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Editor(s)	Maria Røhnebæk (INN), Kirsty Strokosch (UEDIN)
Contributor(s)	Maria Røhnebæk (INN), Kirsty Strokosch (UEDIN), Rolf Rønning (INN), Valérie François (USTL), Alberto Peralta (UAH), Norbert Kiss (CUB), Éva Révész (CUB)
Reviewer(s)	Stephen Osborne (UEDIN)
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Executive Summary

This report presents findings from a literature review of service design in public service contexts. The first part of the report presents how service design and intersecting concepts are defined and understood in the scholarly literature and it positions service design within the public service logic (PSL) framework. This is followed by an overview of literature that deals with service design in public service contexts, conceptually and empirically. The review is based on a combination of traditional and systematic review methods. A traditional and flexible approach is used for the conceptual part of the review, in which the concept is defined and demarcated. A more systematic approach, following the PRISMA guidelines, is used for identifying the literature that deals with service design in public service contexts.

The aim of the review is to map the literature on service design in public services and to gain insights into how the existing literature addresses the potential and constraints of using service design in public service contexts. The findings will be used as a basis for designing case studies of service design in different European public service contexts.

We may separate the findings of the conceptual review from the findings of the systematic review of service design in public service contexts.

Conceptual review
The literature searches for the conceptual review have departed from searches in textbooks, handbooks and special issues in relevant journals. Key literature has been identified by searching reference lists and by identifying recurring sources.

The review finds that service design can be seen as an area of practice, a field of research and an emerging profession. In addition to the architecture and design profession, the service marketing literature has been influential in shaping service design, but it has eventually grown into a multi-disciplinary field that brings together various ideas, concepts and methods. Service design is defined in different ways, but the definitions intersect and overlap and entail many of the same key terms, such as human-centrism, user-centrism, co-creation, creativity, transformation, innovation, and holism. Sequencing, evidencing, and visualizations are also central principles of service design.

We also find that service design needs to be understood in relation to a range of intersecting concepts. We find 'human-centred design' to be an umbrella label, which refers to design thinking, and methods that take human experiences as the point of departure for the development of products, services, service systems, and policies. Service design is embedded in human-centred design thinking. However, human-centred design of services may involve development of service by being:

- User-centred: Which involves taking a user perspective
- Participatory/co-designed: Which imply direct involvement of users

It is also helpful to understand service design in relation to a different 'orders of design'. By 'orders', we mean a categorization and differentiation of different kinds of design activities and processes. This is a way of understanding the connections and differences among different design specializations such as graphic design, interaction design, and service design. Furthermore, service design is commonly understood as concrete tools and process methods, and we briefly present the various tools and methods associated with service design. We structure the presentation of tools

and methods in accordance with the differentiation of user-centred design and co-design/participatory design.

The conceptual review finally discusses relations between the Public Service Logic (PSL), used as the overall theoretical framework for Co-VAL and service design. PSL presents a conceptual framework for understanding value creation in public service contexts, and focuses on how users create value through various forms of participation/ involvement with the public service system. Service design on the other hand, provides the means to gain insights into users' experiences, feeling, perceptions, and hence value creation through interpretative approaches.

Systematic review

The systematic review aimed to identify literature that deals explicitly with the adoption and use of service design in public service contexts. The aim was first to map and gain an overview of the literature that deals with service design in public service contexts, empirically or conceptually. Secondly, we wanted to see what the existing literature could tell us about the potential and constraints of applying service design in public service contexts.

The review has mainly focused on the literature published in English, but we have also searched for relevant literature in the French, Spanish, German, Hungarian and Norwegian languages. 17 records were included in the review of literature from the non-English literature. We found that it was mainly in the French literature that the academic publications had an explicit focus on service design in public services. The searches in the other languages also identified partly relevant records, but the linkages to design were not evident. Assessing these records has nevertheless been relevant in order to see how service design is used and understood in different languages. The searches in various languages have moreover identified 'grey literature' (i.e. reports, papers, thesis) that is useful for understanding the context for service design in the countries were empirical case studies will be carried out.

In the review of the English language literature, the database searches first identified 1251 records. 102 records were screened, and 54 full-text records were assessed for eligibility. 38 records were finally included in the synthesis. The review entailed a mapping of the literature in terms of which disciplines study service design, which research methods are used, which empirical service contexts are studied, and what the reported results and impacts are. Furthermore, the review identified six themes, which can be used to structure the focus of the included records:

1) Innovation/improvements and service design
2) Practical and ethical issues of participation/co-designing with users
3) Participation/involvement of individual users versus collectives (multiple actors)
4) Assessment of different service design methods
5) Exploration of how service design links to institutional contexts/organizational culture
6) Digitalization and service design

Within these six themes, we found several insights and debates that are useful for understanding the potential and constraints of using service design in public service contexts. First, we find various examples of how service design can be used to catalyse innovation, by involving users or by taking a user perspective. However, the research literature assessed in our review is more focused on why and how service design may be used to improve services and it is less explicit about the results and

impacts. This does not mean that service design processes fail to bring about change and innovation; it is rather that it has not been studied systematically.

We find that the reviewed literature also gives valuable insights into the various constraints and predicaments involved in applying service design in public service contexts, which also provides interesting avenues for further research. One area of concern is the complexity of power relations and reconfigurations when introducing service design in public service contexts. Relatedly, public services provide services to vulnerable, impaired and marginalized groups and users, whose voices can be practically or ethically difficult to include. There are needs for more knowledge on innovative ways of using design tools to elicit voices and perceptions from users in these kinds of service contexts.

Moreover, the tensions between individual needs and preferences versus group or collective preferences becomes especially pertinent in public services guided by equity principles. This links also to dilemmas related to how public services are intended to provide private value for individual clients, but also public value for a collective citizenry. Finally, while service design may spur creativity and contribute to innovation, these can be hard to implement due to institutionalized practices guided by legislation and policies. These issues concerning the constraints and predicaments of applying service design in public service contexts are insightfully addressed in the existing literature, and point towards several avenues for further research.

Summarized findings

The number of included records in the systematic part of this review is not high, which gives reasons to argue that there are few studies of service design in public service contexts. At the same time, we have found that searching for literature in this field is challenging and that publications on service design may contain interesting empirical studies set in public service contexts without making this explicit. However, even though our review process might contain blind spots, it still gives a strong indication that studies of service design in public services are not substantial.

We find that research on the results and impacts of service design projects or processes will contribute to one of the knowledge gaps in the existent literature. However, we also see the need for research that contributes with more deepened understandings of service design as a concept and phenomenon. Explorative studies will be relevant in this regard, which can be used to address various research gaps identified through this review, such as power issues as entangled with service design, the implications of the organizational/institutional context, and the need for more detailed knowledge of which service design tools are appropriate depending on the service contexts.

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List of Terms and Abbreviations

Abbreviation	Definition
PSL	Public Service Logic
PSO	Public Service Organization

1 Introduction

This report presents findings from a literature review of service design in public service contexts. Service design is commonly seen to provide promising avenues for innovation and improvement of public services in policy documents and in research literature (Allio, 2014; Bason, 2010, 2014, 2017; Donetto, Pierri, Tsianakas, & Robert, 2015; Junginger & Sangiorgi, 2011; Junginger, 2017; Thomson & Koskinen, 2012). However, this review departs from the assumption that there is a need for more systematic knowledge of the various ways in which service design may have an impact on developments of public services, which could be beneficial or negative depending on the perspective taken. The study was developed to gain insights on the service design concept, and to gain an overview of the literature that deals specifically with service design in public service contexts.

The review focuses on searches in the English language literature, but also includes searches in Spanish, German, French, Norwegian and Hungarian literature. The literature review completes task 1 in work package 4 on service design in the research project COVAL. COVAL seeks to discover and analyse strategies that support integration of the notion of co-creation of value in the workings of public administrations. In line with the overall aims of COVAL, the study of service design focuses on how service design may contribute to co-creation of value with service users and citizens. Moreover, the service design study draws on the public service logic (PSL), developed as the overarching theoretical framework for COVAL. Task 1 of WP4 aligns with task 1 of WP5 and WP6, covering intersecting studies of co-creation.

1.1 Purpose and scope

The review has aimed to achieve clarity on what is meant by service design, and to identify the literature that deals specifically with the application of service design thinking and methods in public service contexts. More precisely, the purpose has been to gain insight into how the existing literature deals with the potential and constraints of using service design to improve public services. The findings from the review will subsequently form the foundation for developing empirical studies of service design processes in public services.

1.2 Structure of the deliverable

We first give an account of for the methods used for the literature review, and subsequently present the findings from the review in two main chapters. Chapter 3 presents findings from a conceptual review, which defines and demarcates our understanding of service design. Chapter 4 presents findings from the systematic review of the literature dealing with service design in public sector services. The chapter mainly contains a ‘mapping’ of the literature, and a discussion of what the existing literature on service design in the public sector can tell us about the potential and constraints of applying service design in public service contexts. Chapter 5 draws together the summarized findings of the review, and indicates how it can be used for the development of informed case studies.

2 Methods

The literature review draws on a combination of methods. We may separate traditional review techniques, from systematic reviews. Furthermore, there are different subcategories of traditional and systematic reviews (Jesson, Matheson & Lacey, 2011). This report presents findings from a conceptual review of service design based on traditional review techniques (Chapter 3) and a review of the literature on service design in public services, based on systematic review techniques (Chapter 4). The procedures for the different reviews are described below.

2.1 Conceptual review

Traditional reviews allow for flexibility and exploration, and such reviews do not follow strict protocols. A flexible and explorative approach is appropriate when the purpose is to gain an understanding of how a particular concept is used and understood by different scholars. This is what we aim to do in the conceptual review of service design accounted for in Chapter 3. The literature searches for this part of the review have departed from searches in textbooks, handbooks and special issues in relevant journals. Key literature has been identified by searching reference lists and by identifying recurring sources. This part of the review is mainly descriptive, and presents how the service design concept is defined and used in key literature, and how it emerges in the most recent literature.

2.2 Systematic review of service design in public services

The conceptual review has been a necessary first step for the subsequent mapping of literature on service design in public services. This part of the review uses a more systematic technique, based on the PRISMA guidelines. Systematic reviews have originally developed in clinical research, and such reviews tends to be more focused on a narrow topic compared to traditional reviews. They follow more rigid protocols, and focus on making the review process transparent. However, reviews may be positioned along a continuum ranging from traditional to systematic reviews. Deploying strict systematic review methods in social science and multi-disciplinary research can prove problematic because such studies tend to deal with phenomena that are not always clearly and coherently defined (Jesson et al., 2011). Thus, it might be necessary to combine elements from traditional methods with systematic methods in order to capture and interpret the relevant literature. We have kept this in mind when applying a systematic method, based on the PRISMA model. We emphasized transparency by detailing the searches and the scanning process, but we allowed a certain flexibility in setting and applying the inclusion/ exclusion criteria.

We planned initially to identify scientific publications that present empirical studies of service design processes in public services. However, we found that the amount of eligible literature was too scarce, and that conceptual literature with a public sector focus was just as relevant for gaining insights on the potential and the constraints of adopting service design in public service contexts. We focus on the academic, published literature, which includes academic articles and book chapters. In the systematic review we have not included conference papers, dissertations and 'grey literature' that is not formally published as research literature. Including the grey literature would make the searches and the scanning of the literature too comprehensive and unmanageable. However, we have consulted the 'grey literature' in the conceptual part of the review, when seeking to understand the service design concepts and emerging trends in the field.

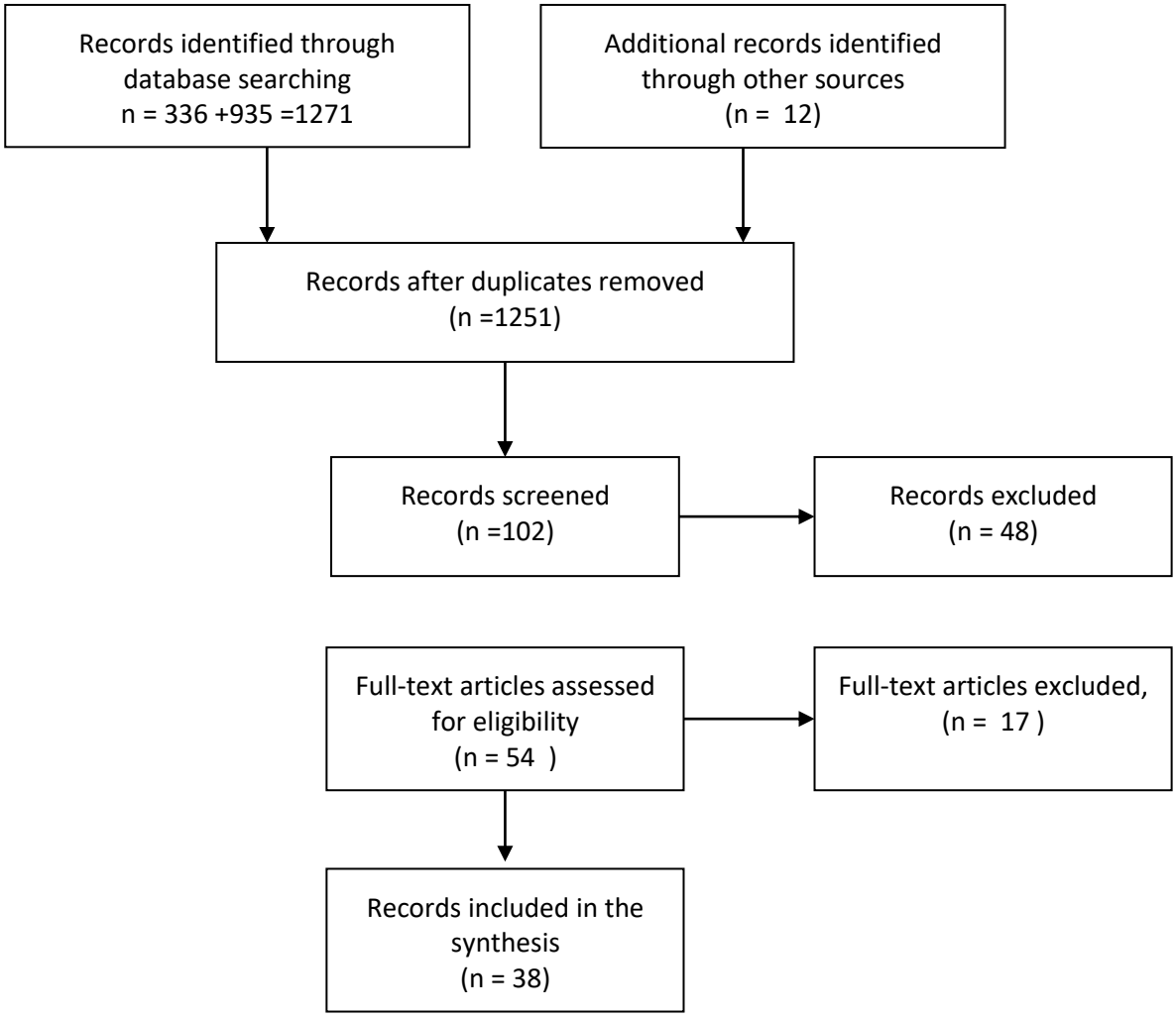
The databases Scopus and Web of Science were used when searching for literature for the systematic review. We searched the databases and not specific journals or disciplines because we

wanted to explore whether and how service design might appear in different disciplines and research dialogues. We searched for key-words in the title, abstract and keywords. Key search terms were 'Service design' and 'public services'. However, to actually capture the literature we were searching for, we needed to experiment with different combinations of terms. For instance, relevant studies set in public service contexts could be using sector-specific terms, such as health care, education etc. Moreover, relevant studies could be referring to the specific service design methods applied, and not the service design concept itself. Thus, in order to capture a sufficiently broad scope of records, we used two search strings:

1) ("Public service*" OR "public sector*") AND ("service W/2 design*" OR "blueprint*" OR "user journey*" OR "service journey*")
2) ("health care" OR education OR school OR welfare OR "social W/1 security" OR "public transport") AND ("service W/2 design*" OR blueprint* OR "user W/1 journey*" OR "service W/1 journey*")

(These are the search strings used for Scopus. Web of Science uses slightly different formats for the Boolean operators, but the content of the search strings is the same. Non-English language search strategies used similar, translated expressions). The process of identification, screening, and selection of eligible records is presented in Figure 1 below.

Figure 1: PRISMA flow diagram



After the screening, 54 records were assessed for eligibility. An extraction sheet was used for the assessment, which listed a set of categories (10) that guided the reading. A selection of these categories is used to structure the presentation of findings in Chapter 4. When setting the inclusion/exclusion criteria, we focused on including the literature that shed light on the specific conditions of using service design in public service contexts, conceptually and empirically.

The assessment of relevance was thus guided by the following questions: 1) Does the record present empirical findings of service design processes set in a public service context, and/or does the record address the implications of adopting service design in a public service context theoretically? And 2) Does the record deal with service design as co-creation processes that either involve users/citizens and/or design services from a user perspective? Guided by these questions, we included 38 records.

The synthesized findings of these records are presented in Chapter 4, but first we move on to present how we understand service design, based on the conceptual review.

3 What is service design?

Service design can be seen as an area of practice, a field of research and an emerging profession. In addition to the architecture and design profession, the service marketing literature has been influential in shaping service design, but it has eventually grown into a multi-disciplinary field that brings together various ideas, concepts and methods (Sangiorgi & Junginger, 2015). Clearly defining service design is therefore difficult, because it is framed somewhat differently across related disciplines.

Moreover, undertaking literature searches on service design is challenging because the concept tends to appear as a generic term, simply understood as the construction and shaping of services and service systems. Yet 'service design' is also used as a more specific term, which points to a particular way of working with the construction and shaping of services, emphasizing the pivotal role of service users in development and design processes. This specific use of the term focuses on developing and constructing services by 'slipping into the shoes' of service users, to assess the service experience from this viewpoint (Schneider, Stickdorn, Bisset, Andrew & Lawrence, 2010). Thus, service design, in the specified version of the term, accentuates co-creation as a key element, and highlights the importance of co-creation with customers, users and citizens (Bason, 2010; Patrício, Gustafsson & Fisk, 2018; Sanders & Stappers, 2008; Schneider et al., 2010). When co-creation is used in the service design literature, it is understood as engagement with different stakeholders in service design processes (Stickdorn, 2010, p. 34). Co-creation in design is more specifically defined as 'any act of collective creativity, i.e. creativity that is shared by two people or more' (Sanders & Stappers, 2008, p. 8).

It is furthermore claimed that service design is about designing with people and not only for them, which can be framed as user- and human-centred design (Teixeira et al., 2017), participatory design (Baek & Kim, 2018; Holmlid, 2009b) and co-design (Donetto et al., 2015). Moreover, a range of methods and techniques can be used in order to take the user perspective and enable the participation and involvement of users (see for instance, Polaine, Løvlie, & Reason 2013; Reason, Løvlie & Brand Flu, 2015; Schneider et al., 2010).

In this review, we try to focus on the specific version of 'service design', introduced above. We are less concerned with service design as a generic term, and with what are referred to as 'silent designs', which refer to the various kinds of design activities taking place in service organizations that are not labelled or thought of as design (Gorb & Dumas, 1987). We focus primarily on the literature that draws on the service design concept in public service contexts explicitly. The consequence of this demarcation is that we might miss out on literature that are relevant and closely related to the issues we address, but which depart from different vocabularies. For instance, literature within strategic planning engage with planning and design of public services in ways that is linked to service design (Bryson, 2004; Bryson, Berry & Kaifeng, 2010). However, this is not captured unless the records use design explicitly in title, abstract or keywords. Linkages between these literatures may never the less be interesting to explore elsewhere.

It should be noted that service design may also cover methods and approaches, which not necessarily concern user involvement or user perspectives directly, such as business model canvas (Schneider et al., 2010), and other forms of process modelling (Karwan & Markland, 2006). In line with the aims of the COVAL project, we focus mainly on the service design literature that are

concerned with involving users in designing services, and with designing services from a user perspective (we explain the difference below).

As already outlined, service design springs largely from service research and the service marketing literature (Sangiorgi & Junginger, 2015), and initially was scarcely associated with design literature and the design profession (Kimbell, 2011). However, in light of the growing relevance of the service sector and service industries at large, designing services, or designing *for* services, emerged as a sub discipline within design studies and the design profession (Hollins & Hollins, 1991). Eventually, the two traditions became more integrated (Meroni & Sangiorgi, 2011) and service design can be seen as an emerging field of research and practice, which brings together insights and tools from service (marketing) research and design thinking, as well as other disciplines. Service design resonates with and adopts elements and approaches from various other disciplines, with anthropology/ethnography as particularly influential (Blomberg & Darrah, 2015; Sanders & Dandavate, 1999; Stewart, 2011). Ethnographic approaches are used in 'empathy design', for examples, which assumes that good design require in-depth insights into users' feelings and perceptions (Ho, Ma & Lee, 2011; Liedtka, 2015).

Furthermore, while service design was initially used to improve customer experience in the private sector, or commercial services, it is now adopted and used broadly, as mindsets and means for constructing policies (Bason, 2014), and for improving various public services. We find examples within health care (Donetto et al., 2015; Nimegeer, Farmer, Munoz & Currie, 2016; Perrott, 2013), elderly care (Morelli, 2015), mental health care (Hyde & Davies, 2004), educational programmes (Dietrich, Trischler, Schuster, & Rundle-Thiele, 2017) and higher education services (Radnor, Osborne, Kinder, & Mutton, 2014; Trischler & Scott, 2016), among others. Service design is thus an evolving field, currently developing in relation to the expansion of the domains in which service design is applied, and in relation to research developments with increased dialogue across disciplines.

Given the evolving and interdisciplinary nature of service design, it may be hard to clearly state what service design *is.* Nevertheless, we will move on to present some definitions, and then refine the vocabulary by pointing out differences between service design and intersecting concepts.

3.1 Definitions

In accordance with the introduction above, it is evident that service design is an eclectic field and concept, which is hard to define. There are, however, various definitions available. Service design can be defined as 'a human-centred, holistic, creative approach for creating new services' (Blomkvist, Holmlid, & Segelström, 2010). Service design is also referred to as a 'systems challenge driven by an understanding of human experience' (Evenson, 2008; Trischler & Scott, 2016, p. 722). The latter indicates that service design is about challenging and reorienting existing services, rather than merely creating new services. Thus, service innovation is central to service design, and this is highlighted in the following definition: 'A creative, human-centred, and iterative approach to service innovation' (Wetter-Edman et al., 2014). Moreover, service design is seen as means for transforming services more incrementally (Junginger, 2017). The creative, innovative and transformative potential of service design tends to be linked to advantages of providing an 'outside-in perspective' (Holmlid & Evenson, 2008). Thus, service design 'assumes the customer/user as the starting point or lens into a specific service and through the use of creative, human-centred and user-participatory methods models how the service can be performed' (ibid, 342). Finally, service design can be defined as 'an approach where the end users are the main focus of service delivery and their

experience of the service is viewed holistically rather than concentrating on the discrete elements that make up the service' (Radnor et al., 2014, p. 409).

Putting these definitions together seems from our viewpoint to adequately summarize the essence of service design, even though it has been pointed out that clear definitions may limit service design as an evolving and dynamic field. Stickdorn (2010) argues that rather than aiming to reach common and shared definitions of service design, it might be more useful to identify basic principles that form a shared and dynamic language. He suggests that the following 5 principles characterize service design:

- User-centred: Services should be experienced through the customer's eyes
- Co-creative: All stakeholders should be included in the service design process
- Sequencing: The service should be visualized as a sequence of interrelated actions
- Evidencing: Intangible services should be visualized in terms of physical artefacts
- Holistic: The entire environment of a service should be considered (Stickdorn, 2010, p. 34)

We recognize most of these principles in the definitions above, but here the visualization elements of service design are more outspoken. In sum, these principles may be useful as guiding ideals for service design, to which service design processes may in practice adhere in various ways and to various degrees.

3.2 Intersecting concepts

We have attempted above to introduce and define service design. When doing so, we have introduced a range of intersecting concepts that also require definitions and further clarifications. In this section, we attempt to look at service design in relation to intersecting concepts, in order to get a more refined understanding of the nuances and demarcations of service design.

3.2.1 Human-centred design: User-centred and participatory design

Human-centred design is an umbrella label, which refers to design thinking, and methods that take human experiences as the point of departure for development of products, services, service systems and policies (Bason, 2014; Giacomin, 2014; Junginger & Sangiorgi, 2011; Sanders & Stappers, 2008). The concept has its origin in ergonomics, computer science and artificial intelligence (Giacomin, 2014). The advocacy for human-centred design links to the 'semantic turn' in design, which entails a shift from focusing on artefacts, technology or objects of design in itself, towards a focus on how design objects may *mean* different things to different people in different situations (Krippendorff, 2005). This implies that any design activity relies on the identification of the meaning which the product, system or service will offer to people (Giacomin, 2014).

There are various approaches and subcategories of human-centred design, and we may separate a user-centred design tradition from participatory design, or co-design (Sanders & Stappers, 2008). Sanders and Stappers (2008) reflect that while the user-centred approach developed predominantly in the United States and focused on the user as subject, the participatory design approach emerged in the 1970s and is linked to the participatory design tradition that springs from Scandinavian workplace democracy movements, and Scandinavian information system research (Gregory, 2003). The terms are used interchangeably in the literature, but there are some underlying differences. The user-centred approach suggests that service designers/professionals should take the user perspective and draw on service user experience to inform the design process, while participatory design / co-design suggests that those using the services are actively part of the design process.

Participatory design and co-design are used interchangeably, but co-design has allegedly eventually become a more widespread term (Sanders & Stappers, 2008). The co-design approach, according to Dietrich et al (2017), assumes that service users are potentially better placed to design their own services and that the role of professional designers is therefore to enable and support those using services to design them. Steen, Manschot & Koning (2011) show in line with this reasoning that co-design may have a range of benefits supporting service design processes. Thus, service design *may* adopt co-design elements and methods, but it may also use other sources to take a user perspective which does not necessarily imply direct involvement of users. This is why we propose a differentiation between user-centred design and participatory/co-design, in which the latter implies direct participation/involvement.

This understanding of co-design implies a partnership approach between service users and professionals (which may include professional service designers or service providers): 'Co-design means more than just being responsive to patients and listening to their needs; patients are not just active partners 'having a say' in their care, but actively contributing to the design of their care.' (Donetto et al 2015, p. 234). Sanders and Stappers (2008) describe co-design as a collaborative process within which roles gets mixed up; the individual who will eventually use the service takes a core role as expert of their experience during the design process.

To summarize: service design, as we understand it in this report, is embedded in human-centred design thinking. However, human-centred design of services may involve development of service by being:

- User-centred, which involve taking a user perspective
- Participatory/co-designed, which imply direct involvement of users

3.2.2 Orders of design

One way to understand service design in relation to other disciplines and subcategories of design practices is to distinguish between different 'orders of design' (Buchanan, 2001; Holmlid, 2009a; Junginger & Sangiorgi, 2011). By orders, we mean a categorization and differentiation of different kinds of design activities and processes. Buchanan (2001) suggests that the first order of design refers to the design of symbols and graphic communication, while the second order of design refers to the construction of things and objects. The third order of design concerns design of interactions and strategic planning, and the fourth order of design encompasses analysis and design of complex systems, which require an understandings of the different parts of a system, and the role of the different parts in an integrated whole.

Corresponding design disciplines are 1) graphic design, 2) industrial design 3) interaction design and 4) environmental design (Buchanan, 2001; Holmlid, 2009a). Service design, as a young discipline, has no clear position in this categorisation, but belong most clearly to the third order, along with interaction design (Holmlid, 2009a). Yet, according to Junginger & Sangiorgi & (2011), most service design processes in the public sector belong to the second and third design order, while service designers are increasingly facing and dealing with forth order design challenges.

The different orders and disciplines may overlap and tends to become increasingly integrated (Holmlid, 2009a). However, it is worth noting in particular the similarities and differences between interaction design and service design, as both can be positioned within the third order and they are interrelated. Interaction design is anchored in human-computer interaction, and engage in various

ways with the design of digital interfaces and interactive artefacts. Increased digitalization of services, and of society at large, makes digital service encounters a central part of most service experiences. Interaction design consequently becomes an ever more integrated part of service design. There are nevertheless differences between service design and interaction design, and service designers and interaction designers have different skills and competences. Service design is closely linked to innovation, is highly explorative, and deal with various management issues and strategic developments of organizations. Interaction design deals with more specific development of systems, interactive artefacts and user interfaces, based on user-centred design thinking. (For a more detailed comparison, see Holmlid, 2009a).

3.3 Design thinking and design theory

Positioning service design in relation to different 'orders of design', as suggested above, is one way of understanding service design. We might nevertheless be in need of further clarifications of the term 'design' and the term 'design thinking' which frequently appear in the literature (e.g. Buchanan, 1992; Schneider et al., 2010). Is 'design thinking' merely a buzzword, or does a specific design way of thinking exist? If so – what does this mindset consist of and who may possess the ability to adopt and apply it? These questions are explored and discussed to some extent (Cross, 2011; Stewart, 2011), but the notion of design thinking still remains somewhat mysterious. Moreover, design and design thinking seem to have evolved into such broad concepts that clear definitions will not cover their varied use and interpretations. Stewart (2011) suggests that what are often placed under the 'design thinking' umbrella are formal articulations of processes that largely remain tacit within professional design disciplines and design practices. Similarly, Cross (2011) suggests that identifying and deconstructing what designers do, give access to capture what design thinking might be. Thus, capturing 'design thinking' entails articulation of what is embedded in professional design practices, making aspects of it transferable and adoptable to sectors and people outside the design professions.

However, since design processes have different aims and cover a range of activities, there is no stable sets of elements that clearly constitute design thinking. Moreover, over the last two decades, new types of design specializations have emerged, such as service design (Sangiorgi & Junginger, 2015; Stewart, 2011). This opens the way for arguing that a certain 'service design thinking' (Schneider et al., 2010) exists as a specialized form of design thinking. This thinking underlies and informs the definitions and principles of service design, presented above, and it is embedded in the methods and tools associated with service design, presented below. 'Design thinking' is also known as toolkits and methods for creativity and ideation processes consisting of step-by-step design templates. The development of such toolkits, are based on theorization of what characterizes design thinking.

In order to understand the role of theory and theorizing in design, it is necessary to look at the complicated and debated relations between design and science (Cross, 1993; Simon, 1969). We may distinguish between design science and science of design. Design science concerns development of systematic principles of designing, based in rational methods and formal theories. Design science thus contains understandings of design as science (Cross, 1993). This is contrary to the term 'science of design', which suggests that design can be studied systematically, through scientific methods. Buchanan (1992) traces the origin of the science of design to the liberal arts with long historical roots. The science of design is furthermore associated with Herbert Simon, who linked theory of design to the 'sciences of the artificial ', i.e. as opposed to sciences of the natural (Simon, 1969).

Within the science of design field, there are efforts to develop a unified theory of design (Hatchuel, Le Masson, Reich, & Subrahmanian, 2018). This unified theory, known as concept-knowledge (C-K) theory, aims to bring various insights from science of design together. The theory builds on Herbert Simon's foundations for design theory, which focus on design as problem-solving, and on problem solving of 'wicked' problems in particular (Buchanan, 1992; Rittel & Webber, 1973). However, Hatchuel (2001) calls for an expansion of this, in which design is also understood as engagement with the unknown (Hatchuel et al., 2018). When design is understood as problem-solving, it suggests a way of seeking solutions based on a finite number of possible options. This links to the concept of 'bounded rationality' derived from Herbert Simon, which refers to how actors are limited by time, mental capacities, access to knowledge etc. when making decisions and solving problems. By framing design as more than problem-solving, Hatchuel (2001) suggests that design involves an 'expandable rationality'. This means a rationality in which actors explore the unknown, and design is thus perceived as engagement with infinitely expandable concepts (Hatchuel, 2001).

A further exploration of design theory, and the potential of a unified design theory, is beyond the scope of this review. The aim here has merely been to identify and introduce aspects of design theory. We have also suggested a differentiation between the notion of 'design thinking' and design theory. We argue that 'design thinking' tends to be used as an umbrella label for articulation of tacit knowledge embedded in professional design, which enables dissemination of service design beyond design professions, for instance as methodological toolkits. Design theory on the other hand concerns theorization of the essence or nature of design on an abstract and philosophical level, which may involve theorization of what constitutes design thinking. We have given some examples of theory development on this area related to C-K theory (Hatchuel et al., 2018), and the application of this in a public service context can be relevant to explore further. Furthermore, the literature on service design in public service context have not yet reflected on these fundamental relations between design and science. This has implications for the research in this area, because the role of methodology and theory tends to become unclear. The difference between design methods applied is not always distinguished from the research methods applied. These can be overlapping, but it needs to be explained and reflected upon. Moreover, the prescriptive theories of how to engage with service design needs to be distinguished from theories used as analytical perspectives in studies of service design. Such clarifications and nuancing of vocabularies are needed.

3.4 Service design methods and tools

In order to provide more concrete insights into what the application of service design may entail, we present here some of the central methods and tools associated with service design. We also position methods and tools in the context of the underlying service marketing literature that, together with design literature, formed service design, as explained earlier.

Based on service marketing literature, service design was initially framed in the goods versus services paradigm (Sangiorgi & Junginger, 2015), which frames services as different from goods due to their intangibility, heterogeneity, inseparability (between production and consumption) and perishability (services cannot be stored) (Zeithaml, Parasuraman, & Berry, 1985). These service characteristics form the acronym IHIP, and the identification of these service traits is commonly referred to as the IHIP-model (Zeithaml et al., 1985). This understanding of services draws particular attention to the service encounter between a service provider and a customer, and the feelings and experiences of the customer in these encounters. The customer impression and evaluation of a service is perceived as shaped by these encounters, captured as 'moments of truth' (Normann, 1984). The coining of the term 'moment of truth' indicates that the customer assesses and evaluates

a service at the moment of time in which he or she is in direct contact with the services, which indicate that understanding user experiences at these moments is highly important for the service organization.

Central service design methods, such as 'the user journey' draw on these understandings of services. The user journey consists of mapping and visual representation of the processes that the customer goes through during interactions with a service system. A user journey can also be termed a service blueprint, but this is a broader term. A service blueprint can be a visualization of service processes from other perspectives than merely those of the user. The user journey tools originate from the work of Shostack (1977, 1982). She introduced blueprinting as a means for designing services.

In her analysis of a blueprinting of a shoeshine service, she introduced concepts such as 'lines of visibility', 'touch points' and 'fail points'. Lines of visibility separate between the aspects of the service system that are visible to the customer, and the internal organizational aspects that are not, or should not, be visible. Touch points are the instances where customers interact directly with the service system during a service process. Fail points refer to instances of failure in the service system, which create undesirable experiences for the customer. Identifying such fail points serves as a source for improvements and innovations in the service system.

These ideas still underpin the service design tools and methods in use, even though the service design toolkit has become more elaborate. We present some central tools below, and indicate how these can be structured in relation to the distinction proposed above between service design as participatory design/ co-design, and user-centred design. Thus, we may differentiate between tools that facilitate participation and co-design, and tools used to gain insights on user perspectives. However, service design processes may draw on tools from both categories in combination (see for instance Baek & Kim, 2018). We do not intend to present an exhaustive list of relevant service design tools, neither to explain them in detail. We present examples of some categories of tools in order to give more concrete insight into what service design may entail, and to categorize the different ways in which 'human-centred' design can be operationalized.

User-centred design

- Ethnographic approaches

  Ethnographic methods spring from social anthropology, an academic discipline which studies the social and cultural aspects of human activities and society. Anthropology is furthermore a comparative field, which seeks to understand humans through studies of cultural diversity. Hence, social anthropologists tend to study humans and cultures in 'exotic' contexts; that is, contexts that are somehow treated as alien to the researcher. This allows for an open, outside-in perspective, in which the aim is to understand practices and utterances from the point of view of the people studied. Taking the point of view of informants is seen as a complex process which requires contextual interpretations, and studies in social anthropology are therefore often carried out as lengthy fieldworks where the researcher becomes part of a community over time (Eriksen, 2015).

  The aims and methodological principles of anthropology resonates closely with service design (Blomberg & Darrah, 2015). The design / service design literature even uses the term 'design ethnography', which indicates development of a particular way of using ethnography for design

purposes by attempting to take the users' point of view (Schneider et al., 2010). Seeking the users' point of view through ethnographic approaches may entail a combination of methods:

  - Observation: May entail observations of service interactions when users use a service, or it may entail observations of users in other situations which help gain insights on users' or citizens' 'experience world' (Baek & Kim, 2018; Sanders & Dandavate, 1999).
  - Interviews: Various forms of interviews can be used to gain insights on users' perceptions and experiences. Interviews may take the form of 'contextual interviews' carried out in relation to the service context in focus. The surroundings can be used to spur conversations, and contextual interviews can be carried out in combination with observations (Schneider et al., 2010; Wetter-Edman, Vink & Blomkvist, 2018).
  - Walkthrough: Entails observations of and experiences with the services by exploring what the service journey might be and feel like, when pretending to be a user of the services. Involves physical and mental undertaking of the user journey (to the extent it is possible) (Schneider et al., 2010).

- Probes: Probes are 'packages' containing diverse materials that users can engage with over time. Probes can be diaries, cameras or audio recorders that can be used for conveying reflections and thoughts, but they may also involve materials that can stimulate reflections such as images or objects (Crabtree et al., 2003; Gaver, Dunne & Pacenti, 1999).

- Personas: Fictional user profiles based on quantitative and/or qualitative data from various sources. Personas may be conveyed through pictures and fictional life stories (Nielsen, 2013).

- Service representations
  - Blueprinting: A graphic representation of actors and activities in a service process. Gives an overview of processes, potential weak spots and possible areas for improvement and innovation (Bitner, Ostrom, & Morgan, 2008; Shostack, 1982).
  - User journey: Most commonly termed customer journey or service journey, and is often presented as maps or as a process visualization of the service encounters from the customer point of view (Følstad & Kvale, 2018; Schneider et al., 2010). May be developed as mapping of existing service processes, or proposed/envisioned services.
  - Stakeholder maps: Map and visualize the various actors that can have a role in a service (Schneider et al., 2010).

Participatory design/ co-design

Service design as participation/co-design implies, as explained, that users or potential users and other stakeholders, are invited to directly participate in idea generation, development, evaluation or testing of solutions. The tools presented above can be linked to co-design activities, so there are no clear cut divisions between the two. For instance, information/knowledge generated through co-design activities may be used to inform tools that we have listed as user-centred design, such as user journey maps or personas. However, the tools listed under the heading user-centred design mainly involve processes in which people responsible for service design processes (professional designers or others) enter the life of users. The idea is to use this knowledge to design or redesign

services, which are better suited to users' needs. In participatory design/ co-design users are invited *in* to have a more active say in design processes, either in ideation, scenario building, development or evaluation/testing. This is often organized around workshops or group gatherings, in which different tools can be used to engage and involve users.

- Idea generation: Brainstorming of ideas with the use of various forms of creative techniques is perhaps most commonly associated with service design workshops. Such sessions often involve sticky notes on canvases to structure and organize ideas and inputs.

- Staging/enacting: Draws on inspiration from dramaturgical methods and involves roleplay or enactment of service interactions or service scenarios. May involve use of props or prototypes relevant for the service setting (Holmlid & Evenson, 2008; Schneider et al., 2010).

- Making tools: Group work in which users are invited to develop objects or visualizations of service experiences or envisioned services based on collages or other visualization techniques. Such physical creation is seen as valuable for spurring creativity and is presented as 'design language for users' (Sanders & Dandavate, 1999).

- Cards/games: Workshops and group work may also be organized around the use of games (Brandt, 2006) or 'design cards' (Clatworthy, 2011; Dietrich et al., 2017). Cards may include images of touchpoints or aspects of the service process and can be used to stimulate group dialogue and generate ideas, and for evaluating or envisioning services.

- Prototyping: Service design literature tends to focus more on the early stages of design or innovation processes and tools used in the ideation and research stages, while there is less focus on development and prototyping (Blomkvist & Holmlid, 2012). Prototyping brings tangibility to ideas and gives developers/designers and users the ability to interact more concretely with developments of new ideas. Service prototyping can be described as a simulation of a service experience. While prototypes tend to be associated with early versions of products or software solutions, they may also involve the process of spelling out ideas and making concepts appear more tangible. Prototypes can be model versions of new solutions that can be drawn, enacted or staged using props or physical space (Schneider et al., 2010).

Service design processes in practice may draw together several of the tools/ approaches listed above. There are also more comprehensive methods for structuring service design processes along various phases or stages, where different tools can be applicable depending on the phase. Examples are the MINDS method (Teixeira et al., 2017) and experience-based co-design (EBCD) (Donetto et al., 2015). At-One is also a renowned service design method, in which the service design process follow five stages organized around five workshops, focusing respectively on understanding 'Actors', 'Touchpoints', 'Offerings', 'Needs' and 'Experience' (At-One) (Clatworthy, 2011; Schneider et al., 2010). The 'double diamond' is also commonly used to guide service design processes. The double diamond consists of four steps; discover, define, develop and deliver/implement (the term used for these steps may differ). The model, illustrated as a double diamond, indicate a process which alternate between broadening and narrowing movements in a design /innovation process (Baek & Kim, 2018; Design Council, 2015). Relatedly, and as explained above, 'design thinking' is also developed as methods consisting of given sets of steps (see for instance Curedale, 2016). Finally,

service design procedures and methods seem also at times to overlap with living labs or innovation labs methodologies, and service design processes may take place in or receive financing through such 'laboratory' structures (Schuurman & Tõnurist, 2016). We refer to the suggested references for more details on the various methods.

It should also be noted that public service organizations (PSOs) may adopt and make use of service design thinking and tools in different ways. They may employ professionally trained service designers that can contribute to systematic integration of service design principles in the organization, or PSOs may engage professional service designers/ service design firms to work on projects using service design approaches. Furthermore, the PSOs may also develop service design competence in-house by attending courses and workshops, as well as using online resources, reports and service design textbooks. By engaging with service designers in specific projects, PSOs may also learn about service design in practice, which can be deployed in future organizational strategies and in-house projects. The tools presented above may be used in a more or less advanced and comprehensive manner, and may thus be used in-house as well as in collaboration with external expertise. The need for external support and expertise in service design processes is probably more dependent on the complexity of the services and the problem area that the PSO feels the need to address, than on the complexity of the service design tools. Moreover, a central part of design is obviously drawing and visualizations, and working with trained designers may bring in more elaborate use of visual elements which can be a central part of service design processes. However, there are templates available online for mapping and visualizing for instance the user journey.

3.5 Service design and co-creation/co-production

We have seen that co-creation is central in service design, implicitly and explicitly. As explained, co-creation is understood as acts of collective creativity (Sanders & Stappers, 2008, p. 8), and it concern the process of bringing in different actors, with a particular focus on the end user. Thus, co-creation is in design/ service design used as a broader and different term than in the PSL vocabulary, which forms the theoretical framing for COVAL.

PSL sees co-creation as an intrinsic element of service relations, and assumes co-creation as 'an interactive and dynamic relationship where value is created at the nexus of interaction' (Osborne, 2018, p. 225). (This is further explained in the next section). Conversely, co-creation is in the design literature understood similarly to the way co-creation is used in relation to social innovation (Voorberg, Bekkers, & Tummers, 2015). A literature review of co-creation, show that the term is often vaguely defined and it tends to be used interchangeably with co-production in social innovation/ public sector literature (Voorberg et al., 2015). Research on co-creation and co-production are largely concerned with the ways in which users or citizens can be included as partners. This participation or involvement may take place at different stages and different levels (Nabatchi, Sancino & Sicilia, 2017). Thus, research centred on co-creation and co-production intersect and overlap with service design. This is explicit in some of the literature included in the systematic review (Hyde & Davies, 2004; Radnor et al., 2014). However, our main concern in this review is to understand service design, in which co-creation is an embedded element. Thus, we do not examine co-creation/co-production literature directly but explore it as part of service design.

3.6 Service design and public service logic

As explained above, service design has developed in relation to service marketing research, which emphasizes on services as characteristically distinct from products and manufacturing. More

recently, the service design literature has been increasingly integrated with the literature on service (dominant) logic (Sangiorgi & Junginger, 2015), which focuses on co-creation of value with users in social and cultural contexts (Edvardsson, Tronvoll, & Gruber, 2011). Furthermore, a public service logic (PSL) has emerged in recent years, which at the outset integrated insights from the literature on service-dominant logic (Vargo & Lusch, 2004; Vargo & Lusch, 2008, 2016) and the service logic (Grönroos, 2008, 2011; Grönroos & Voima, 2013) with public administration/public management research (Osborne, 2018; Osborne, Radnor, Kinder, & Vidal, 2015; Osborne, Radnor, & Nasi, 2013). Recent development of PSL emphasizes the insights from service logic and downplay the role of service-dominant logic (Osborne, 2018).

PSL focuses on the management of public services as *services*, departing from the transactional view of public services under New Public Management which equates public services with manufactured goods that are produced by PSOs and separately consumed by service users (Osborne et al, 2013; Osborne et al, 2015). The rationale of PSL is to produce various dimensions of value for the individual service user, the PSO and wider society. Importantly, for the PSL, the process of value creation starts with the service user; their direct and indirect role in the process of value creation (and destruction) is critical to both the process and outcome. Service design is aligned with the PSL in this sense because it advocates that design has no use unless it is a component of the living experience of service users and seeks to maintain their ongoing contribution to the design of the service through their own experience and actions (Dietrich et al, 2017). Regardless of the approach or method, the starting point for service design is therefore understanding service users' experiences of and interactions during service provision.

The participatory design approach in particular suggests that service users are better positioned to design their own services given their in-depth knowledge of their own needs. Interaction is core component of service design, which Wang (2014) argues enables service users to influence the design process drawing on their knowledge and expertise: 'A user whose imagination is engaged, is drawn as an active participant into the design process itself. Hence, thoughtful service design can enhance the users' experience of a space and help make a public space a better environment for the users' (Wang, 2014, p. 77). User-centred design approaches start from a similar premise, recognising the value that can be gained in service design by drawing insights from service user experience. The focus on experience means that service design centres on the needs of individuals or wider society, not simply including current preferences but taking a more sustainable view towards the impact service design might have (Sanders and Stappers, 2008). This understanding permits the PSO/designers to construct and/or change value propositions with the aim of improving the service users' experience and therefore co-create value (although participation is more indirect).

The PSL points to the different value dimensions in public service contexts, and identifies the various ways in which service users take part in value co-creation. Users may participate through intrinsic and extrinsic processes. Intrinsic processes refer to the participation/involvement of service users as an integrated and inalienable part of service interactions. Extrinsic participation/involvement take form as agency and voluntary participation through co-production or co-design. Participation in the extrinsic processes are voluntary on the part of both service users and PSOs and their application and impact are controlled to a great extent by the PSO. Service user involvement in the design of public services is therefore a core dimension of the Public Service Logic. It refers to the active involvement of citizens or service users in improving existing services and innovating new forms of public service delivery (Osborne and Nasi, 2018).

Service design can be seen as providing the means to operationalize the theoretical ideas related to PSL and co-creation of value in public service contexts (Radnor et al., 2014). PSL presents a conceptual framework for understanding value creation in public service contexts, and focuses on how users create value through various forms of participation/ involvement with the public service system. There is an underlying reasoning in PSL that by understanding and focusing on the users' value creation, PSOs will be better suited to meet service users' needs. Service design on the other hand, provides the means to gain insights into users' experiences, feeling, perceptions, and hence value creation through interpretative approaches (Wetter-Edman, 2010). So, while PSL theorizes value and value creation in public service contexts, service design can be used to explore what users value and suggest how such insights can be used to improve service systems. PSL and service design are in this way closely interlinked.

PSL and service design alike draw on literature and reasoning that has aimed to better understand firm-customer relations in a private sector context. When these ideas are applied in a public service context it needs to be borne in mind that public services are not merely creating 'private value' for individual users, but also 'public value' for a collective citizenry (Alford, 2016). Consequently, understanding value and value creation become more complex. For instance, what direct end users of a service perceive as value and what a collective citizenry perceive as value might be in conflict. Moreover, users of public services differ from customers and consumers in that they may unwillingly receive services, which is likely to affect the ability and disposition to co-create value (Alford, 2016). Additionally, public services target in many instances vulnerable groups, who may not be able to have a voice or resources to take an active and reflexive role in co-creation/co-design processes (Dietrich et al., 2017). These issues deserve particular attention when aiming to gain insights into the potential and constraints of applying service design in public service contexts. When reviewing the literature on service design in public services in the next chapter, we explore how these issues are dealt with thus far, and we seek to identify other themes addressed.

4 Service design in public service contexts

This section presents findings from the systematic review process, which aimed to identify literature that deals explicitly with the adoption and use of service design in public service contexts (see subsection 2 on methods). The aim of the review was first to map and gain an overview of the literature that deals with service design in public service contexts, empirically or conceptually. Secondly, to see what the existing literature can tell us about the particularities, potential and constraints of applying service design in public service contexts.

The review has mainly focused on the literature published in English, but we have also searched for relevant literature in the French, Spanish, German, Hungarian and Norwegian languages. We first present findings from the searches in the non-English languages, and secondly findings from our review of the literature published in English. Insights derived from both are summarized in Chapter 5.

4.1 Service design across Europe

Parts of the review were initially set up as a 'cross-country comparison' of service design across European countries. However, as revealed in Chapter 3, service design is not a coherent and clearly defined concept or field. It is a young field of practice and research, which is still evolving. Thus, assessing the academic literature on service design currently gives few insights into how service design thinking and tools are used and how they influence public services across Europe. Furthermore, identifying 'national' literature is in itself problematic because academics publish in collaboration with scholars across institutions and national borders. Moreover, publications in a specific language may cover empirical studies in various countries. Assessing the 'grey literature' such as research reports, practically oriented reports and policy documents could have provided insight into how service design thinking and tools are disseminated in different European countries. Then again, it is difficult to adhere to the requirements for systematic literature reviews when including grey literature. We have nonetheless found one report in the grey literature that gives a good indication of how service design thinking and tools have been adopted by governments in Europe and other parts of the world (Mager, 2016). In order to discover how service design ideas have been disseminated to the public sector in different countries, we recommend this service design impact report (Mager, 2016). The aim of our report, on the other hand, has been to gain insight into the academic literature that deals with service design in public services.

Thus, rather than making a separate cross-country comparison, we have searched for academic literature on service design in various languages to broaden the scope of the searches. The aim has been to ascertain whether there are publications or research streams not captured in the literature published in English that may inform and enrich our efforts to understand the particularities of service design in public service contexts. Conducting searches in the WP partners' languages have also helped the research partners to obtain an indication of the 'status' of service design in the respective countries, and to gain information on service design processes, or service design firms/educational institutions that could provide access to eligible cases. Summarized findings of the searches and review of the non-English literature is presented below.

4.1.1 French

The academic literature written in French comes not only from France, but also Belgium, Canada and other French-speaking countries. Efforts to develop a unified theory of design, known as C-K

Theory, was one of the findings from the French review. This work is being done by Armand Hatchuel and colleagues, scholars at Mines ParisTech (see section 3.3 for further details).

Searches in the French literature otherwise show that service design in public services does not appear in the academic literature until 2006 (Percebois, 2006). Initially, the design literature was mainly based on industrial design and linked with industrial fields. In sociology and political science, service design started to gain attention through research on participatory democracy. The participatory dynamics are used to address various issues: management and efficiency issues; creation of new social links through participation; and the legitimacy crisis of representative democracy. Moreover, citizens' participation appears in urban planning and development (Bacqué & Gauthier, 2011), including critical analysis which addresses the issue of increased focus on participation (Blondiaux & Fourniau, 2011).

There has been a significant increase in French publications on design in public services since 2014–2015. This can be linked to the fact that English service design literature has been translated to French, which spurs development of new research dialogues. Moreover, a new French journal was launched in 2015, 'Sciences du design', for which a large number of the contributions come from designers. The journal had a special issue on 'public design' in 2017. Publications in the journal include interesting and relevant empirical studies of service design processes. There are five records that are identified as particularly relevant, which we briefly present next.

Weller and Pallez (2017) explore service design as central techniques used to develop innovative approaches for public services. Based on a database of 200 cases, the authors describe the emergence of innovations through design in different public service contexts. The article describes design-based innovation processes (innovations par le design) as new forms of public innovation, and identity four such forms. Özdirlik and Pallez (2017) focus on co-designing with users as a means of public sector innovation based on a case study. The findings indicate that real users were scarcely involved in the case examined, and they discuss whether the involvement of 'real' users can be perceived as an obstacle to innovation. Based on studies of Quebec's healthcare system, Côté, Bélanger, and Gagnon (2017) call attention to the need for development of healthcare services that take into account the physical and emotional environment from the perspective of patients. The article presents a framework for reflections on care and the role of participation and design in the development of healthcare services.

Coblence and Pallez (2015) explore how design approaches are used to foster innovation in France at three different administrative levels, focusing on challenges related to institutionalization of design and innovation efforts. Relatedly, Bornand and Foucher (2017) study the application of design approaches in a case study of an innovation project in a French city. The article shows the difficulties encountered when using design approaches, as it challenges established power structures and institutional standards. The project led politicians to feel threatened due to the shifting of power structures, and they rejected the most important part of the proposed innovation.

In sum, we find that there is a growing literature on service design/design approaches in the French literature that is interesting and relevant for gaining better understanding of the role of design in public service contexts. As shown, the literature includes theoretical developments, empirical studies and critical discussions that explore both upsides and downsides to the use of service design approaches.

4.1.2 German

The searches in the German literature show that service design and design thinking are concepts in use, as there are handbooks and textbooks available written in German even though these are mainly directed towards service design in businesses. Service design seems to be used interchangeably with 'service engineering' and 'Dienstleistungsentwicklung' (service development). We identified six records that focus on service design/service engineering in public service contexts: two book chapters and four journal articles. Two of these are empirical studies that focus on the improvement of library services (Decker, Hermelbracht, & Klocke, 2005; Schöllhammer & Sepke, 2013). One is an empirical study of 'service engineering in government at ministry level' (Breitling, Heckmann, Luzius, & Nüttgens, 1998) and three records deal with the development of IT solutions/mobile technology in health care/elderly care (Krämer, 2017; Menschner & Leimeister, 2010; Prinz & Leimeister, 2012).

4.1.3 Norwegian

Searches in Norwegian-language articles identified only one peer-reviewed record that explicitly deals with service design in a public service context. The article reports on an evaluation of welfare technology in healthcare services, and service design is used as a methodological approach to gain insights into the users' experiences (Hansen, Almqvist, Ørjasæter, & Kistorp, 2017). Contextual interviews are used as the methodological approach, and the article is positioned in service design literature. However, in this article service design seems merely used as synonymous with qualitative evaluations focusing on the end user perspective. Thus, the article does not give any clear insights into what service design might contribute with that differs from the fairly widespread qualitative research approaches based on ethnographic methods.

The search also identified a research report on service design, which assesses the use of service design to support user involvement in mental health care (Ness, Edwards, & Karlsson, 2017). The report asks whether service design supports actual user involvement, and focus groups and individual interviews were used to gain insights into users' experiences from participating in two service design processes led by a service design firm. The findings from the study are largely positive, which means that the participants found the service design processes to facilitate 'real' user involvement, but barriers to involvement were also identified. The study is based on a small sample and is not peer reviewed, but we find that it is still worth mentioning, since studies which assess service design processes (rather than merely apply service design tools) are quite rare.

Moreover, the searches on service design in Norwegian indicated that service design in the public sector is an up and coming topic, since several master's thesis and other student work in this area were identified. Moreover, the searches also revealed that service design is increasingly gaining attention in the public policy discourse. This is also reflected in publications in a public management magazine that has published several pieces which promote and discuss service design in the Norwegian public sector (Andresen, 2014; Misvær, Olsen, & Hartmann, 2017; Sundby, 2018).

4.1.4 Spanish

The search for service design in the Spanish literature did not yield any directly relevant hits, but we found records that partly address design in articles dealing with open government, collaboration and citizens' participation. One article presents findings from a survey covering 115 municipalities, examining how public managers understand the notion of open government and its practical relevance at a local level (Criado & Ruvalcaba, 2016). The record gives insights into open government and citizens' participation in the public policy discourse in Spain, but the role of design

or design tools is not explicitly dealt with. Another article explores the emergence of a 'smart governance' paradigm, which is compared to three other paradigms (PA, NPM, network governance). The smart governance paradigm is seen as emerging in parallel with technological innovations and the spread of social media platforms in particular. The emergence of this paradigm is explored through four case studies which exemplify the ways in which social media platforms can be used for citizens' participation (crowdsourcing) and collaboration within government agencies (Grande, 2016b). Relatedly, a third conceptual piece explores the emergence of wikiGovernment in which open source technology creates opportunities for participatory and collaborative platforms between citizens and government (Grande, 2016a).

Thus, the searches have identified Spanish literature that deals with movements towards more open and collaborative forms of government with a focus on citizens' participation and the role of open source technology and social media.

4.1.5 Hungarian

Searches in the Hungarian literature identified two articles that were considered relevant for the review. One article deals with a service design process for library services based on a community involvement approach, and draws on empirical examples from various countries (Canada, Denmark, Norway, UK, United States) (Ágnes, 2018). The other article focuses on the management of type 2 diabetes, and explores how management of this condition can be strengthened through a network model, conceptualized as co-creation with patients (Lantos, 2018). While these records can be seen as partly relevant, the searches in Hungarian indicate that service design thinking has only been adopted to a limited extent in the academic literature on public services, neither is it an approach used by Hungarian PSOs in practice. Nonetheless, consulting services have already been offering service design projects for a few years, primarily targeting for-profit companies. The terms 'service development' and 'design' appear in the literature, but it lacks the focus on participatory approaches or the inclusion of users. It seems that service design or service development in Hungary does not emphasize the inclusion of clients; most articles reflect a top-down service planning approach.

4.1.6 Summary

To briefly summarize, it is merely in the French literature that we find academic publications with an explicit focus on service design in public services. The searches in the other languages have led to identification of partly relevant records, but the linkages to design are not evident. Assessing these records has nevertheless been relevant in order to see how service design is used and understood in different languages. The searches in various languages have moreover identified grey literature that is useful for framing and planning the upcoming case studies to be conducted in the different partner countries.

Languages	French	Norwegian	Spanish	German	Hungarian	**Sum**
Number or records	5	1	3	6	2	17

Table 1: Number of records on service design in different languages

4.2 Mapping the literature on service design in public services

This section presents findings from the mapping of the international literature/academic literature in English on service design in public services. We structure the findings in accordance with a selected set of categories from the extraction sheet that was used to guide the reading of the literature.

4.2.1 Which disciplines study service design in public service contexts?

Since service design is interdisciplinary, it is often hard to position records within a specific discipline. The literature tends to be between disciplines, for instance scholars within specific service contexts (i.e. health/education), or public administration/management/policy scholars may argue and demonstrate how adoption of service design thinking and methods can lead to innovation and/or service improvements. Moreover, scholars within service marketing/service design may also make similar arguments, but then from a somewhat different starting point. Public sector scholars (to use a simplified categorization) may have in-depth knowledge of the workings of specific public sector services and the public sector scholarly literature, but lack comprehensive insights into service design tools and thinking. Design/service design scholars and/or service marketing scholars approach service design in the public sector from a somewhat different angle, as they may have less in-depth knowledge of the service sector and the public sector scholarly literature, but more hands-on knowledge of design thinking and tools. The different points of departures affect how studies are developed, and the focus of the discussions on findings and contributions; differences may also be found regarding methodological requirements and traditions.

This means that there is no clear and unified research dialogue on service design in public services, and grouping the literature into clear disciplinary camps will not make sense either. Even so, we have tried to sort the literature included in our study into six indicative disciplinary categories, but underline that most records can be positioned in between:

1) Design/service design (15)
2) Service research/marketing/management (7)
3) Public administration/management (6)
4) Health care/social care (5)
5) Informatics/system development (2)
6) Innovation (2)

4.2.2 Which methodological approaches are used?

The research methods applied are mainly qualitative. Empirical studies are mainly case studies and constitute some version of action research, even though the term ‘action research’ is rarely used explicitly. The separation between practitioners and researchers does not apply in the same way in design as in many social science disciplines, since design is practically oriented. This means that in parts of the literature, the designers report on cases in which they are active participants themselves, and role clarifications are not always made clear in the method sections. There is also an overlap in the methods and service design tools presented. In this area a tension may be seen in the social science research versus design tradition. This tension raises concerns with regard to assessment of quality of reported findings, which in the social science tradition is closely linked to the description of methods and the role/analytical positioning of the researcher. It should also be noted that the service design tools/methods presented in Chapter 3 may overlap/intersect with

what we refer to in this section as research methods. With regard to research methods, we have sorted the included literature into the following method categories:

- Single case study (7)
- Multiple case study (6)
- Conceptual article with illustrative case examples (8)
- Action research (2)
- Randomized field experiment (1)
- Literature study (11)
- Interview study (2)

4.2.3 Which empirical contexts/service sectors are studied?

The records included in our systematic review are empirically set in various service sectors. The dominant sector is health care and care more generally (social care, elderly care). We find that health care is an area in which service design gains considerable attention, and we believe more comprehensive searches on service design in health care might reveal even more relevant studies. However, we have focused on identifying studies that deal with service design in health care from a social science perspective rather than clinical studies. While health care and other care services are dominant, we have also found studies set in other sectors such as education, library services, urban planning and community development, and various administrative services. Below is a listing of some of the service sectors covered. Some articles may include several cases and some lack a clear empirical research context, so the number of empirical contexts covered does not equal the number of articles included:

- Health care/social care (12)
- Elderly care (2)
- Education/higher education (5)
- Library services (2)
- Community/urban development (2)
- Administrative services (2)
- Disaster management (1)

4.2.4 What are the reported results and impacts of service design processes?

Service design is largely presented as approaches that enable innovation and improvements of services and service systems. Even so, the identified literature on service design does not provide a foundation for assessing impacts or specific results of service design processes. The studies included in our review are mainly focused on the processes, methods, mechanisms and arguments for including users/citizens as participants or somehow including their voices and perceptions. Several records are conceptual and/or give directions for practices and research agendas related to service design. The lack of reported results and impact may be related to the fact that service design approaches are relatively new in public services, so that systematic assessments of results or impacts have not yet been possible. As we have shown, empirical studies are generally scarce. Thus, the lack of empirical studies of results and impact of service design processes clearly represents a research gap.

4.2.5 What are the main themes addressed?

We have identified themes in the literature and sorted the included records in accordance with these themes. The following six themes were identified:

7) Innovation/improvements and service design
8) Practical and ethical issues of participation/co-designing with users
9) Participation/involvement of individual users versus collectives (multiple actors)
10) Assessment of different service design methods
11) Exploration of how service design links to institutional contexts/organizational culture
12) Digitalization and service design

An elaboration of each team with reference to the reviewed literature is presented next.

Innovation/improvements and service design

The potential for innovation and/or service improvements is in some sense always an underlying element in service design. This is also what the major part of the literature reviewed deals with, and we present some of the records that deal explicitly with innovation and or improvements. Teixeira et al. (2017) draw together management and interaction design methods to form an integrated service design approach referred to as the MINDS method. The method supports service design in complex services system and enables integration of technology in particular. The article shows how the approach can be used to foster innovation, exemplified through introduction of new services within health care. Bessant and Maher (2009) explore how service design may foster radical innovations in health care, drawing on empirical examples as illustrations. Sangiorgi (2015) explores how design agencies have implications for public sector innovations, and Yee and White (2016) explore the conditions for design-led approaches to innovation in the third sector/public sector projects. Deserti and Rizzo (2014) explore how design may foster organizational change, and Baek and Kim (2018) call attention to the linkages between design thinking and open innovation in the public sector.

Several records show how service design may lead to service improvements from a user perspective: through service blueprinting (Pretlow & Sobel, 2015; Radnor et al., 2014); experienced-based design (Carr, Sangiorgi, Büscher, Junginger, & Cooper, 2011); and behavioural maps (Wang, 2014). Drawing on examples from health care, Perrott (2013) sees service design as embedded in a service-dominant logic in which the organization is actively engaged in the ongoing process of knowledge exchange with customers for the purpose of seeking strategies for continual improvement of the consumption experience.

Practical and ethical issues of participation/co-designing with users

While participatory approaches and co-designing with users are advanced as the strength of service design, participation also comes with a range of practical and ethical issues which are addressed in the literature. Morrison and Dearden (2013) interestingly discuss how participation involves entanglement with the 'language games' of the public sector, which require a certain expertise. This is likely to exclude groups from participation, and the language games can be seen as a barrier to participation. They suggest that representational artefacts can work as boundary objects in participation processes, which may enable participants to sidestep the language game barrier. These language games, addressed by Morrison and Dearden (2013), are linked to power structures,

and other scholars also highlight the need to address the implications of power in co-design (Donetto et al., 2015; Suopajarvi, 2017).

Donetto et al. (2015) argues that co-design entails renegotiation of roles and reconfiguration of power relations between public services and citizens. But the authors argue that while co-design may potentially lead to power shifts, these are largely ideal scenarios which are rarely realized in practice. Thus, Donetto et al. (2015) call for approaches that critically examine power relations as embedded aspects of co-design. The implications of power structures raise questions as to which groups participate, or are able to participate, and how to include marginalized voices. This is addressed in a practical and concrete manner by Dietrich et al. (2017) who report on findings from co-design processes with vulnerable groups. Based on experiences from the co-design processes, the authors propose an alternative co-design framework which entails a more sensitive approach to participation. The study also identifies how co-design with vulnerable users differs from co-design with users who have a more robust starting point, underlining the need for sensitizing stages in advance of co-design sessions.

In a practice oriented article, Bryson, Quick, Slotterback, and Crosby (2013) provide 'design guidelines' for public participation processes in the public sector. The article claims to apply a design science approach, but what this means is weakly explained. By reviewing and synthesizing insights from literature dealing with public participation, the article develops 12 design guidelines. The guidelines are broad and general, and may not be all that informative for understanding co-design, but the article gives a good overview of literature that shed light on different aspects of participation, including power dynamics.

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Participation/involvement of individual users versus collectives (multiple actors)
Participation, involvement and taking the user perspective entail the dilemma of who should be heard, and tensions related to the individual versus collective perceptions and representations. The literature addresses this in different ways. Nimegeer et al. (2016) report on a community participation process developed to engage rural community stakeholders in designing new healthcare services.The authors report on various challenges in these processes and argue the need for caution in treating community participation as inherently benign and 'good'. Out of four community groups, they found that two groups developed innovative solutions for redesigned services, but these were too misaligned with established practices and policy directions to be adopted. The other two groups did not come up with solutions, due to an insufficient number of participants and because the solutions merely replicated existing solutions. The researchers conclude that service design through community participation is challenging, and more research is needed to understand why some people participate, in what circumstances, with what impacts.

Kautonen (2017) responds to this to some extent by conceptualizing different stakeholders' investments in design activities, with the introduction of a Stakeholder Investment-Engagement (SI-E) Model. The model is used to capture the temporality and costs of stakeholder investment throughout design processes, which is expected to broaden the understanding of factors that affect collaborative design processes.

In a different vein, Junginger and Sangiorgi (2011) explore and exemplify the dilemmas of service design with regard to impacts for individuals versus groups. They show that service design may provide tools that improve individual service interactions, but it may lead to the development of services that can be a disservice to particular groups of people and it may limit the ability of service design to transform public services. Trischler and Charles (2018) call attention to the ways in which service design in the public sector entails co-creation of value with multiple stakeholders, and this broader service ecosystem needs to gain attention in addition to the dyadic relations between users and service providers.

It should be mentioned here that Bryson (2004) maps comprehensively a way of identifying and analysing stakeholders to support public managers' ability to plan and eventually engage with various stakeholders. This article is not actually included in the systematic review, because the term 'design' does not appear in the title, keywords or abstract. We find it never the less relevant to mention it here, as we see fruitful linkages between the literature that deals with service design and this literature, with anchoring in strategic planning

Assessment of different service design methods
A third theme in the literature concern assessment of different service design tools. Trischler and Scott (2016) assess differences in three methods for identifying user experiences. The different methods (persona, visualization and mapping, and observational techniques) are seen as complementary, and combinations of methods are seen valuable especially in the design of complex public service systems. Kimbell and Bailey (2017) explore design methods on a different level by focusing on prototyping in policy making, which in turn may impact the design at the service level.

Exploration of how service design links to institutional contexts/ organizational culture
This is a topic which is addressed by Hyde and Davies (2004) who study linkages between organizational culture and service design in mental health care, and they identify and discuss

entanglements of organizational culture in service (re)design. In an entirely different context, based on a study of service design processes to improve user experiences in administration of motor vehicles, Karwan and Markland (2006) propose development of a matrix for positioning various forms of public services. Positioning various types of public services in such a matrix can be useful for developing cumulative knowledge on the applicability for service design in public services in ways that both specify the shared traits of public services, and their differences. On a broader level, Huybrechts, Benesch, and Geib (2017) address how institutional contexts (macro and meso level) frame co-design/ participatory design in PSOs.

Digitalization and service design

Service design is closely related to technological developments and digitalization, as already mentioned. This is thematized in different ways in the literature. On one hand, new digital platforms and mobil application may enable enhanced participation and engagement (Roy, 2017). In this way digital platforms may provide means for co-designing services with users because voices can be included in new ways and participation can take place on new platforms. However, service design can also be used to improve user interface or mobile applications that are important for providing public services or for implementing preventive measures. This is exemplified in a study of a mobile (health) app (Gkatzidou et al., 2015). Bhandari and Snowdon (2012) explore more theoretically how integration of theories on human-computer interaction needs to be better integrated with service design theory, using health care services as empirical point of departure.

Finally, we find one record that deal with the scalability of service design projects that are based on local social media platforms (Morelli, 2015). Based on two such projects, the study show how these platforms are embedded in local social network. Trust and perceived relevance make these platforms work in local contexts, and capturing these elements are discussed as influential for scaling strategies.

	Themes	Number of records
1	*Innovation/improvements and service design*	20
2	*Practical and ethical issues of participation/ co-designing with users*	6
3	*Participation/involvement of individual users versus collectives (multi actors)*	4
4	*Assessment of different service design methods*	2
5	*Exploration of how service design links to institutional contexts/ organizational culture*	3
6	*Digitalization and service design*	3
Total		38

Table 2: Number of records on service design in English language, sorted by themes

4.3 Potential and constraints of adopting service design in public services

Based on the presentation of the reviewed literature, structured around six different themes, we will summarize what the existing research can tell us about the potential and constraints of applying service design in public service contexts.

The goal of design is somehow problem-solving, service improvement, innovation or transformations (Junginger, 2017), and this is what the majority of the literature reviewed deals with. In terms of service improvement, service design can improve the interactions service users have with front-line staff, as well as indirect interactions with, for example, a service organization's website or information leaflets, and therefore has the potential to impact on the quality of the experience service users have with the organization's staff, processes and procedures (Steen et al., 2011; Teixeira et al., 2012). Service design also has the potential to catalyse innovation. Exploring the customer experience in an iterative way offers potential for service organizations to access latent user knowledge, which may serve to engender new service ideas or solutions that are explored, developed and tested through service design approaches that centre on experience (Trischler et al, 2018).

The organization can also design the services to better facilitate the process of co-creation (i.e. service interactions), and the actuality of that experience will depend on the context within which every interaction takes place: 'customer experiences cannot be designed by the organization, but services can be designed for the customer experience.' (Teixeira et al., 2012, p. 364). Teixeira et al. (2012) caution, however, that design experience is unlikely to mirror outcomes striven for by a service organization. Thus, the *expectations* of how service design may lead to innovation and transformation of public services might be somewhat out of touch with the actual impacts. At least we have found that there is little empirical research on service design, which focuses and clearly reports on results and impact. The research literature assessed in our review is more focused on why and how service design may be used to improve services, and it is less explicit about the results, changes and impacts. This does not mean that service design processes fail to bring about change and innovation, it is rather that they have not yet been studied systematically. This is also linked to the fact that service design thinking and tools are quite new to the public sector in many countries, so it is natural that the research starts out as more descriptive and process-oriented. Understanding results and impacts is nevertheless of significant interest for future research.

We find that the reviewed literature gives insights into the various constraints and predicaments when applying service design in public service contexts, which also provides interesting avenues for further research. Co-design entails power shifts and redefinitions of roles and relations between service providers and users, which can be hard to accomplish in public services. Public service users may be more dependent on service providers (because there might not be alternative service providers) and in more subordinate positions than consumers in commercial markets. When applying service design in public service contexts, insights into the complexity of power relations and reconfigurations are one of the areas that require research attention (Donetto et al., 2015). Relatedly, public services provide services to vulnerable, impaired and marginalized groups and users, whose voices can be practically or ethically difficult to include. There is a need for more knowledge on innovative ways of using design tools to elicit voices and perceptions from users in these kinds of service contexts (Dietrich et al., 2017).

More generally, applying service design approaches entails challenges with regard to including users that can somehow represent groups of users. The tensions between individual needs and preferences versus group or collective preferences becomes especially pertinent in public services guided by equity principles (Junginger & Sangiorgi, 2011). This links also to dilemmas related to how public services are intended to provide private value for individual clients, but also public value for a collective citizenry (Alford, 2016). Service design thinking and methods have up to now been more

centred on identifying and enhancing the 'private' value for individual users, and enter perhaps a new stage when applied in a public service context characterized by various value conflicts (Sangiorgi & Junginger, 2015). This also requires the ability to capture how value co-creation in public services takes place in complex systems of multiple actors (Trischler & Charles, 2018).

Finally, while service design may provide tools that give an 'outside-in' perspective, which may spur creativity and contribute to innovation (Holmlid & Evenson, 2008), innovations can be hard to implement due to institutionalized practices guided by legislation and policies (Morelli, 2015).

These issues concerning the constraints and predicaments of applying service design in public service contexts are insightfully addressed in the existing literature, and point towards several avenues for further research.

5 Summarized findings

The number of included records in the systematic part of this review is not high, which give reasons to argue that there are few studies of service design in public service contexts. At the same time, we have found that searching for literature in this field is challenging and that publications on service design may contain interesting empirical studies set in public service contexts without making this explicit. Thus, our searches may have missed out on relevant records due to the search terms used. Moreover, service design itself might be too narrow a search term, as other intersecting terms are used which may fit within our understanding of service design as accounted for in Chapter 3. For instance, co-design, participatory design and user-centred design should perhaps have been included in our searches. Furthermore, we have seen that publishing traditions differ, and several influential records within design are published as conference papers or reports rather than as research articles or as books/book chapters. Thus, inclusion of conference papers might have given access to more relevant studies, especially from the design disciplines.

However, even though our review process might contain blind spots, it still gives a strong indication that studies of service design in public services are not substantial. That being said, service design and co-design are topics that seem to be gaining increased attention, and this review might have been carried out at a point in time when numerous publications are under way. Thus, we might be witnessing an emerging research dialogue on service design. If this is the case, we find that there is a need for more conceptual clarity on what is meant by service design and related terms. Our conceptual review revealed service design as an eclectic concept and field of research and practice. And while strict and limiting definitions can be counterproductive, there is still a need for more shared understandings of the concepts. Moreover, there is a need for nuanced vocabularies that separate between different ways of engaging with service design.

We have argued that while human-centred design is at the heart of service design, this may be realized through user-centred approaches and participatory approaches/co-design. User-centred approaches can be seen as approaches that in various ways include the users' voices or perspectives, but this does not have to entail direct participation. Finding the best approaches for including users, directly or indirectly, depends on the service context and who the users are. Direct participation and involvement may be appropriate for certain user groups, but not for others. Participation require competence and capacities that are unequally distributed, and for certain services and user groups a combination of approaches might be needed in order to gain in-depth insights into user perceptions and needs. There is a need for more research on how different kinds of tools can be used for human-centred design, depending on the service context and user groups. This is especially important when service design is applied in public service contexts, which typically cover services to vulnerable and/or marginalized groups whose voices might be particularly difficult to include. When developing empirical case studies, this is one of the areas we would wish to explore and contribute to. This implies that we will select cases from different service contexts but include services to vulnerable and/or marginalized groups, which tends to imply studies in complex service contexts.

In summary, we have found that the empirical research on service design is scant, thus we will conduct case studies that are explorative and seek to elucidate various aspects of applying service design in public service contexts. We will seek information-rich cases, as the aim is to gain in-depth insight into how the empirical context (the service area) has implications for the service design process and the outcome of the process; and how various actors involved perceive the process and possibly the changes it has led to for the service/service organization and for users of the services.

Development of explorative case studies enables us to address various research gaps identified through this review, such as power issues as entangled with service design, the implications of the organizational/institutional context, and the need for more detailed knowledge of which service design tools are appropriate for which service contexts.

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