisation of services.

This can address the question posed by Batalden (2016) about other ways that might encourage co-design in healthcare service delivery systems and does not become destructive (Gronroos, 2011). In this aspect, design activities acted as a mediator and facilitator for creating the space for participation and conceptualisation. The fact that these techniques been taken up by the organisation, testament to the fact that seen as value for organisation. The innovation potential lies in the organisational cultural shift towards a more SDL approach to patient involvement in NSD. The patients found value in participation, with one patient stating that 'I like to feel visible'. In terms of process and value in shaping the service concept, it is evident, but in terms of end product, this cannot be assessed yet. Gronroos also points out that 'it is not the customer's alleged role as a co-creator that is unique to service logic. Rather, the unique perspective of a service logic, compared with a traditional goods perspective, is the recognition that in certain circumstances, the firm can become a co-creator of value with its customers' (Gronroos et al., 2013:p.145). In the process, SDRCA considered a number of specific types of resources, such as the patient, provider, medical technology, and equally engaged with these stakeholders in information gathering and idea generation design activities. The patient and health providers were seen as design thinkers who participated in value co-creation and their experiences were considered in the concept generation through the

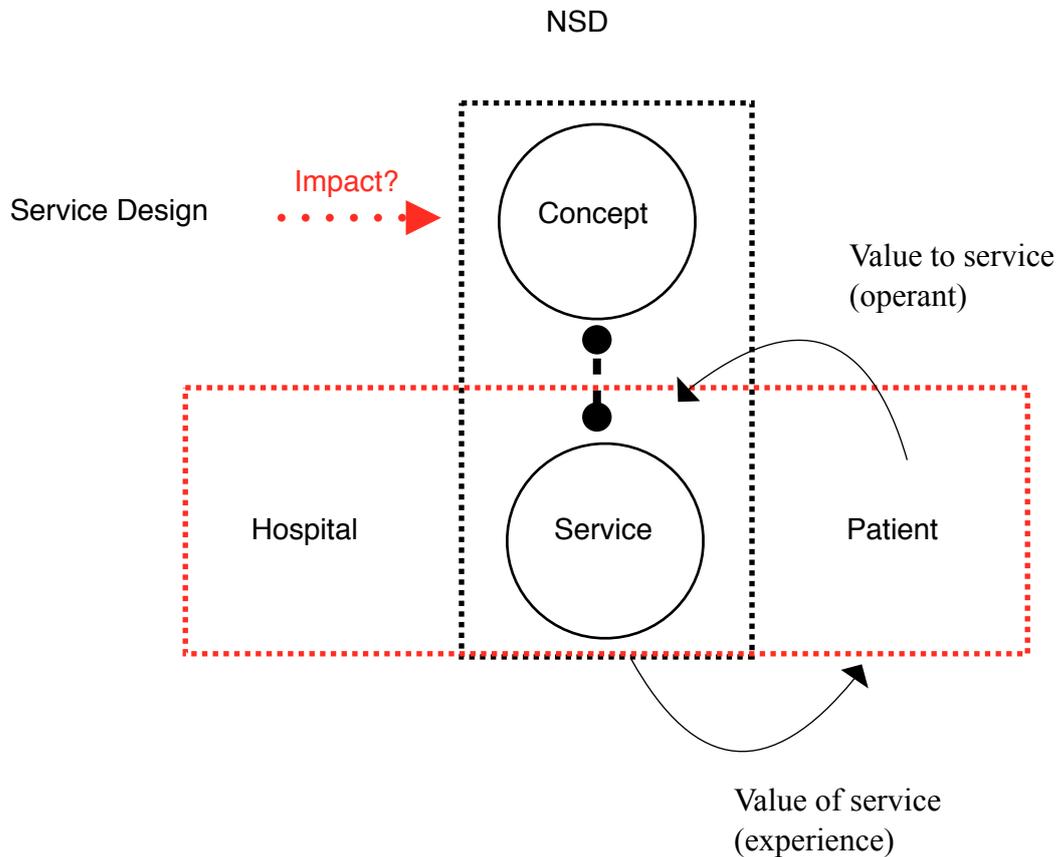


Figure 17: Theoretical framework of how Service Design adds value to NSD, in accordance with SDL

design of touchpoint and encounters as seen in the above section. SDRCA's activities represent a more S-D logic, which through the collaboration with IUNHN was also instilled in the organisation; as evidenced by the value that was placed in the developing patient-hospital relationship and wanting to pursue a collaboration throughout NSD with SDRCA to deliver the service.

In literature, defining co-creation as the process where actors share their resources during collaborative activities and interactions (co-creation practices), Frow et al. (2016) identify some of the important value co-creation practices that shape a dynamic and constantly changing health ecosystem. The experience co-creation process involves rapid and continuous interactions between the firm and its customers in order to provide customers with opportunities to engage in significant and persuasive experiences (Ramaswamy, 2008).

In this section I argue that understanding the contextual nature of value creation demands approaches other than traditional ones (Ostrom, 2010). However, this concept in healthcare is in its infancy (Nambisan, 2009). The concept of S-D logic as applied to health care is new.

Scant literature exists under that nomenclature, but it is likely to have important implications for Health Care Organisations, as they continue to seek new ways to enhance health care quality whilst attempting to reduce health care costs. By adopting SDL in healthcare, the role of users, their knowledge and contacts become central to understanding the hospitals health service value creation. If the hospital accepts the SDL perspective, then the role for service design in health becomes more clear. As we have seen in the NHN project, service design is well positioned for mobilising user knowledge.

Finally, I have contextualised the design project and service design activities in NSD, within a SDL paradigm, which does not come without its critique. SDL is a retrospective, theoretical lens based on resource theory. It has been criticised for having few guidelines on concrete development and implementation of services, so difficult to integrate in service providing organisations (Cambell et al., 2012). The contribution of this design project is that service design practices, might be a tangible way of incorporating SDL into healthcare organisations in a practical way, hence incorporating the resources available.

SECTION IIIb: The contribution to New Service Development (NSD)

Service Design and service concept

In section I, we saw how the Service Design activities lead to service concept, bridging patient perception of quality, whilst also satisfying the needs of frontline staff and stakeholders, thereby balancing the contradictory demands on the service. The importance of the Service concept in NSD, is articulated in Edvardsson, who states that one of the major tasks in developing new services is to build in the right quality from the start. In this section I argue that Service Design can bring the right quality to NSD, with the start being the service concept.

‘To understand customers needs and wishes properly it is appropriate to involve customers in the process of developing new services...This requires to include customers in service development projects, to set up a meaningful dialogue with customers and to make it easier for them to articulate their needs, requirements and wishes...This customer-active paradigm is to preferred when formulating and testing the service concept and developing the service process.’(Edvardsson 1996:142)

The service concept has been identified as the missing link in NSD, in the way it can help bridge between the “customer needs and the organisation’s strategic intent” (Goldstein 2002), who argues that the commonly perceived poor service is because of a mismatch of the above and can be avoided by ensuring that “ the design intent is focused on satisfying the targeted customer needs”. Edvardsson further defines service concept as a pre-requisite for the service, as a driver to service design planning. According to S-D logic and as seen above, we can substitute quality for value in health (Joiner & Lusch 2016). In this project the pursuit of the right quality has been demonstrated in the human centric focus of the research, acquiring information that matters to users and participating in workshops with stakeholders for idea generation.

Framework for Service Design in NSD

This dissertation only examines service design in service concept generation and due to time constraints it has not followed the New Service Development process that has resulted from the projects that have been taken forward. Therefore I create a hypothetical framework, of how Service Design might apply to the whole NSD process.

Based on Johnston's 2000 model of NSD (Figure 2), the process has four stages: Design, analysis, development and full launch, which can be simplified to two macro phases: Planning (design and analysis) and execution (development and launch). The former involves strategic positioning, idea generation and service concept development and the latter the service development and launch.

Services are produced by means of a process, dependent on resources, as they have been developed and organised by the service company. In the case of the hospital, these resources included using a service design team, stakeholders and users in order to achieve the service concept, or the design phase according to the NSD model (Figure 18). The contribution of Service Design to the service concept, has been discussed in the above sections, in terms of the relational aspects of the process, the gravitas of experience and the design methods and tools that were utilised. The creation of the service concept, acted as a foundation to create a process for thinking about service innovation in healthcare.

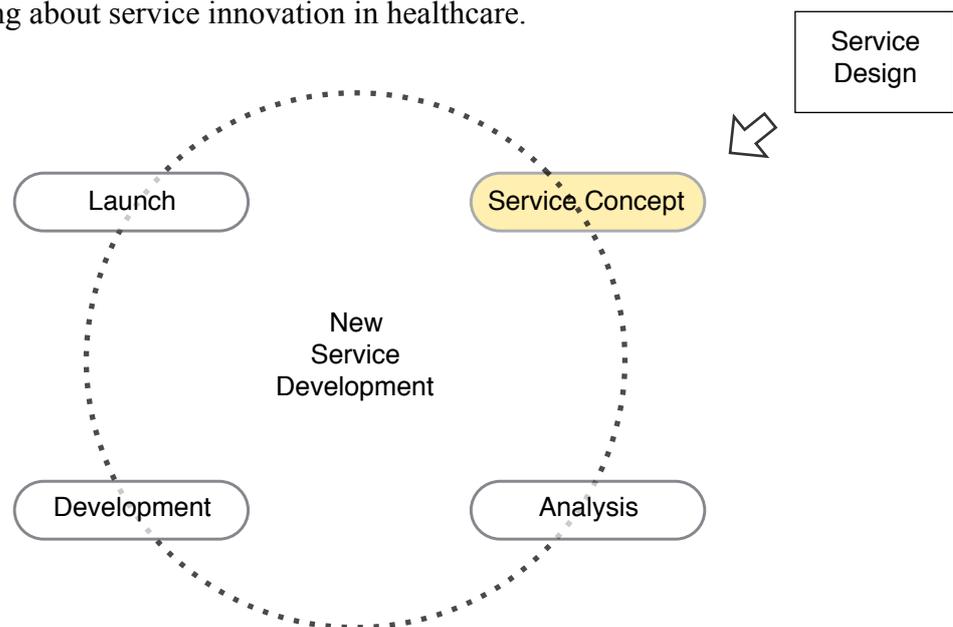


Figure 18: Service Design in New Service Development, as used in Service design project NHN

When thinking about the remaining stages of the NSD cycle, especially the development component of services, it can be argued that the contribution of disciplines such as service design, is precisely where it matters, in order to create value. I base that on the application of design thinking and Service Design principles that have been examined in the context review and in this case study, namely user centricity, design for experience and changing the relationships between stakeholders. The value of Service Design with respect to the relational character of developing a service that will add value to its stakeholders, focus on experience become extremely relevant in these phases, especially if a S-D logic is to be followed. The tools and methods can be cost efficient (GDHI 2017), especially when looking at utilisation of rapid prototyping and iteration. I have not focused on prototyping in this project, but it was used in workshops for idea generation and iteration, in the form of visual maps of what future system might look like, storyboarding as a form of experience and concept prototyping for the future services. The same techniques can act as facilitators for other stages of NSD in more concrete ways to enhance human centred methods, such as (walk through/ role playing) as for example for developing particular aspects of the service, whether it is in digital interaction, e.g. interfaces or how the service works. My point is that these tools are utilised according to the needs of the particular stage in NSD, which is why design expertise is necessary in choosing the methods and interpreting the outcomes, in order to add value.

Limitations of service design

With respect to the NSD cycle, one area that remains problematic is the analysis phase which links concept to development, leading to implementation, which has been recognised by Sangiorgi et al in the DeSiD report (2015). In this project, the equivalent of the analysis phase was the analysis of the service concept, Konstell, from the hospital expert panel. Although SDRCA was not directly involved in this meeting, I need to clarify that this was not an exclusion of the design team in this process. They were asked to produce a report on which projects they would recommend need developing. Although they did not feel they had sufficient health metrics and information to write a detailed report, they did propose areas to be developed first, as well as a propose a workshop with the expert panel, to take this further.

The difficulty in implementation of the entire concept was anticipated as the service concept was intended as a roadmap for the future. Konstall was a proposition for a service system for long term management of citizens with chronic conditions, for 2030. It proposition was not intended to be implemented in the present time, but to act as long term strategy, from which the IUNHN and the hospital could work backwards, identify aspects that can be developed currently, using the existing hospitals as test beds. For that reason, it could not be adopted in its entirety, as it would require a total reconstruction of the healthcare system for the particular Danish county, with national implications. It was however based on elements that were being developed nationally (such as a shared medical database) and therefore not representative of a utopia, but a space for 2030 that is plausible, given the current trends and policy developments in health. SDRCA argued in their final presentation that their contribution also made it “desirable and preferable”, as the new reality and constellation of resources, took into consideration the needs and experiences of its users.

This is the reason behind the conceptualisation of the innovation framework (page 84) in which aspects were expected to be developed as projects, as it happened in this case.

However there were significant limitations of service design

- a) Expertise limitation
- b) Difficulty translating value into financial cost benefit analysis
- c) Time consuming nature of the human centric approach for design

Expertise limitation

Creating a service system concept in healthcare and taking elements of that forward to implementation is very complex. Using the service concept as a foundation for the service development is one aspect for it. The multidisciplinary approach to its development, by involving patients, healthcare providers, hospital management personnel, architects and innovation consultants in the process needs to continue for embedding the concept generation to the development cycle. However, it has to be recognised that design expertise is limited when it comes to factoring in other dimensions of service development in healthcare. Other expertise needs to be sought, such as health economists and behavioural specialists. Designers are not experts in health management, which imposes limitations in smoothly

transitioning the project to implementation, unless this transition is carefully orchestrated involving different specialists. In this case for example, NHN had difficulty evaluating the service concept as SDRCA could not propose any traditional metrics as measures of success. e.g. by how much the admission rate would be decreased. This is a general problem in assessing innovation solutions that are radical, especially in the public sector and that have not been tried before. Here there is necessity to rethink financial estimations in a long-sighted way, create a value based business case and think about implementing minimum viable services.

In my view, the answer to address this and the creation of value in health NSD, is interdisciplinarity. The link of design to service improvement is often attributed to its interdisciplinary character (stickdorn and Schneider, Akama 2015), but the words of John Thackara, sum it up well: “In an economic world dealing in knowledge, the secret of success is the re-combination of different types of expertise in a productive manner. This new kind of design sets out to increase the flow of information within and between people, organisations and communities. A new way to think about design is as a process... that stimulates continuous innovation among groups of people within continuously changing contexts”. (Taken from the Introduction of John Thackara’s new book *In the Bubble: Designing for a Complex World*, MIT,)

Difficulty translating value into financial cost benefit analysis

The concept of S-D logic as applied to health is new. It is difficult to translate designing for patient value and experience to a financial model, especially if regarding an entirely new service. This proved problematic in this case, as there was not sufficient expertise in the team to be able to produce a report on the cost-efficiency of the new model, which was one of the parameters the expert panel expected. One way to do it would be to create a hypothetical model of the cost of the operant resources in comparison to the current cost, but there would be no data in the cost savings against the intended benefits, e.g. admission reduction for example. This highlights the need to create multidisciplinary strategy teams which would be able to help each other in understanding how to best test new service innovations, in order to create data.

Time consuming nature of the human centric approach for design

This was a considerable limitation during the project. From the perspective of practitioners, their time was principally allocated to clinical work and therefore there was limited flexibility to factor in meetings, especially if, like workshops, they were lengthy. Therefore SDRCA had to rely on people volunteering their time in out of work hours. This became more difficult, when trying to schedule workshops for optimal attendance. From the perspective of patients, recruiting was not easy either in this case. Because of data protection, the only way the team could recruit was by asking patients directly, either in outpatient clinics or the patient hotel. Also the fact that there was a language barrier, did not make the will for participation easier.

Conclusion

In conclusion, Johnson et al 2000 identify teams, design tools and organisational culture as enablers for NSD. In terms of teams, I have made the case of the reasons why Service Design has a place in the interdisciplinary approach for NSD. One aspect of the service design expertise is knowing what tools to utilise, when and how to create sense making. The choice of tools depend on the context and stage of NSD, which falls within design expertise. In terms of organisational culture, Service Design has the capability of influencing the organisation, by establishing a good relationship and involving them in the process. In the following section I review Service Design as a capability for innovation.

The contribution to innovation

The previous sections demonstrate how service design activities and principles, as used in this healthcare project, have been in line with a Service Dominant Logic approach to new service development. As the scope of this thesis only focuses on the service concept development, it is difficult to establish the overall contribution to NSD in general. However I have highlighted its importance of “setting the right tone” , as a fundamental step in NSD, something that has also been explored in literature (e.g. Goldstein, 2002; Edvardsson, 2005). This project displayed qualities of process innovation, in its focus on experience and utilisation of methods not commonly used in healthcare, which altered the character of the hospital - patient relationship, in developing services.

Service Innovation in health

Examining the current literature, there is an evident need for more research in the field of healthcare service innovations (e.g. Ciasullo et al., 2016). Whereas a substantial proportion of the healthcare budget is allocated to innovation (Arnrich, 2010), a brief literature review highlights how most of the innovations in healthcare system assume an output-centric focus (eg Joiner and Lusch, 2016; Thakur, 2012); being oriented to the development of new biomedical or technological solutions. The latter are thought to have innovation capability in services such as the development of electronic medical records, which are aimed at supporting practitioners in offering patients faster, better and cost effective services (Thakur, 2012). Drawing on the previous sections, it can be deduced that innovation in healthcare still echoes managerial mindsets of a GD Logic approach (Joiner & Lusch, 2016). There is a certain irony in this, given that the provision of health since ancient times has predominantly been a service transaction.

The application of SD Logic to healthcare is new and consequently the literature around it is scant. In the previous sections I demonstrated how service design as a discipline is more akin to SDL when considering the foundations on which service should be designed: namely understanding user value and the importance of experience. I also highlighted that through the activities and process, the client adopted a SD logic in the service concept for the design of new services for citizens with chronic respiratory disease. It also had an impact on the

organisation on the way it would approach future service development as a result of the collaboration and I have examined why it is to the benefit of the health organisations to approach their offerings in a S-D logic.

This shift in the organisation has transformational aspects with regards to how service innovation is viewed. The main areas which were innovative in the SDRCA-IUNHN collaboration on how they approached NSD had to do

- a) with the relational and collaborative nature with which the service concept was approached
- b) The use of the design principles of human centred design which factors in experience, as well as the methods used to extract knowledge in both the information gathering and idea generation stages.
- c) Process for service innovation in NSD

Relational and collaborative approach to the service concept

Eun Yu and Sangiorgi (2018) point out that the nature of client-designer relationships can be facilitators to successful service innovation, as the design output needs to be well integrated into the organisation. In this case, the design output which was the service concept, was embraced by the organisation which identified three key projects to develop. The collaboration with SDRCA was deemed valuable enough, for the organisation to want to pursue it throughout the later stages of new service development. The process lead to the formation of new relationships which supported the co-creation of value in the user context. The focus was on improving and transforming interactions to increase value for the user, which is a central contribution of designers to service innovation (Yu & Sangiorgi, 2018).

Although there is very little literature that deals with SD logic and innovation in healthcare, McColl-Kennedy et al. (2014) point to a new conceptualisation of innovation which places greater emphasis on its inner relational and collaborative nature (Kindstorm, 2013) and particularly in changing value co-creation processes, the related practices and the actors that enact them (Tether, 2003). The importance of mobilising lay knowledge and experience has long been recognised in design as a driver of 'open innovation' through working with 'multiple sources of ideas' (Cottam & Leadbeater, 2004). Therefore SDL looks at service

innovation as directly related to value co-creation processes, involving in a systemic way different entities or actors (Ciassullo, 2016). Consistent with this perspective, service innovation, as stated in Vargo & Lusch (2008a), is ‘inherently network-centric, value and experience focused, and span[s] the tangible–intangible divide’ (ibid: p 8).

Therefore we can conclude that Service innovations are value propositions not previously available to the customer and result from changes made to the service concept and the delivery process (Menor, 2007). Although early research on NSD frequently borrowed key concepts from the tangible product development literature (e.g. Barrett, 2015; Vargo & Lusch, 2008; Korkman, 2006), it is argued that the development of a new service is more complex than the development of a new tangible product (Lusch & Nambisan, 2015).

Barriers in health innovation in this case

Often in health innovation literature, innovation refers to evidence-based practices (e.g. Heitmueller, 2016; Duncan, 2009). This can be a problematic notion as innovation needs an initial “risk” to go from concept to development and one cannot accumulate the evidence until there is a development to be assessed. This is something SDRCA experienced in this project, as the evidence and business case the organisation wanted, was very difficult to produce for a project of this nature. However because of the close collaboration with IUNHN, it was possible to persuade hospital management that design activities such as human centricity, iteration and prototyping can be used strategically for the development of new services to create minimum viable services. In this way evidence can be collected for future planning. Therefore the model of process of NSD for healthcare that was used in NHN, can be used elsewhere, to create small projects that can be piloted, as part of an overarching service concept.

In conclusion, SDRCA worked with the organisation, to introduce design methods, but also principles that reflect SD logic, a shift that is starting to happen in healthcare, which is looking to redefine how they offer value to patients. In this aspect, patients were viewed as resources and Service Design acted as a dynamic capability for innovation, with its ability to utilise patients and other users for knowledge generation. This “partnership between professionals and patients in the design development process” (Sanders and Stappers, 2008: p7) which

Sanders and Stappers refer to in terms of co-design in healthcare, can thus also be used to describe a co-creation of innovation.

CHAPTER 6: CONCLUSION

In a world dominated by the service economy, the academic interest in services, their development and innovation is high (Lovlie, 2008). This interest is particularly relevant in sectors such as healthcare where the challenges the system is facing are becoming problematic both to the organisations to deliver them and to the citizens that experience them.

The importance of service design is highlighted by Ostrom who states that: “Service design sits at the intersection of service strategy, service innovation and service implementation. referring to the activity of designing services” (Ostrom, 2010: p 17). Although his use of the term *service design* refers to the managerial concept of designing services, he continues to cite that there is need to “to integrate design thinking, and the performing/ visual arts into service design” (Ostrom, 2010: p. 17). The integration of design thinking in *service design*, is embodied by the discipline of Service Design, which despite being relatively new, has gained attention in the past two decades (Brown, 2008; Martin, 2004). The main reasons for its popularity has been its innovative approach in problem solving, which has shifted attention to the human aspect of services, whilst using creative methods to problem frame and solve. Service Design has predominantly been a practice based activity, however academically it is in the process of positioning itself in service innovation and development. In this thesis I set out to a) to explore the contributions of service design process, in the concept generation phase of NSD for health services for the future and b) to examine how service design aligns itself with a Service Dominant Logic in Health.

With regards to the user, I have shown that the methods and tools of Service Design that were applied in the process encouraged the exploration of aspects that matter to end-users experience of living with a chronic condition. The narratives, visualisation and workshops were facilitators to harness user knowledge, which was used in order to design the service concept. This is well aligned with adopting a SD logic perspective, where the role of the users, their knowledge and perspective became central to the organisations value proposition

and how to engage patients in NSD process from the start, in order to deliver a service that is meaningful to the patients.

The process created the space to explore new stakeholder networks, as well as unite all stakeholders in the contribution of the design object, the service concept, in an egalitarian and democratic way in Figure 13 . Thus human centred design added value by redefining the relationships between health institutions and their patients. The value of the integration of Service Design in the concept generation with regards to Service Dominant Logic was outlined as: a) treating the patient as an operant resource, with equal participation with other stakeholders in knowledge and meaning generation, b) factoring in the importance of experience and c) generating a service concept consistent with Service Dominant Logic.

Therefore the above made a meaningful contribution to the concept generation phase of NSD.

However, there were some limitations to this design study. Firstly, it was performed in a limited timeframe as part of an MPhil process. Secondly, there are cultural implications to it, as it took place in Denmark and it is difficult to know how this knowledge might apply elsewhere. Thirdly, the methodology of RtD/ action research has been criticised as I have outlined in chapter 3 for the lack of knowledge transferability. Lastly, I was unable to assess the impact of this contribution to the remaining phases of NSD, but a process of embedding the service concept into service development was created and aspects of the proposition are currently being developed (Figure 14). As a design project, it is however encouraging in the contribution of Service Design and design-based approaches, in NSD in healthcare, especially when we consider the future. Further research is necessary in this field.

It would be interesting to go back and do further research in the future, to examine how the contribution of service design impacted the entire cycle of NSD activities and how much service design is being used as a capability in this development. Whether or not service design had an impact on the overall NSD process, beyond the service concept generation, in this project it is important to note that the design process challenged the organisation in two ways: a) it expanded the toolbox of methods they had available for conceptualising services and b) it reconfigured the relationship the hospital had established in engaging patients for service development. Therefore this poses the question of whether the contribution of service design was transformative in the case of NHN?

To answer this, I quote Sangiorgi when discussing the transformative powers of design: ‘the transformation is two fold: not only citizens need to take a more active role in their life, but also organisations need to change their model and culture to generate new partnerships with the population’ (Sangiorgi, 2011: p.3) In this respect, SDRCA did not as such provide a solution to a specific problem, but was integrated in a process of re-visualising services for the demand of the future. In this process it provided the organisation with the tools and capacity for human centred service innovation. In line with Poppelbuss's concept of dynamic capability (2011), I have argued that service design is a dynamic capability for the organisation, as it can add value by exploring user knowledge in a dynamic environment and the uncertainty of planning for the future (Figure 15). This is backed up by the concept of transformation design by Burns:

‘Organisations now operate in an environment of constant change, the challenge is to how to design a response to a current issue, but how to design a means of continually responding, adapting and innovating. Transformation design seeks to leave behind not only the shape of a new solution, but the tools, skills and organisational capacity for ongoing change’ (Burns, 2006: p 20).

Implementation of the service logic demands explicit knowledge of how to develop and design communication, interactions, which all together form the intended context for value creation. With this in mind, service design becomes an approach of how to organise these different design practices for contributing to value creation. It of course has its limitations, like any other field of expertise. It cannot be utilised in service development in isolation. However with its interdisciplinary tradition, it would easily position itself in a multidisciplinary approach to new service development in healthcare. This would imply that its impact might reach beyond that of capability, to influencing policy. This area of design is being explored in different ways in countries as the UK and Denmark, as identified in *Design for Public Good* publication by the Design Council¹⁶.

In conclusion, I argue that in order to redesign healthcare, there is a need for more meaningful end-user engagement and collaborative patient– provider relationships. I position Service Design as an essential capability as part of a trans-disciplinary NSD team for

¹⁶ <https://www.designcouncil.org.uk/sites/default/files/asset/document/Design%20for%20Public%20Good.pdf>

the development of new services in healthcare that encompass a Service-Dominant Logic of value, as illustrated in Figures 15 and 17.

APPENDICES

Appendix 1: Scoping Workshop details

Exercise One: Healthcare awards

This exercise aimed to identify values, opportunities and potential challenges, by projecting into the future and asking the questions:

“It’s 2025 and the hospital is given a healthcare award. What is it for? And what do you say, feel, think, do?

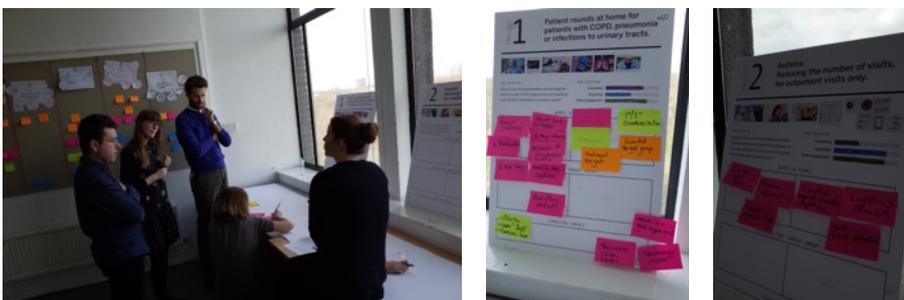
- a) What needs to happen for this to be achieved?
- b) What might stand in the way?
- c) How might that be overcome?
- d) How will this collaboration help achieve this vision?”



Exercise Two: Target projects

Prior to the workshop the IUNHN had sent SDRCA a document of 5 areas they would like to focus the design brief on. These were looked at and two were selected based on their innovation potential, feasibility and team engagement. They were visually translated into 2 posters with:

- A potential mission statement
- Hopes and fears
- Defining the target population
- Expected impact



The resulting discussion guided the design brief and strategic direction. The outcome was to focus on services for citizens with chronic respiratory conditions, particularly Chronic Obstructive Respiratory Disease (COPD), as they had been identified as having a poor experience, high hospitalisation rates, recurrent readmissions. In addition the health team were very motivated in delivering change. From a design perspective SDRCA found interesting that they had been identified as a ‘hard to reach’ group.

Exercises three and four: Stakeholder mapping and interest vs influence matrix



Both teams brainstormed over potential stakeholders that would be relevant in the project, with patients, relatives and front line staff being the core ones. Once the stakeholder map was created, the stakeholders were placed in a matrix of influence vs interest, to help identify key players and prioritise an approach.

Appendix 2: Persona example



Gretha Skov *The engaged patient*
78 Years old living in Hellerød, Denmark

COPD PATIENTS

"It is an invisible disease so people around you may not understand... Even though you look the same as always, you can't do all the things you used to"

"I feel better when I meditated and know what's happening"

BACKGROUND
Gretha lives in a Danish rural area, 18 km away from Hellerød. She has three sons but they live in Copenhagen, since her husband passed away 12 years ago, she lives by herself and has a small but close social connections in the nearby. Gretha is formerly involved in a Tubercule programme and feels excited about.

MEDICAL CONDITION
Diagnosed with COPD 12 years ago, her condition has slowly deteriorated and she has acute exacerbations a couple of times a year. She has been admitted to hospital twice in the past winter.

LIVING WITH COPD
"There are some days that I feel I can take over the world and some days where no matter how much treatment I give myself, I can't seem to catch my breath. It's like someone has put ducttape over your mouth and now and you're trying to breathe through it alone."
"Something as simple as getting dressed, just wears me out!"

CURRENT SITUATION
On telemedicine. Lives alone. Widowed; husband dies of cancer 12 years ago

HOBBIES
Enjoys painting

7:30	7:40	8:00	10:30	21:00
Wakes up	Makes blood oxygen measurements	Prepares breakfast	Walks in her painting studio	Goes to bed



Aksel Holm *The frustrated*
72 Years old living in Fredensborg, Denmark

COPD PATIENTS

"Found it psychologically difficult after my discharge, you have to pull yourself together...and try do something physical"

"Anything that makes me not spent as much time in hospital is a good thing"

BACKGROUND
Aksel lives with his wife Karina, who normally needs to take care of him. She is currently trying to help him stop smoking and has invented some hearing what to do when a breathing emergency happens. That has deteriorated their relation and has been hard to improve their everyday living. Aksel has not been yet introduced to a monitoring system, and he feels less anxious about his condition.

MEDICAL CONDITION
Diagnosed with COPD 4 years ago and finds it difficult to take deep breaths.

LIVING WITH COPD
"It's a pain situation and unfortunately it only got worse"
"It is an invisible disease so people around you may not understand, even though you look the same as always, you can't do all the things you used to. It's especially hard for my family."
"Sometimes I suffer with anxiety which makes the condition worse and I don't know how to control my symptoms."

CURRENT SITUATION
Lives with his wife, Heavy smoker. His symptoms have worsened

HOBBIES
Enjoys reading and spending time with his grandchildren

7:30	9:00	10:00	10:00	21:00
Wakes up	Reads newspapers	Watches TV	Call his daughter	Goes to bed

Appendix 3: Homecare futures workshop

Working Worksheet for Homecare futures workshop, as used by SDRCA, in Field Trip 2.

Homecare Futures workshop

Home Care Futures will look at people's aspirations about distributed healthcare, as well as their concerns by using the narrative of three fictional characters and scenarios based on real journeys. The workshop will encourage participants to think beyond traditional home-care delivery understanding to include systems, services and even architectural spaces. These future lifestyles might include a dron service that takes medicine to citizens in need, driverless door-to-door services that help seniors to safely travel to visit relatives, or personal robot assistants that remind people at home to follow their treatment as indicated.

Goals:

- Explore their mental model
- Explore possible solutions and how fulfill different needs
- Understand their concerns

Activity:

Part 1: Introduction (x mins)

Brief summary of the work we have done, the insights and challenges defined. Introduction to the workshop session, what we will do & goals of the day. How can we take this research forward?

Part 2: Personas (x mins)

Work in pairs

Create a person that lives in 2025

- Make a face (stickers)
- Give them a name
- Fill in clusters: How do they experience entertainment? What is their social life? What are their feelings, thoughts, hopes and fears. What are the objects they are using? What are the technologies? How do they stay healthy? Anything else...

Think about science fiction movies..

(Present to the rest of the group what they come up with. Add minutes for feedback from the other groups)

Part 3: Home exercise (x mins)

Work in pairs

You are working with some architects that are building homes for the future. Money is not an issue and they have huge teams that can make anything happen

Imagine how that ideal future home setting could look like and
Create the home environment that X (from persona above) lives in

Have an architectural layout of a house and objects
Create rooms, what objects are in those rooms, what technologies are there.
What are the devices interact with the most (essential in daily life)
Quick Prototype.

Part 3: Map exercise (x mins)

We will print a large scale of a map in Hillerod, with the new hospital, and some citizens houses. From the house, playmobil people and other physical elements

- Place the constructed home in the centre of this map
- Create locations where X will interact with/ go to on this map. What people do they have?
- Create locations where s/he get consultations, wellness health advice. What do they look like? What tools do they have. What do they do

X feels he's unwell or needs wellness advice

Storyboard

- Think of how X will interact with these people/ locations system and create a 2 min narrative of his journey. of how that might happen, considering people, tools. Place the flags on the map to tell that story in order. You are going to role play and recreate that journey

-Present to rest

Part 4: Vote (x mins)

Participants will vote on the ideas they find more interesting, by adding green/red dots to the flags. We should all make a short list, and then choose the top 5.

Allow time for conversation

Appendix 4: Images of material for Konstell workshop

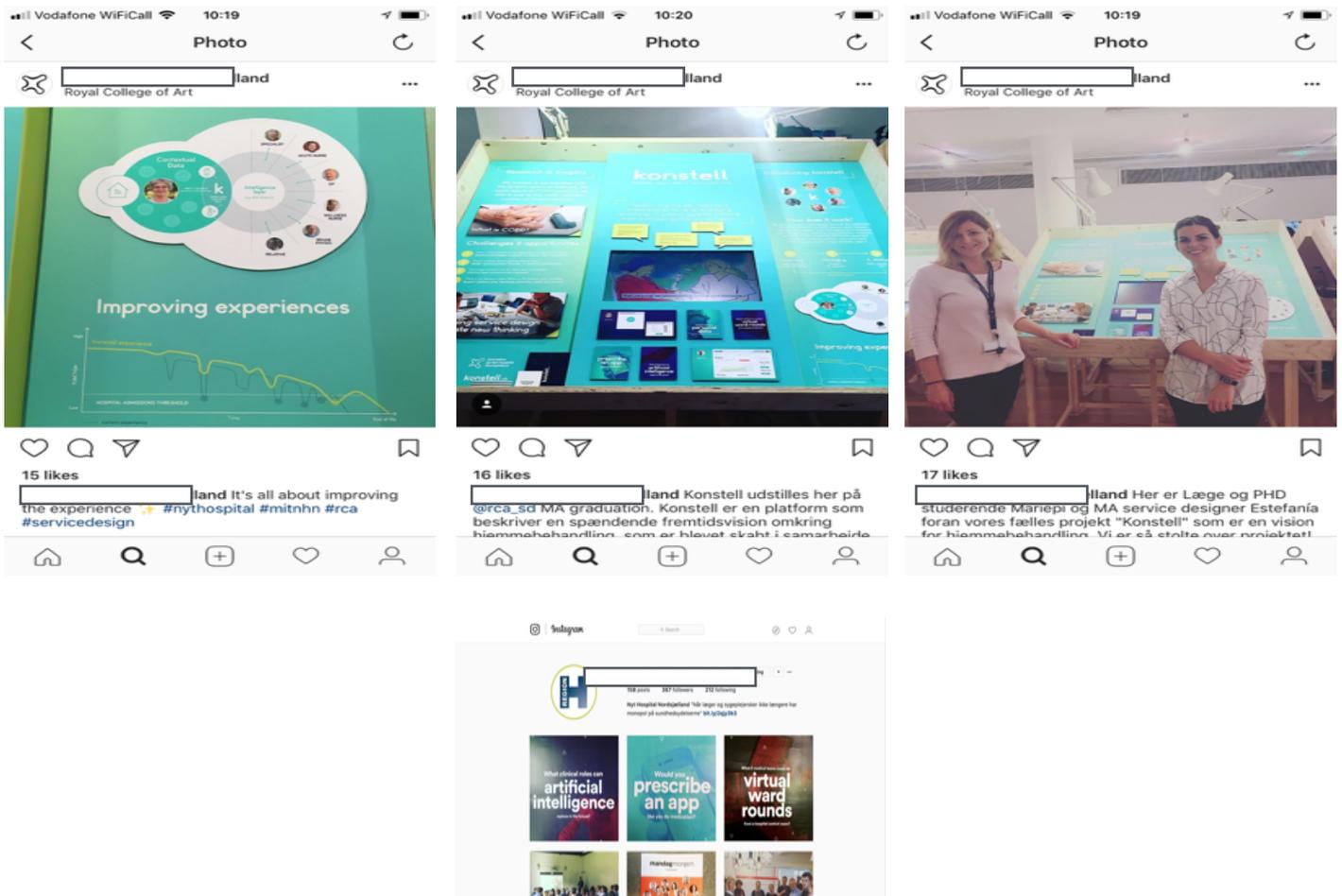


Images of the storyboards and narratives used in the Konstell workshop in Field trip 3

Appendix 5:

Final Presentation attached in accompanying USB stick as a PFD file.

Appendix 6: NHN Instagram photos



Some examples of the Hospital Social Media Posts about the project

Appendix 7:

SDRCA interview about working with NHN <https://vimeo.com/213668779> (password nhn)

Appendix 8:

Consent form example:

 
Royal College of Art

Consent

Information about this research
Thank you for agreeing to take part in our research. You are one of a number of patients/ healthcare providers/ experts who have been approached to be interviewed/ participate in workshops and we hope that you will find the process interesting. Please read the Information Brochure about the nature of the research, who we are, what we are doing, as well as your rights to withdraw at any time.

Research details
The research is being carried out by Estefanía Trisotti & Mariepi Manolis, service design researchers from the Royal College of Art. We are currently collaborating with the Innovation Unit from the New N  Hospital, exploring models of distributed healthcare that can take place at the new hospital in late 2030. Please read the Information Brochure for further details. As part of this process we will be taken photos, audio and visual recordings. If you do not want to be recorded, or you would like us to stop, you can do that at any time.

Confidentiality
All information collected about you whilst taking part in this study will be kept confidential and anonymised if required. Insights will be feedback to research project partners from both  Hospital and Service Design department at the Royal College of Art.

Research findings
Some research findings will be published medium.com/@d.healthcare

We would be grateful if you would fill in this form to give us permission to use the audio/ visual/ photographic material from this interview/ workshop for our research.

I voluntarily participate in this research and I give permission for the content of this interview to be used for research purposes.

Your Name.....CHRISTIAN MAUSEN.....
Date.....7/3/2019.....
Signature..........

Thank you! We appreciate your participation.



Hello!

We are 2 Health Service Design Researchers from London, collaborating with the Innovation Unit.

We would love to meet and hear your thoughts about improving healthcare services and experience. We promise we won't take up too much of your time.

Dr. Mariepi Manolis
and Estefania Trisotti

Front page of the Participant Information Brochure

REFERENCES

- Alexander, C. (1964). "Notes on the synthesis of form." (5 ed.). Cambridge, Mass.,: Harvard U.P.
- Akama, Y. (2015). "Service Design: From Insight to Implementation." *Design and culture*; 7 (2): 259-261.
- Anderson, S., Nasr, L., & Rayburn, S. W. (2018). "Transformative service research and service design: synergistic effects in healthcare." *The Service Industries Journal*, 38:1-2, 99-113.
- Archer, B. (1979) "Design as a Discipline", in: *Design Studies Volume 1, Number 1*, 17–20.
- Argyris, C. (1976). "Single-loop and double-loop models in research on decision making." *Administrative Science Quarterly*, 21(3): 363- 375
- Argyris, C. & Schon, D.A. (1989). "Participatory Action Research and Action Research Compared." *American Behavioral Scientist*, Vol 32 (5) 612-623.
- Arnrich, B.; Mayora, O.; Bardram, J.; Tröster, G. "Pervasive healthcare." *Methods Inf. Med.* 2010, 49, 67–73.
- Basballe, D. A., & Halskov, K. (2012). "Dynamics of research through design". Paper presented at the *Designing Interactive Systems*, Newcastle, UK.
- Bailey, S. G. (2012). "Embedding service design: the long and the short of it." *Proceedings of the 3rd ServDes. Conference on Service Design and Service Innovation*, 31-41.
- Barile, S., Polese, F. (2010), "Smart Service Systems and Viable Service Systems: Applying Systems Theory to Service Science", in *Service Science*, Vol.2 No.1/2, pp. 21-40
- Basadur, M., and Gelade, G. (2006) "The Role of Knowledge Management in the Innovation Process," *Creativity and Innovation Management*, vol. 15, no. 1, pp. 45-62, Mar. 2006.
- Batalden, M., P. Batalden, P., Margolis, M., et al (2016). "Coproduction of healthcare service." *BMJ Quality & Safety* 25 (7), 509-517. doi:10.1136/bmjqs-2015-004315 26376674
- Batalden, P. (2018). "Getting more health from healthcare: quality improvement must acknowledge patient coproduction". *BMJ*2018;362-364. doi: 10.1136/bmj.k3617
- Bate, P. & Robert, G. (2006). "Experience-based design: from redesigning the system around the patient to co-designing services with the patient." *Qual Saf Health Care* 2006; 15:307-310

Bate, P. & Robert, G. (2007a). "Bringing user experience to healthcare improvement: The concepts, methods and practices of experience-based design." Oxford: Radcliffe Publishing.

Bate, P. & Robert, G. (2007b). "Toward More User-Centric OD Lessons From the Field of Experience-Based Design and a Case Study." *The Journal of Applied Behavioral Science*, 43(1), 41-66.

Berardi-Coletta, B., Buyer, L. S., Dominowski, R. L., Rellinger, E. R. (1995). "Metacognition and problem solving: A process-oriented approach", *Journal of Experimental Psychology: Learning Memory and Cognition*, vol. 21, no. 1, pp. 205-223

Berry L L. and Bendapudi. N. (2007) "Health Care: A Fertile Field for Service Research." *Journal of Service Research* Vol 10, Issue 2, pp. 111 - 122

Berry, L. L., Davis, S.W., & Wilmet, J. (2015). "When the customer is stressed." *Harvard business review* 93(10):86-94

Berwick, D. (1998). "Developing and Testing Changes in Delivery of Care." *Ann Intern Med* 1998; 128: 651-656.

Bhatti, Y., Del Catillo, J., Olson, K., & Darzi, A. (2018). "Putting Humans at the centre of health Innovation." *Harvard, Business Review*.

Biggs, M. A., & Büchler, D. (2007). "Rigor and practice-based research." *Design Issues*, 23(3), 62-69.

Binder, T. and Redström, J., (2006). "Exemplary Design Research. In Proceedings of Wonderground", Design Research Society. Accessed via: <http://redstrom.se/johan/papers/exemplary.pdf>

Blackstock, K.L., Kelly, G. J., & Horsey, B.L. (2007). "Developing and applying a framework to evaluate participatory research for sustainability." *Ecological Economics*, 60 (4), 726-742.

Bland, J., Khan, H., Loder, J., Symons, T., & Westlake, S. (2015). "The NHS in 2030. A vision of people-powered knowledge- powered Health System." NESTA.

Blomberg, J., & Darrah, C. (2014). "Towards and Anthropology of Services." Proceedings of the 4th ServDes. Conference on Service Design and Service Innovation, 122-132.

Blomkvist, J., & Holmlid, S. (2010, Nov). "Service prototyping according to service design practitioners." Paper presented at the ServDes, The 2nd Nordic Conference on Service Design and Service Innovation, Oslo. Accessed from <http://www.servdes.org/pdf/blomkvist-holmlid.pdf>

Blomkvist, J., Holmlid, S., & Segelström, F. (2010). "Service design research: Yesterday, today and tomorrow." In M. Stickdorn & J. Schneider (Eds.), *This is service design thinking* (pp. 308-315). Amsterdam: BIS Publishers.

- Booz, A. & Hamilton. (1982). "New products management for the 1980s." New York: Booz, Allen & Hamilton, Inc.
- Bowen, S., Dearden, A., Wright, P., Wolstenholme, D., & Cobb, M. (2010). "Participatory healthcare design and innovation." In: Bodker, K., Brattereig, T., Loi, D., & Robertson, T. (Eds) PDC 10 Proceedings of the 11th Biennial Participatory Design Conference. ACM International Conference Proceeding Series. New York, ACM Press, 155-158
- Bowers, J. (2012). "The logic of annotated portfolios: communicating the value of research through design". Paper presented at the Designing Interactive Systems, Newcastle, UK.
- Bradbury, H. & Lifvergren, S. (2016). "Action research Healthcare: Focus on patients, improve quality, drive down costs." Healthcare Management Forum 2016, Vol 29 (6) 269-274
- Brown, S. W., Fisk, R. P., & Bitner, M. J. (1994). "The development and emergence of services marketing thought." International Journal of Service Industry Management, 5 (1), 21-48.
- Brown, T. (2008). "Design Thinking." Harvard Business Review (June), 1-11.
- Brown, T. (2009). "Change by Design: How design thinking can transform organizations and inspire innovation": Harper Business.
- Buchanan, R. (1992). "Wicked problems in design Thinking." Design Issues 8(2): 5-21
- Buchanan, R. (2001). "Design research and the new learning." Design Issues, 17 (4), 3-23.
- Burns, C., Cottam, H., Vanstone, C., & Winhall, J. (2006). "RED Paper 02: Transformation design." London: Design Council
- Campbell, N., O'Driscoll, A., Saren, M. (2012). "Reconceptualising Resources: A Critique of Service-Dominant Logic". 37th Annual Macromarketing Conference, Berlin.
- Carr, W., & Kemmis, S. (1986). "Becoming critical: Education, knowledge and action research." London: Falmer
- Chamberlain, P., Mawson, S.J., & Wolstenholm, D. (2017). "Service Design in Chronic Health." In: Tseklevs, E. and Cooper, R., (Eds) Design for Health. Design for Social Responsibility. Rutledge, pp 216-240.
- Charon R. "In Vivo Fostering Empathy, Narrative medicine offers new opportunities for practising human medical care." vol 2, no 12, 2003. http://www.cumc.columbia.edu/news/in-vivo/Vol2_Iss12_jul28_03/pov.html (accessed 5 June 2018)
- Choi, K.-S., Lee, H., Kim, C. and Lee, S. (2005). "The service quality dimensions and patient satisfaction relationships in South Korea: comparisons across gender, age and types of service", Journal of Services Marketing, Vol. 19 (3): 140-149.

Ciasullo, M., Cosimato, S. and Pellicano M. (2017). "Service innovations in the Healthcare Service Ecosystem: A case study." *Systems* 2017, 5, 37

Cipolla, C., & Manzini, E. (2009). "Relational Services. Knowledge, Technology & Policy." Springer, 22.

Clark, G., Johnston, R. & Shulver, M. (2000). "Exploiting the service concept for service design and development." In J. Fitzsimmons & M. Fitzsimmons (Eds.), *New service development: Creating memorable experiences* (pp. 71-91): SAGE Publications.

Clarke, R. J. and Nilsson, A. G. (2008). "Business services as communication patterns: A work practice approach for analyzing service encounters." *IBM Systems Journal* 47(1), 129–142.

Cohran-Smith, M. and Lytle, S. (1993). "Inside/ Outside: Teacher research and knowledge." New York: Teachers College Press.

Cooper, R. G., Easingwood, C. J., Edgett, S., Kleinschmidt, E. J. & Storey, C. (1994). "What distinguishes the top performing new products in financial services." *Journal of Product Innovation Management*, 11, 281-299.

Cottam, H and Leadbeater C. (2004). "HEALTH: Co-creating Services, RED paper 01." London: Design Council.

Coughlan, P., and Coughlan, D. (2002). "Action Research for Operations Management". *International Journal of Operations & Production Management* 22(2):220-240

Cowell, D. (1988). "New service development," *Journal of Marketing Management*, vol. 3, no. 3, pp. 296-312, 1988.

Cross, N. (1982). "Designerly ways of knowing." *Design Studies* 3(4): 221-227

Danaher, T., & Gallan, A. S. (2016). "Service research in health care: Positively impacting lives." *Journal of Service Research*, 19 (4), 433-437

Danaher, D. S., & Gallan, A. S. (2016). "Service Research in Health Care: Positively Impacting Lives". *Journal of Service Research* 19(4): 1-5

Dean, J.W. Bowen, D.E. (1994). "Management theory and total quality: Improving research and practice through theory development," *Academy of Management Review* 19 (3) 392-418.

Den Hertog, P., Van Der Aa, W., and De Jong, M. W. "Capabilities for managing service innovation: towards a conceptual framework," *Journal of Service Management*, vol. 21, no. 4, pp. 490-514, 2010.

Design Council. (2010). "Design Industry Research 2010." Retrieved 2011-08-09, 2011, from <http://www.designcouncil.org.uk/industryresearch>

- Diana, C., Pacenti, E., & Tassi, R. (2012). "Visualtiles: Communication tools for (service) design." In Conference Proceedings ServDes. 2009; DeThinking Service; Rethinking Design; Oslo Norway 24-26 November 2009.
- Dickens, L., and Watkins, K. (1999). "Action research: rethinking Lewin." *Management Learning*, 30 (2), 127-40
- Djellal, F. & Gallouj, F. (2010). "Services, innovation and performance: general presentation." *Journal of Innovation Economics*, De Boeck Université, 0(1), 5-15.
- Donetto, S., Pierri, P., Tsianakas, V., & Robert, G. (2015). "Experience- based Co-design and Healthcare Improvement: Realising Participatory Design in the Public Sector." *The Design Journal* 18 (2), 227-248
- Dorst, K. (2008) Design research: a revolution-waiting-to-happen. *Design Studies*, 29, 4-11.
- Dorst, K. & Cross, N. (2001). "Creativity in the design process: co-evolution of problem-solution." *Design Studies*, 22(5): 425-437
- Dorst, K. (2006). "Design problems and design paradoxes". *Design Issues*, 22(3): 4-17
- Dorst, K. (2011). "The core of 'design thinking' and its application." *Design Studies* 32:521-532
- Doyle, C., Lennox, L., & Bell, D. (2013). "A systematic review of evidence of the links between patient experience and clinical safety and effectiveness." *BMJ open*, 3(1).
- Droege, H., Hildebrand, D., & Forcada, M. a. H. (2009). "Innovation in services: present findings, and future pathways." *Journal of Service Management*, 20(2), 131– 155.
- East, L., & Robinson, J. (1994). "Change in process: bringing about change in healthcare through action research." *J Clin Nurs*. 1994;3:57-61
- Edvardsson, B. & Olsson, J. (1996). "Key concepts for new service development." *Service Industries Journal*, 16 (2), 140-164
- Edvardsson, B., Gustafsson, A., Johnson, M. D., & Sandén, B. (2000). "New service development and innovation in the new economy." Lund: Studentlitteratur.
- Edvardsson, B., Gustafsson, A., & Roos, I. (2005). "Service portraits in service research: A critical review." *International Journal of Service Industry Management*, 16, 107-121.
- Ehn, P. (2008). "Participation in design things." *Proceedings Participatory Design Conference*.
- Elg, M., Engstrom, J., Witell, L., & Poksinha, B. (2012). "Co-creation and learning in healthcare service Development." *Journal of Service Management*, 23 (3), 328-343.

- Epstein, R., Alper, B., Quill, T. (2004). "Communicating evidence for participatory decision making". *JAMA* 291:2359–66.
- Epstein, R. M., Street, R.L. (2011). "The Values and Value of Patient-Centered Care." *Ann Fam Med*. 2011 Mar; 9(2): 100–103.
- Feast, L. & Melles, G. (2010). "Epistemological positions in Design Research: A brief Review of the Literature." Conference paper for 2nd international conference on design education.
- Findeli, A. (1998) "A Quest for Credibility: Doctoral Education and Research in Design at the University of Montreal", in: *Doctoral Education in Design*, Ohio, October 8–11.
- Findeli, A. (2004). "La recherche-projet: une méthode pour la recherche en design." Paper presented at the Symposium de recherche sur le design, Bâle, Suisse.
- Findeli, A. (2008a) "Research Through Design and Transdisciplinarity: A Tentative Contribution to the Methodology of Design Research", in: *Proceedings of Focused, Swiss Design Network Symposium*, Berne, Switzerland, 67–91.
- Findeli, A. (2008b) "Searching for Design Research Questions", keynote at *Questions & Hypotheses*, Berlin, 24–26 October.
- Findeli, A. and Bousbaki, R. (2005) "L'éclipse de l'objet dans les theories du projet en design", in: *The Design Journal*, Volume VIII, Number 3, 35–49.
- Fisk, R.P., Brown, S.W., & Bitner, M.J. (1993). "Tracking the evolution of the services marketing literature." *Journal of retailing*, 69 (1), 61-103.
- Fitzsimmons, J. A., Fitzsimmons, M. J., & Bordoloi, S.K. (2013). "Service Management: Operations, Strategy, Information Technology" .Publisher: McGraw-Hill
- Flynn, B.B., Schroeder, R.G., & Sakakibara, S. (1995). "The Impact of Quality Management Practices on Performance and Competitive Advantage." *Decision Sciences*, 26 (5), 659-691.
- Frayling, C. (1993) "Research in art and design." *Royal College of Art Research Papers*, 1, 1-5.
- Freire, K. & Sangiorgi, D. (2009), "Service design and Healthcare innovation: from consumption, to co-production to co-creation." *Conference Proceedings of the 2nd ServDes. Conference on Service Design and Service Innovation*, 39-49.
- Friedman, K. (2003). "Theory construction in design research: criteria: approaches, and methods." *Design Studies*, 24 , 507-522.
- Frow, P.; McColl-Kennedy, J.R.; Payne, A. "Co-creation practices: Their role in shaping a health care ecosystem." *Ind. Mark. Manag.* 2016, 56, 24–39.

Frow, P.; McColl-Kennedy, J.R.; Hilton, T.; Davidson, A.; Payne, A.; Brozovic, D. "Value propositions A service ecosystems perspective." *Mark. Theory* 2014, 14, 327–351.

Gabriel, M., Stanley, I., & Saunders, T. (2017). "Open Innovation in health: a guide to transforming healthcare through collaboration." NESTA.

Galarza-Winton, M.E., Dicky, T., O'Leary, L., Lee, S.K., O'Brien, K. "Implementing family integrated care in the NICU." *Educating nurses. Adv. Neonatal Care.* 2013;13:335–340.

Gallouj F, & Weinstein, O. (1997) "Innovation in services." *Res Policy*, 26 (4-5) , 537– 556.

Gallouj, F.; Djellal, F. (Eds.) "The Handbook of Innovation and Services: A Multi-Disciplinary Perspectiv." Edward Elgar Publishing: Cheltenham, UK, 2011; p. 527

Godin D., and Zahedi, M. (2014). "Aspects of Research through Design : A Literature Review," *Proceedings of DRS 2014: Design's Big Debates*, 1667-1680

Gaver, B. (2012). "What Should We Expect From Research Through Design?" CHI'12, May 5–10, Austin, Texas, USA

GDHI. (2017). "Global Diffusion of Healthcare Innovation: Making the Connections." Report of the Global Diffusion of Healthcare Innovation (GDHI) Working Group.

Geertz, C. (1983). "Local Knowledge: Further essays in interpretive anthropology." New York: Basic Books

Glanville, R. (1999). "Researching design and designing research". *Design Issues* 15(2), 80–91

Godin D., and Zahedi, M. (2014). "Aspects of Research through Design : A Literature Review," *Proceedings of DRS 2014: Design's Big Debates*, 1667-1680

Goldstein, S.M., Johnston, R., Duffy, J. & Rao, J. (2002). "The service concept: The missing link in service design research?" *Journal of operations management*, 20 (2), 121-134.

Greenhalgh T, Russell J, Swinglehurst D. (2005). "Narrative methods in quality improvement research." *Qual Safety Health Care* 2005;14:443–9.

Gruber, M., de Leon, N., George, G. & Thompson, P. (2015). "Managing by Design." *Academy of Management Journal*, 58(1):1-7

Grönroos, C. (2000). "Service management and marketing. A customer relationship management approach." Chichester: John Wiley & Sons Ltd.

Grönroos, C. (2008). "Service logic revisited: who creates value? And who co-creates?" *European Business Review*, 20 (4), 293-314

- Grönroos, C., and P. Voima (2013). "Critical service logic: Making sense of value creation and co-creation." *Journal of the Academy of Marketing Science* 41 (2), 133–150
- Gummerus, J., Liljander, V., Pura, M. and van Riel, A. (2004). "Customer loyalty to content-based Web sites: the case of an online health care service," *Journal of Services Marketing*, Vol. 18(3):175-186
- Gummesson, E. (1995). "Relationship marketing: Its role in the service economy." In W. I. Glynn & J. G. Barnes (Eds.), *Understanding Services Management*. New York, USA: John Wiley & Sons
- Hall, J. E. (2006). "Professionalizing action research- a meaningful strategy for modernising services?" *Journal of nursing Management*, 14, 195-200
- Han, Q. (2010). "Practices and principles in Service Design. Stakeholders, knowledge and community of service." (PhD), University of Dundee
- Hardyman, W., Daunt, K.L., and Kitchener, M. (2015). "Value co-creation through patient engagement in health care: a micro-level approach and research agenda", *Public Management Review*, Vol, 17 (1): 90-107
- Heitmueller, A., Bull, A. & Oh, S. (2016). "Looking in the wrong places: why traditional solutions to the diffusion of innovation will not work." *BMJ Innov* 2016; 2:41-47.
- Helfat C. E., and Peteraf, M. A. (2003). "The dynamic resource-based view: Capability lifecycles," *Strategic Management Journal*, vol. 24, no. 10, pp. 997–1010, 2003.
- Hensher, M., & Edwards, N. (1999) "Hospital provision, activity, and productivity in England since the 1980s." *British Medical Journal*, 319 (7214): 911-14
- Herr, K. & Anderson G. L. (2015). "The action research dissertation: A guide for students and Faculty." Sage Publications
- Hertog, P. (2000). "Knowledge Intensive Business Services as coproducers of Innovation," *International Journal of Innovation Management*, 4(4), 491– 528.
- Heskett, J. L. (1986). "Managing in the service economy." Boston, Mass.: Harvard Business School Press.
- Heskett, J. (2002). "Design, a very short introduction". Oxford: Oxford University Press
- Heskett, J. (2009). "Creating economic value by design." *International Journal of Design*, 3 (1).
- Holbrook, M. B. (1987). "What is consumer research?" *The Journal of Consumer Research* 14(1), 128–132.

- Hollins, G. & Hollins, B. (1991). "Total Design: Managing the Design Process in the Service Sector." London: Pitman
- Holman, H., & Lorig, K., (2000). "Patients as partners in managing chronic disease. Partnership is a prerequisite for effective and efficient health care." *BMJ*. 2000 Feb 26;320(7234):526-7.
- Holmlid, S. (2004). "Issues for cooperative design: A procurement perspective." In Proceedings Paper presented at the PDC. Toronto
- Holmlid, S. (2007). "Interaction design and service design: Expanding a comparison of design disciplines." Paper presented at the NORDES 2007. Stockholm
- Holmlid, S. (2008). "Towards an understanding of the challenges for design management and service design." Paper presented at the International DMI Education Conference: Design Thinking: New Challenges for Designers, Managers and Organizations. Paris
- Holmlid, S. (2009a). "Managing interaction design and business innovation: Understanding interaction design as key activity of the operating core." *Aesthesis, International journal of art and aesthetic in management and organizational life*, 2 (3), 99-105.
- Holmlid, S. (2009b). "Participative, co-operative, emancipatory: From participatory design to service design." Paper presented at the DeThinking Service Re- Thinking Design, First Nordic Conference on Service Design and Service innovation. Oslo
- Holmlid, S., & Evenson, S. (2008). "Bringing service design to service sciences, management and engineering." *Service Science, Management and Engineering Education for the 21st Century* (pp. 341-345)
- Holter, I. M. & Schwartz-Barcott, D. (1993). "Action Research: what is it and how has it been used in nursing?" *Journal of Advanced Nursing*, 18, pp 298-304
- Hope, K., and Waterman, H. (2003). "Praiseworthy pragmatism? Validity and action research" *Journal Advanced Nursing* 44 (20), 120-7
- Hopkins, D. (2002). "A teacher's guide to classroom research." Buckingham: Open University Press
- Howells, J.; Tether, B.; Gallouj, F.; Djellal, F.; Gallouj, C.; Blind, K.; Edler, J.; Hipp, C.; Montobbio, F.; Corrocher, N. (2004). "Innovation in Services: Issues at Stake and Trends." Ph.D. Dissertation, European Commission, The University of Manchester, Manchester, UK.
- Howells, J. (2007). "Fostering Innovation in Services. A Report of the Expert Group on Innovation in Services." Brussels: commission of the European Union.
- Hunt, M. (2009). "Strengths and challenges in the Use of Interpretive Description: Reflections arising from a study of the Moral Experience of Health Professionals in Humanitarian Work." *Qual Health Res*, 2009, 19 (9) p1284-1292

Johnson, S. P., Menor, L. J., Roth, A.V., & Chase, R.B. (2000) “A critical evaluation of the new service development process”. In J.A. Fitzsimmons & M.J. Fitzsimmons (eds), *New service development: Creating Memorable Experiences* (pp 1-32). California: SAGE Publications.

Johnston, R., & Kong, X. (2011). “The customer experience: a road-map for improvement.” *Managing service Quality: An International Journal*. Volume 21 (1).

Joiner, K.; Lusch, R. (2016). “Evolving to a Service-Dominant Logic for Health.” *Aust. Health Rev.* 2016, 3, 25–33.

Jonas, W. (2012). “Exploring the swampy ground.” In: Grand, S. & Jonas, W. (eds.) *Mapping Design Research: Positions and Perspectives*. Basel, Birkhäuser, 11-42.

Jonas, W. (2014). “A cybernetic model of design research” from: *The Routledge Companion to Design Research* Routledge.

Jones, H. (2013). “Design for care”. Rosenfeld Media

Junginger, S. & Sangiorgi, D. (2009). “Service design and organizational change: Bridging the gap between rigour and relevance.” Paper presented at the 3rd IASDR Conference on Design Research, Seoul, Korea.

Junginger, S., & Sangiorgi, D. (2015). “Emerging issues in service design.” *The design Journal*; 18 (2): 165-170

Keller, P.A., Harlam, B., Loewenstein, G. and Volpp, K.G. (2011). “Enhanced active choice: A new method to motivate behavior change”, *Journal of Consumer Psychology*, Vol. 21(4): 376–383

Kelley, T. (2001). “The art of innovation: Lessons in creativity from IDEO, America’s leading design firm” (first ed.). New York: Doubleday.

Kemp, E., Jillapalli, R. K, & Becerra, E. (2014). “Healthcare Branding: Developing Emotionally Based Consumer–Brand Relationships.” *Journal of Services Marketing* 28(2). Accessed via https://s3.amazonaws.com/academia.edu.documents/34939944/JSM.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1532640067&Signature=LJxX4%2BT%2FKZf4hT%2FJyb3L5bUcQ6o%3D&response-content-disposition=inline%3B%20filename%3DHealth_Care_Branding_Developing_Emotiona.pdf (3/4/18)

Kimbell, L. (2009a). “Design practices in Design Thinking.” Paper presented at the European Academy of Management 2009 Conference. Liverpool

Kimbell, L. (2009b). “Service-dominant logic and design for service.” Paper presented at the Service Design Network Conference, Madeira.

- Kimbell, L. (2009c). "The turn to service design." In G. Julier & L. Moor (Eds.), *Design and Creativity: Policy, Management and Practice*, (pp. 157-173). Oxford: Berg.
- Kimbell, L. (2010a). "Marketing: Connecting with people, creating value." In M. Stickdorn & J. Schneider (Eds.), *This is Service Design Thinking* (pp. 46-51). Amsterdam: BIS.
- Kimbell, L. (2010b). "Service-dominant logic and design for service." *Touchpoint*, 1(3), 23-26.
- Kimbell, L. (2011). "Rethinking service design." *Design & Culture*; 3(3): 285-306
- Kindström, D., Kowalkowski, C., Sandberg, E. (2013). "Enabling service innovation: A dynamic capabilities approach." *J. Bus. Res.* 2013, 66, 1063–1073.
- Kingsley, S. (1985). "Action research: Method or Ideology?" Association of Researchers in Voluntary Action and Community Involvement, ARVAC Occasional Paper No 8
- Kolb, D. A. (1984). "Experiential Learning: Experience as the Source of Learning and Development." New York: Prentice-Hall.
- Kolko, J. (2010). "Abductive thinking and sensemaking: the drivers of design synthesis." *Design Issues*, 26 (1), 15-28.
- Koshy, E., Koshy, V. & Waterman H. (2011). "Action Research in Healthcare." Sage Publications
- Kotler, P., & Rath. (1984). "Design - a powerful but neglected strategic tool." *Journal of Business Strategy*, 5 (2), 16-21
- Krippendorff, K. (1989). "On the essential contexts of artifacts or on the proposition that "Design is making sense (of things)". *Design Issues*, 5 (2), 9-39.
- Krippendorff, K. (1995) "Redesigning Design; An Invitation to a Responsible Future", in: Tahkokallio P. and Vihma, S. (eds) *Design – Pleasure or Responsibility?*, Helsinki: University of Art and Design, 138–162.
- Krippendorff, K. (2006). "The semantic turn: a new foundation for design." Boca Raton, FL.: CRC Press
- Krippendorff, K. (2007). "Design Research: An Oxumoron?" In: Edelmann, K. T., Erlhoff, M., Grand, S., Jonas, W., Michel, R., & Schneider, B. (eds.), *Design Research Now: Essays and Selected Projects* Basel, Birkhäuser, pp.67-80.
- Lawson, B., & Samson, D. (2001). "Developing innovation capability in organisations: A dynamic capabilities approach." *International Journal of Innovation Management*, 5, 377-400
- Lawson, B. (2006). "How designers think: The design Process demystified"(4th ed). Oxford, UK: Architectural Press

- Lee, D. (2017). "A model for designing healthcare service based on patient experience." *International Journal of Healthcare Management*, DOI:10.1080/20479700.2017.1359956.
- Lewin, K. (1946). "Action Research and minority problems". *Journal of Social Issues*, 2, pp. 34-46
- Liang, L., Cako, A., Urquhart, R., et al (2018). "Patient engagement in hospital health service planning and improvement: a scoping review." *BMJ Open* 2018;8. Accessed via: <https://bmjopen.bmj.com/content/bmjopen/8/1/e018263.full.pdf> (2/6/18)
- Lin, M., Hughes, B., Katica, M., Dining-Zuber, C. & Plsek, P. (2011). "Service design and change of systems: Human-centered approaches to implementing and spreading service design." *International Journal of Design*, 5(2), 73-86.
- Lincoln, Y., and Guba, E. (1985). "Naturalistic enquiry." Beverly Hills, CA: Sage
- Løvlie, L., Downs, C., & Reason, B. (2008). "Bottom-line experiences: measuring the value of design in service." *Design Management Review*, 19 (1), 72-79.
- Lusch, R. F. and Vargo, S. L. (2006). "Service-dominant logic as a foundation for a general theory. In *The Service-Dominant Logic of Marketing: Dialog, Debate and Directions*" (eds) R. F. Lusch and S. L. Vargo, pp. 406–420. Sharpe Inc., Armonk.
- Lusch, R.F. & Nambisan, S. (2015). "Service Innovation: A Service-Dominant Logic Perspective." *Mis Quarterly*; 39 (1): 155-175.
- Lyons K & Tracy S (2013). "Characterizing Organizations as Service Systems", Wiley Periodicals, Inc.
- Mager, B. (2008). "Service design." In M. Erlhoff, T. Marshall & L. Bruce (Eds.), *Design dictionary: perspectives on design terminology* (pp. 354-357). Berlin: Birkhäuser Verlag.
- Mager, B. (2004). "Service Design. A review." *Kohn International School Design*
- Mager, B. (2009). "Service design as an emerging field." In S. Miettinen & M. Koivisto (Eds.), *Designing services with innovative methods* (pp. 28-42). Helsinki: University of Art and Design, Helsinki.
- Magnusson, P. (2009). "Exploring the contributions of involving ordinary users in ideation of technology-based services." *Journal of Product Innovation Management*, 26 , 578-593.
- Magnusson, P. R., Matthing, J., & Kristensson, P. (2003). "Managing user involvement in service innovation: Experiments with innovating end-users." *Journal of Service Research*, 6 (2), 111-124.

Manzini, E. (2009). "Service design in the age of networks and sustainability." In S. Miettinen & M. Koivisto (Eds.), *Designing Services with Innovative Methods* (pp.44-59). Helsinki: University of Art and Design, Helsinki

Manzini, E. (2013). "Making Things Happen: Social Innovation and Design". *Design Issues* 30(1), 57-66.

Martin, R (2009). "The design of business : why design thinking is the next competitive advantage." Boston, Mass.: Harvard Business Press.

Martin, R. (2004). "The design of business." *Rotman Management*, Winter 2004 .

Martin, R. (2007). "Design and Business, why can't we be friends?" *Journal of Business Strategy*, 28 (4), 6-12.

Matthing, J., Sandén, B., Edvardsson, B. (2004). "New service development: learning from and with customers." *International Journal of Service Industry Management* 15 (5), 479-498

McColl-Kennedy, J.R. "Health care in service science" special issue of *Australasian Marketing Journal*. *Aust. Mark. J.* 2014, 3, 165–167

McColl-Kennedy, J.R., Vargo, S.L., Dagger, T.S., Sweeney, J.C., Van Kasterin, Y., (2012). "Health care customer value cocreation practice styles." *J Service Res.* 15(4):370–389.

McColl-Kennedy, J.R., Hogan, S.J., Witell, L. and Snyder, H. (2016), "Co-creative customer practices: effects of health care customer value cocreation ", *Journal of Business Research*, 70: 55-66.

McKee, M. & Jacobson, B. (2000) "Public health in Europe." *Lancet*, 356: 665-70

McKee, M., Healy, J (Eds). (2002). "Hospitals in a changing Europe." Buckingham: Open University Press.

Menor, L. and Roth, A. (2007). "New service development competence in retail banking: Construct development and measurement validation," *Journal of Operations Management*, vol. 25, no. 4, pp. 825-846, Jun. 2007.

Menor, L., Tatikonda, M. V., and Sampson, S. E. (2002). "New service development: areas for exploitation and exploration," *Journal of Operations Management*, vol. 20, no. 2, pp. 135-157, Apr. 2002.

Meroni, A. (Ed.) (2007). "Creative Communities. People Inventing Sustainable Ways of Living." Milan: Edizioni Polidesign.

Meroni, A. & Sangiorgi, D. (2011). "Design for services." Aldershot, UK: Gower

- Meyer, J. (2000). "Using qualitative methods in health related action research." *BMJ* 2000; 320 (7228): 178-181
- Miller, T.S. (1997). "The birth of the hospital in the Byzantine Empire." Baltimore, MD: Johns Hopkins University Press
- Moggridge, B. (2007). "Designing interactions." Cambridge, Mass.: MIT Press
- Morar, D. (2013). "An overview of the consumer value literature – perceived value, desired value". Conference: *Marketing from information to decision* At: Cluj-N
- Morelli, N. (2002). "Designing product/service systems: a methodological exploration." *Design Issues*, 18(3), 3– 17.
- Muylaert, C. J., Sarubbi, V., Gallo, P. R. et al (2014). "Narrative interviews, an Important resource in qualitative research." Accessed via <http://www.scielo.br/pdf/reeusp/v48nspe2/0080-6234-reeusp-48-nspe2-00184.pdf> (5/4/2018).
- Nambisan P, Nambisan S. (2009). "Models of consumer value cocreation in health care." *Health Care Manage Rev.* 2009;34(4):344–354.
- Nambisan, S.; Sawhney, M. (2009). "Making the most of the global brain for innovation." *Int. Commer. Rev.* 2009, 8, 128–135.
- NESTA (2016). "New approaches to value in health" Report.
- NHS (2014). "Five Year Forward Review."
- Nichols, R. (1997). "Action research in Health Care: the collaborative Action Research Network Health Care Group." *Educational Action Research*, 5: 2, 185-192, 1995
- Nonaka, I., & Takeuchi, H. (1995). "The knowledge-creating company: How Japanese companies create the dynamics of innovation." Oxford: Oxford University Press.
- Norman, D. A, & Verganti, R. (2014). "Incremental and Radical Innovation: Design Research vs. Technology and Meaning Change." *DesignIssues: Volume 30, Number 1*
- Normann, R., & Ramirez, R. (1993). "From value chain to value constellation: Designing interactive strategy." *Harvard Business Review*, 71 (4), 65-77.
- Nordgren, L. (2008). "The Performativity of the Service Management Discourse – "Value Creating Customers" in Health Care." *Journal of Health Organisation and Management* 22(5): 510-28
- Nordgren, L. (2009). "Value creation in health care services – developing service productivity: Experiences from Sweden." *International Journal of Public Sector Management* 22(2):114-127

Ostrom, A. L., Bitner, M. J., Brown, S. W., Burkhard, K. A., Goul, M., Smith-Daniels, V., Rabinovich, E. (2010). "Moving forward and making a difference: research priorities for the science of service." *Journal of Service Research*, 13(1), 4-36

Ostrom, A.L., Parasuraman, A., Bowen, D.E., Patrício, L., Voss, C.A. and Lemon, K. (2015). "Service Research Priorities in a Rapidly Changing Context", *Journal of Service Research*, Vol. 18 (2): 127-159

Owen, C. L. (1998). "Design research: building the knowledge base." *Design Studies*, 19, 9-20.

Pacenti, E., & Sangiorgi, D. (2010). "Service design research pioneers: An overview of service design research developed in Italy since the '90s." *Design Research Journal*, 1 (1), 26-33.

Parker, S. and Heapy, J. (2006). "The journey to the interface: How public service design can connect users to reform". London: Demos. ISBN 1-84180-164-X. Available at: www.demos.co.uk.

Parkin, P. (2009). "Managing change in Healthcare using Action Research". Sage publications
 Patrício, L., Fisk, R. P., Cunha, J. F. & Constantine, L. (2011). "Multilevel service design: from customer value constellation to service experience blueprinting." *Journal of Service Research*, 14(2), 180-200.

Patrício, L., Figueiredo de Pinho, N., Teixeira, J.G., Fisk, R.P. (2018). "Service Design for value Networks: Enabling Value Co-creation Interactions in Healthcare." *Service Science* 10 (1): 76-97

Polaine, A., Løvlie, L. & Reason, B. (2013). "Service Design." Brooklyn, NY: Rosenfeld.

Poppelbuss, J., Plattfaut, P., Ortbach, K. et al. (2011). "Service Innovation Capability: Proposing a New Framework." *Proceedings of the Federated Conference on Computer Science and Information Systems*. Accessed via <https://annals-csis.org/proceedings/2011/pliks/108.pdf> on 12/6/18

Porter, M., (2010). "What is value in Healthcare?" *N Engl J Med* 2010; 363:2477-2481.

Radnor, Z., Holweg, M., & Waring, J. (2012). "Lean in healthcare: the unfulfilled promise?" *Social science & medicine*, 74 (3), 364-371

Radnor, Z., Osborne, S.P., Kinder, T., et al. (2014). "Operationalizing co-production in public services delivery the contribution of service blueprinting". *Pub Manag Rev*;16:402–23

Ramaswamy, V. (2008). "Co-creating value through customers' experiences: The Nike case." *Strategy & Leadership* 36 (5), 9–14

Ramaswamy, V. (2011). It's about human experiences...and beyond, to co-creation. *Industrial Marketing Management*. 40: 195-196

- Ramirez, R. (1999). "Value co-production: intellectual origins and implications for Practice and Research." *Strategic Management Journal*, 20(1), 49-65.
- Ramirez, R., & Mannervik, U. (2008). "Designing value- creating systems." In L. Kimbell & V. Seidel (Eds), *Designing for services- Multidisciplinary Perspectives*: (pp 35-36). Oxford University of Oxford, Said Business School.
- Reason, B., Downs, C., & Lavrans, L. (2009). "Service Thinking." Retrieved 10/6/2017, from <http://www.livework.co.uk/articles/service-thinking>
- Reason, P., & Bradbury, H. (2001). "Handbook of action research: Participative inquiry and practice." Thousand Oaks, CA: Sage
- Reason, B., Lovlie, L. & Brand Flu, M. (2016). "Service Design for Business." Wiley
- Richards, H.M., and Schwartz, L.J., (2002). "Ethics of qualitative research: are there special issues for health services research?" *Family Practice*, 19:135–139.
- Rittel, H. And Webber, M. (1973). "Dilemmas in a general theory of planning." *Policy Sciences*. 4:155-169
- Roth, A. V. & Menor, L. J. (2003). "Insights into service operations management: a research agenda." *Production and Operations management*, 12(2), 145-164.
- Rowe, P. (1987). "Design thinking". Cambridge MA: MIT Press
- Saltman, R.B., & Figueras, J. (1997). "European Health Care reform: Analysis of current strategies," WHO Regional Publications, European Series, No 72. Copenhagen: WHO Regional Office for Europe.
- Sanders, E. B. N. & Stappers, P. J. (2008). "Co-creation and the new landscapes of design." *Co-Design*, 4(1), 5-18.
- Sangiorgi, D., & Holmlid, S. (2009). "Rigour in service design research." Paper presented at the IASDR 2009: Rigour and Relevance in Design.
- Sangiorgi, D., & Pacenti, E. (2008). "Emerging practices of Service Design driven innovation." Paper presented at the Service Design Network Conference, Amsterdam
- Sangiorgi, D. (2009). "Building up a framework for Service Design research." Paper presented at the 8th European Academy of Design Conference, Aberdeen, Scotland.
- Sangiorgi, D. (2011). "Transformative services and transformation design." *International Journal of design* 5(2). Available at <http://ijdesign.org/index.php/IJDesign/article/view/940/344>. Accessed 11/6/2018.

Sangiorgi, D., & Preniville, A. (2014). "A theoretical Framework for studying Service Design Practices: First steps to a mature field." Conference paper: 19th DMI: Academic Management Conference, London 2014.

Sangiorgi, D., Preniville, A., Jung, J. & Yu, E. (2014). "Design for Service Innovation & Development. Final Report." DeSID.

Schon, D.A. (1983). "The reflective practitioner: How professionals think in action." London: Temple Smith

Secomandi, F. & Snelders, D. (2011). "The object of service design." *Design Issues*, 27(3), 20-34.

Segelström, F., & Holmlid, S. (2009). "Visualization as tools for research: Service designers on visualizations." Paper presented at the NorDes 2009 – Engaging artifacts, Nordic Design Research Conference, Oslo.

Segelström, F. (2010). "Visualisations in service design." (Licentate Thesis) Linköpings universitet, Linköping.

Segelström, F. & Holmlid, S. (2011). "Service Design Visualisations meet Service Theory: Strengths, weaknesses and perspectives." Paper presented at the Proceedings of Art & Science of Service, San Jose, California.

Shostack, L. G. (1977). "Breaking free from product marketing." *Journal of Marketing*, 41 (2), 73-80.

Shostack, L. G. (1982). "How to design a service." *European Journal of Marketing*, 16 (1), 49-63.

Shostack, L. G. (1984). "Designing services that deliver." *Harvard Business Review*, 62 (Jan-Feb), 133-139.

Simon, H. (1969). "The sciences of the artificial". Cambridge MA:MIT Press

Spohrer, J.; Maglio, P.P. (2008). "The emergence of service science: Toward systematic service innovations to accelerate co-creation of value." *Prod. Oper. Manag.* 2008, 17, 238–246.

Stevens, E. & Dimitriadis, S. (2005). "Managing the new service development process: towards a systemic model." *European Journal of Marketing*, 39(1/2), 175-198.

Stickdorn, M. & Schneider, J. (2010). "This is service design thinking." Amsterdam: BIS.

Sundbo, J. (1997). "Management of Innovation in Services," *The Service Industries Journal*, vol. 17, no. 3, pp. 432-455, Jul. 1997.

Sundbo, J. (2008). "Innovation and involvement in services." In L. Fuglsang (Ed.), *Innovation and the creative process. Towards innovation with care*. Cheltenham, UK, Northampton MA, USA: Edward Elgar.

Teixera, J., Patricio, L., Nunes, N., et al (2012). "Customer experience modeling: from customer experience to service design." *J Serv Manag.* 2012; 23 (3): 362-376.

Tether, B.S. (2003). "The sources and aims of innovation in services: Variety between and within sectors." *Econ. Innov. New Technol.* 12, 481–505.

Thackara, L. (2007). "Wouldn't it be great if..." London: Design Council

Thakur, R.; Hsu, S.H.; Fontenot, G. (2012). "Innovation in healthcare: Issues and future trends." *J. Bus. Res.* 65, 562–569.

Thorne, S., Reimer- Kirkham, S., & MacDonald Emes, J. (1997). "Interpretive description: A noncategorical qualitative alternative for developing nursing knowledge." *Research in Nursing and Health*, 20, 169-177.

Thorne, S., Kirkham, S. R. & O'Flynn-Magee, K. (2004). "The analytic change in Interpretive Description." *Int Journal of Qual Methods*, 3 (1)

Tian, K., Sautter, P., Fischer, D., Fischbach, S., Luna-Nevarez, C., Boberg, K., Kroger, K. and R. Vann (2014). "Transforming health care: Empowering therapeutic communities through technology-enhanced narratives", *Journal of Consumer Research*, Vol. 41(2):237-260

Topol, E. (2015). "The Patient Will See You Now: The Future of Medicine is in Your Hands". New York, Basic Books.

Topol E. (2012). "The creative destruction of medicine." New York, NY, USA: Basic Books

Tynan, C., McKechnie, S., and Hartley, S., (2014). "Interpreting value in the customer service experience using customer-dominant logic." *Journal of Marketing Management* 30 (9-10): 1058-1081

Van de Bovenkamp, H.M., & Trappenburg, M.J. (2009). "Reconsidering patient participation in guideline development." *Health Care Analysis*, 17 (3), 198-216

Van de Bovenkamp, H.M., Trappenburg, M.J., and Grit, K.J., (2010). "Patient participation in collective healthcare decision making: the Dutch model". <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1369-7625.2009.00567>

Vargo, S. L. and Lusch, R. F. (2004). "Evolving to a new dominant logic for marketing." *Journal of Marketing* 68(January), 1–17

Vargo, S. L. and Lusch, R. F. (2006) "Service-dominant logic: What It Is, What It Is Not, What It Might Be." In *The Service-Dominant Logic of Marketing: Dialog, Debate and Directions*, (eds) Lusch R. F, Publisher ME Sharp

Vargo S, Akaka M A & Maglio P. (2008). "On value and value co-creation: A service Systems and Service Logic Perspective." *European Management Journal* (2008) 26, 145-152

Vargo, S., & Akaka, M. (2009). "Service-Dominant logic as a foundation for service science: Clarifications." *Service Science*, 1 (1), 32-41.

Vargo, S. L. and Lusch, R. F. (2008a). "Service-dominant logic: Continuing the evolution." *Journal of the Academy of Marketing Science* 36(1), 1–10.

Vargo, S. L. and Lusch, R. F. (2008b). "From products to service: Divergences and convergences of logics." *Industrial Marketing Management* 37, 254–259.

Verganti, R. (2003). "Design as brokering of languages: Innovation strategies in Italian firms." *Design Management Journal (Former Series)*, 14 (3), 34-42.

Verganti, R. (2006). "Innovating through design." *Harvard Business Review*, December .

Verganti, R. (2008). "Design, meanings, and radical innovation: A metamodel and a research agenda." *Journal of Production and Innovation Management*, 25 (5), 436-456.

Verganti, R. (2009). "Design driven innovation : changing the rules of competition by radically innovating what things mean." *Harvard Business Press: Boston*.

Von Hippel, E. (1986). "Lead Users: A source of novel product concepts." *Management Science*, 32 (7), 791-805.

Von Hippel, E. & Von Krohn, G. (2013). "Identifying Viable 'Need-Solution Pairs': Problem Solving without Problem Formulation. *Organisation Science* 27 (1). Accessed via <https://pubsonline.informs.org/doi/10.1287/orsc.2015.1023> (4/6/18)

Wade M. and Hulland, J. (2004). "Review: The Resource-Based View and Information Systems Research: Review, Extension and Suggestions for Future Research," *MIS Quarterly*, vol. 28, no. 1, pp. 107-142, 2004.

Waterman, H., Tillen, D., Dickson, R., & de Koning, K. (2001). "Action research: a systematic review and guidance for assessment." *Health Technology assessment*, 5 (23)

Wernerfelt, B. (1984). "A resource-based view of the firm," *Strategic Management Journal*, vol. 5, no. 2, pp. 171–180.

Wetter-Edman, K. (2009). "Exploring Overlaps and Differences in Service Dominant Logic and Design Thinking." *Proceedings of the 1st Nordic Conference on Service Design and Service innovation*, 201-212.

Wetter-Edman, K (2011). "Service design: A conceptualization of an emerging practice." *Licentiate thesis, University of Gothenburg, Gothenburg, Sweden*.

Whitehead, D., Taket, A. & Smith, P. (2003). "Action Research in Health promotion." *Health Education Journal* 62(1) 5-22.

WHO (2000). "The world health report 2000. Health systems: Improving performance." Geneva, World Health Organisation.

Yu, E. & Sangiorgi, D. (2014). "Service Design as an approach to New Service Development: reflections and future studies." Conference Paper, ServDes 2014.

Yu, E. & Sangiorgi D (2018). "Exploring the transformative impacts of service design: The role of designer-client relationships in the service development process." *Design studies* 55 (2018) 79-111

Zainuddin, N., Russell-Bennett, R. and Previte, J. (2013). "The value of health and wellbeing: An empirical model of value creation in social marketing", *European Journal of Marketing*, Vol. 47 (9):1504-1524.

Zeithaml V.A., Parasuraman A. and Berry L.L. (1985). "Problems and Strategies in Services Marketing", *Journal of Marketing*, 49, 33 - 46

Zimmerman, J., Forlizzi, J. and Evenson, S. (2007). "Research through Design as a Method for Interaction Design Research in HCI". In *Proceedings of CHI*, ACM Press, 493-502

Zimmerman, J., Stolterman, E. and Forlizzi, J. (2010). "An Analysis and Critique of Research through Design: towards a formalization of a research approach". *Proc. DIS 2010*, 310-319

Zomerdijs, L., & Voss, C. (2010). "Service design for experience-centric services." *Journal of Service Research*, 13(1), 67-82.

Zuboff, S. and Maxmin, J. (2003). "The support economy" London: Allen Lane