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The role of projet and portfolio management practices in public service innovation

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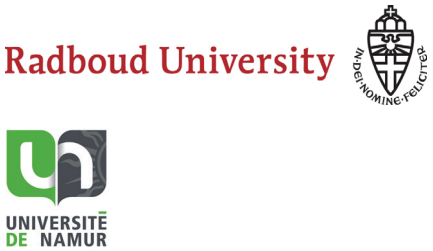

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"Voor niets komt de zon op"

Henk den Ambtman

In herinnering aan mijn vader

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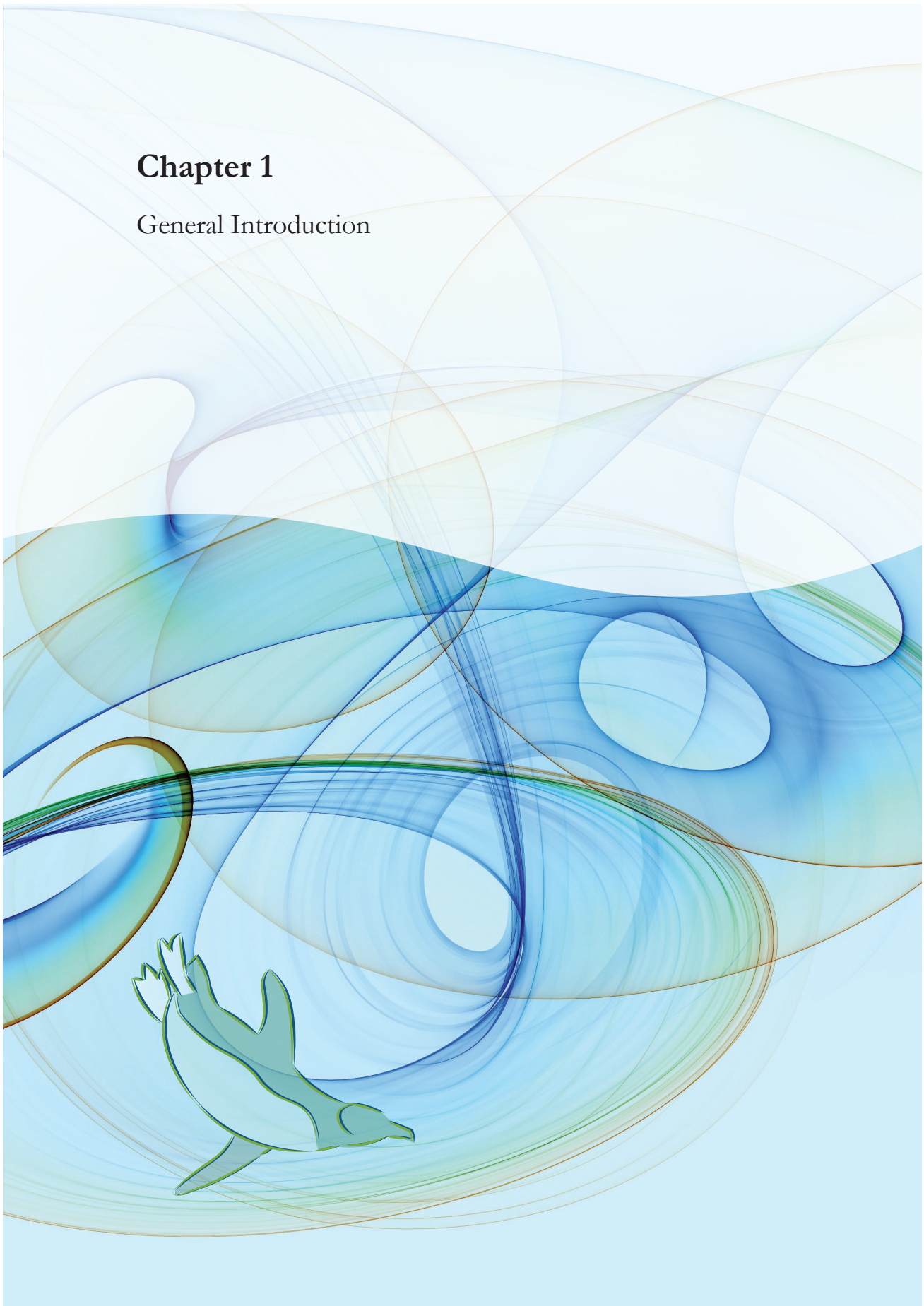
General Introduction



> *"When I close my eyes, I still see them walking, the nuns of the Choor Street. Eighty years ago, they were the first who helped people with a disability in posture and movement to get back in motion",* says my colleague.

Millions of white snowflakes are falling from the sky. The world looks like a snow globe. December 2017, it is code red in the Netherlands, meaning that extreme weather is around and you are recommended to stay at home. I sit on a grey couch in front of the recently opened innovation center in the entrance hall of the hospital, where I am waiting for Sjoerd to pick me up. On my left, bundled-up people walk through the revolving door into the warm building where they are welcomed at the reception. On my right, others are on their way to the stairs or elevator to enter the in-house parking garage, going home. But then… Some look up. Some smile. Some stand still. The one who grabs their attention is my new colleague, who keeps me company.

My colleague is not very tall; about 80 cm I think, has two arms, a head and cheerfully comes to you to greet you. This colorful colleague is a magnificent dancer and breaths disco. My colleague's name is Senna. Senna is very talkative and happy to tell you everything about the hospital, such as how it all started more than 80 years ago with the nuns of the Choor Street. These nuns would probably not have thought that this special colleague would welcome patients, their family and other visitors to the hospital, to amaze or to help them.

Over the years many things change. My new colleague is an excellent example of connecting the past, present and future. Oh wait, I did not tell you… Senna is a robot! Senna tells visitors about the past of the hospital, says 'hi' and 'good bye' and introduces the future of healthcare in the form of its own being as an artifact, a robot.

In the past 80 years, in this hospital, new forms of medical care have been introduced to offer patients the best possible care. Senna changes the way in which you enter the hospital and provides – (among other things) a welcoming and information – service in a different way than before. Such changes are called innovation and changes or improvements of new or existing services are called service innovations. These service innovations are the result of a complex innovation process. To reduce the complexity, members of organizations often split up this process in manageable chunks,

innovation projects for example. Introducing Senna as our new colleague is the result of an innovation project. Organizations often have multiple innovation projects at the same time that need to be managed as a bundle or portfolio. The results of innovation projects depend on each other and therefore do not 'act' alone. They are best understood and valued by service users[1] if they form an integrated and coherent service offering (Normann, 2001; Van Riel, Calabretta, Driessen, Hillebrand, Humphreys, Krafft et al., 2013).

In this dissertation, I zoom in on the innovation process in public service organizations to explore and understand how innovation can be organized and achieved. The necessary resources for innovation are, however, not always available: "The public sector has resource deficits when it comes to understanding customers (Fuglsang, 2010)" (Witell, Gebauer, Jaakkola, Hammedi, Patricio, & Perks, 2017, p. 290). To further develop our understanding of dealing with resource scarcity, I focus in my dissertation on service innovation in the public sector, in healthcare, among other sectors, which presents a resource-constrained environment.

This dissertation consists of three studies. In the following sections, I highlight and explain the main theoretical constructs, which the three studies of this research project share. At the end of the introduction I discuss the studies in more detail. To conclude, I present the research questions and summaries of the different studies.

1.1 Challenges for Innovation in Public Services

Governments arrange the execution of public tasks, such as education, social and tax services, healthcare and public transportation. These public services are "services that are substantially regulated by public law and at least partially funded from public funds. That is, they are directly legislated and administered by the state, or some clear and explicit government mandate exists by which the private sector provides a given service" (Helderman, Bloemer, Van der Heijden, Peters, Souren, & Visser, 2016, p. 6). Public services are available and accessible to all citizens. Individual citizens often cannot afford the actual cost of these services. Therefore, public service provision is often financed through taxes, which can be considered a limited resource (Hodgkinson, Hannibal, Keating, Chester Buxton, & Bateman, 2017; Witell et al., 2017).

1 In this chapter, we refer interchangeably to service users and end-users. In all cases we refer to the end-user (e.g. the customer, patient, citizen, etc.) and not to the professional who uses the service.

Despite resource constraints, members of public organizations change or innovate public service offerings continuously (Witell et al., 2017) to increase efficiency, accomplish cost savings and to provide citizens with the service they need. Complicating factors in a public service setting – compared to a commercial service setting – are the high level of environmental dynamics due to continuously changing legislation and political choices, the – online and offline – pressure of (among others) the public to satisfy their needs, desires and demands, the pressure to offer the best service with prescribed budgets and within confines of governmental policies and legislation (with rather short time perspectives), large exposure to public scrutiny and the fact that public institutions are (mostly) financed with public money and therefore strictly controlled by ministries (Van der Waldt, 2011). These unique contextual characteristics and the public financing system demand transparency and accountability of public service organizations regarding their spending (Osborne, Radnor, & Nasi, 2013).

To create more control in terms of transparency and accountability, management techniques and terminology from the business domain are increasingly incorporated in the public service domain to manage (the innovation of) public services (Gronn, 2000). This movement is understood as new public management (NPM), "a way of reorganizing public sector bodies to bring their management, reporting, and accounting approaches closer to (a particular perception of) business methods" (Dunleavy & Hood, 1994, p. 9). Given the unique characteristics of a public service setting, it is questionable whether the promise of NPM to create transparency also contributes to creating accountability towards the public.

Public accountability is understood as "the spectrum of approaches, mechanisms and practices used by the stakeholders concerned with public services to ensure a desired level and type of performance. Its effectiveness [of maintaining public accountability] will depend on whether influence of the concerned stakeholders is reflected in the monitoring and incentive systems of the service providers" (Paul, 1992, p. 1047). An internal organizational focus on accountability appears rather common in public service organizations (see Study 1, where I illustrate how employees were held responsible for project budgets). An outward focus on accountability towards the ministry is present in Study 1 as well. However, an outward focus on accountability towards public service end-users might not be taken for granted in public service organizations as it is in commercial service organizations.

Public services might fail, but unlike private service providers who face competition, public service providers "tend not go out of business" (Van de Walle, 2016, p. 832). In public service, the distance between the organization and the user seems larger than in commercial service organizations. For commercial service organizations this distance would threaten the continuation of the organization. This is to a lesser extent the case for public service organizations that do not depend on generating profits. Users of public services may not have the freedom to choose which provider they prefer, as public service organizations usually have monopoly positions. In the Netherlands, for example, public employment services are offered by one large public service organization (Van Gestel & Hillebrand, 2011). Service users' limited freedom of choice and the public financing system require that public service organizations should focus more on accountability towards their users and thus on the effectiveness of their services. Particularly innovating – developing new or improving existing – public services with a focus on their effectiveness is needed, but this is a very challenging task. Next, I zoom in on the complex process of managing (public service) innovation. Then I explain more about project and project portfolio management as examples of techniques that are motivated by the pursuit of resource efficiency and control that is specific to NPM.

1.2 MANAGING INNOVATION PROCESSES

Innovation has always been important for the viability of organizations and to create competitive differentiation (Garud, Tuertscher, & Van de Ven, 2013; Helkkula, Kowalkowski, & Tronvoll, 2018). In this thesis, I build on the following definition of an innovation process: "the sequence of events that unfold as ideas emerge, are developed, and are implemented within firms [or organizations], across multi-party networks, and within communities" (Garud et al., 2013, p. 776). Innovation is a complex process, consisting of interrelated sub processes and projects and much more than a single action (Myers & Marquis, 1969). In this thesis, I focus on the organization of innovation as a 'whole' in public service organizations, and the role of project- and portfolio management in particular, in the organization of these processes.

Public service innovation literature firstly focuses on 'process innovation' (with administrative and technological sub processes), thereafter on 'product and service innovation' and to a lesser extent on 'governance'

and 'conceptual innovation' (De Vries, Bekkers, & Tummers, 2016). I focus on a specific type of public innovation, namely service innovation.

1.3 MANAGING SERVICE INNOVATION

New service development (NSD) or service innovation has been defined as a novel (re)combination of resources (Gallouj & Weinstein, 1997; Lusch & Nambisan, 2015). Examples of resources are knowledge, funding and technology. Continuous service innovation in public service is crucial for quality improvement and cost reduction, thus creating value for the diverging needs of the public (Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015; Rust & Huang, 2014; Sawhney, 2006).

Service innovation research originally focused on clarifying the differences between product and service innovation (Johne & Storey, 1998; Snyder, Witell, Gustafsson, Fombelle, & Kristensson, 2016). Compared to developing new products, NSD is considered to be more challenging, because services are intangible and inseparable from the user experience (Lovelock, 1983; Parasuraman, Zeithaml, & Berry, 1985; Vargo & Lusch, 2008a). More recently, in line with the service dominant logic (Lusch & Vargo, 2011; Vargo & Lusch, 2004, 2016) a focus on value creation for service end-users can be seen that considers service innovation as rebundling of resources into new or improved service for the benefit of actors in a given context (Lusch & Nambisan, 2015), such as in public services for citizens or in healthcare for patients. Prior research on service innovation was often devoted to improving the effectiveness of the NSD process (Papastathopoulou & Hultink, 2012; Storey, Cankurtaran, Papastathopoulou, & Hultink, 2016) and the formalization of this process (Cooper & De Brentani, 1991; De Brentani, 2001). Project management and project portfolio management are examples of techniques that are often found useful to manage a service innovation process.

1.4 MANAGING PROJECTS AND PORTFOLIOS

In this dissertation I focus on managing projects and portfolios. A project has been defined as: "a set of activities that (1) aims to produce a unique deliverable […] and (2) is time-bounded within clear beginning and ending points" (Luecke, 2004, p. xi). Managing projects, or project management, has been defined as: "the allocation, tracking, and utilization of resources

to achieve a particular objective within a specified period of time" (Luecke, 2004, p. xi).

I build on the following definition for project portfolio management (hereafter portfolio management): "a dynamic decision process whereby a business list of active projects is constantly updated and revised. In this process, new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed or deprioritized; and resources are allocated and reallocated to active projects" (Cooper, Edgett, & Kleinschmidt, 1999, p. 335). A project portfolio (hereafter portfolio) has been defined as: "a group of projects that are carried out under the sponsorship and/or management of a particular organization" (Archer & Ghasemzadeh, 1999, p. 208).

The focus in this dissertation is on portfolios that consist of service innovation projects in a public setting. Projects in a public setting have unique characteristics compared to projects in a commercial setting, as explained by Van der Waldt (2011). Public projects can be initiated by politicians or are the result of policy decisions, not leaving much room for adaptation. Goals and outcomes are hard to define in measurable terms. Projects might be a success regarding the implementation of a new law, but not necessarily in terms of creating increased effectiveness for users of the service. Moreover, how projects and portfolios are managed in public organizations differs from commercial organizations. The management culture is more hierarchical in public than in commercial organizations, which implies that less decision authority is delegated to project and portfolio managers and decision-making is slower (Van der Waldt, 2007).

In the theoretical background of Study 1, I discuss the evolution of portfolio management and perspectives taken in past research. In Study 3, I develop an understanding of how a portfolio mind-set occurs at the project level, and what drives it. Portfolio mind-set at the project level is defined as the extent to which project managers have a complete overview of all relevant projects in the portfolio that are connected to their own project in terms of outcomes, as well as in-depth knowledge of their own and of all other relevant projects. Next, I link the main theoretical constructs in the dissertation's research question.

1.5 POSITIONING OF THE DISSERTATION IN THE LITERATURE

Figure 1.1 clarifies the positioning of this dissertation in four streams of literature: public management, innovation management, service innovation management and project and portfolio management. These streams of literature and the respective references were discussed in Sections 1.1 to 1.4. This dissertation focuses on services in a resource-constrained context, namely public services (Fuglsang, 2010; Hodgkinson et al., 2017; Witell et al., 2017). Particularly, it focuses on public service innovation (De Vries et al., 2016). This dissertation investigates the role of managing projects and portfolios in a public setting (Van der Waldt, 2011).

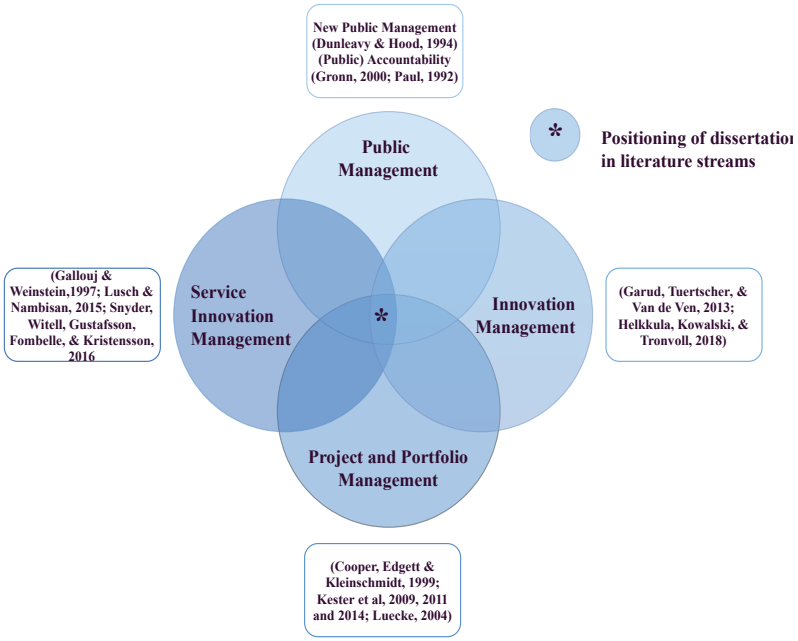


Figure 1.1. Positioning of the dissertation in the literature.

1.6 LINKING THE MAIN THEORETICAL CONSTRUCTS IN A RESEARCH QUESTION

In the Netherlands, the organization of public services has been a subject of debate between 1990 and the early 2000s (Kuiper, 2014), with politicians proposing to organize public services based on privatization, autonomy or market competition (Stellinga, 2012). Since then, it has been acknowledged

that privatization has not only created benefits, but it has also caused fragmentation of public services, such as in electricity companies, postal and telecommunication services and national railways (Kuiper, 2014). For example, the use of the railway grid was split into different concessions. Different train operating companies could then bid to offer train services on parts of the grid. For travelers, this meant that public transportation became fragmented. Going from A to B could include the need to check in and check out electronically if the journey was operated by different train operating companies. These privatization steps did not necessarily improve the quality of the offered public services to travelers. Focusing on the common interest of the public in public service instead of privatization might help to deal with quality issues of fragmented public services (Kuiper, 2014).

Service end-users frequently find themselves in a situation where they need to combine various public services and service elements to solve their increasingly complex problems, for example when they travel, or become unemployed or ill (Van Riel et al., 2013). I focus on these service end-users, as users of the services resulting from service innovation projects. Service users rely on the – innovative – service offering of public organizations. (Public) Service organizations must address the increasingly complex needs of these service users (Kuiper, 2014). (Public) Service organizations often aim to increase value by developing and offering multiple interdependent services that provide (complementary) value-in-use to service users (Jüttner & Wehrli, 1994; Normann & Ramirez, 1993; Van Riel et al., 2013). In Study 3, I build on the following definition of value-in-use: "the extent to which a [service user][2] feels better off (positive value) or worse off (negative value) through experiences somehow related to consumption" (Grönroos & Voima, 2013, p. 136).

Maintaining a coherent (public) service offer that creates positive value-in-use requires innovation (Normann, 2001). Moreover, it requires that project and portfolio managers consider public accountability (Paul, 1992) when they manage service innovation projects in a public setting. I refer to this type of NSD as public service innovation. The interdependence among new and improved public services and service components increases the complexity of innovation-related decision-making for portfolio and project managers and the need for coordination among related NSD projects and

2 The word 'consumer' was replaced by the word 'service user' for consistency reasons.

their outcomes. Increasingly, public service organizations and professionals in the public sector use project and portfolio management (Van der Waldt, 2011) to organize innovation. Yet, the exact role of these 'business techniques' and how they are practiced in the public domain remains unclear (Gronn, 2000). However, a strong focus on managing individual innovation projects, while they are actually interdependent, creates fragmentation of the portfolio (see Study 1). A fragmented portfolio leads to a disintegrated and incoherent public service offering, because public services are part of a value constellation that consists of interdependent services (Normann & Ramirez, 1993; Patrício, Fisk, Falcão e Cunha, & Constantine, 2011; Van Riel et al., 2013). Not considering the interdependency of public services for their value creation may threaten or fail to accomplish the value for their users, which is undesirable from a user's as well as taxpayer's perspective. Service end-users want a coherent public offering that matches their complex needs. To prevent value loss for users and reduced societal impact of public service innovation, this dissertation is guided by the following overall research question:

> *What is the role of project and portfolio management practices in dealing with fragmentation of public service innovation?*

In this dissertation, I aim to explore the innovation process in public service organizations to understand how it is organized and how a service end-user perspective may be brought to bear on current project and portfolio management practices. The actors in Study 1 are, among others, project and portfolio managers; in Study 2 they are healthcare innovation professionals, and in Study 3 they are project managers.

1.7 RESEARCH CONTEXT AND METHODS

Research on innovation in public and social services is scarce, compared to other service fields, such as financial services and telecommunications, making industry-based studies towards these two sectors necessary (Rubalcaba, Michel, Sundbo, Brown, & Reynoso, 2012). I partially address this gap with a case study about innovation in social services, a case study in healthcare and a survey study about public service.

I made use of a several methods in this dissertation for several reasons, but most importantly to gain insights from multiple viewpoints and

perspectives (Burke Johnson, Onwuegbuzie, & Turner, 2007). I adopted a critical realist approach for the two case studies (Van de Ven, 2007). The qualitative studies have helped me explore, discover and understand (pieces of) the phenomena of project and portfolio management in public service, in real time (Nicolini & Roe, 2013). I triangulated between observations, interviews and document analysis to obtain a fuller picture of reality (Langley & Abdallah, 2011). Through triangulation I could better understand and explain what project and portfolio managers and other public professionals *do* and explain their intentions and actions (Gioia, Corley, & Hamilton, 2012). I used findings from the case studies to identify questions for a follow-up quantitative study regarding the most important practices of project and portfolio management in public service innovation (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). The larger sample in the quantitative Study 3 allowed me to generalize some of the qualitative findings from Studies 1 and 2. In the dissertation's conclusion, I integrate the findings of the three studies to explicate the knowledge contributions of this research.

In the first two studies of this dissertation, I respectively explore the social and public services fields. I collected data in a large project organization and a general hospital pursuing innovation. I obtained information through observations, semi-structured interviews and document analysis. Both organizations wrestled with a strong control focus on either the transparent spending of public money (see Chapter 2) or the accommodation of innovation (see Chapter 3). The organizations differed in their level of maturity in applying portfolio management techniques. ServePublic[3] – a large project-based organization – has been using portfolio management for more than ten years, whereas Rijnstate Hospital – a general hospital – has been initiating the use of portfolio management techniques.

Following a call "for research into public innovation more generally, and for the management as well as measurement of innovation, it becomes a more important challenge to make the processes and the practices of innovation more visible" (Fuglsang, 2010, p. 83). I used a practice approach (Nicolini, 2012) in the two case studies about public service innovation, because innovation is often deeply rooted and intertwined in people's minds, activities and social interactions. A practice approach starts with an empirical focus on activities (Langley & Abdallah, 2011) and allows researchers to

3 All names and affiliations to the organizations studied have been anonymized.

investigate how individuals draw on unconscious or tacit understandings of how to deal with specific situations that have been learned over time and that are collectively enacted (Rasche & Chia, 2009). To understand how public service innovation is managed in practice relying on interviews is insufficient, because innovation is often a rather tacit and dynamic process that is embedded in actors' doings. Therefore, we followed the guidelines of the practice approach to combine interviews with observations to be able to explicate and compare actors' sayings and doings at a micro level (Langley & Abdallah, 2011). In both case studies, I studied day-to-day actions of project and portfolio management professionals to investigate innovation management processes in public service.

A 'practice' is defined as: "the routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood" (Reckwitz, 2002, p. 250). Examples of daily-life practices are car-driving (Shove, Pantzar, & Watson, 2012), using telemedicine to provide healthcare (Nicolini, 2006) and cooking. These activities ask for specific dynamic actions that are not necessarily explicated, but vital in a specific context. Practices are context dependent (Corradi, Gherardi, & Verzelloni, 2010; Sole & Edmondson, 2002) and help to understand dynamic interactions of interdependent actors and activities (Jarzabkowski, Lê, & Feldman, 2012). Practices occur and are reproduced through people's recurrent actions (Adams, Bessant, & Phelps, 2006; Feldman & Orlikowski, 2011). A practice approach looks at detailed units of analysis and represents a unique way of looking at social interactions, sayings and doings (Nicolini, 2009, 2012). More information about the practice approach can be found in the methods sections of Chapters 2 and 3.

In Chapter 2, I elaborate on portfolio coordinating practices from portfolio managers. I view coordination as: "the process of managing interdependence and fitting together different activities" (Gkeredakis, 2014, p. 1473). These portfolio coordinating practices are used in the everyday activity (Feldman & Orlikowski, 2011) of managing and coordinating a portfolio of innovation projects and dealt with the tension between control and integration. This tension was caused by the pressure from the Ministry to create control and accountability for the spending of public money. Actors in Study 1 create control through project management where individual projects are managed in an optimized way. However, projects in a portfolio are interdependent

and therefore need to be managed as such, which is a common approach in portfolio management (Cooper, Edgett, & Kleinschmidt, 2000; Killen & Kjaer, 2012). The search for interdependence and coherence of projects in a portfolio is represented in the need for integration.

In Chapter 3, I focus on healthcare innovation practices from healthcare innovation professionals. These practices are used on day-to-day level to accommodate innovation in the general hospital. Tables 2.1 and 3.1 (in Chapters 2 and 3) provide overviews of the data included in the two case studies.

The data collection for Study 1 took place between February 2013 and March 2014 and for Study 2 between August 2014 and June 2016. The semi-structured interviews were conducted in Dutch and lasted about 60 minutes on average for both case studies. The observations lasted 75 to 90 minutes on average for Studies 1 and 2 respectively. More detailed information about the data collection and data analysis approaches for the case studies can be found in Chapters 2 and 3.

In Chapter 4, a quantitative study is reported. Data for this study were collected among project managers of 103 projects in the public service sector by means of an online survey. Respondents were personally invited by two gatekeepers in the field or invited via e-mail or professional networks. The data was analyzed in SPSS (IBM, 2016) and SmartPLS (Ringle, Wende, & Becker, 2015), a structural equation modeling program (Henseler & Dijkstra, 2015). More detailed information about the data collection and data analysis approaches for this study can be found in Chapter 4.

1.8 DATA MANAGEMENT

I have stored all the collected data for my dissertation on a password-protected virtual drive of the Radboud University. Stored data includes: interview recordings, interview transcripts, (digital) observational notes, presentation slides and organizational documents.

The interview recordings were labeled by the respondent's name and date of the interview in a folder corresponding to the organization using fictitious names. The interview transcripts were saved according to the same naming principle. Each transcript started with a small table illustrating the name of the interviewee, date, function, organization (using the fictitious names) and location of the interview. The collected documents were saved

with their original file name or short description of the content, to support retrievability of the documents. Throughout this dissertation, except for Study 2, all names and affiliations with organizations have been anonymized in the best way possible. The survey data were saved on the virtual drive of the Radboud University. Respondents' answers were anonymous, except when respondents filled in their mail address to receive an executive summary. Mail addresses are saved in an Excel file separate from the data.

1.9 STRUCTURE OF THE DISSERTATION

With my dissertation, I develop qualitative and quantitative insights about the role of project and portfolio management practices in public service innovation. Two in-depth case studies and a survey study helped me to understand the complexity of the challenging task to manage innovation processes in a public service setting from three different perspectives. Studying two organizations in-depth, from a coordination perspective in social services (Chapter 2) and an ambidexterity perspective in healthcare (Chapter 3), helped me to understand two central tensions – between control and integration (Chapter 2) and exploration and exploitation (Chapter 3) – of managing public service innovation. The survey study (Chapter 4) takes a more general view on the implications of portfolio mind-set for project managers and explains how to manage NSD projects within public service from a service end-user perspective to create value-in-use. As summarized in Table 1.1, the studies provide a multi-layered perspective as basis for this dissertation.

1.10 OVERVIEW OF THE DISSERTATION'S STUDIES

1.10.1 Study 1

To create control over public service innovation processes, public service organizations increasingly use portfolio management as a coordinating mechanism, as I discuss in Study 1, Chapter 2 of this dissertation. However, organizing service innovation processes according to portfolio management guidelines and procedures creates tension. Study 1 illustrates an in-depth case study of a large public project organization in social services, which has been using portfolio management for over almost a decade to coordinate their portfolio, which consists of innovation and change projects. I explore the

Table 1.1. Overview of the empirical basis on which the dissertation chapters are based.

Chapter	Research setting	Methods	Research question	Conferences and publications
2	A coordination perspective on portfolio management practices in social services	Qualitative research: > 1 year case study research: 18 interviews and observations of 50 meetings	How do portfolio managers and other professionals at various levels of an organization negotiate the tension between the need for control and the need for integration?	Previous versions of this chapter were presented at QUIS13 conference in Karlstad, Sweden in 2013, the European Group of Organization Studies (EGOS) in Rotterdam, the Netherlands in 2014 and published in the conference proceedings of the International Project Management Association World Congress in Rotterdam, the Netherlands in 2014 (https://doi.org/10.1016/j.sbspro.2015.06.116)
3	An ambidexterity perspective on managing service innovation in a general hospital (healthcare)	Qualitative research: > 1.5 year case study research: 23 interviews and observations of 33 meetings	How do professionals accomplish ambidexterity through a bottom-up approach in a healthcare organization that is not designed to be ambidextrous and how do they "actually manage the interfaces between exploration and exploitation"? (O'Reilly III & Tushman, 2013, p. 332)	Previous versions of this chapter were presented at QUIS14 conference in Shanghai, China in 2015 and at the Frontiers in Service conference in Bergen, Norway in 2016.
4	A service user perspective (about value-in-use) on project management in public services	Quantitative research: 25 project managers in pilot test, 103 project managers in final sample	What is the role of a portfolio mind-set at the project level, in generating value-in-use for service users of complex service in the public sector?	

tension between portfolio control and integration that arises as a result of the division of labor and the need to coordinate, i.e., to align tasks, actors and activities. The article explicates how portfolio managers and other professionals at various levels of a public service organization deal in actual practice with conflicting demands (control and public accountability,

integration and interdependence). I zoom in on the interplay of coordinating practices of portfolio managers and other professionals. In doing so, I identify ways of how they deal with the tension between portfolio control and integration.

1.10.2 Study 2

In Chapter 3, I introduce Study 2, another in-depth case study – about a general hospital pursuing to create innovation – that explores the dissertation topic a step further in healthcare. The organizational challenge of ambidexterity implies the need to balance a focus on efficiency and risk reduction through exploiting existing resources, with a focus on innovating through exploration of new opportunities (March, 1991). This organizational challenge is considered a tension between exploration and exploitation. Organizations must be able to innovate, i.e., explore, while also making efficient use of, i.e., exploit, their resources (March, 1991). Yet, in hospitals it is often physicians or care providers, whose main task is patient care, who also generate ideas based on their direct interaction with patients and drive innovation. The organizational challenge of ambidexterity therefore needs to be organized differently. I disambiguate and clarify organizational issues related to accommodating innovation and bottom-up creation of ambidexterity in a healthcare environment, by identifying healthcare innovation practices and respective roles for professionals.

1.10.3 Study 3

In Chapter 4, I present Study 3 where I use a quantitative research design. Deliverables of NSD projects in the public domain are intended to result in public service. Project managers are the professionals that are able to steer closely towards the creation of value-in-use. I study the role of a portfolio mind-set (Kester, Griffin, Hultink, & Lauche, 2011) on a project management level to understand how it influences the generation of value-in-use. I study intra-, inter-project and project environment variables as antecedents of portfolio mind-set.

1.11 OVERVIEW OF THE DISSERTATION

Taken together, Figure 1.2 visualizes the organization of this dissertation. The studies in this dissertation show overlap in terms of the role of portfolio

management practices in Studies 1 and 2 (Chapters 2 and 3). We conducted two case studies in social services and healthcare. Study 3 (Chapter 4) focuses on project management practices in service innovation projects in the public sector.

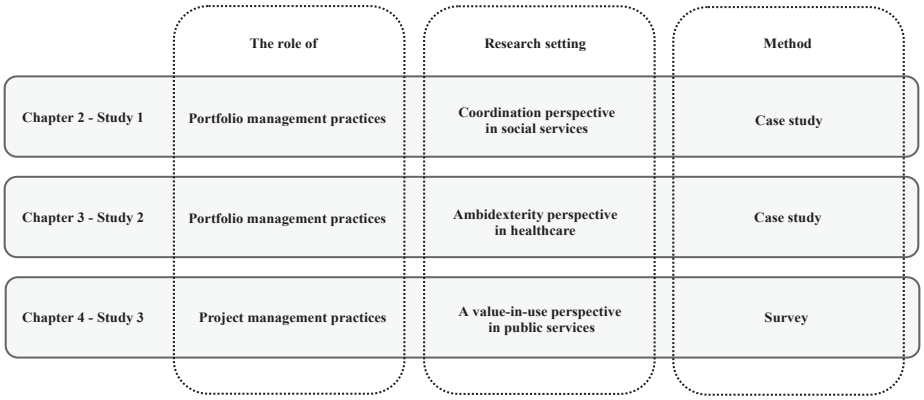


Figure 1.2. Organization of the dissertation.

Figure 1.3 provides an overview of the theoretical frameworks used in the different studies, namely coordination, ambidexterity and value-in-use. The figure contains references to which the – studies in this – dissertation provide(s) a theoretical contribution. The specific theoretical contributions per study are presented in Chapter 5 of this dissertation in section 5.3.1. Theoretical Contributions. The theoretical contribution of this dissertation is presented at the end of this section and more in-depth in Chapter 5.

Figure 1.3 shows that the theoretical perspectives of coordination (Chapter 2) and ambidexterity (Chapter 3) are complementary, because they share an organizing innovation perspective. The results of Chapters 2 and 3 provide input for Chapter 4, which takes a service end-user perspective. Therefore, (some) insights of organizing innovation from Studies 1 and 2 are included as antecedents in the theoretical framework of Study 3.

For Studies 1 and 2 I have chosen different – but complementary – theoretical perspectives, because these were exploratory studies for which the theoretical framework was developed inductively from the data. Based on the data, I searched for corresponding literature about organizing or managing innovation, which resulted in the use of coordination and ambidexterity literature respectively (for Chapters 2 and 3).

For Chapter 4, I used the insights from the in-depth case studies. To get an overview of the innovation process as a whole, I realized that the link to the service user is important in the public domain because public services are financed through public funds. Moreover, customers are changing and are ideally not in your blind spot (Wägar, Roos, Ravald, & Edvardsson, 2012). Furthermore, providing services means creation of value for the benefit of a service user in a specific context, which implies the offering of customer solutions (Sawhney, 2006; Vargo & Lusch, 2016). A service end-user perspective was prominent in the organization studied in Study 2 but less so in Study 1. However, this perspective overarches the theoretical perspectives chosen in Studies 1 and 2, because it creates the integration of the theoretical frameworks for this dissertation as a whole.

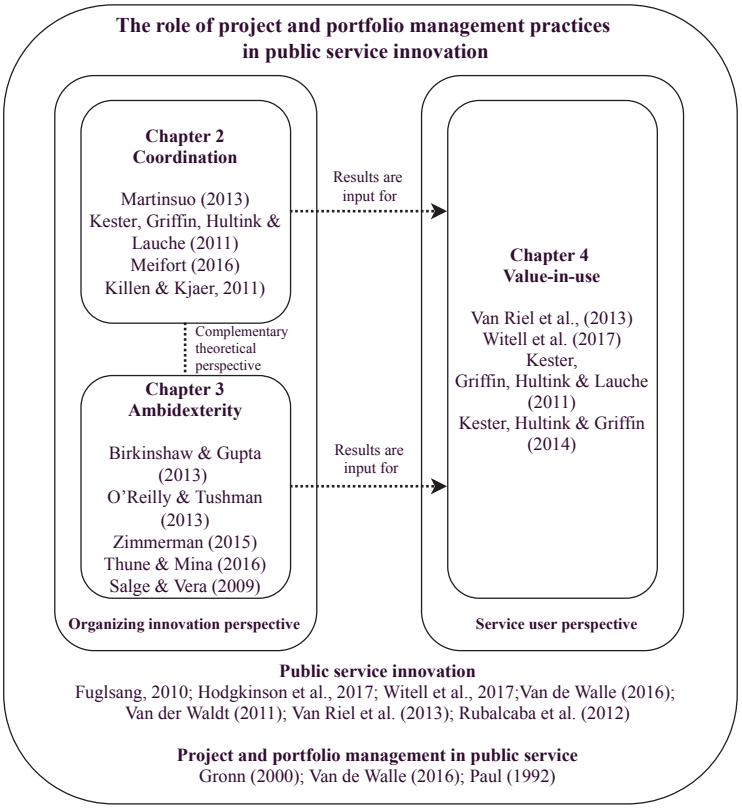


Figure 1.3. Overview of theoretical frameworks used in this dissertation.

The theoretical contribution of this dissertation is categorized in two sections, namely 'public service innovation' and 'project and portfolio management in public service'. This dissertation contributes to the public service innovation literature, because it helps to better understand the emerging service innovation field of service innovation in resource-constrained environments (Fuglsang, 2010; Hodgkinson et al., 2017; Witell et al., 2017). This dissertation explicates the 'invisible' practices and processes of how innovation in the public sector is managed (Fuglsang, 2010). It helps to understand how more coherent service innovation offerings that are more likely to do not fail to deliver the expected quality can be developed (Van de Walle, 2016; Van der Waldt, 2011; Van Riel et al., 2013). This dissertation creates industry-based insights about how public service innovation is managed (Rubalcaba et al., 2012).

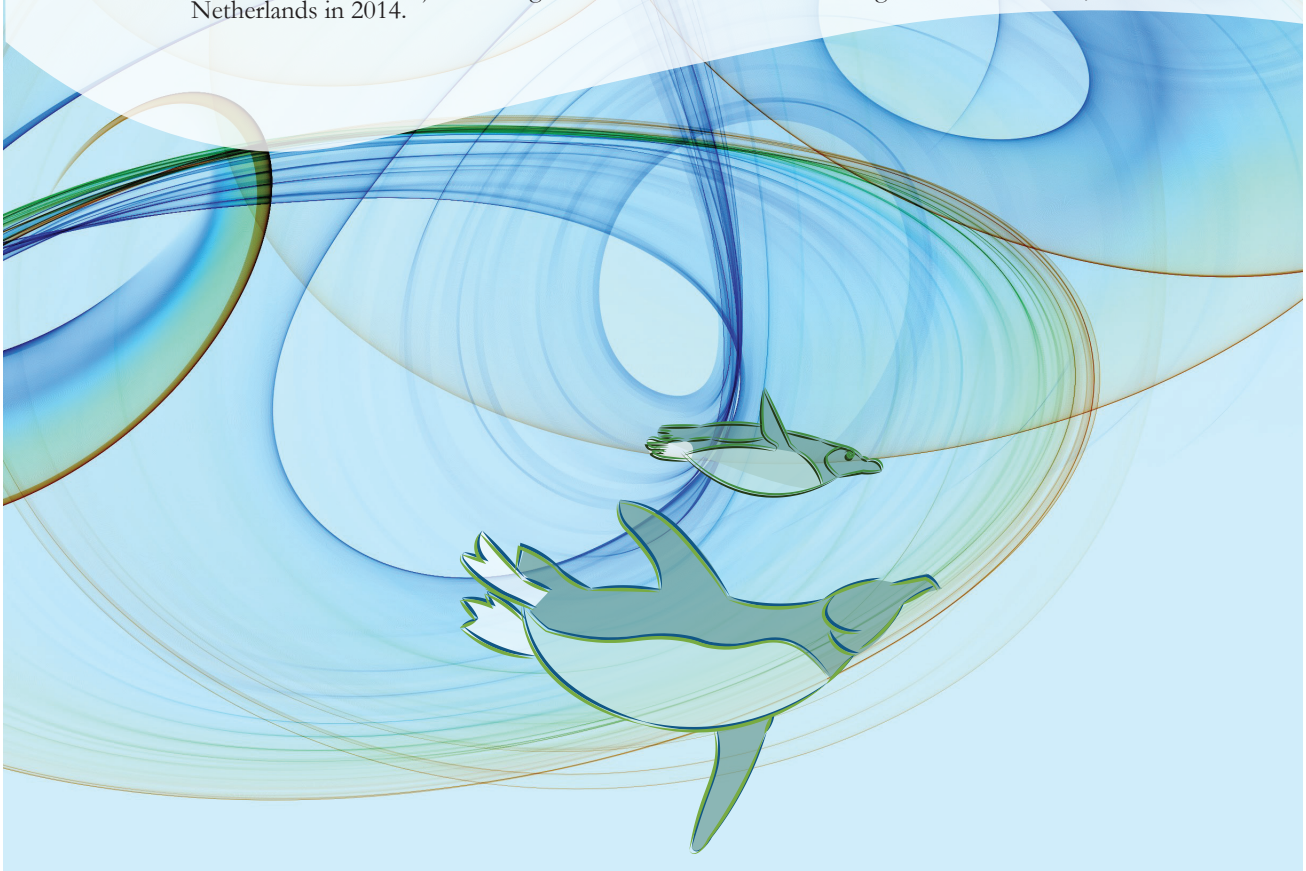
This dissertation contributes to the project and portfolio management in public service literature, because it helps understand how project and portfolio management as 'business techniques and terminology' are used in public service and what their boundaries are (Gronn, 2000). Moreover, this dissertation shows how actors' emergent project and portfolio management practices can create an integrated public service innovation offering and prevent the destruction of value for service users (Van de Walle, 2016). It furthermore illustrates how a service end-user perspective can help to make the societal impact of public service innovation, in terms of effectiveness or value-in-use, clearer to involved stakeholders and can show how public service organizations can focus on public accountability (Paul, 1992) in project and portfolio management.

Chapter 2

Tensions Between Control and Integration in Project Portfolio Management

A Case Study in Public Service Innovation

* This chapter is based on a paper, co-authored with Allard C.R. van Riel, Kristina Lauche and Wafa Hammedi. Previous versions of this chapter were presented at QUIS13 conference in Karlstad, Sweden in 2013, the European Group of Organization Studies (EGOS) in Rotterdam, the Netherlands in 2014 and published in the conference proceedings of the International Project Management Association World Congress in Rotterdam, the Netherlands in 2014.



Project portfolio management aims at assessing all the innovation projects in a portfolio simultaneously, thereby combatting the fragmentation of the portfolio that often arises from controlling projects individually. We investigate how organizational actors deal with the tensions between controlling projects individually and the integration of the portfolio as a whole. In an in-depth case study in a public service organization, we analyze the coordination practices of portfolio managers. Our findings indicate that project and portfolio managers felt the need to go beyond a focus on monitoring individual projects (with respect to accountability, control and resource use) and to also aim for the integration of interdependent projects in the portfolio. The resulting fragmentation of the portfolio is partly compensated for by developing new practices across organizational levels to re-integrate the portfolio through two informal proto-practices, namely, 'collective reflecting' and 'integrating the portfolio'. Our findings illustrate that, in the absence of a structural solution, the fundamental tension between control and integration can be resolved performatively by actors through their daily practices.

Keywords: Innovation and Change; Project Portfolio Management; Coordination; Practice Approach; Public Service Organization; Case Study

2.1 INTRODUCTION

Project portfolio management aims to help organizations coordinate and control multiple innovation and change projects across organizational functions and levels (Cooper, Edgett, & Kleinschmidt, 1997; Gupta, Tesluk, & Taylor, 2007; Meifort, 2016). Project portfolio management (hereafter portfolio management) involves decisions regarding the selection or deselection, prioritization and funding of projects in a portfolio, and it helps to systematically assess a set of projects regarding their respective and relative performances, risk profiles, and strategic relevance (Cooper, Edgett, & Kleinschmidt, 1999; Kester, Griffin, Hultink, & Lauche, 2011). While portfolio management has mainly been applied and investigated in commercial organizations, the fundamental need for coordination and control applies similarly to public organizations.

In particular, public service organizations must deal with a quest for accountability and transparency to the public and the administration (Hodgkinson, Hannibal, Keating, Chester Buxton, & Bateman, 2017;

Osborne, Radnor, & Nasi, 2013), as they are financed through public means and have the obligation to meet the needs of society at large (Van der Waldt, 2011). These organizations frequently use portfolio management in their service development efforts with a strong focus on resource use control as a coordinating mechanism to address this quest. However, portfolios consist of complex and interrelated projects (Killen & Kjaer, 2012). Having an overview of all of the projects in a portfolio and how they interrelate is crucial for making effective portfolio decisions (Kester et al., 2011) and for providing a coherent service offering to service users[1] (Patrício, Fisk, Falcão e Cunha, & Constantine, 2011; Van Riel, Calabretta, Driessen, Hillebrand, Humphreys, Krafft et al., 2013). A strong focus on controlling individual projects that fails to consider the interdependencies among projects in a portfolio can lead to fragmentation rather than to integration of the portfolio. Our research addresses the question how portfolio managers and other professionals at various levels of an organization negotiate the tension between the need for control and the need for integration.

We investigate portfolio coordination from a practice perspective, based on an in-depth case study conducted in a public service organization. In this organization, portfolio management was introduced in response to overspending and loss of control, leading to a focus on resource use optimization at the level of individual projects and to fragmentation of the portfolio. Using coordination practices as a theoretical lens, we study how professionals attempt to re-integrate the portfolio through informal and compensatory practices. Our study thus sheds light on how portfolio managers and other professionals at various levels of the organization negotiate the tension between control and integration in portfolio management in public services through emerging practices.

2.2 THEORETICAL BACKGROUND

Project portfolio management is an attempt to coordinate the innovation and change activities in an organization. Coordination problems arise as a consequence of the division of labor and the need to align tasks, actors and activities (Galbraith, 1974; Heath & Staudenmayer, 2000; Thompson, 1967). Organizations face the challenging task of dividing work into manageable chunks to capitalize on specialization and to improve control and efficiency,

1 In this paper, we refer to service users. In all cases we refer to the end-user (e.g. the customer, patient, citizen, etc.) and not to the professional who uses the service.

while also having to reconnect these chunks to achieve a coordinated outcome (Okhuysen & Bechky, 2009). The challenge is typically addressed by combining structural solutions that – using a set of formal and informal coordination practices – aim to create coherence among related tasks. Coordination aims to achieve accountability, predictability and common understanding among actors (Okhuysen & Bechky, 2009). Portfolio management is an example of a set of coordination practices.

The fundamental tension between control and integration is a recurrent theme in the coordination literature (Crowston, 1997; Gkeredakis, 2014). Coordination has been defined as "the process of managing interdependence and fitting together different activities" (Gkeredakis, 2014, p. 1473). Coordination concerns the organizational design question of how work is cut up (division of labor) and put back together (alignment) (Galbraith, 1974; Heath & Staudenmayer, 2000; Thompson, 1967). Recently, a focus on interdependencies was introduced in coordination theory, which can be defined as "a body of principles about how activities can be coordinated, that is, about how actors can work together harmoniously" (Malone & Crowston, 1990, p. 358).

Coordination theory helps to capture the complexity of coordination in disciplines such as computer science, management and psychology (Crowston, 1997; Malone & Crowston, 1990, 1994). It addresses four components: goals (or objectives), activities, actors, and interdependencies (Malone & Crowston, 1990). These four components are also present in portfolio management. The objectives in portfolio management include, for example, striking a balance between risk and profitability, strategic fit, and (financial) value (Cooper et al., 1999; Cooper, Edgett, & Kleinschmidt, 2000, 2001, 2004). Related coordination objectives include, for example, to increase accountability, predictability and common understanding (Okhuysen & Bechky, 2009). Portfolio activities comprise different practices and tasks that help to achieve these objectives, e.g., meetings, diffusion of information across organizational levels, and portfolio composition. Portfolio management actors are the professionals actively involved in the portfolio management process, such as project and portfolio managers. Interdependencies between projects in a portfolio are, for example, resource interdependencies based on time or budget or dependencies among project outcomes, such as the products or services provided. We argue that portfolio management can be

considered one of the coordinating mechanisms. Studying it can help us to understand how portfolio managers align tasks, actors and activities, address complexity and achieve coordination in a portfolio.

2.2.1 Portfolio Management as an Organizational Coordinating Mechanism

Coordination mechanisms are "the organizational arrangements that allow individuals to realize a collective performance" (Okhuysen & Bechky, 2009, p. 472). These mechanisms are not stable entities (Galbraith, 1974; March & Simon, 1958; Thompson, 1967), but rather they change as they dynamically adapt over time to uncertainty, novelty and change (Adler, 1995; Crowston, 1997). Due to the dynamic nature of coordination mechanisms, they are also described as coordinating mechanisms that are "dynamic social practices that are under constant construction" (Jarzabkowski, Lê, & Feldman, 2012, p. 907). Portfolio management is an organizational coordinating mechanism, consisting of several dynamic practices of coordinating a portfolio that develop continuously to negotiate the tension between control and integration.

Coordinating practices enhance accountability, predictability and common understanding among actors, which are the conditions for coordinated action (Okhuysen & Bechky, 2009), in this case portfolio management. The following definitions are rendered specific to portfolio management by adding the information between the brackets. For portfolio managers, accountability refers to the question "Who is responsible for specific elements of the [portfolio] task?" (Okhuysen & Bechky, 2009, p. 483). Predictability of project and/or portfolio outcomes "enables interdependent parties [like (a) project team(s) and (a) portfolio team(s)] to anticipate subsequent [project and or portfolio] task related activity by knowing what the elements of the [project and or portfolio] tasks are and when they happen" (Okhuysen & Bechky, 2009, p. 486). Common understanding "helps to coordinate by providing a shared perspective on the whole [portfolio] task and how individuals' [project] work fits within the [portfolio as a] whole" (Okhuysen & Bechky, 2009, p. 488).

2.2.2 Portfolio Management in the Context of Public Services

Portfolio management began with a focus on risk management and the optimal allocation and distribution of resources (Englund & Graham, 1999; Killen &

Kjaer, 2012). Gradually, it has evolved into questions of strategic alignment: to turn strategic plans into action through projects and to eliminate projects that stray too far from the strategy (Hauser, Tellis, & Griffin, 2006; Kester et al., 2011). Portfolio management has been studied as a dynamic decision process (Cooper et al., 1999; Kester, Hultink, & Griffin, 2014).

However, none of these approaches to portfolio management has paid explicit attention to the interdependencies among projects and strategic needs (Baker & Pound, 1964) or to portfolio management being enacted at multiple organizational levels by many different actors (Meifort, 2016). For example, Kester et al. (2014) identified various antecedents and outcomes of portfolio decision-making. However, these authors did not consider the different organizational levels at which portfolio decision-making occurs and how they affect the portfolio. Addressing previous shortcomings of portfolio management approaches, Meifort (2016) introduced an 'organizational perspective' to capture the activities of various organizational actors related to the portfolio management process, such as project and portfolio managers, as well as corporate level decision-makers who might have diverging strategic needs and considerations (Cooper et al., 1999). Explicit attention from an organizational perspective is necessary to understand the interdependencies among projects in the portfolio, both from the bottom up and from the top down.

In project management, the focus is on optimizing an individual project. Portfolio management, in contrast, provides an opportunity to consider how individual projects are interrelated, e.g., how "a project depends on other project(s) [in the portfolio]" (Killen & Kjaer, 2012, p. 556). Evaluating and managing projects in isolation create fragmentation of the portfolio and, indirectly, a lack of coherence among the outcomes of related projects, resulting in insufficiently integrated or incoherent services for service users (Jüttner & Wehrli, 1994; Van Riel et al., 2013). Fragmentation of the portfolio creates a need for reintegration. We use a perspective similar to that proposed by Meifort (2016) to study portfolio management processes across different organizational levels. Our goal is to understand how portfolio actors address the need to focus on project interdependencies (Killen & Kjaer, 2012) as a condition for reintegrating the portfolio.

Furthermore, recent research has called for a better understanding of the interplay between portfolio management practices and the context

in which the portfolio is managed: "*implications of the context dependencies and micro-level dynamics of portfolio levels have not been sufficiently understood and explained at the portfolio level*" (Martinsuo, 2013, p. 795). We contribute by developing Martinsuo's (2013) conceptual work further by empirically investigating how a portfolio is managed in practice. There has also been a call for more research into portfolio management in services (Killen, Hunt, & Kleinschmidt, 2008). We respond to this call by studying the practices and tensions related to portfolio management in a public service organization that operates in a highly politicized context. Our aim is to investigate the impact of these contextual factors on how actors in a public service organization negotiate the tension between control and integration of a project portfolio.

2.3 METHODS AND RESEARCH DESIGN

The use of portfolio management techniques in public service innovation represents an excellent opportunity to study how organizational actors negotiate the tension between the conflicting demands of control and integration. Due to the influence of the administration, portfolio managers have relatively little autonomy in decision-making. There is a greater need for control, more complexity and less market orientation (Kohli & Jaworski, 1990) in public service organizations than in commercial organizations (Hodgkinson et al., 2017). Moreover, public service organizations face limited competition and tend to survive, even in the event of major service failures (Kaufman, 1976; Van de Walle, 2016). Trends such as technology infusion, as well as legal, political and societal changes, render the context dynamic (cf. Petit, 2012). Governmental policy thus often directs and/or constrains portfolio management.

The selected public service organization represents a common case (Yin, 2014) that allows us to capture how actors deal with public sector pressures in their everyday situations through creating control over projects in a portfolio. The investigated organization had implemented portfolio management almost ten years prior to our study to address a situation of overspending during which the organization suffered a loss of control over project costs. Therefore their portfolio management practices were geared towards control rather than integration. Our focus on everyday situations makes a single case study (Yin, 2014) suitable, and seamlessly fits the choice for a practice approach that zooms in on micro-processes on a day-to-day level (Nicolini, 2012).

2.3.1 Description of the Case Organization: ServPublic

Portfolio management practices were studied at ServPublic[2], an autonomous administrative agency established in the early 2000s and characterized by functional decentralization and strict accountability to a ministry (cf. Greve, Flinders, & Van Thiel, 1999). ServPublic is an example of a hierarchical public organization with multiple decision-making levels that complicate portfolio management and coordination. Prior to ServPublic's creation, highly specialized tasks were executed by separate organizations. These tasks and the organizations performing them were then integrated to better serve various stakeholders: the government, parliament, and employers and their associations (Van Gestel & Hillebrand, 2011). ServPublic was established with the aim of establishing clear accountability, based on the rhetoric of New Public Management (NPM). NPM is "a way of reorganizing public sector bodies to bring their management, reporting, and accounting approaches closer to (a particular perception of) business methods" (Dunleavy & Hood, 1994, p. 9). NPM themes, such as budget cuts, accountability for performance, and increased regulation, emphasize NPM's logic and emphasize the need for transparency and control of public spending in the Dutch social services sector (cf. Rekenkamer, 1995). These NPM themes act as external pressures (e.g., budget cuts, regulation, pressure for accountability) and requirements (e.g., of transparency and control) that public service organizations must address.

ServPublic provides social services to approximately 1.4 million citizens. At the time of this study, several major drivers of change were affecting the agency. The ministry had imposed substantial changes in organizational structure and further professionalization through cost-cutting exercises. These organizational changes strongly affected the composition of the portfolio. These cost-cutting exercises forced ServPublic to prioritize mandatory ministerial and legal projects above freer forms of innovation. The transition had substantial implications for users of the services because the number of face-to-face encounters was reduced.

Figure 2.1 shows the organization structure of ServPublic in a simplified way (ServPublic has more business units than illustrated in the figure). The management of service development projects at ServPublic was (top down) structured on corporate, portfolio and project/program level. A board of

2 All (organizational) names are anonymized.

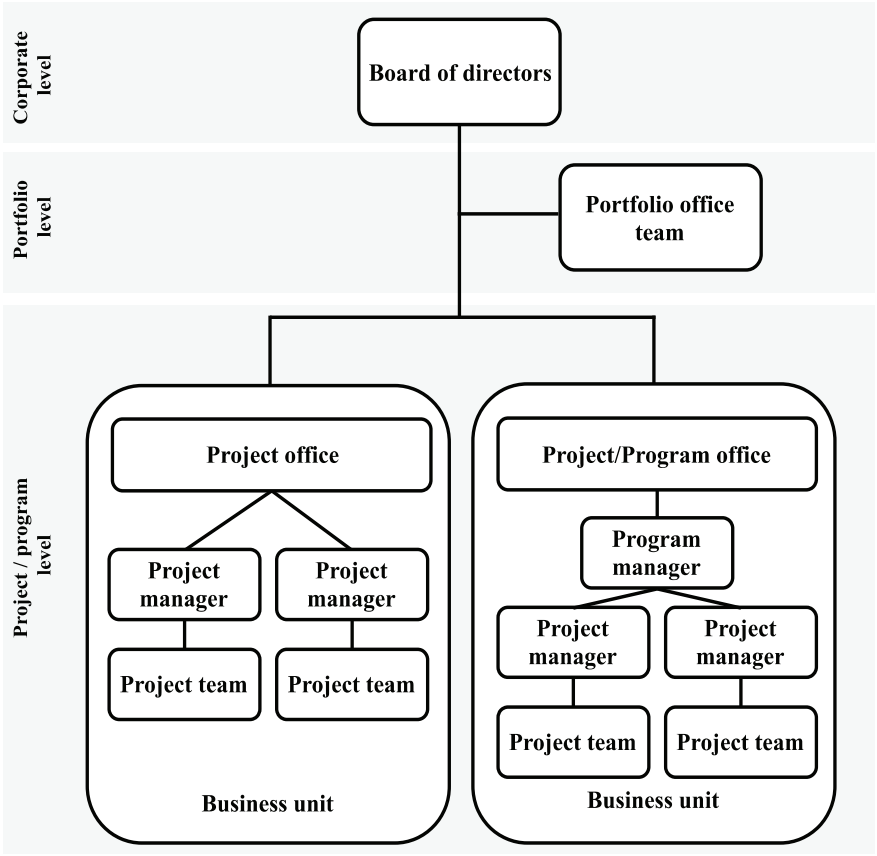


Figure 2.1. Organization structure of ServPublic.

corporate decision-makers led ServPublic and formally controlled the portfolio at corporate level. The portfolio office team consisted of seven portfolio managers who informally controlled the portfolio at the portfolio level. The portfolio office supported – as a staff function of the board – the board in its formal decision-making about projects in the portfolio through gathering information from the project level. Project or project/program offices – on project/program level – were present in each business unit, and they reported to the portfolio office team about the progress of projects within their business unit. Within some business units, a project manager who reported to the project office led a project team. In other business units programs were present. A program consisted of several thematically linked projects that had the same scope. A program manager who reported to the

project/program office led several project managers, who each led their own project team.

2.3.2 Practice Perspective

Adopting a practice perspective enabled us to investigate how the dynamic interactions of interdependent portfolio actors and portfolio management activities bring mechanisms – coordinating practices – into being in a specific context (Jarzabkowski et al., 2012; Zbaracki, 1998). We adopted a practice perspective to understand the micro-processes that occur within portfolio management as a coordinating mechanism in the public services context (Feldman & Orlikowski, 2011). A practice-based perspective grounds practices in the context in which they are performed (Corradi, Gherardi, & Verzelloni, 2010; Sole & Edmondson, 2002). In a practice-based perspective, very detailed units of analysis are used, representing a unique manner of examining social interactions, sayings and doings (Nicolini, 2009a, 2012). A 'practice' is defined as "the routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood" (Reckwitz, 2002, p. 250). Practices occur and are reproduced through professionals' recurrent actions (Adams, Bessant, & Phelps, 2006; Feldman & Orlikowski, 2011). We studied everyday activities aimed at coordinating a portfolio to understand the relationships among these actions and how they helped to negotiate the tension between control and integration (Feldman & Orlikowski, 2011).

2.3.3 Data Collection

Observations constituted our primary data source and were used to uncover often 'hidden', informal practices (Nicolini, 2009a, 2012). Interviews and documents served as contextual framing for the observations. We combined several data sources (Yin, 2014) with the purpose of increasing external validity (Yin, 2014).

We first consulted several organizational documents, such as the agency's corporate Web site, organograms and intranet information, to develop an understanding of ServPublic's service offerings. Then, we began our field research. Over the course of a year, the first author regularly visited the organization for one to two days per week to attend and observe formal meetings, as well as informal interactions, as a non-participant observer at the

project, program, portfolio and board levels. The program level is situated between the project and portfolio levels. A program consists of a bundle of thematically related projects. During this period, we gathered documents relevant to the observed meetings, such as minutes and meeting documents. During the observations, extensive field notes were made. After the observations, these notes were checked and complemented. Moreover, field memos were written to document informal conversations. We conducted 18 in-depth semi-structured interviews lasting between 30 and 90 minutes (average of 60 minutes) with respondents at the project, program, portfolio and corporate levels. The interviews were transcribed in their entirety. The topics of our interview guide corresponded to our research questions: i.e., the organization; project coherence and interdependencies; and the coordination of projects, the portfolio and the portfolio management process. We used the interview-to-the-double technique to elicit actors' implicit practices (Nicolini, 2009b). This method contributes to the quality of the obtained data, because it is a method to articulate and represent practice in the nature of the encounter, producing "narratives that are often morally connoted and idealized in character" (Nicolini, 2009b, p. 195). We entered the organization with the support of a director and a dedicated Project Manager. We selected meetings and suitable respondents with the help of four experienced managers at the project, program, portfolio and corporate levels (see Table 2.1). We first shadowed a project team to understand the specific roles of project team members, their tasks and the decision-making processes at this level. Via referral sampling (Biernacki & Waldorf, 1981), we contacted the Portfolio Director, who allowed the first author to shadow the portfolio office team during their formal and informal meetings for the purpose of developing an understanding of the 'weekly' portfolio routine and its complexity. Furthermore, we shadowed a Program Manager (whom we contacted via referral sampling) of one of the largest programs at ServPublic at the time of our study. Moreover, we interviewed actors to whom we were referred by other interviewees. We collected data until we believed that saturation was achieved, determined by when we heard redundant information (Morse, 1995; O'Reilly & Parker, 2012).

As a form of communicative validation (Kvale, 1995), we organized a feedback meeting with respondents to discuss our initial results, thus confirming internal validity of our results (Yin, 2014). The meeting confirmed

that our interpretations rang true with the experience of other participants, and their reflections and comments also helped to further conceptualize the coordinating practices (Bonoma, 1985).

Table 2.1. Data collected at ServPublic.

Level of analysis	# meetings	# interviews	Types of informants
Project	16	6	Project Manager, Project Team Members
Program	12	7	Program Director, Program Manager
Project portfolio	21	4	Portfolio Director, Portfolio Managers
Corporate management	1	1	Managing Director
Total	50	18	

2.3.4 Data Analysis

We analyzed the data in several steps. As a start, we conducted an inductive analysis (Braun & Clarke, 2006) by means of context mapping (Sleeswijk Visser, Stappers, Van der Lugt, & Sanders, 2005). We created statement cards based on quotes from the interview transcripts and observation notes and created a visual representation (poster) of recurrent patterns and themes in the data to create a better overview of the steps in the portfolio management process and to create a basis for Figure 2.2.

Next to that, we employed a two-step procedure of 'zooming in' and 'zooming out' to analyze our data and identify relevant practices, as suggested by Nicolini (2009a). In the first step, we 'zoomed in' to bring the practical day-to-day concerns that govern and affect the portfolio office team to the surface. We analyzed the data by coding it in MaxQDA for themes, such as the type of interaction, activities and actors involved (MAXQDA). We inductively coded the data and identified first- and second-order constructs, empirical examples and links to the coordination literature and tension between control and integration, which are presented in the code book in Table 2.2 (Gioia, Corley, & Hamilton, 2012). The codes were improved and merged iteratively, based on the authors' discussions and literature checks (cf. McColl-Kennedy, Cheung, & Ferrier, 2015; Okhuysen & Bechky, 2009), to increase the validity of the findings (Denzin & Lincoln, 2011). In the second step, we 'zoomed out' to take a more abstract view on how the practices

were related and embedded in their organizational contexts and how they contributed to dealing with the tension between control and integration.

Table 2.2. Codebook.

1st order constructs Portfolio coordinating practices	Explanations of 1st order constructs	Empirical example(s)	2nd order constructs Portfolio coordinating practice categories	Explanations of 2nd order constructs	Link to coordination literature and tension
Prioritizing and planning projects	Strictly regulated and justified efficient use of scarce financial (and human) capital to prioritize and categorize projects and to subsequently compose the portfolio.	Prioritization framework, project quality control (Prince2-based), extensive business cases and the release planning.	Monitoring projects	Practices that focus on monitoring individual projects to wield control, but can cause fragmentation of the portfolio because no explicit focus exist on project coherence and interdependencies.	Actors used well-developed, highly structured and formalized monitoring practices to increase control and transparency of the portfolio management process and its related tasks, which created accountability and predictability (Okhuysen & Bechky, 2009)
Pre-structuring of higher-level decisions	Integrate and summarize project progress information for corporate board portfolio decisions by assessing, aligning and reporting.	Traffic light metaphor and Progress Review			
Meeting to share information and experience	Openly exchange information and experience to learn from others in confidential settings or (in) formal (steering committee) meetings on project, portfolio and board level.	Morning Prayer and peer review meetings			

1st order constructs Portfolio coordinating practices	Explanations of 1st order constructs	Empirical example(s)	2nd order constructs Portfolio coordinating practice categories	Explanations of 2nd order constructs	Link to coordination literature and tension
Attempts at reflection (on the portfolio process and the portfolio office team)	Attempts to develop, adapt and change portfolio work and processes.	Annual evaluation and bucket list	Collective reflecting	Practice with attempts for structured reflection on PPM process and portfolio office team dynamics (which makes this practice a proto-practice) that creates room for learning on portfolio level in order to professionalize processes and seek for new opportunities to change, for example more focus on integration between projects based on their interdependence and coherence.	Actors used collective reflecting and integrating the portfolio practices to coordinate towards a common understanding among or across projects and organizational levels. (Okhuysen & Bechky, 2009). A shared understanding of coherence and interdependencies among projects in the portfolio across organizational levels provides a basis to integrate the portfolio.
Attempts to create an overview of the portfolio as a whole (based on coherence and interdependencies among projects)	Overviewing the portfolio as a whole and understanding projects' and programs' alignments with organization's strategy and coherence and interdependencies among projects in portfolio.	Coherence and interdependency meetings, business model canvas	Integrating the portfolio	Practice with attempts for integrating portfolio through overviewing the portfolio as a whole (which makes this practice a proto-practice) based on projects' coherence and interdependencies and create connection across organizational levels, which can be considered a form of integration.	

Figure 2.2 shows five empirical examples related to the five practices of coordinating, divided into three practice categories. The first set of practices is related to the need for control and the second set of practices to the need for integration. The practices related to control were well-developed and well-established at ServPublic. Therefore, we refer to them simply as 'practices'. The practices related to integration were proto-practices, i.e. practices in an early stage of development that were only enacted by members of the portfolio office team.

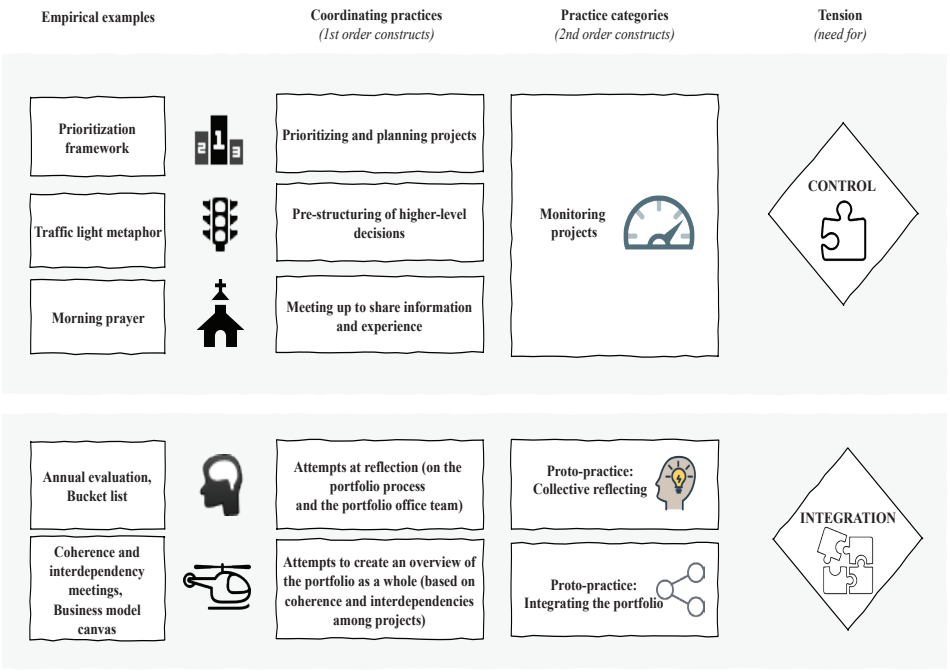


Figure 2.2. Code structure of coordinating practices (related to the tension between control and integration).

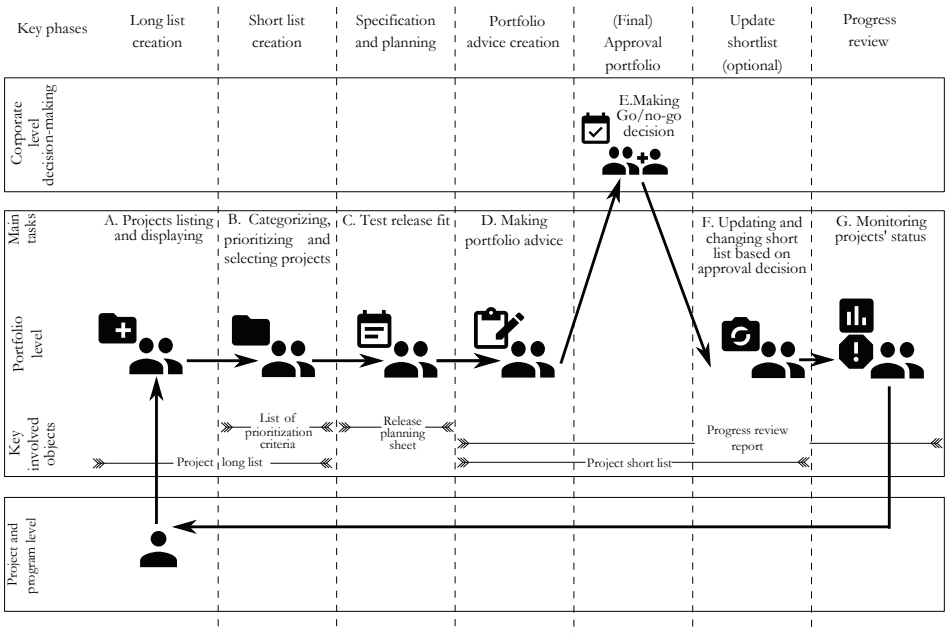
2.4 RESULTS

In this section, we report how portfolio managers and professionals at various organizational levels enacted coordinating practices. First, we explain how the portfolio management process was enacted at ServPublic, and then we present the three overarching practice categories.

2.4.1 The Portfolio Management Process

> *"We had a mega-project in which we really lost control of the costs. In the end, we had a large [legal] inquiry about the question: What did it actually cost? This was a considerable amount. Then, we stopped and turned everything upside-down, and we had to explain a lot as an organization. Then, we asked, as an organization, do we have an accurate overview of our project costs? We know who is working on projects, but what are the costs, can we track these costs, and are they in proportion to the benefits realized? This was very difficult to determine" (Portfolio Director).*

This quote explains why ServPublic introduced portfolio management to achieve stricter control. The portfolio office team members emphasized that they understood managing the portfolio as an optimization process, primarily aiming at the efficient use of resources and at gaining control.



The portfolio team (marked with) coordinated and facilitated the portfolio management process. The team conveyed interactions between project and program level managers (marked with) and corporate level decision-makers (marked with).

Figure 2.3. The portfolio management process at ServPublic.

Figure 2.3 depicts the portfolio management process at ServPublic. Key phases, tasks, groups, and objects are illustrated. We focus on the portfolio level to illustrate how portfolio information (bold black arrows) flowed between the different organizational levels and key phases: from a long list of projects via several phases with associated tasks toward a 'progress review report', in which the projects in the portfolio were monitored. We focus on three organizational levels among which the portfolio management process occured, starting from project and program to the portfolio and ultimately to the corporate level. The objects used in this process were, for example, the 'project long list' and the 'progress review report'.

Figure 2.4 visualizes the emergence of the tension between control and integration and shows how actors mitigated this tension using three

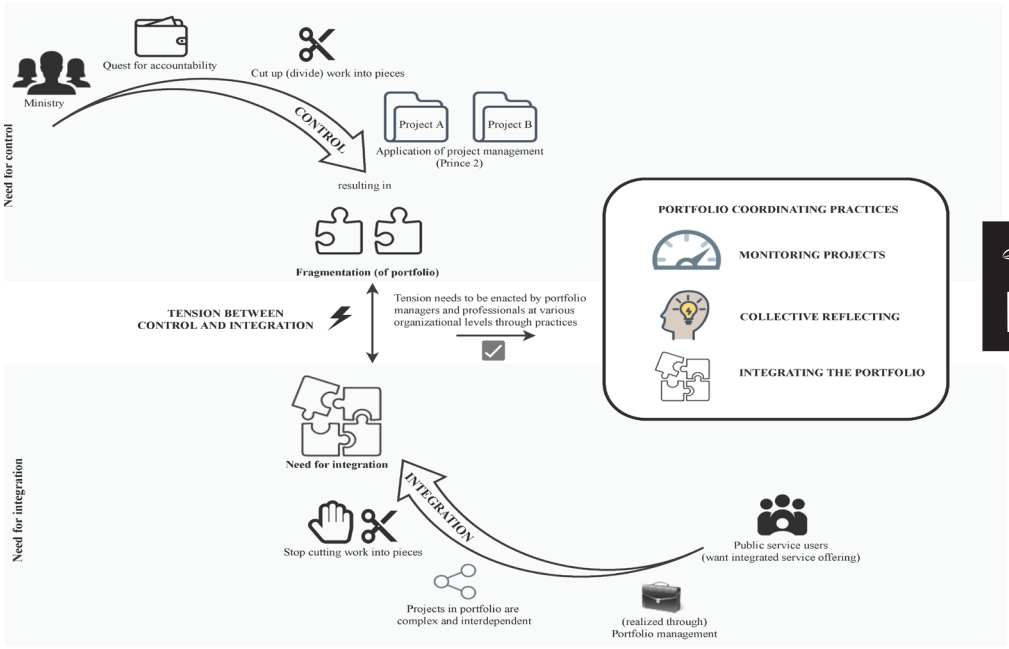


Figure 2.4. Tension between control and integration related to coordinating practices.

coordinating practices – 'monitoring projects', 'collective reflecting' and 'integrating the portfolio' – which we next explain in detail.

2.4.2 Monitoring Projects

We identified several coordinating practices that aim at monitoring projects: 'prioritizing and planning projects', 'pre-structuring of higher-level decisions' and 'meeting to share information and experience'. These practices were interrelated because they were directed at monitoring individual projects to wield control. These practices helped organizational actors increase control over individual projects, which enabled ServPublic to justify their spending towards the ministry. These three practices together helped organizational actors to form a traditional approach to portfolio management, which contributed to fragmentation of the portfolio at ServPublic. Therefore, these practices helped to increase control at the expense of integration. Next, we describe these practices in some detail.

2.4.2.1 Prioritizing and planning projects provided the portfolio office team with a formalized and structured means to control the portfolio,

mainly based on the project management software Prince2 (Projects in Controlled Environments). Prince2 involves explicit rules for project prioritization and procedures regarding project documents and extensive business cases, which are used to justify the use of financial resources. At ServPublic, the portfolio office team was a staff department that acted as a liaison across the board, program and project levels. The portfolio office team was responsible for financial control of the portfolio, while the human resources department arranged staffing.

'Prioritizing and planning projects' helped the portfolio office team to focus on and control resource use efficiency in the portfolio by categorizing projects based on a prioritization framework. The portfolio office team used this prioritization framework to justify spending and to help efficiently allocate scarce resources. It applied selection criteria to categorize projects and compose the portfolio. The justification for spending was extremely important for the ministry as a provider of financial resources, and it is an example of how ServPublic responded to the ministry's demands for accountability and control. The portfolio office team appeared to categorize projects mainly based on the degree of importance to the ministry:

> *"We have a portfolio, but which projects do we include? For 'ServPublic', changing legislation is a key driver, so it is extremely externally driven. If you read about portfolio theory, this is sometimes seen as an obstacle. We have divided the portfolio into categories. The first category is [projects that help to meet new] regulations" (Portfolio Manager).*

The substantial influence from the ministry was reflected in the prioritization of the categories: 'must-do' projects as a consequence of legal changes, with earmarked budgets from the ministry; projects covering external arrangements (e.g., with tax authorities and local governments); and 'must-do' projects with financial benefits for ServPublic (e.g., legal changes with small benefits).

Furthermore, release planning – planning based on the limited capacity of the IT department – was used at the portfolio level to determine whether IT-related projects could be installed in time, due to their dependency on system capacity:

> *"The release planning describes what we would like to change in the [IT] systems based on*

> *the projects? Does it fit? Is it suitable? Do we have capacity? […] We must prioritize!" (Portfolio Director).*

The release planning focused particularly on resource use efficiency with respect to individual projects; it was also used to identify and manage interdependencies between projects. Our respondents perceived the congested release planning and the interdependency of decisions as obstacles to managing the portfolio as an integrated whole, although their practices helped to increase control over individual projects.

2.4.2.2 Pre-structuring of higher-level decisions was identified as a major task of ServPublic's portfolio office team: a routinized method to integrate information about project progress into the agency's reports to corporate-level decision-makers who had formal decision-making authority, while the portfolio office team did not have such authority. The portfolio office team collected and summarized project progress information (from the project offices) and wrote recommendations for corporate-level decision-makers by means of reporting, assessing and aligning all available project information. This practice helped the portfolio office team to translate projects' progress information from the bottom up into a portfolio advisory. This advisory role gave the portfolio office team a fair amount of influence, as a Program Director stated, "*In 90 to 95 percent of the cases, the advice of the portfolio office team is directly [respected and] followed by corporate-level decision-makers*". A Program Manager stated, "*The corporate level decision-makers do not consider requests without advice from the portfolio office team. […] It is a real power factor*". These quotes illustrate the power of the portfolio office team and explain why the board often immediately followed their advice.

A traffic light metaphor (i.e., red, yellow and green) functioned as a signaling routine, indicating where action would be needed and providing a powerful tool for the portfolio office team to get things done at the project level:

> *"What often helps is to give projects a 'red' mark in an early stage so that business units feel the urgency to respond. Business units do not want to get a 'red' status in the Progress Review because then the board will intervene. Therefore, we often assign a 'red' status [if there is any indication of problems]. Then, quick actions are taken, and in a second or third version of our report, we can turn the status back to orange because it will be presented to the board as 'orange'. Then, we have accomplished our goal" (Portfolio Manager).*

The signaling routine helped organizational members to generate unanimity about tasks related to projects' progress and to easily share information across organizational levels.

The 'Progress Review' exemplifies the 'pre-structuring of higher-level decisions' practice of the portfolio office team. The portfolio office team created this monthly management summary to support the portfolio decisions of corporate-level decision-makers. The 'Progress Review' consolidated the reviews of all the projects in the portfolio and indicated red- and yellow-labeled projects. The 'Progress Review' outcomes served as a representation to facilitate the portfolio office team in directly sharing information across organizational levels, such as bottlenecks in the portfolio as a whole, i.e., delayed and interrupted projects. This review considers the status of projects individually. The project interdependencies within the portfolio are not mentioned in the 'Progress Review'.

We observed that 'pre-structuring of higher-level decisions' helped to control information about the projects in the portfolio since the portfolio office team played a strong monitoring role. The portfolio office team used the traffic light metaphor to signal problems in project progress to the board and to exert pressure on individual projects to take action. Assessing individual projects with the traffic light metaphor also helped the board to control resource use efficiency. The board was informed via the 'Progress Review' regarding projects that lagged behind the forecast. Because the board had formal decision-making authority, it could approve or disapprove budget releases. Thus, indirectly the practice of 'pre-structuring of higher-level decisions' prepared corporate-level decision-makers for making for informed decisions about individual projects – and thus to control them – but not necessarily about the portfolio as a whole, and thus not for integration.

2.4.2.3 Meeting to share information and experience was identified as a third coordinating practice. Several actors referred to meetings as "the daily grind", indicating their routinized character. Meetings at ServPublic represented means to increase control. Particularly the formal encounters between actors from different organizational levels were used to increase control and accountability and decide upon future predictable actions, in a dialogue. Many formal steering committees (at project and portfolio level) indicated the rather hierarchical way of controlling the way in which projects – as isolated entities – were managed. In this hierarchy, the portfolio office

team served as an information hub within the organization. Besides increasing control, meetings also represented opportunities for informal interactions among organizational actors related to the project portfolio. For example, the Morning Prayer illustrates a daily, institutionalized phenomenon in the portfolio management process, used to informally share urgent matters within the portfolio office team:

> *"Many things happen; often it is very hectic. Therefore, we have a daily team meeting of half an hour (except on Wednesdays and Fridays). Then, we discuss things that have popped up the day before and are urgent. For example, there is a big program that needs advice and that needs to be finished by tomorrow. That is very urgent. Therefore, we clear our diaries to make room for it. You cannot let things wait for a week" (Portfolio Director).*

Peer review meetings at the project level were another example of a means of sharing information and experience:

> *"Peer review meetings were an initiative at the project level, in which six Project Managers met in an informal setting for two hours on Friday afternoon every six weeks [...] These meetings were used to discuss a problem and share experiences with other managers who might have had the same situation before or who could have ideas about how to address this" (Observation Note).*

The meetings were a means of supporting the portfolio office team in coordinating, controlling and aligning the projects in the portfolio, but not necessarily integrating them. 'Meeting to share information and experience' at the portfolio level was specifically related to going beyond ticking things off and aimed at creating a 'feeling of shared understanding':

> *"The power of the project office is their knowledge … They see many connections. I think the challenge is to provide background information to where they simply put a tick box […] As [portfolio management] becomes more complex, it is difficult to not only put a tick box but to 'feel' what is behind [the tick box]. That is what I think" (Managing Director).*

The portfolio office team observed this 'feeling of shared understanding' during meetings:

> *"We have many formalized processes with many procedures and description criteria, but it is the feeling of whether something is alright or not with a project that is often really important. This is something you notice during meetings; you will not find this on paper" (Portfolio Director).*

We observed that more than just monitoring and controlling occurred through meetings and focusing on prioritizing and planning projects. 'Meeting up to share information and experience' to create a 'feeling of shared understanding' behind project documents helped the portfolio office team to better interpret project documents and to pre-structure higher-level decisions. Consequently, the portfolio office team was better able to write 'Progress Reviews' for the board, to discuss accountability in dialogue with project managers of project offices and consequently to maintain its powerful control role.

2.4.3 Collective Reflecting

We identified 'attempts at reflection (on the portfolio process and portfolio office team)' and determined it to be a proto-practice, because this practice was in an early stage of development. By cultivating a 'stop-and-think attitude', this practice enables the portfolio office team to improve coordination at the portfolio level in a routinized fashion, helping the team members to reflect collectively. This attitude initiated room for learning that could transcend the portfolio level.

2.4.3.1. Attempts at reflection (on the portfolio process and the portfolio office team) was identified as a practice that represented a focus on collective reflection, as well as a willingness to learn from past challenges and to develop in the future to negotiate the tension between control and integration. 'Attempts at reflection (on the portfolio process and the portfolio office team)' was a collective reflecting practice directed at professionalizing processes and learning within the portfolio office team.

Two objects reflected the attempts to improve the portfolio management process and portfolio office team dynamics: the portfolio office team's annual evaluation meeting and the 'bucket list' (a document). The portfolio office team organized an evaluation meeting annually. During this meeting, every team member provided input on the portfolio management

process and internal group dynamics. Team members paid attention to introducing new colleagues to the portfolio task and portfolio office team. They focused on the coherence and interdependencies among projects and on the willingness to strategically align projects as a basis for prioritization. The 'bucket list' illustrated the formal ambitions of the portfolio office team related to processes such as integrating the portfolio process and financial control cycle and developing a multi-annual portfolio. Both objects helped the portfolio office team to translate different understandings of tasks into a shared team understanding, e.g., between new and experienced portfolio office team members. These reflection objects helped to 'stop-and-think', facilitate learning and/or to professionalize portfolio management within the portfolio office team, which is illustrated in the following quote:

> *"The problem is that the portfolio office team actually does insufficient real portfolio management but instead focuses heavily on controlling the quality of project documents, where particularly business units could do this better" (Portfolio Director).*

This quote shows that the portfolio office team was aware of aspects that could be further improved. Related to the locus of quality control in the quote above, a Portfolio Manager explained that:

> *"It [professionalization] is a matter of responsibilities. When we are testing the quality [of project documents] right now, we want to allocate these responsibilities within the business units. That is actually the most important!" (Portfolio Manager).*

Both quotes illustrate that 'Attempts at reflection (on the portfolio process and the portfolio office team)' were focused on past experiences and on potential changes in the future. The portfolio office team reflected together on the portfolio process and team dynamics, whereas the Portfolio Director mainly initiated goals and moves.

On the one hand, 'attempts at reflection (on the portfolio process and the portfolio office team)' was identified as a proto-practice helping the portfolio office team to professionalize portfolio management processes and increase control. On the other hand, this practice implied that actors cultivated a 'stop-and-think-attitude'. This attitude created room for a learning context at the portfolio level (and having the possibility to transcend this

level) in which to share knowledge and create a shared understanding within the portfolio office team. Collective reflecting refers to attempts to signal the need for and to discuss integration of the portfolio. As it was still in its infancy, we considered it to be a proto-practice. Through this practice, actors paid attention to increasing control and signaling the need for integration of the portfolio as a whole. Therefore, this practice offered a way for organizational actors to negotiate the tension between control and integration.

2.4.4 Integrating the Portfolio

We identified 'attempts to create an overview of the portfolio as a whole, based on coherence and interdependencies among projects' as an integrating practice. This practice enabled actors to integrate projects in the portfolio and portfolio management across organizational levels. This practice enabled organizational actors to deal with the integration aspect of the tension between control and integration.

2.4.4.1 Attempts to create an overview of the portfolio as a whole was identified as an integrating practice. This practice reflects an attempt to create an inventory of interdependencies among projects and provides a way to focus on the portfolio as a whole, without losing knowledge about projects within the portfolio. The portfolio office team used two leading questions – "Are we doing the right projects and in the right way?" (Program Manager) – that mirrored the idea of creating a portfolio overview. However, we speak of 'attempts' to create an overview of the portfolio as a whole – and thus of a proto-practice – because the portfolio office team still had to address challenges in creating a shared understanding of portfolio management tasks across organizational levels. The portfolio office team attempted to oversee the portfolio as a whole, while this task was sometimes difficult to understand for individual business units. The following quote illustrates the need for creating a common understanding of the portfolio management task across the organization:

> *"We are looking for what is most important for the organization. What projects do we have to do on corporate level? […] We are really taking a corporate perspective. On the other hand, I understand that each business unit is looking at business unit interests" (Portfolio Director).*

The portfolio office team organized business model canvas meetings to explicate its role and function, key activities, resources, and value propositions to other organizational departments. The business model canvas helped the portfolio office team to clarify and increase their knowledge about portfolio management and to understand the portfolio office team's role across different organizational members and levels. Furthermore, the project offices and the portfolio office team organized 'coherence and interdependence' meetings to discuss the impact of projects on other projects and to increase understanding – across organizational levels – about the need for integration of projects based on project interdependencies. The project offices and the portfolio office team shared information about the potential impacts of projects in the portfolio through these meetings:

> *"Attempts were made to understand and oversee the types of coherence and interdependencies among projects by presenting them at coherence and interdependency meetings. Each project office manager presented their projects to other project offices and the portfolio office team and indicated the impact of their project on other projects, and (un)foreseen interdependencies, risks or delays were discussed" (Observation Note).*

Creating an overview of the portfolio was perceived as challenging by the portfolio office team because projects were often dependent on activities in other projects in the portfolio:

> *"This is what we see with all projects in the portfolio: they are interdependent, always. As a portfolio office team, we want to improve our understanding of the interdependencies. Assessing an individual project is not that difficult, but the interrelationships… Are they related in terms of resources? Are they related in terms of release planning? There are so many types of interrelationships – once you start looking at it, everything becomes related to each other! That is certainly an area we need to improve upon and focus on interdependence" (Portfolio Director).*

We identified 'attempts to create an overview of the portfolio as a whole' as a potential basis for increasing portfolio integration. Project offices and the portfolio office team initiated 'coherence and interdependency meetings' and business model canvas meetings to improve the organization-wide common understanding of portfolio management and the need for portfolio integration.

2.5 DISCUSSION AND CONCLUSION

In this study, we analyzed how actors negotiate the tensions arising from the need for control and the need for integration through their practices around coordinating a project portfolio. We discuss these practices of control and integration in relation to the literature and the research question, and we conclude with implications, limitations, boundary conditions and some suggestions for further research.

Figure 2.5 depicts the coordinating practices that we identified that enabled actors to negotiate the tension between control and integration. Such practices can alternate between a focus on control or on integration over time.

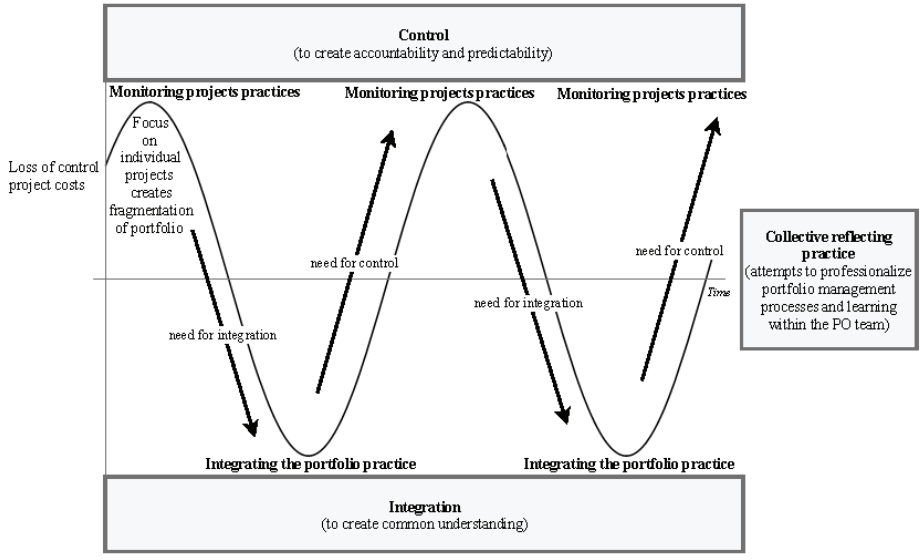


Figure 2.5. Coordinating practices as a means of negotiating the tension between control and integration.

Like other public organizations, ServPublic was under pressure to increase accountability. A major reason for introducing portfolio management had been the loss of control over project costs: the ministry as the main provider of financial resources had decided that stricter controlled processes were needed to reduce the risk of political fallout.

Actors applied a classical 'optimization approach' to individual projects to create control via three 'monitoring' practices. This control focus helped

to achieve two coordination objectives: accountability and predictability (Okhuysen & Bechky, 2009). Accountability supports predictability and helps to make relationships, task interdependencies and progress clear to involved parties (Okhuysen & Bechky, 2009). Consistent with the coordination literature, actors applied these monitoring practices to increase transparency and control of the portfolio management process and its related tasks. At ServPublic, the monitoring practices were in a mature stage and were well-developed, highly structured and formalized.

'Monitoring projects' optimized the performance of individual projects, in line with the optimization approach in portfolio management (Cooper et al., 1999; Meifort, 2016). This optimization approach has frequently been criticized by researchers because it tends to neglect project interdependencies and does not capture the complexity of portfolio management (Meifort, 2016). This insufficient consideration of project interdependencies created fragmentation of the portfolio. Remarkably our findings show that integration can be regained, in our case through compensatory practices of 'collective reflecting' and 'integrating the portfolio'.

These practice categories of 'collective reflecting' and 'integrating the portfolio' help actors to coordinate toward a shared understanding among or across projects (Okhuysen & Bechky, 2009). Creating a shared understanding of projects in the portfolio and their interdependency was internally driven. Actors wanted to oversee projects based on their interdependence because they realized that a mere control focus was insufficient.

The 'integrating the portfolio' practice helps actors to create the conditions for a portfolio mind-set (Kester et al., 2011) and the ability to view portfolio management as a multi-level organizational problem, in agreement with Meifort (2016) and as illustrated in the coherence and interdependency meetings.

The 'collective reflecting' practice within the project portfolio team represents a 'stop-and-think attitude and behavior', in line with the conceptualization of reflexivity by Hammedi, Van Riel, and Sasovova (2011). Actors with such practices have the potential to introduce reflection about portfolio management processes across organizational levels and to better enact portfolio management in organizations, as suggested by Meifort (2016). For example, reflecting on practices could help to transform the optimization-focused form of portfolio management into a more 'holistic' management process, directed at integration of the portfolio.

Actors can use 'integrating the portfolio' and 'collective reflecting' practices to mitigate the tension between the extremes of control and integration. Nevertheless, the search for this balance continues over time, and actors must continuously develop their portfolio coordinating practices, while also maintaining control over projects.

Our findings indicate that project and portfolio managers felt the need to go beyond a focus on monitoring individual projects but also to focus on the integration of interdependent projects in the portfolio. The resulting fragmentation of the portfolio (initiated through a focus on managing projects as isolated entities while they were actually interdependent) was partly compensated for by developing new practices across organizational levels to re-integrate the portfolio through two informal proto-practices, namely, 'collective reflecting' and 'integrating the portfolio'. Our findings illustrate that, in the absence of a structural solution, the fundamental tension between control and integration can be resolved performatively by actors through their daily practices.

2.5.1 Theoretical Implications

The present study has generated theoretical implications for the portfolio management literature by exploring the tension between the need for control, arising from the quest for accountability to the public, and the need for integration to provide a coherent service offering to service users of public services in a unique setting.

First, using portfolio management for 'monitoring individual projects', with a strong focus on resource use control to create accountability and predictability (Okhuysen & Bechky, 2009), appears to hamper the integration of interdependent projects in the portfolio. Actors develop 'integrating the portfolio' and 'collective reflecting' compensatory practices to re-integrate the portfolio. Over time, actors can negotiate the tension between control and integration through 'collective reflecting' because teams tolerate changes in approaches, are eager to learn (Hammedi et al., 2011), and can coordinate toward a shared understanding (Okhuysen & Bechky, 2009) on a continuous basis.

Second, we identified several coordinating practices in response to the call to investigate how integrated coordination of portfolio management across organizational levels is accomplished (Meifort, 2016) in public service

organizations. We found that managing projects as isolated entities occurred as a reaction to accountability pressures from the ministry at ServPublic. Public accountability, understood as "the spectrum of approaches, mechanisms and practices used by the stakeholders concerned with public services to ensure a desired level and type of performance" (Paul, 1992, p. 1047), remains important because public services are financed through public funds (Helderman, Bloemer, Van der Heijden, Peters, Souren, & Visser, 2016). A business-like implementation of portfolio management in a public services context (cf. Gronn, 2000) creates fragmentation of the portfolio. Control-focused portfolio management through 'monitoring' of individual projects does not necessarily consider a major purpose of the portfolio, i.e., to create value for both the organization and its users. This phenomenon could also explain the widely observed ineffectiveness of public services, their low levels of innovativeness and the low performance of public offers, compared to commercial ones. Nevertheless, we observed attempts to integrate interdependent projects and to reflect on the portfolio management process with the aim of creating integration. Attempts to focus on interdependencies among projects in portfolios and to create room for learning based on reflexivity (Hammedi et al., 2011) can improve portfolio management across organizational levels because the interfaces between projects and thus between organizational departments are made transparent. We complement the work of Kester et al. (2011) explaining how 'collective reflecting' and 'integrating the portfolio' practices could facilitate portfolio management across organizational levels.

2.5.2 Practical Implications

Our study investigated how portfolio management was coordinated at ServPublic. We observed a strong formal emphasis on control, while integration and coordination across organizational levels were mainly achieved through informal means. Portfolio management practitioners in public services could opt for more full-fledged implementation of portfolio management and could rethink how their different institutional contexts could be considered in evaluating their entire portfolio from the perspective of powerful institutional stakeholders, as well as users of their services, in relation to public accountability (Paul, 1992). Alternatively, they could simply allow room for informal solutions, such as informal collaboration initiatives

like the ones developed by project and portfolio managers at ServPublic. (In)formally sharing project knowledge is an important first step in raising awareness to integrate the portfolio.

To better understand and address the tension between control and integration in public service organizations, professionals might want to use Figure 2.2 as a canvas for identifying their own coordinating practices.

2.5.3 Limitations, Boundary Conditions and Future Research

There are certain boundary conditions for the conclusions of our study. We gathered data from a single organization in the public service sector in one country, albeit across organizational levels. We chose to develop a thorough in-depth understanding of one organization, over a comparative study of several structurally similar situations in other public organizations, which increased depth but limits the theoretical generalizability of our results (cf. Hillebrand, Kok, & Biemans, 2001). Nonetheless we believe that our findings offer important insights for other public sector organizations that find themselves under pressure to prioritize control over integration.

Another boundary condition is that we investigated a specific type of project portfolio (with a strong IT focus). Future research might study other types of portfolios, leading to different results and suggesting different coordinating practices.

Further research in public service settings such as healthcare, tax services or public transportation could increase the generalizability of our results (Figures 2.2 and 2.5) to other settings that are also characterized by a strong focus on public accountability (Paul, 1992). Future research could further investigate the development of coordination practices over time and empirically contrast such findings against normative models such as the Capability Maturity Model (Paulk, Weber, Garcia, Chrissis, & Bush, 1993).

In this study, we used a coordination perspective as a theoretical lens for examining the role of portfolio management in public service innovation. Another interesting perspective for future research could use a performance perspective (cf. Kester et al., 2014). Obtaining a more complete understanding of practices that address the tension between control and integration is essential for improving portfolio management performance and/or innovation performance. Future research could quantitatively investigate the links between the coordinating practices found in this study and the three general

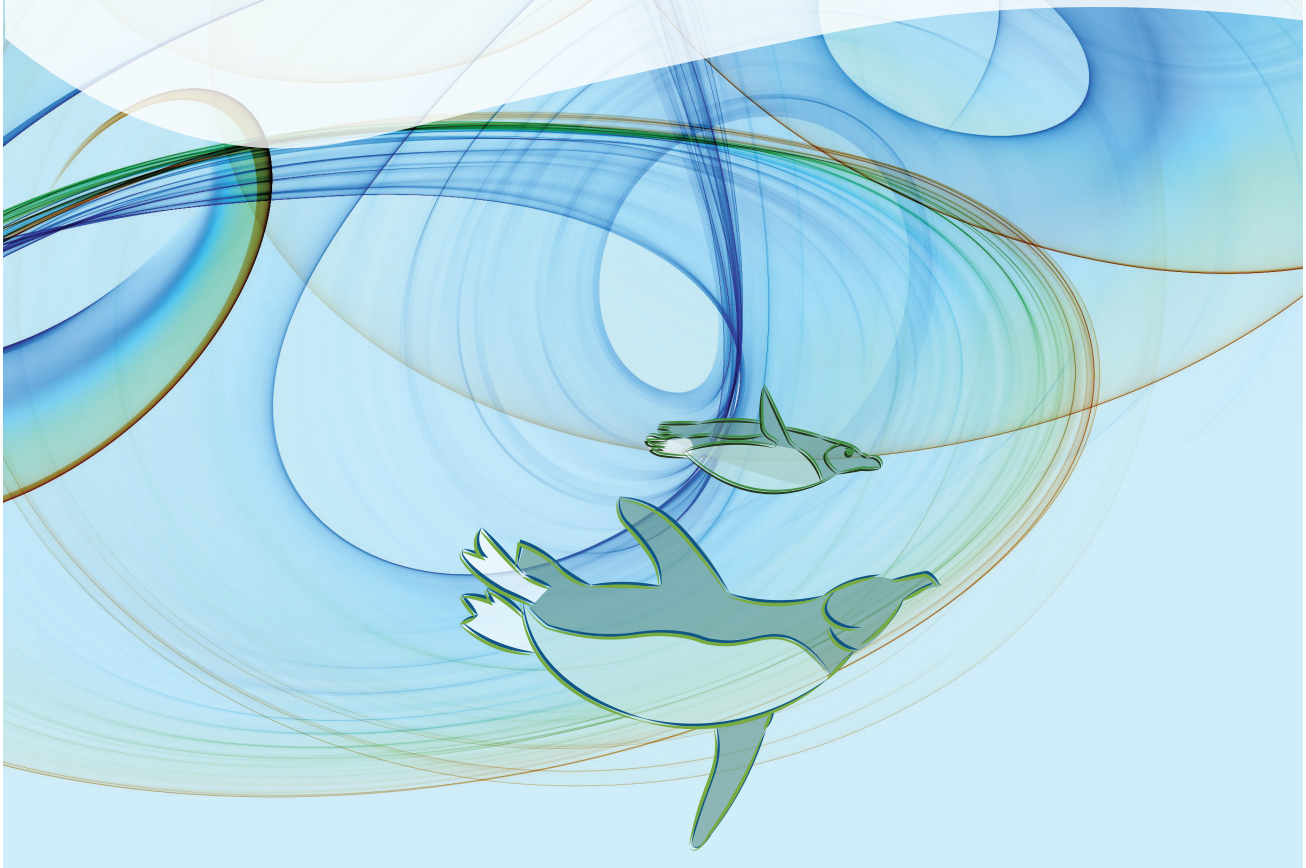
portfolio management objectives, i.e., value maximization, balancing risk, and achieving strategic fit (cf. Cooper et al., 1999, 2001). Moreover, the previously mentioned effects might be linked to market performance variables, such as profit, customer satisfaction and market effectiveness (cf. Kester et al., 2014; Vorhies & Morgan, 2005). Furthermore, innovation performance variables could provide insight into the innovativeness of public service innovations offered by public service organizations, either individually or in collaboration (Gemünden, Lehner, & Kock, 2017; Wu, Wang, & Chen, 2017).

Chapter 3

Caring for Innovation

A Practice-Based Approach to Accomplishing Ambidexterity in a General Hospital

This chapter is based on a paper, co-authored with Allard C.R. van Riel, Kristina Lauche and Wafa Hammedi. Previous versions of this chapter were presented at QUIS14 conference in Shanghai, China in 2015 and at the Frontiers in Service conference in Bergen, Norway in 2016.



Organizational ambidexterity (hereafter ambidexterity), is the ability to balance efficiency through exploiting existing resources with innovating through exploring new opportunities (March, 1991). It is commonly achieved by grouping activities in different departments that focus on either exploitation or exploration. Yet, in hospitals it is often clinical physicians whose main task is patient care who also generate ideas based on their direct interaction with patients, and who drive innovation. The organizational challenge of ambidexterity therefore needs to be dealt with differently. In an in-depth case study, we analyze the practices of healthcare innovation professionals through this theoretical lens of 'ambidexterity'. We identified three types of practices through which different groups of actors pursued their goals and which, taken together, accomplished ambidexterity: 1) 'intrapreneurial' practices identified external innovation and collaboration opportunities, 2) 'controlling' practices achieved transparency and control, and 3) 'integrating' practices created cross-functional integration. We discuss how such a bottom-up approach can enable ambidexterity in healthcare settings.

Keywords: Innovation; Practice Approach; Ambidexterity; Healthcare; Case Study

3.1 INTRODUCTION

Managing (innovation) projects in a public setting such as healthcare is challenging. Deep-rooted hierarchical structures and practices are difficult to adjust, and there is tension between control and creativity, or flexibility (Van der Waldt, 2011). Healthcare organizations increasingly face a balancing act between the need to strictly control their processes on the one hand, through a strong focus on cost and risk minimization, and the desire or need to innovate and improve care processes on the other hand. To achieve this balancing act, ambidexterity is required: the organization must be able to innovate, or explore, while also making efficient use of, or exploit, its resources (March, 1991). For healthcare organizations this balancing act can take different forms, but apart from pharmaceutical companies, most healthcare providers do not have specialized research and development (R&D) departments. Instead, we had the hunch that physicians and care providers are frequently the originators of innovative ideas and that innovation in healthcare organizations thus often occurs as part of, or within, the process to improve care for patients. As

a result, the healthcare innovation process is often unstructured, informal, unclear to those involved, and a matter of 'learning by doing', which also makes it a difficult process to observe for physicians, nurses, care providers and managers (hereafter healthcare innovation professionals or professionals) (Salge & Vera, 2009; Thune & Mina, 2016). Innovation processes in healthcare are therefore not always transparent in terms of who does what; it is challenging for professionals to organize these processes in a structured way (Burgess, Strauss, Currie, & Wood, 2015) and deal with the dualities of exploration and exploitation.

Multi-level interdependencies between individuals, groups and organizations need to be studied to understand how ambidexterity is achieved and sustained over time (Birkinshaw & Gupta, 2013; O'Reilly & Tushman, 2013; Turner, Swart, & Maylor, 2013). Ambidexterity can be achieved via a top down mandated process or a bottom-up emergent process (Zimmermann, Raisch, & Birkinshaw, 2015). Intraorganizational ambidexterity research is needed to better understand the mechanisms and enablers of the latter process (Zimmermann et al., 2015). A focus on ambidexterity in healthcare is interesting, because care providers and physicians are often the locus of innovation, including that ambidexterity develops in an emergent way. The aim of this paper is to understand how professionals accomplish ambidexterity through a bottom-up approach in a healthcare organization that is not designed to be ambidextrous and how they "actually manage the interfaces between exploration and exploitation" (O'Reilly & Tushman, 2013, p. 332). In order to explicate these interfaces, we investigate how ambidexterity is enacted in actors' daily activities using a practice approach (Nicolini, 2012). We zoom in on the practices of healthcare innovation professionals (hereafter professionals) to elucidate how they accomplish ambidexterity in a general hospital pursuing to create innovation. We examine healthcare innovation practices through an in-depth case study with the purpose of understanding how professionals enact ambidexterity to accommodate and control innovation in this context. We identify ten healthcare innovation practices in three types. The findings are discussed in terms of roles for managing innovation in healthcare settings. This discussion is followed by implications, limitations, boundary conditions and an outline of future research avenues.

3.2 THEORETICAL BACKGROUND

3.2.1 Ambidexterity in the Context of Healthcare Organizations

Duncan (1976) introduced the term 'ambidexterity' to explain how organizations could adapt their structure "to accommodate conflicting alignments required for innovation and efficiency" (O'Reilly & Tushman, 2013, p. 327). In line with the tension between (and concepts of) innovation and efficiency identified by Duncan (1976), March (1991) coined the terms 'exploration' and 'exploitation', representing two organizational foci that compete for scarce resources. "Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution" (March, 1991, p. 71). The organizational ability or competence to maintain both organizational foci in the same organization is referred to as ambidexterity, which has been demonstrated to improve overall organizational performance (Jansen, Simsek, & Cao, 2012; Junni, Sarala, Taras, & Tarba, 2013).

Prior research has distinguished several ways to deal with ambidexterity tensions in innovation (Andriopoulos & Lewis, 2009), and identified mechanisms to manage (Turner et al., 2013) and to achieve ambidexterity (O'Reilly & Tushman, 2013). Sequential ambidexterity (Duncan, 1976) reflects the phenomenon that organizations switch structures for exploration and exploitation over time to adapt to environmental changes or their strategies, which may work in rather stable, slowly moving environments (O'Reilly & Tushman, 2013). Simultaneous or structural ambidexterity describes the ability of organizations to: "sense and seize new opportunities through simultaneous exploration and exploitation" (O'Reilly & Tushman, 2013, p. 328) organized in structurally separate units and held together by a common strategic intent or set of values (Tushman & O'Reilly, 1996). To our knowledge, these forms of ambidexterity are not common in healthcare. Moreover, contextual ambidexterity emphasizes the role of individuals rather than of units and their "behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit" (Gibson & Birkinshaw, 2004, p. 209). It is based on alignment and efficiency in day-to-day work, while also continuously adapting to environmental changes (Benner & Tushman, 2003; O'Reilly & Tushman, 2013), which is particularly important in a networked

environment such as healthcare (see Burgess et al. (2015)). Finally, network ambidexterity – creating ambidexterity on a dynamic network level – (Lin, Yang, & Demirkan, 2007; Simsek, Heavey, Veiga, & Souder, 2009) was introduced as a form of knowledge mobilization in healthcare networks (D'Andreta & Scarbrough, 2016).

For healthcare organizations, accomplishing ambidexterity presents a particular challenge as they have traditionally employed strict management and financial control systems to optimize the use of scarce resources and to minimize the risk of errors while executing routinized and highly specialized production work (March, 1991; Schultz, Zippel-Schultz, & Salomo, 2012). Yet, healthcare organizations engage increasingly in innovation (Thune & Mina, 2016). We argue that physicians or care providers could become the locus of innovation (Utterback & Abernathy, 1975) due to the immediacy of their interaction with patients and the stickiness of their highly specialized knowledge (Burgess et al., 2015; Von Hippel, 1994). Often, these professionals notice problems that need to be solved during their daily practice. These solutions might result in ideas for innovation. Physicians or care providers often collaborate with project or innovation managers to transform these ideas into implementable innovations. Such collaborations create multi-level interdependencies on intra- or interorganizational levels. These interdependencies complicate the process of achieving and sustaining ambidexterity (Birkinshaw & Gupta, 2013; O'Reilly & Tushman, 2013; Turner et al., 2013). Still, achieving ambidexterity in healthcare organizations is crucial to mitigate and address the tensions between exploration and exploitation (Burgess et al., 2015).

Many approaches to and designs for ambidexterity have been studied, such as 'mandated' or 'bottom-up' approaches in alliances (Zimmermann et al., 2015). However, research on accomplishing ambidexterity in a healthcare context remains rare. Healthcare innovation often depends on intrinsically motivated physicians and nurses who initiate innovative ideas during their work. The locus of innovation thus makes that the day-to-day activities of actors play a prominent role. Innovations might develop bottom-up in this context and achieving ambidexterity seems an emergent rather than a mandated process. How professionals in a healthcare context achieve ambidexterity through a bottom-up approach and "actually manage the interfaces between exploration and exploitation" (O'Reilly & Tushman, 2013,

p. 332) on a day-to-day level needs to be explored to understand how they deal with the tension of innovation and control.

A practice-based approach allows implicit day-to-day activities to be investigated: *"When we enter […] a hospital it is increasingly difficult to think of it as the outcome of the application of a detailed blueprint or plan, or a single system with definite boundaries"* (Nicolini, 2012, p. 2). A 'practice' has been defined as "an organized constellation of different people's activities" (Schatzki, 2012, p. 13) on a day-to-day level (Feldman & Worline, 2016). A practice approach allows researchers to *"describe important features of the world we inhabit as something that is routinely made and re-made in practice using tools, discourse and our bodies"* (Nicolini, 2012, p. 2). Healthcare innovation is not necessarily routinized, but rather it is an unstructured and informal process (Salge & Vera, 2009; Thune & Mina, 2016). We decided to adopt a practice approach for studying this context, because professionals use socially shared practices and activities that are made and re-made, implying their dynamic character, in the case of organizing healthcare innovation.

Using a practice approach is increasingly common in healthcare research, as illustrated by the work of McColl-Kennedy, Cheung, and Ferrier (2015) and Gorli, Nicolini, and Scaratti (2015) and in innovation, as shown by the work of Dougherty (1992) and (2004) for respectively product and service innovation. It is difficult to directly observe how innovation is managed and ambidexterity is accomplished in healthcare (Salge & Vera, 2009; Thune & Mina, 2016). A practice approach allows the use of detailed units of analysis and constitutes a unique way of looking at social interactions, sayings and doings (Nicolini, 2009b, 2012). Therefore, we used a practice approach to investigate how professionals accomplish ambidexterity in a general hospital, while pursuing innovation.

3.3 METHODS AND RESEARCH DESIGN

Practice research is typically done through in-depth case studies (Feldman & Worline, 2016). This explains why we chose a similar design to answer our exploratory 'how' question (described as part of our research aim) (Yin, 2014). Our units of analysis are the healthcare innovation practices of professionals in a general hospital (Yin, 2014). We selected Rijnstate Hospital as our case organization, because it represents a common case (Yin, 2014). Rijnstate Hospital provided an opportunity to study the everyday situations

and complexity of managing innovation in a general hospital. During the case study, we also observed actors' search for balance between exploration and exploitation. In this hospital, innovation was developed bottom-up in an emergent fashion, which appears rather common in general hospitals. Besides, the organization of innovation in this hospital appeared to be very informal and in need of more structured coordination approaches (see Section 3.4.3.) to organize the innovation management process. In this case, we were able to zoom in on actors and how they actually manage the interfaces between exploration and exploitation (O'Reilly & Tushman, 2013).

3.3.1 Description of the Case Organization: Rijnstate Hospital

We investigated the tensions between exploration and exploitation at Rijnstate Hospital, a general hospital, which serves a catchment area of approximately 450.000 inhabitants with 4481 employees, 809 beds, 34.144 admissions per year and 30.319 outpatients (Rijnstate, 2018). Rijnstate Hospital is part of a Dutch alliance of top clinical hospitals characterized by innovation, quality of care, research and education.

Influenced by ideas from new public management, Rijnstate Hospital was reorganized as a more explicitly functionally structured organization in 2014. Organizational units were made responsible for their own results and thus required to develop control structures to address the increased accountability. Units existed in the areas of, for example, Commercial Affairs, Marketing and Communications, and Quality and Safety. A functional unit dedicated to Strategic Portfolio Management and Innovation was established with the aim of better organizing and structuring innovation activities. Rijnstate's multi-annual mission statement, formulated by the board of directors, focused on providing patients with top quality healthcare by focusing on innovation. The board of directors placed high priority on stimulating collaboration between stakeholders inside and outside the hospital to increase access to expertise and improve service quality.

Figure 3.1 shows how innovation is managed in Rijnstate Hospital, and can be read as an organogram. At the time of our study, the hospital had established the following procedures for managing innovation: the board of directors had formal decision-making authority on a strategic level. Several departments were involved in the organization of innovation. We distinguish a management level and a project level. Whereas most departments within

the Strategic Portfolio Management and Innovation Unit at the management level were mainly focused on exploitation, the Research and Innovation department mainly focused on exploration. The management and project levels are connected through Innovation Seminars that created cross-functional integration (see the results section for details).

At the management level, the Portfolio Manager of the Strategic Portfolio Management and Innovation Unit was responsible for the innovation process and for organizing innovation activities within the hospital. An Investment Committee screened project proposals with a focus on innovative projects in the domains – or four portfolio themes – of 'information technology' (IT), 'medical equipment', 'clinical pharmacy', and 'real estate' and determined appropriate budgets. A so-called Healthcare Innovation Office was responsible for implementing externally developed innovations. The Marketing and Communications Department scanned the environment for potentially interesting new products and processes that could be adjusted and implemented within Rijnstate Hospital. The IT Department and its Information Managers played an important role in e-health innovations. The Real Estate Department focused on creating patient-centered and sustainable hospital environments, and the Research and Innovation Department, employed a Research and Innovation Manager and a Junior Research and Innovation Manager, facilitated the innovation process by offering technical and project management support and providing external networking opportunities, for example, to obtain funding for innovation.

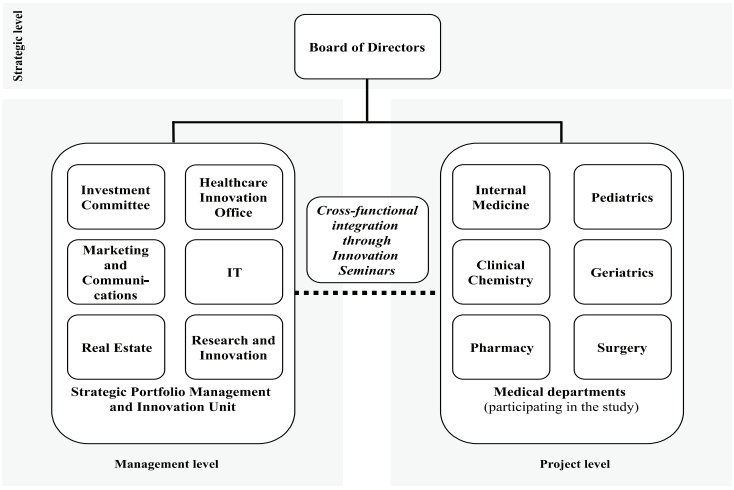


Figure 3.1. The structure of managing innovation at Rijnstate Hospital.

At the project level, several medical departments developed innovations at the shop floor. Figure 3.1 depicts those departments that participated in our study and developed innovative ideas in a bottom-up fashion. The list of departments is not exhaustive, but only includes those departments in our study.

3.3.2 Data Collection

We combined interviews with observations and document analysis (Yin, 2014) to identify healthcare innovation practices and to understand the relationships between them (Jarzabkowski, Lê, & Feldman, 2012; Zbaracki, 1998). The use of multiple sources of evidence allows convergence and data triangulation, which help to increase internal validity (Yin, 2014).

We first analyzed, carefully read and coded, organizational documents, e.g., the hospital website, organizational charts, internal documents (like project plans (if available) and meeting agendas) and information available on the intranet (mainly about innovation and projects). Over the course of more than a year, the first author – with a background in business administration – visited the organization on one to two days per week and was allowed to move around freely. Sometimes the second and third author accompanied her for interviews and observations, such as attending Innovation Seminars, to better understand the case from multiple perspectives and better facilitate and support the data analysis. These seminars were a recently established initiative aiming to centralize the innovation dialogue within Rijnstate Hospital and integrate organizational departments and their innovation projects.

We attended 33 formal innovation-related meetings and observed informal interactions as non-participant observers. Documents used in the observed meetings, such as minutes and meeting documents, were gathered and analyzed. Extensive field notes, taken during the formal observations and checked and complemented afterwards to prevent data loss (Yin, 2014) were organized in an observation grid. In the case of informal conversations, field memos in the form of narratives were written (Yin, 2014). Observations lasted between 60 and 150 minutes, with an average duration of approximately 90 minutes.

We conducted 23 semi-structured interviews with respondents, e.g., physicians and managers at the innovation project and portfolio management levels; these lasted between 30 and 140 minutes, with an average duration

of one hour (see Table 3.1). We transcribed the recorded interviews in their entirety using Dragon Naturally Speaking 12.0 and Microsoft Office Word.

Table 3.1. Data collected at Rijnstate Hospital.

Level of analysis	# Meetings	# Interviews	Types of informants (Healthcare innovation professionals)
Project	13	13	Project initiators (physicians): Physician A (Internal medicine), Physician B (Pediatrics), Physician C (Clinical chemistry), Physician D (Geriatrics), Physician E (Pharmacy), Physician F (Rheumatology), Physician G (Clinical chemistry), Physician H (Surgery), Nurse (Internal medicine) Others: Coordinator Research (Medical Center) Project Manager (IT), Care Manager, Manager IT
Marketing and Communication Unit	1	1	Marketing and Communications Manager
Healthcare Innovation Office	1	1	Manager Healthcare Innovation Office
Research and Innovation Department	13	3	Research and Innovation Manager, Junior Research and Innovation Manager
Strategic Portfolio Management and Innovation Unit	5	3	Portfolio Manager
IT Department	0	2	Information Managers A and B
Total	33	23	

Interview topics included the organization, its patients and stakeholders, coordinating and managing innovation (projects and portfolio), innovation projects (e.g., scope and content, coherence and interdependence) and service offerings. We applied the interview-to-the-double technique (Nicolini, 2009a) to explicate actors' implicit healthcare innovation practices.

We selected relevant meetings and suitable interviewees with the help of two experienced managers in the hospital. Our informants supported us in snowball sampling (Biernacki & Waldorf, 1981; Goodman, 1961; Noy,

2008) and selected suitable interviewees. Interviewees were considered suitable if they could inform us about an innovation idea or project they were working on or had worked on or if they could tell something about the way innovation was managed within Rijnstate Hospital. Sometimes, physicians also recommended as interviewees other physicians who were working on projects. Often, these references were related to the informal innovation network within Rijnstate Hospital. We followed these recommendations as part of the snowball sampling approach. During the interviews, we asked to be allowed to attend meetings on managing innovation projects for non-participative observation; all participants generously supported these requests.

During and after data collection, we presented our emerging findings at Rijnstate's Innovation Seminars to discuss and interactively validate our work with respondents (Kvale, 1995). These presentations helped to align our results with the experiences of participants and the broader Rijnstate Hospital audience involved in innovation, which helped to improve validity (Yin, 2014). Their reflections, questions and comments helped us further conceptualize how innovation was managed and ambidexterity was achieved in this context.

3.3.3 Data Analysis

We employed a two-step procedure of 'zooming in' and 'zooming out' to analyze our data and look for practices, as suggested by Nicolini (2009b). In the first step, we identified examples of objects or activities we observed during data collection. We inductively coded the data in MAXQDA based on the empirical examples found and on themes, such as type of interaction, type of coordination, and activities and actors involved (MAXQDA), and identified first and second order constructs (Gioia, Corley, & Hamilton, 2012). Codes were iteratively improved and merged based on the authors' discussions and literature checks (cf. McColl-Kennedy et al., 2015; Okhuysen & Bechky, 2009), and this helped to ensure the validity of the findings (Denzin & Lincoln, 2011). In the second step, we took a more abstract view of how healthcare innovation practices were embedded in the healthcare context.

3.3.4 Codebook

Table 3.2 presents the codebook, including empirical examples and ten healthcare innovation practices, divided into three practice types,

Table 3.2. Codebook.

1st order constructs Healthcare innovation practices	Explanations of 1st order constructs	Empirical example(s)
Initiating and managing innovation ideas and innovation projects bottom-up	Taking advantage of the potential and enthusiasm of physicians to work on innovations, exploring and collecting their ideas and managing project-related activities like meetings, minutes and input from participants.	Ideas originate from workplace, physician as project manager and locus of innovation, such as Project Green. A pediatrician placed a coach for (obese) children and their family in their neighborhood to integrate healthcare chains and improve collaboration.
Battling for financial resources for innovation	Strictly regulating and justifying the efficient and effective use of scarce financial (and human) capital within the hospital. Therefore, a need to externally search for, explore and bring in resources.	Physicians necessarily battled for scarce financial resources to further develop their innovative ideas but were often depending on their high intrinsic motivation.
Scanning the external environment in networks	Participating in external networks to explore and collect ideas for (externally developed) innovations.	External innovation enthusiasts met in for example the Scouting and Screening Team and Field lab pilots to identify innovative ideas and collaboration opportunities.
Linking people involved in innovation	Connecting internal innovators with external opportunities and people through exploratory activity in innovation networks.	Internal and external innovation enthusiasts collaborated with a game incubator to developing an e-health app for project Green.
Focus on IT interdependencies	Overseeing coherence and interdependencies among (IT) innovation projects through strategically aligning projects to create control.	Information Managers created an information strategy and IT roadmap to structure IT-projects and make their coherence based on strategic interdependencies clear.
Prioritizing projects	Determining importance of (innovation) to make screening decisions for projects and control resource allocation.	Physicians complete project proposal forms that are screened by the Investment Committee in order to prioritize the innovation projects and increase transparency and control of resource allocation processes.
Integrating expertise (to develop innovations)	Collaborating within the hospital to cross-fertilize knowledge to explore and exploit it.	In the Innovation Seminars participants cross-fertilize innovation knowledge to centralize it and create connections among for example physicians and managers.
Integrating innovation-related information across departments (to support innovation)	Supporting or facilitating development of new innovation projects by integrating several organizational parts, e.g., by helping with subsidies and expertise.	Department members from the Healthcare Innovation Office, Knowledge and Research Department, Marketing and Communication participate in the Innovation Seminars to integrate innovation-related information.
Integrating innovation definitions (to conceptualize innovation)	Conceptualizing innovation through exploratory discussion and search for a common definition of innovation in the hospital to increase exploitation innovation.	Members of the Innovation Seminars, the Portfolio Manager and Research and Innovation Manager discuss innovation definitions in the Innovation Seminars or 'From Idea to Process meetings' to improve their mutual innovation understanding.
Taking a service user[1] perspective	Involving service users, balancing their interests and thinking from the eyes of the service user to explore, create and exploit innovations with more value to service users.	Project members of project Green organized a brainstorm meeting to develop an e-health app for children where two children were present and thought along with the team to design the app. Also, a Client Council and the use of personas helped Rijnstate Hospital to think from a service user perspective.

2nd order constructs Healthcare innovation practice types	Explanations of 2nd order constructs	Link to literature
Intrapreneurial	The effort to support innovation in an organic intrapreneurial way through search for external (resource) opportunities and the initiation of ideas. For each innovation project, identified opportunities for external collaboration and provided support for internal actors.	Intrapreneurship is similar to corporate entrepreneurship [2] except that through intrapreneurship, new ventures are developed within an existing organization (Parker, 2011). It is characterized by the same spirit as entrepreneurship: "Intrapreneurs, like entrepreneurs, take new ideas and develop solid, functioning, and, it is hoped, profitable businesses" (Hisrich, 1990, p. 209). Intrapreneurship is considered to be a hybrid form of entrepreneurship, with lower risks and costs for the individual (Hisrich & Peters, 1989; Pinchot, 1985). This practice category is boundary-spanning, often "initially stimulated by the perception of new information and idea flow from sources in the environment" (Brentani & Reid, 2012, p. 71). Rijnstate's organizational boundaries were bridged to connect with its environment, e.g., by participating in healthcare networks.
Controlling	The holistic effort to structure and organize for innovation, based on portfolio management employed to create transparency and to control innovation.	Portfolio management is a complex decision-making process aimed at the selection, deselection and prioritization of projects and the allocation of resources to the selected projects in a company's portfolio (Cooper, Edgett, & Kleinschmidt, 1999; Kester, Griffin, Hultink, & Lauche, 2011). A portfolio is bundle of interdependent innovation projects. Interdependencies exist as resource interdependencies, related to time and budget, or as project outcome interdependencies, i.e., between the products or services provided.
Integrating	The effort to centralize and integrate scattered innovation-related activities and resources in the hospital in Innovation Seminars that create cross-functional integration by connecting the actors involved in innovation across the hospital.	Coordination integrated, or 'glued', these integrating practices together and has been defined as "the process of managing interdependence and fitting together different activities" (Gkeredakis, 2014, p. 1473). The various interdependent integrating practices were (mainly) enacted during the Innovation Seminars.

1 In this paper, we refer to service users. In all cases we refer to the end-user (e.g. the customer, patient, citizen, etc.) and not to the professional who uses the service.

2 Entrepreneurship has been understood as "the process of creating something different with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction" (Hisrich & Peters, 1989).

'intrapreneurial', 'controlling' and 'integrating', including explanations. We iteratively developed the codebook based on the data. Table 3.2 includes links between practice types and the literature.

3.4 RESULTS

In this section, we analyze how each of the observed healthcare innovation practices of healthcare innovation professionals contributes to the achievement of ambidexterity. We first introduce three different roles related to the three practice types. Then the practice types, belonging practices and observed needs for change are explained in detail.

3.4.1 Caring for Innovation

At Rijnstate Hospital, professionals cared for innovation and wanted to find solutions for problems that they encountered during practice hours with many innovative ideas popping up bottom-up and in a rather uncontrollable way. This exploratory, intrapreneurial approach towards innovation was fostered and facilitated by the Research and Innovation Manager who would run around faster than light, always busy networking, talking to hospital in- and outsiders, drinking coffee, being everywhere except behind his desk. In this organization, he played the role of 'healthcare innovation intrapreneur'.

The Strategic Portfolio Management and Innovation Unit was set up to structure this 'organic' innovation processes in Rijnstate Hospital by means of portfolio management. We call this exploitative structured approach towards innovation 'controlling'. Particularly the Portfolio Manager played the role of 'healthcare innovation controller'. She approached innovation as a manageable process that needed to be integrated with existing portfolio processes. Being an organized person, keen on structure and figures, she wanted to translate this to how the innovation process could be managed.

These two approaches to innovation, intrapreneuring and controlling, created a tension between exploration and exploitation. This tension was negotiated by the members of the Innovation Seminars through sharing their enthusiasm about innovation and getting to know each other better and meet new people (e.g., from outside the hospital). The 'intrapreneurial' and 'controlling' roles converged in the Innovation Seminars. Within the seminars, 'integrating' took place (via professionals' 'integrating practices') by which we mean cross-functional integration between the management and project

levels (see Figure 3.1) to foster innovation. To facilitate this cross-functional integration, the Research and Innovation Manager invited speakers and presenters for the Innovation Seminars and played the 'healthcare innovation integrator' role. The Portfolio Manager chaired the Innovation Seminars. Together with the seminars' audience, these two professionals discussed innovation, shared expertise and boosted its life within Rijnstate Hospital.

3.4.2 Intrapreneurial Practices

3.4.2.1 Initiating and managing innovation ideas and projects bottom-up, the first intrapreneurial practice, involved physicians coming up with ideas for innovation as they stumbled across potential for improvement in their daily routines. Therefore, the locus of innovation was often the healthcare process within Rijnstate Hospital.

> *"Eighty to ninety percent of the research and innovation that takes place in the hospital grows bottom-up. Starting from the departments and individual specialists" (Physician A).*

If physicians came up with innovative ideas, the Research and Innovation Manager would explore the potential for them to further these ideas and would support their enthusiasm following the 'let a thousand flowers bloom' approach. He and his assistant tried to connect physicians and nurses, as the originators of innovation. Innovative ideas were collected in a bottom-up fashion – mainly through informal conversations – to explore how to support physicians in further developing their innovative ideas. The Research and Innovation Managers broadcast their role as the collectors of innovative ideas via the intranet and the employee magazine. However, physicians were still generally confused about where they should 'deposit' their innovative ideas to 'enter' the innovation process.

The purpose of this practice was the identification of innovative ideas as early as possible to provide the needed support in the best possible way from an early stage on. However, connecting the medical side – physicians – and the managerial side – the Research and Innovation Department – in this hospital was challenging. The Research and Innovation Department was located at a rather separated wing at the backside of the hospital, making the connection with the 'hospital' rather difficult and explaining why the Research and Innovation Manager frantically walked around.

Ideas for innovation were managed in a bottom-up fashion at Rijnstate Hospital. Project Green was an example of an innovation project developed bottom-up. The fundamental concept of Project Green was conceived when a pediatrician observed children with severe diseases such as diabetes, heart problems and/or psychological problems due to obesity in her waiting room. She decided that it would be worthwhile to invest in prevention and placed a case manager at the center of a somewhat disadvantaged neighborhood where children and their families were both coached by the case manager. The resulting project aimed at healthcare chain integration through intensive multi-disciplinary collaboration between medical parties such as the coach, general practitioners, dieticians, psychologists, and other social parties in the children's environment, such as schools, churches and mosques. Moving from an idea to its implementation required change:

> *"We were going to start in a just small general practitioner's practice with 50 patients, and we will see what will happen. Then it became clear that we would receive more money, and investors from the local government told us 'guys, you do not have to hide, rather be brave and ask for more money'. That was the moment that I realized I could not do it on my own" (Physician B).*

In sum, the Research and Innovation Managers used the practice 'Initiating and managing innovation ideas and projects bottom-up' to pursue a bottom-up exploration process. The need to manage innovation projects emerged and grew bottom-up when innovation projects moved from the idea to the implementation, as implementation often resulted in a situation where physicians and the Research and Innovation Managers had little control over the processes.

3.4.2.2 Battling for financial resources for innovation was identified as a second intrapreneurial practice enacted at the project level. Innovation in Rijnstate Hospital was driven by the intrinsic motivation of enthusiastic professionals, often physicians, who were willing to invest their own time to improve the quality of care. They would work even longer hours, because otherwise innovation would potentially not happen:

> *"In all honesty, I dare say, my job is approximately 60 hours a week, my normal job as a physician. Well, in the starting phase [of the project], several hours were added, and still.*

> *Yes, you have to be motivated one way or another or be a bit crazy, or really enjoy it and get energy out of it; that is what I get. However, you cannot expect this from every physician" (Physician B).*

Physicians, as initiators of innovation projects, battled for internal financial resources for innovation with the aim of seizing some resources for further developing their ideas. This resulted increasing internal competition for rather limited resources.

Physicians wrote project proposals for the Investment Committee hoping to obtain financial resources. Without an earmarked innovation budget chances to gain support were rather low. As an alternative – more successful – path to obtain small financial grants, physicians often wrote project proposals for the organization's foundation 'Friends of Rijnstate Hospital'. This foundation would collect money for, e.g., patient activities, research and innovative ideas for improving patient care. Physicians were of course happy with each grant received, but the amounts of money were not sufficient for a structural solution to work on innovation. This competition for scarce financial resources presented a challenge for the intrinsic motivation of physicians. Although innovation was said to be of strategic importance to Rijnstate Hospital, no earmarked innovation budgets existed, which made battling for financial resources for innovation necessary:

> *"Sometimes you have to get resources and you stand with your hands tied. We are not allowed to make profit as a hospital; that is a disadvantage. We have some slack, but too little" (Care Manager).*

In sum, enthusiastic physicians were willing to invest a fair degree of their own free time and battled for the limited internal financial resources, which enabled exploration albeit in a manner that was difficult to control to avoid escalation.

3.4.2.3 Scanning the external environment in networks was identified as a third intrapreneurial practice. This practice was strongly shaped by the Research and Innovation Manager's attempts to compensate the lack of internal innovation budget through exploring opportunities in the hospital's external environment. He created connections and established collaborative partnerships with all potentially interesting external parties for

new innovation opportunities. For example, he participated in the Scouting and Screening Team of a regional healthcare network. Team members met bi-monthly to share healthcare innovation ideas with the network that were then assessed for their innovative and business potential. Projects were connected to business developers, financial resource providers such as local or regional governments, incubators, or general or academic hospitals (Observation Note, Scouting and Screening Team Meeting). As a regional initiative in conjunction with three regional hospitals, the regional university of applied sciences and a technical university, field labs were conducted. The Research and Innovation Manager reflected in this initiative:

> *"You need and attitude of 'give and take' to create better adoption inside the hospital for externally developed innovations" (Research and Innovation Manager, Observation Note, Innovation Seminars).*

This attitude included the mutual understanding that if one partner developed an innovation, the field lab partners would test this innovation in their organization. This practice brought external innovations to Rijnstate Hospital and Rijnstate's innovations to others. However, physicians and nurses often hesitated to test and adopt external innovations. In such cases the Research and Innovation Manager dealt with these doubts by discussing with the involved people and overwhelming them with a load of enthusiasm and bright focus on the possibilities while consciously paying less attention to the blocks on the road.

Scanning the environment also resulted in the identification of relevant innovations or innovative ideas that were then introduced at Rijnstate Hospital. The Research and Innovation Manager, in particular, held the implicit role of scanning the external environment. This implicit scanning process seemed to be opportunity driven. However, we observed a preference for technical innovation projects. This external boundary-spanning search for, and implicit scanning of, the environment sometimes appeared uncontrolled to the hospital. No specific screening criteria were present, uncertainty was high and success rates were difficult to estimate. Again, the 'let a thousand flowers bloom' strategy flourished. Consequently, innovation as a process was perceived as difficult to control.

In sum, the practice of 'Scanning the external environment in networks' served as an exploratory mechanism to identify, adopt and establish new ideas and collaborations for (the support of) innovation.

3.4.2.4 Linking people involved in innovation was identified as a fourth intrapreneurial activity practiced within the Research and Innovation Department. The internal innovation enthusiasts aimed to span Rijnstate's boundaries and connect with external innovation enthusiasts. This practice originated from the 'Scanning the external environment in networks' practice as linking external contacts with internal innovators within the hospital. The Research and Innovation Manager, who busily ran around inside and outside the hospital, conducted the actual linking; thus, physical movement was a part of this practice. This practice resulted in the exploration of opportunities for innovation in collaboration with external parties.

A large network offers "*many lines to the right stakeholders*" (Junior Research and Innovation Manager). The internal and external networks created the potential to generate and explore new opportunities for innovation, because the Research and Innovation Manager connected internal innovation initiators – such as physicians – to external innovation enthusiasts with complementary expertise. Physicians explained that connections to this network were made as soon as people internally realized that an idea was related to innovation and that actually support for innovation was available. This practice included involving and motivating actors and managing diverse stakeholder interests to make sure that initiatives were being followed up. The Research and Innovation Manager constantly looked for opportunities as part of this practice and saw for example possibilities to use gamification:

> *"At a certain moment, there was an opportunity to become a partner in a game development incubator. A step that seemed impossible to achieve was suddenly present. So we will now have an app in a few months" (Research and Innovation Manager).*

In sum, 'Linking people involved in innovation' seemed to be an exploratory intrapreneurial practice. The Research and Innovation Manager linked physicians to collaboration opportunities in external networks. This intrapreneurial practice included generating knowledge about which expertise was located where, which improved explorative opportunities for linking.

3.4.3 A Call for Control: The Need to Structure the Innovation Management Process

Innovation management was fragmented, and occurrences were scattered throughout Rijnstate Hospital, as it was managed and executed at several places simultaneously: "*We, as employees, have no clue as to who is doing what*" (Physician C). As a consequence, a need for structured coordination arose:

> *"Everyone is working on innovation separately, but there is no actual coordination of an innovation project" (Information Manager A).*

Acknowledging that the Research and Innovation Department strived for support of these projects, the search for ways to structure the bottom-up innovation management process reflects a call for more control. It points to attempts to (re)organize, clarify and formalize the innovation process based on top down project portfolio management ideas (mainly at the Strategic Portfolio Management and Innovation Unit level) to better exploit information and insights about innovation projects in the portfolio.

3.4.4 Controlling Practices

Professionals' attempts to control the innovation process are described in this next section. We identified two related controlling practices. Both practices showed a tendency towards exploitation – the optimization of resource utilization – via project portfolio management: 'focusing on IT project interdependencies' and 'prioritizing projects'. The first practice differs from the latter in that they occur in different parts of the organization (the IT department versus the Investment Committee) and are thus practiced by different actors.

3.4.4.1 Focusing on IT project interdependencies was identified as the first controlling practice. This practice describes how the Portfolio Manager aimed to control the strategic alignment of projects in the portfolio. During the time of our study, the Strategic Portfolio Management and Innovation Unit was recently established and the Portfolio Manager was thinking about the desired structure. In her search to identify the coherence among innovation projects, she came across the structured work of the IT department. The IT-department functioned as an inspiring example because the Information Managers had a proper overview of the IT-project portfolio.

We did not observe the actual translation of this practice to the project portfolio on the level of the Strategic Portfolio Management and Innovation Unit but illustrate the actions of the Information Managers. Information Managers executed control by strategically aligning and overseeing the interdependencies among innovation projects (particularly IT projects) and through translate their insights to the Strategic Portfolio Management and Innovation Unit level. This practice resulted in a complete overview of IT projects and their coherence based on their interdependencies. This overview allowed the Information Managers to exert control, because this practice helped them to become aware of all relevant IT projects in the portfolio with in-depth knowledge about these projects and a clear overview of how the projects in the portfolio as a whole were strategically connected.

The Information Managers translated Rijnstate's strategy into IT-innovation activities – projects – that were submitted to the Investment Committee:

> *"We looked at the Rijnstate Hospital strategy and asked ourselves, 'Where do we want to be in three years' time? Which projects do we need to execute to get there?'" (Information Manager B).*

Unfortunately, the strategy was relatively vaguely expressed and lacked specific objectives, which caused difficulties in steering and controlling the innovation process within the IT Department and within Rijnstate Hospital as a whole. Therefore, Information Managers structured the IT projects in the portfolio by making the interdependencies among projects explicit. They completed this process by viewing strategic IT projects bottom-up and top down, talking to involved people, and visualizing interdependence among projects by means of a roadmap:

> *"We actually make a map for each [strategic] theme and ask: 'What is the interdependence [between projects]? How are they related? What kind of infrastructure would fit, in this case?'" (Information Manager A).*

The roadmap tool is an example of exercising control. It aims to provide a structured way of mapping, surveying and linking IT projects based on their interdependencies on one page. Information Managers from

the IT Department used this roadmap. On the roadmap, five innovation project types figured on a diagonal axis pointing towards the upper right of the figure. Time was represented on the horizontal axis and included three years and 'later' as time categories. The innovation project types were patient communication (e.g., using e-health solutions), data exchange (safe transfer of medical information between internal and external care providers), process control and justification (e.g., transparency of data and its meaning), smart allocation of resources (e.g., people, resources and work-saving technologies), and regular (e.g., optimization of information provision for professionals). The roadmap tool and focus on interdependencies did not receive much attention from the medical side of the hospital:

> *"Interviewer: You just said that you are working on several projects, do you see any coherence? Nurse: No, I do not consciously look at this or compare them" (Nurse).*

Non-IT projects, which are also part of the portfolio but not (yet) mapped, were viewed as an opportunity for increasing control.

In sum, 'Focusing on IT project interdependencies' shows how the IT Department exerted control by creating awareness for strategic connections among projects. This (IT Department) practice aims at a more efficient use of resources through an IT roadmap that creates an overview of projects.

3.4.4.2 Prioritizing projects was identified as the second controlling practice. This practice reflects how the Investment Committee aimed to prioritize (innovation) IT projects, medical equipment projects, clinical projects and real estate projects to determine budgets. The result of this practice is a ranking of projects in the portfolio to optimally exploit resources.

Project prioritization took place to enable go/no-go decisions with respect to innovation projects in the portfolio. We observed no specific prioritization category for innovation projects in general. Innovation was considered by the Portfolio Manager to be more of an overarching portfolio goal to connect the four projects types for prioritization.

Regular practice was that project initiators (such as physicians) completed project proposal forms to allow the Investment Committee to start the prioritization procedure. The committee prioritized projects based on control criteria, such as quality (e.g., contribution to the hospital's strategy, internal and/or external regulations, patient safety, risks (if the project was

not executed), audience size (number of healthcare providers and/or patient population) and financial benchmarks (e.g., return on investment time and amount of investment). After prioritization, the Investment Committee wrote investment proposals for official approval by the hospital's board of directors. If the project was approved, the project initiator, or innovator, may start the project and write an action plan and a detailed project plan.

In sum, the Investment Committee 'Prioritized projects' and exemplifies control by using explicit prioritization criteria to make emerging resource allocation processes transparent and efficient.

3.4.5 The Need to Bring Exploration and Exploitation Together

The external search for resources that extended beyond the organizational boundaries of Rijnstate Hospital created the opportunity and the need to change internal processes. This need for adaptivity implied a need to balance and integrate demands from the external and internal environment of Rijnstate Hospital. Adaptability acts as a balancing act between exploration and exploitation to enact ambidexterity, and it is realized through integrating practices.

3.4.6 Integrating Practices

We identified four integrating practices through which professionals created room for ambidexterity in the hospital. As explained in Section 3.4.1., by 'integrating' we mean the cross-functional integration between management and project levels to foster innovation. These practices focused on integrating innovation-related activities and existing resources in the innovation seminars with the aim to stimulate exploitation and exploration simultaneously. 'Integrating practices' bring together exploration and exploitation through cross-fertilization, and the exchange of expertise, information, innovation definitions or conceptualizations, and a service user perspective.

We first explain the context of the Innovation Seminars in which these practices were embedded. The Research and Innovation Department organized these seminars approximately every three to four months at 5:00 PM, thereby signaling that innovation 'occurred' outside regular hours. This Department invited a varied audience to the seminars from the Healthcare Innovation Office, the Marketing and Communications Unit, the Research and Innovation Department, the IT Department, physicians, the university

of applied sciences, universities, healthcare networks, and other regional hospitals. This varied audience was brought together to create social interactions. Professionals in the audience of the Innovation Seminars had diverse backgrounds and each their own experience with exploration or exploitation. Bringing these professionals together created cross-fertilization.

3.4.6.1 Integrating expertise (to develop innovations) was identified as the first integrating practice. Centralization of innovation expertise was needed in this large hospital:

> *"It is a large organization, so we have a poor overview of the initiatives present. We try to improve this with the Innovation Seminars, so we are really creating an overview of which parts of the organization are working on [innovation] so we can find each other faster" (Healthcare Innovation Office Manager).*

This poor overview of available innovation expertise was a reason for the Research and Innovation Department to bring innovation expertise together and start the Innovation Seminars. This practice describes how all attendees of these seminars (as introduced in the previous paragraph) collaborated and integrated when they came together during the seminars. With this practice the attendees aimed for cross-fertilization of expertise between each other within the seminars through exploring existing and new knowledge and subsequently exploiting it. The result of this practice is the exploration and exploitation of accessible expertise through cross-fertilization and integration.

The seminars generated enthusiasm, involvement, social interaction and support for innovation among the participants through presentations and discussions, which supported exploitation by connecting existing internal or external expertise. The seminars focused on exploration by triggering enthusiasm among participants to generate new opportunities and/or ideas for innovation.

In parallel, the Central Research Committee organized Innovation and Research Seminars (with a less clear focus on innovation) to connect physicians:

> *"'Well, we have a research idea, please think along! Who wants to participate? Can we make some linkages?' Yes, after that time, 'Hey, we need to talk, maybe we can do this and*

> *that, we are also working on that': that is more about sharing" (Coordinator Research, Medical Center).*

Another initiative to achieve the integration of different sources of expertise were 'From Idea to Process' meetings organized by the Portfolio Manager. These meetings aimed at connecting and integrating separate processes (related to the four portfolio themes) into one innovation process. During these meetings, the Portfolio Manager and representatives of the portfolio themes sat together and attempted to discuss and highlight similarities and differences in current processes to create a coherent innovation process. During the time of the study, we observed the first attempts towards the creation of a common innovation process.

In summary, the practice of 'integrating expertise (to develop innovations)' helped to accomplish ambidexterity by combining the exploration of new innovation opportunities (e.g., creating enthusiasm for new ideas and opportunities through cross-fertilization) and exploitation through the optimization of resource utilization (e.g., making use of existing internal and new external sources of expertise).

3.4.6.2 Integrating innovation-related information across departments (to support innovation) was identified as a second integrating practice. This practice was informally executed by physicians and formally by the participants of the Innovation Seminars, which also included some physicians. This practice reflects how physicians and the audience of the Innovation Seminars informally and formally integrated innovation-related information in, among other venues, the Innovation Seminars to facilitate the development and growth of (new) innovation projects. With this practice they aimed for the integration of innovation-related information across departments. Searching for information in informal networks and the exploitation of that information during the formal Innovation Seminars helped identify where support for innovation is needed.

Several respondents explained that they had initiated contact with other colleagues across Rijnstate Hospital, for example,

> *"I just search for patients or colleagues I know to be flexible and creative at this kind of thing, which increases the success rate. That is the network you build! That network is across the whole hospital, but this is not something that is part of the structure of the*

> *hospital, not yet. I hope it will come… You look for like-minded spirits! In the sense of, 'how do we initiate this?'" (Physician A).*

These informal networks across colleagues, as described in the quote above, created social interaction and supported the generation and integration of innovation-related information across the hospital. However, physicians must innovate, which was new to them, as illustrated by this 'scream' for support for innovation:

> *"I am medical specialist. I have some ideas about how to innovate, that you have to take somesteps, support, that is something you know, but really, how do I write a proper plan? Or the right subsidy proposal? Or how can I obtain funding for this kind of thing? I have no clue about this" (Physician D).*

The distribution of information required control, as innovation-related information was not always easily accessible and clear to physicians. The Research and Innovation Department coached people and helped them to find external support to develop their ideas. However, physicians first had to be aware that this support was available, making the integration of innovation-related knowledge across departments even more crucial.

Physicians had their own ideas about integrating innovation-related information. For example, they thought it was important to explore possibilities using storytelling. Some physicians asked for space for exploration: the 'free' support of innovation without bureaucracy. Others thought that innovation deserved attention, but not if it implied gaining more control over the innovation process (exploitation). Still, procedures for assigning time for innovation were needed:

> *"At all collaborating departments, you see a big barrier when they need to do something. When they are associated with the project, it is all very fancy and pretty, but when someone needs to do something, you hear: 'No, I cannot, unless there is an incentive'. Innovation is really impeded in this way; it is made difficult" (Physician E).*

In sum, physicians 'integrated innovation-related information across departments (to support innovation)' in informal networks across the hospital and aimed for exploration. At the same time, exploitation occurred during the

Innovation Seminars. Several interviewees explained that exploratory support of innovation was helpful, but that exploitative support was needed in terms of procedures to address the time assigned to innovation projects.

3.4.6.3 Integrating innovation definitions (to conceptualize innovation) was identified as the third integrating practice. Innovation remains an equivocal concept and is interpreted and explored in many different ways within Rijnstate Hospital. Managers struggled with the concept of innovation and wanted to improve alignment in the organization. The exploitation of innovation results was difficult because physicians did not always realize they were innovators or working on innovations:

> *"Interviewer: Do you feel like an innovator?*
> *Physician: No… No… No… Not in the sense of… No, I am trying to find a solution to a problem, but innovating… I think that if the app [under development] succeeds, it would be an innovation, from my point of view" (Physician B).*

This practice reflects how innovation in healthcare was conceptualized through discussion – for example, in the Innovation Seminars and 'From Idea to Process' meetings – and driven by the need for a common understanding across functions (as in occupations). We observed that this activity was specifically practiced at the managerial level and less by the physicians. The aim of this practice is to create a common understanding of the meaning of the concept 'innovation' to better make use of it and raise awareness. As innovation was a strategic priority of Rijnstate Hospital and other top clinical hospitals, a common understanding of innovation was important to be able to identify innovation and to make this strategic aim explicit at different organizational levels and not only at the strategic level so that the possibilities could be explored and exploited.

On the one hand, the actual results of this practice were attempts to converge towards a common conceptualization. On the other hand, people were anxious to strictly define the concept for fear of restricting innovation and the creativity of physicians as originators of innovation. Some physicians and managers perceived research and innovation as two similar phenomena. They explained that improving patient care often included research – such as identifying different drug doses – and that improvements – to patients' treatments, for example – equalled innovation. Others distinguished research

and innovation as two separate phenomena with different objectives. For research, the objective was seen as turning out publications, while for innovation, the objective was seen as societal and economic impact through knowledge.

In sum, diverging interpretations of professionals led to confusion between functions using different definitions. Without labeling innovation projects as such, the exploitation of innovation results remained difficult because it remained largely invisible.

3.4.6.4 Taking a service user perspective was identified as the fourth integrating practice. This practice aimed to understand and describe how service users were involved in the innovation process, how their interests were promoted and how thinking from the perspective of the service user, such as a patient, could provide valuable ideas for innovation. Physicians (on a project level) could be part of this practice, as well as patients, the Research and Innovation Department and the audience of the Innovation Seminars. The results of this practice were exploratory and exploitative initiatives to consider the importance of innovation from a service user perspective.

The clearest example of 'Taking a service user perspective' occurred in the development of an e-health application for the children of Project Green (as introduced before), where two children were involved in a brainstorm session:

> *"A small girl entered the room, together with her father. She took a place at the table and listened carefully to the information presented. Then, the brainstorm about the app started at each table. She was asked what kind of animal or person could be her buddy. She told us that she had always wanted a dog. She explained that it would be nice to feed and walk the dog and praise it when it did a good job. In case she would be awake for a long time, the dog could remind her to go to sleep, so that they could sleep together" (Observation note, Kick-off meeting app, Project Green).*

During this session, the girl was involved in idea generation and explained her desires for the app. Involvement of the service user led to a new way of exploring ideas for innovation. Looking through the eyes of the service user helped to identify new solutions to problems by taking a different perspective, as the team members of Project Green did by inviting children to the brainstorm session.

Another example was the Patients Council, consisting of Rijnstate Hospital patients who shared their service user experiences during the Innovation Seminars or for innovation projects upon Rijnstate's request. The Marketing Department also used personas to distinguish different patient groups with different information needs regarding e-health (Observation note, Innovation Seminar).

The integration of a service user perspective seemed rather natural for healthcare professionals working in the hospital:

> *"The hospital as a whole has, of course, one common customer. Everything we invest, it is all about one customer, and that is that [the patient]! We forget that. We are talking about internal customers, but that is who we are working for: that [the patient] is our only source of revenue!" (Nurse).*

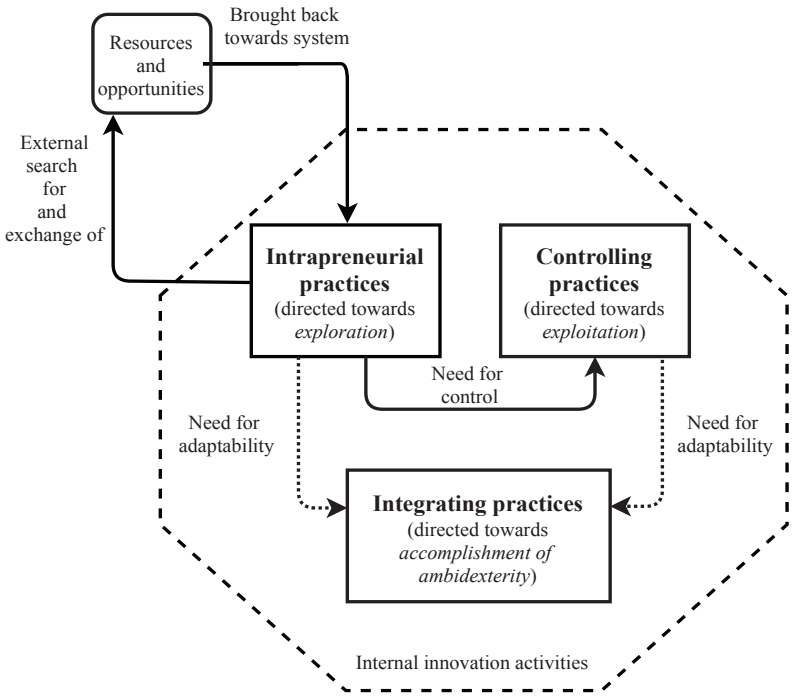
A patient focus was continuously present in the conversations we observed. However, there were more service users of the services than just the patient; for example, in one of the e-health projects:

> *"We are constantly talking about patients, but we should not forget that they represent only part of the equation. The other half consists of the care providers. Thus, general practitioners, pharmacies, regional laboratories, vaccination policlinics, and so on. Physical therapists et cetera" (Manager IT).*

In sum, 'taking a service user perspective' was an established practice of professionals in this hospital. Exploitative examples such as the presence of the Patients Council and more exploratory initiatives such as involving patients in the brainstorming session for a new app existed. Service users were considered relevant stakeholders at Rijnstate Hospital, signaling a broad enactment of this practice.

3.5 DISCUSSION

We explored and analyzed how healthcare innovation practices were related to the challenge of enabling ambidexterity, as visualized in Figure 3.2. In the following sections, we discuss the interrelated practices in relation to the literature and the research aim and conclude with implications, limitations, boundary conditions and suggestions for future research.



Legend: Arrows with dotted line: the need to bring exploration and exploitation together to enact and enable ambidexterity.

Figure 3.2. The interplay of practices enabling ambidexterity in a general hospital.

3.5.1 Discussion of Healthcare Innovation Practices

Figure 3.2 visualizes the three types of healthcare innovation practices through which professionals accomplished ambidexterity. Through intrapreneuring, controlling, and integrating practices, professionals were able to stimulate and accommodate innovation in the highly structured and controlled environments of their hospital environment.

The situation of the hospital can been see as one characterized by resource scarcity (Cunha, Oliveira, Rosado, & Habib, 2014), which means that innovation-focused hospitals need to cooperate in networks (cf. Witell, Gebauer, Jaakkola, Hammedi, Patricio, & Perks, 2017). The external search for resources created opportunities and brought resources into the hospital, but the hospital also provided opportunities and expertise to the external network. Some actors in the hospital saw the need to structure and control

these innovation-related processes, yet our findings show exercising too much control could stifle creativity and exploration of physicians and care providers. In order to achieve ambidexterity, the hospital needed to exercise both exploration and exploitation. We identified controlling practices aimed at monitoring and controlling innovation-related processes, and integrating practices create cross-functional integration. Taken together, controlling and integrating practices enabled some oversight over the boundary-spanning intrapreneurial practices. The Innovation Seminars were an important vehicle for these integrating practices.

The integrating practices, in particular, were fundamental to understand how healthcare innovation professionals accomplished ambidexterity. They explicitly describe how professionals negotiated and managed the interfaces between exploration and exploitation together, addressing the gap of O'Reilly and Tushman (2013). The intrapreneurial practices and controlling practices were organized in separate organizational units, which led us to the conclusion that they represent an example of simultaneous or structural ambidexterity (O'Reilly & Tushman, 2013; Tushman & O'Reilly, 1996). The Innovation Seminars provided a stage for cross-functional integration of innovation (such as expertise and information) while increasingly considering the external environment (Gibson & Birkinshaw, 2004) through inviting external partners to present their innovation stories.

3.5.1.1 Healthcare Innovation Roles

In line with prior findings, we found that the innovation process in the investigated hospital was unstructured and informal (Salge & Vera, 2009; Thune & Mina, 2016), as ideas were initiated bottom-up (Zimmermann et al., 2015). Innovation in healthcare is often initiated by highly skilled medical professionals (Fitzgerald, Ferlie, Wood, & Hawkins, 2002). We identified three roles in this process: 'intrapreneur', 'controller' and 'integrator'. Roles are defined as bundles of tasks and norms or expected behaviors related to a position (Bechky, 2006; Biddle & Thomas, 1966; Hughes, 1958; Linton, 1936). The healthcare innovation roles are identified based on the three practice types.

The intrapreneurial practices point at the boundary-spanning role (Brentani & Reid, 2012) of a 'healthcare innovation intrapreneur'. This role includes scanning the environment and the organization to collect

and introduce new ideas for innovation from the internal organization or external healthcare environment, identifying collaboration opportunities and bundling forces and resources for further developing and realizing (own) ideas within the hospital. Out-of-the-box thinking, noncompliance and the ability to challenge existing routines or procedures characterize the 'healthcare innovation intrapreneur'. The Research and Innovation Department Manager mainly enacted this role. This role was continuously evolving, and actors needed to continuously enact it in all their actions, not just at certain moments in time. The aim of this role is to support exploration through the search for external (resource) opportunities and the initiation of ideas within and external to the hospital to continue healthcare innovation.

The controlling practices underline the relevance of a 'healthcare innovation controller' who structures and organizes the healthcare innovation process, for example, by means of portfolio management. The 'healthcare innovation controller' oversees several interdependent innovation projects and knows all of their ins and outs. This role was more or less enacted by the Portfolio Manager as head of the Strategic Portfolio Management and Innovation Unit. This role describes the aim to continuously focus on holistically structuring and organizing innovation to exert control or to exploit.

The integrating practices underline the relevance of a 'healthcare innovation integrator' who coordinates the integration of innovation-related expertise, information, and definitions and integrates a service user perspective. The 'healthcare innovation integrator' plays an ambidextrous role that considers the relevance of both exploitation and exploration to accommodating innovation in the hospital. This role was more or less enacted by the Research and Innovation Department, as originator and organizer of the Innovation Seminars. Still, a continuous organization-wide enactment of this role might enable structural cross-functional integration of innovation, in for example the Innovation Seminars. This role aims to centralize and integrate scattered innovation-related activities and resources (e.g., innovation-related expertise and information) within a hospital.

3.5.2 Theoretical Implications

In the present study, we make two theoretical contributions based on our analysis of how ambidexterity is accomplished in a general hospital pursuing innovation.

Our first contribution is to the ambidexterity literature. Our analysis of healthcare innovation practices shows that it is the interplay of an array of different practices enacted on different organizational levels that together enables actors to accomplish ambidexterity. This emergent process began with internal idea generation on the shop floor (Zimmermann et al., 2015) and developed towards 'integrating' practices with other actors outside the organization, which are an illustrative example of merging exploration and exploitation across organizational functions. These integrating practices thus explain how to converge exploration and exploitation or control and innovation (March, 1991) in healthcare.

Our second contribution is to the healthcare management literature. Innovation-focused healthcare organizations face a balancing act. On the one hand, they need to control processes, focus on efficiency and minimize risks. On the other hand, they need to emphasize the broadening of new possibilities and innovate to meet quality improvement standards. This study explained how ambidexterity can be enacted in a general hospital pursuing to create innovation through various healthcare innovation practices. We opened the black box of innovation activities – here understood as practices – at the hospital level, as suggested by Thune and Mina (2016), and even went beyond by considering activities in networks (as introduced in the intrapreneurial practices).

Moreover, we identified three healthcare innovation roles – 'intrapreneur', 'controller' and 'integrator'. We pinpointed the organizational aspects of healthcare innovation, in particular, of how healthcare innovation professionals accommodate, organize and structure healthcare innovation, deal with the interplay of exploration and exploitation and look for cross-functional integration between the medical and management sides of a hospital (Djellal & Gallouj, 2007). We explicated and clarified the practices and roles of those healthcare innovation professionals involved in the process to clarify this sometimes unstructured and informal process (Salge & Vera, 2009; Thune & Mina, 2016).

3.5.3 Practical Implications

Our findings also have practical implications for innovation professionals in healthcare by making implicit healthcare innovation practices explicit and by showing how innovation professionals address the seemingly conflicting objectives of exploitation and exploration within day-to-day actions and activities.

The results suggest that innovation professionals in healthcare should particularly focus on integrating practices that support ambidexterity in a hospital, next to more straightforward controlling and intrapreneurial practices. We examined the organization of the Innovation Seminars and similar meetings, where dialogues occur between several actors involved in innovation, such as physicians, managers, knowledge institutions and innovation networks. Our analysis of these seminars and meetings demonstrated the relevance of continuously considering both control (exploitation) and innovation (exploration) to enable professionals to manage healthcare innovation while also allowing for the informal and unstructured nature of innovation in healthcare (Salge & Vera, 2009; Thune & Mina, 2016). The organization of such seminars should not be a goal in itself and the post-seminar follow-up may be even more important to continue the cross-fertilization of knowledge and building a dense and enduring network of innovation enthusiasts.

Understanding how ambidexterity is accomplished in a general hospital that pursues innovation demonstrates how various healthcare innovation roles can help to create clarity in terms of responsibilities, division of tasks and reporting relations. In particular, the intrapreneurial role is difficult to structure and organize, and its performance is hard to measure, yet it is needed to initiate healthcare innovations.

3.5.4 Limitations, Boundary conditions and Future Research

The present study comes with certain boundary conditions related to its design. We chose to gather data from a single general hospital, thereby opting for depth rather than breadth, which does not enable us to compare our findings to structurally similar situations in other (types of) hospitals and could therefore be considered a limitation (cf. Hillebrand, Kok, & Biemans, 2001). In our analysis of healthcare innovation practices we did not distinguish between types of innovation (e.g., service, process, technological, and business model innovation (Herzlinger, 2006)). Further research could zoom in on different types of healthcare innovation and compare practices across different types of innovation. Another avenue for future research could be comparing practices across hospital types, such as academic, specialized or private hospitals, which might exhibit different ways of organizing due to different organizational structures and availability of innovation budgets. In this study, we mainly

focused on healthcare innovation from an intraorganizational perspective and did not emphasize the activities that happened as part of the collaboration in networks. Future research could take a more interorganizational perspective on healthcare innovation practices, because healthcare networks are of increasing importance for the creation of well-being of patients (Black & Gallan, 2015; D'Andreta & Scarbrough, 2016; Patru, 2017). A stakeholder perspective might also be interesting to study because in healthcare, the alignment of stakeholders with diverging interests and the development of agreement between them is thought to be of importance to making the proper arrangements for collaboration (Hillebrand, Driessen, & Koll, 2015).

Further research in other healthcare settings, such as care for the elderly or for disabled people, could increase the theoretical generalizability of our results, as different healthcare innovation practices could be revealed. Further research might also focus on situations in which enacting ambidexterity in hospitals is challenging because 'unsuccessful' cases can contain very rich learning material (cf. Eberhart, Eesley, & Eisenhardt, 2017).

From a methodological perspective, future research could also attempt to test causal relationships in a quantitative design between healthcare innovation variables such as internal and external collaboration, formal and informal communication, patient-centered focus and innovation performance, hospital innovativeness (Salge & Vera, 2009; Schultz et al., 2012) and patient satisfaction. Creating a better understanding of the practices through which ambidexterity is enacted is essential for improving innovation performance and ensuring that innovations are aligned with the needs of patients or other service users of services. Future research could focus on the role of project portfolio management in hospitals to better understand how innovation could be managed in healthcare. An application of this business approach would be helpful to better understand how the controlling practices can be related to the three general project portfolio management objectives: maximizing value, balancing risk and ensuring strategic fit (Cooper et al., 1999; Cooper, Edgett, & Kleinschmidt, 2001).

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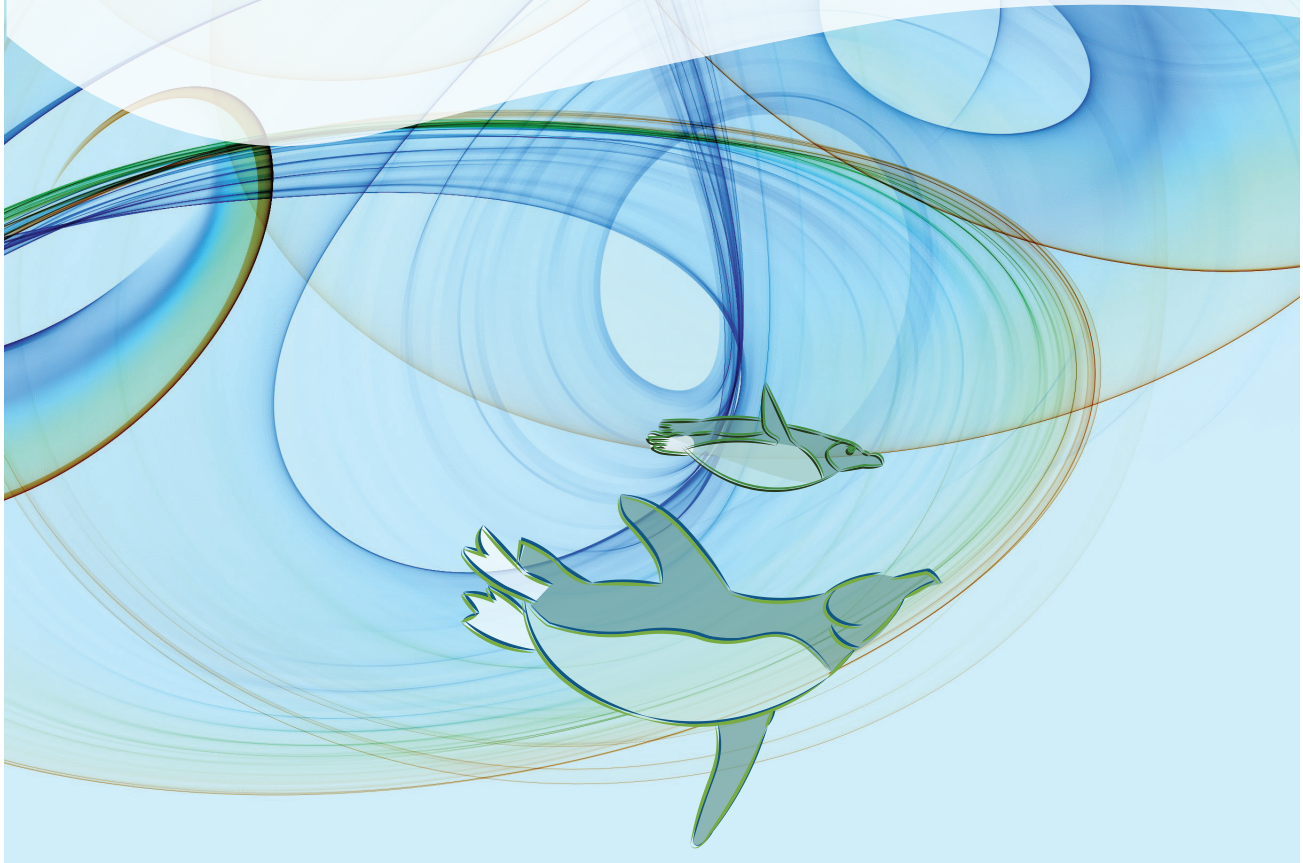
Chapter 4

Investigating (New) Service Development in the Public Sector

The Role of a Portfolio Mind-Set at the Project Level

This chapter is based on a paper, co-authored with Allard C.R. van Riel.



In the public sector, the development of interdependent and complex (new) service[1] offerings is increasingly managed in service innovation portfolios. Fragmentation of the resulting service offering is often caused by too strong a focus on managing (new) service development ((N)SD) projects individually. As a consequence, many public organizations do not provide a coherent service offering to their end-users[2]. A portfolio mind-set at the organizational level has been shown to contribute to a better integration of the portfolio. Using value constellation theory, this article investigates the role of a portfolio mind-set at the project level, i.e., the awareness of project managers of outcome interdependencies between projects executed as part of a portfolio, and their ability to oversee the portfolio. With an online survey, data were collected from 103 (N)SD project managers in the public sector. Partial Least Squares-Structural Equation Modelling (PLS-SEM) software was used to analyze the data. A portfolio mind-set at the project level leads to higher value-in-use. Reflexivity (evaluation), formal communication, collaboration, and market immersion were identified as antecedents of a portfolio mind-set at the project level.

Key words: *(New) service development, public service, service user perspective, project management; portfolio mind-set, value-in-use, survey, PLS-SEM*

4.1 INTRODUCTION

Organizations in the public sector increasingly use project portfolio management techniques to organize interdependent (new) service development (hereafter (N)SD) projects in a project portfolio. This practice allows them to evaluate projects in terms of their relative performance, risk profiles, and strategic relevance, and manage them accordingly (Cooper, Edgett, & Kleinschmidt, 1999; Kester, Griffin, Hultink, & Lauche, 2011) to efficiently allocate scarce public resources and to wield control. Although delivering high quality service to end-users is the aim of most service providers in the public sector (Hodgkinson, Hannibal, Keating, Chester Buxton, & Bateman, 2017; Van der Waldt, 2011), in practice they often fail to deliver the expected quality (Van de Walle, 2016; Van Riel, Calabretta, Driessen, Hillebrand, Humphreys, Krafft et al., 2013).

1 'New' was placed between brackets, because service innovation in this paper might include improvement of existing services called service improvement or service development, next to new service development.

2 In this paper, we refer interchangeably to end-users and service users. In all cases we refer to the end-user (e.g. the customer, patient, citizen, etc.) and not to the professional who uses the service.

Service offers in the public sector are frequently complex, and citizens often derive value-in-use by combining or integrating the outcomes of several (N)SD projects. Value-in-use is defined as "the extent to which a [service user][3] feels better off (positive value) or worse off (negative value) through experiences somehow related to consumption" (Grönroos & Voima, 2013, p. 136). Citizens are thought to derive higher levels of value-in-use (Ballantine & Varey, 2006; Helkkula, Kelleher, & Pihlström, 2012) when the service offer forms an integral and coherent offering, wherein the different service elements complement, facilitate or support one another (Normann & Ramirez, 1993; Patrício, Fisk, Falcão e Cunha, & Constantine, 2011; Van Riel et al., 2013).

In the present study, it is investigated how and to which degree project managers' portfolio mind-set (Kester et al., 2011; Kester, Hultink, & Griffin, 2014) generates value-in-use for end-users through a more coherent service offering (McGrath, Keil, & Tukiainen, 2006). Portfolio mind-set at the project level is defined as the extent to which project managers have a complete overview of all relevant projects in the portfolio that are connected to their own project in terms of outcomes, as well as in-depth knowledge of their own and of all other relevant projects.

Value constellation theory (Normann & Ramirez, 1993; Patrício et al., 2011; Van Riel et al., 2013) stresses that in the case of complex service offers, multiple service elements together satisfy a need. Service elements are generally developed in portfolios of service innovation projects. To acquire an overview of how these projects are interrelated, in-depth knowledge about each of the projects in the portfolio and their outcomes is needed. The concept of a 'portfolio mind-set' originates from the portfolio management literature (Kester et al., 2011; Kester et al., 2014). In the present study it is contended that it is highly relevant to have a portfolio mind-set at the project level. Service organizations need to realize a coherent and integrated service offering for service users, i.e., prevent the complex service offering from becoming fragmented. In this article, the following question is therefore addressed: What is the role of a portfolio mind-set at the project level, in generating value-in-use for end-users of complex services in the public sector?

3 The word 'consumer' was replaced by the word 'service user' for consistency reasons.

By empirically investigating the role of a portfolio mind-set at the project level in (N)SD projects in the public sector, the article develops a better understanding of how higher levels of value-in-use for end-users can be achieved.

The article is structured as follows. First, the state of the art literature is presented and next the conceptual model. Then, potential antecedents of portfolio mind-set at the project, inter-project and organizational levels are identified. Hypotheses are developed regarding the effects of these antecedents and integrated in a conceptual model. Next, the model is empirically validated in a field study, using a survey to collect data from project managers of public service development projects. Then the data are analyzed, results presented, and implications, limitations and future research opportunities are discussed.

4.2 THEORETICAL BACKGROUND

In this section, potential antecedents of a portfolio mind-set are identified and linked to theory. The constructs and their relationships are represented in a conceptual model.

4.2.1 State of the Art

Organizations must deal with the challenging task of dividing work into manageable chunks such as projects – to exploit specialization, increase control and efficiency - and re-integrate these chunks to achieve coordination and alignment of tasks, actors and activities (Galbraith, 1974; Gkeredakis, 2014; Heath & Staudenmayer, 2000; Okhuysen & Bechky, 2009; Thompson, 1967). In service organizations in the public sector, project portfolio management (hereafter portfolio management) is increasingly used as means to primarily achieve control, and secondly to realize integration among interdependent projects. Portfolio management is "a dynamic decision process whereby a business' list of active projects is constantly updated and revised. In this process, new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed or deprioritized; and resources are allocated and reallocated to active projects" (Cooper et al., 1999, p. 335). However, it remains challenging for organizations to go beyond managing projects individually and really integrate their management into the portfolio.

Particularly in the public sector, offering integrated and coherent service is important. Due to the lack of alternatives, resource-scarcity for

innovation in public service (Witell, Gebauer, Jaakkola, Hammedi, Patricio, & Perks, 2017) and the fact that service in the public sector often fails (Van de Walle, 2016), a focus on the value service creates for service users, or value-in-use, is important.

An important outcome for service providers in the public sector is value-in-use, created by offering a range of interdependent services, or service elements, which facilitate, support and complement each other. Together, and in varying combinations, these outcome-interdependent services and service elements, or value constellations (Patrício et al., 2011; Van Riel et al., 2013) are intended to solve often complex problems for service users. A value constellation has been understood as a combination of multiple outcome-interdependent services that together provide resources to be integrated by service users (Jüttner & Wehrli, 1994; Normann & Ramirez, 1993). A value constellation perspective implies that outcome-interdependent (N)SD projects must be coordinated with a focus on the value-in-use they create together for service users (Van Riel et al., 2013).

4.2.2 Hypothesis Development

Figure 4.1 presents the conceptual model. We consider portfolio mind-set as an antecedent of value-in-use. Reflexivity, inter-project communication, inter-project collaboration, innovative climate and market immersion are hypothesized as antecedents of a portfolio mind-set. We consider portfolio mind-set as a mediator of the relationships between the antecedents and value-in-use.

4.2.2.1 Portfolio Mind-Set

Project managers must make trade-offs between project scope, quality, time and cost within each individual project (PMI, 2013). As a result of the strong internal focus in individual projects, there is a risk that project managers may take interdependencies among interrelated projects and effects on their outcomes insufficiently into account, while making these decisions (Chao & Kavadias, 2008; Killen & Kjaer, 2012). Often, service users combine outcomes of multiple (N)SD projects when making use of a complex public service offering. For example, people who lose their job are coached, share information and complete forms on a digital platform. In this case, service users face the "the need to use the end result of another project" (Killen &

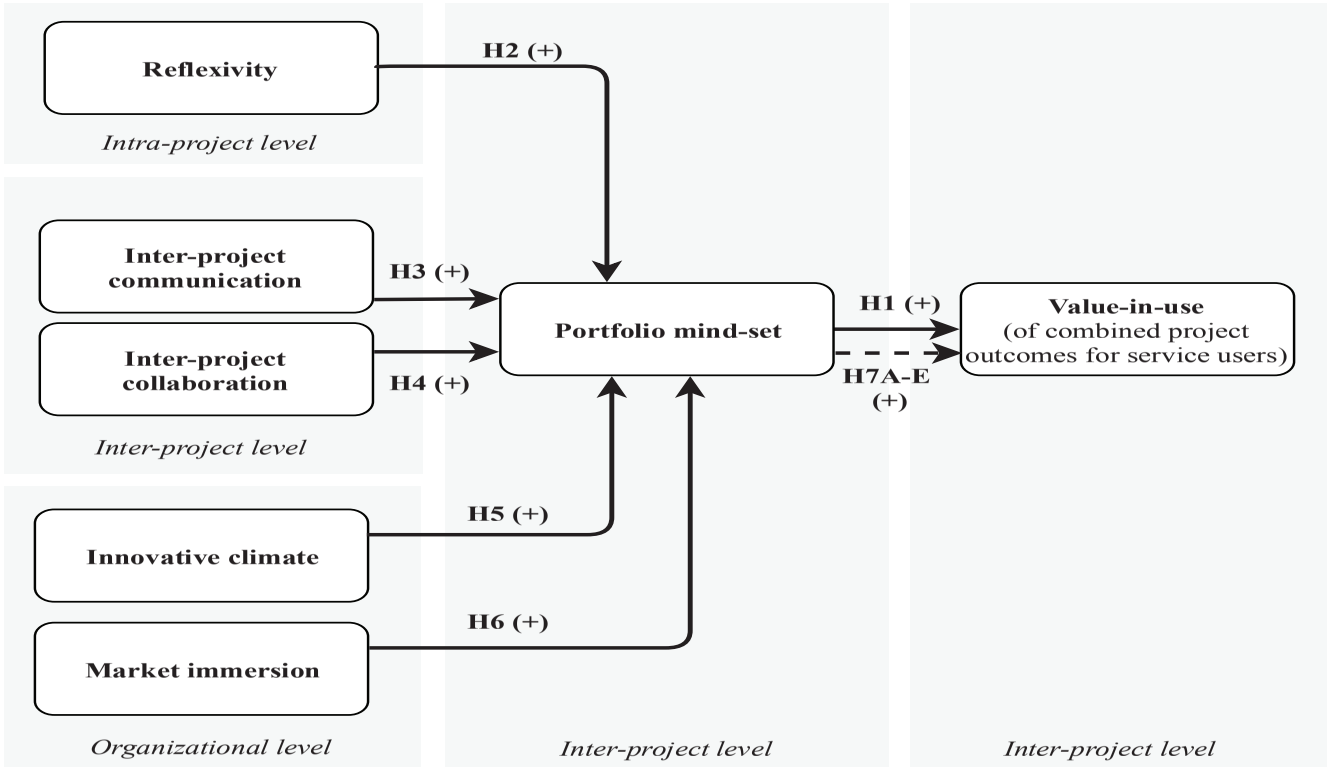


Figure 4.1. Conceptual model.

Legend: The dotted arrow represents a hypothesized (partial) mediating role of portfolio mind-set.

Kjaer, 2012, p. 556). Such outcome interdependencies refer to how an outcome from one service development project complements other project outcomes, and thus contributes to the user perceived value of the full offering. The concept of a 'portfolio mind-set' appears useful for investigating this phenomenon at the project level, and although it has been shown to be relevant for portfolio managers (Kester et al., 2011; Kester et al., 2014), it has not been studied at the project management level.

Value constellation theory discusses how the combination of multiple service elements creates value-in-use (Jüttner & Wehrli, 1994; Normann & Ramirez, 1993; Van Riel et al., 2013). A portfolio mind-set can thus help project managers oversee the entire set of related projects, and detect and anticipate interdependencies and coherence between project outcomes and potential synergies among them. Overview and awareness of these synergies and coherence among the end products of different projects, or project outcomes, may increase the value-in-use for end-users of complex service offerings. Therefore:

Hypothesis 1: The degree to which a portfolio mind-set is present at the project management level is directly and positively associated with value-in-use (ceteris paribus (c.p.)).

4.2.2.2 Reflexivity

Reflexivity refers to having a continuous "stop-and-think-attitude" and behavior (Hammedi, Van Riel, & Sasovova, 2011, p. 662). Through reflexivity, in-depth knowledge about a project can be gained within a project team while awareness of the contribution of the project outcome to service users can be increased. Reflexivity is defined as: "the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies (e.g., decision-making) and processes (e.g., communication) and adapt them to current or anticipated circumstances" (West, Garod, & Carletta, 1997, p. 296).

Reflexivity has been shown to be relevant in project management, and project managers can influence and change the extent to which it is practiced. It is shown to positively influence team decision-making performance, in terms of efficiency and effectiveness (Carter & West, 1998; Hammedi et al., 2011; Widmer, Schippers, & West, 2009). Therefore, it is hypothesized that

project team reflexivity facilitates the development of a portfolio mind-set, because the team is aware of, openly reflects upon and discusses their own project, its outcome and its potential relevance to other projects. Hence:

Hypothesis 2: Reflexivity at the intra-project level is directly and positively associated with portfolio mind-set (c.p.).

4.2.2.3 Inter-Project Communication

Efficient and effective communication helps diffuse information throughout the organization (Van Riel, Lemmink, & Ouwersloot, 2004). Inter-project communication is defined as: exchanging information about projects and their interdependent outcomes between project team members from different projects. Communication between project teams is crucial for identifying, understanding, and sharing the linkages and outcome interdependencies among projects.

When project teams communicate more frequently, this supports the development of a portfolio mind-set, because knowledge and information about projects and their outcomes is shared. Inter-project communication helps project teams to properly understand and generate an overview of relevant related projects. In line with past research about individual innovation projects (Van Riel et al., 2004), a positive effect of inter-project communication is expected:

Hypothesis 3: Inter-project communication is directly and positively associated with portfolio mind-set (c.p.).

4.2.2.4 Inter-Project Collaboration

Cross-functional collaboration was identified as an antecedent of portfolio mind-set (Kester et al., 2011). We define collaboration between projects as the extent to which team members of different projects work together, communicate about the projects, and share project information and project expertise.

Inter-project collaboration helps combine and integrate project information and experience from various projects, which helps create – awareness of – a coherent overview of the projects and their outcome interdependencies. The more project teams – formally and informally –

collaborate, the higher the chance that such an overview is created, shared and integrated in an early stage of project development. Consistent with this rationale:

Hypothesis 4: Inter-project collaboration is directly and positively associated with portfolio mind-set (c.p.).

4.2.2.5 Innovative Climate

An innovative climate has been defined as: "a climate that is tolerant of failure and within which information freely flows" (Bock, Zmud, Kim, & Lee, 2005, p. 91). Innovativeness at the organizational level is relevant, because of the focus on (N)SD projects that are embedded within an organization's project portfolio.

An innovative climate creates a risk-tolerant culture where open communication is crucial (Griffin & Hauser, 1996). Open exchange of information is beneficial to innovation-related communication (Jaworski & Kohli, 1993) and sharing of knowledge (Burns & Stalker, 2001) and positively influences innovation success (Van Riel et al., 2004). An innovative climate appears beneficial for increasing a portfolio mind-set, because project teams may be able to learn and dare to take a different perspective. Therefore:

Hypothesis 5: The degree to which an innovative climate is present at the organizational level is directly and positively associated with having a portfolio mind-set (c.p.).

4.2.2.6 Market Immersion

The concept of market immersion is related to customer orientation (Calantone, Garcia, & Dröge, 2003) and market orientation (Jaworski & Kohli, 1993; Kohli & Jaworski, 1990). It helps to understand service users' needs and identify opportunities for service improvement (Kester et al., 2011). We define market immersion at the organizational level as the extent to which the entire group of project teams in an organization embraces market research activities to fully understand service users' needs and identify opportunities for the creation of value-in-use (cf. Kester et al., 2011).

A proper understanding of end-users' needs is helpful in identifying and overseeing other relevant projects that address similar or related needs. The higher the degree of market immersion, the more project teams are

aware of and able to understand service end-users' needs. This knowledge helps project managers to understand how projects and their outcomes are interdependent from an end-users' point of view.

Hypothesis 6: Market immersion at the organizational level is directly and positively associated with a portfolio mind-set (c.p.).

4.2.2.7 Mediating Role of Portfolio Mind-Set

Besides the direct effects of antecedents at the project, inter-project and organizational level on the realizing a portfolio mind-set, a mediating role of portfolio mind-set is proposed. A portfolio mind-set at the project level functions as a cognitive facilitator.

Project team reflexivity is hypothesized to facilitate the development of a portfolio mind-set. Through this effect, the effect of portfolio mind-set on value-in-use is strengthened, because more adequate and detailed knowledge about a specific project and its outcome will become present through discussion and evaluation. This awareness helps identify linkages and synergies with other projects and to create a better overview of the portfolio.

Frequent inter-project communication is expected to help project teams to share information about projects and their outcomes and diffuse it through the organization. Sharing of information helps to understand potential synergies between project outcomes and to overview the coherence of projects in the portfolio. The better the understanding of projects and their interdependencies at the project management level, the higher the value-in-use is expected to be that is generated by the combination of the outcomes of these projects by service users.

Collaboration between project teams is also expected to strengthen the portfolio mind-set. This strengthens the effect of portfolio mind-set on value-in-use, because an overview of projects and their outcomes enables project teams to identify potential synergies of project outcomes and steer towards integration among them. Therefore, a portfolio mind-set strengthens the focus on what is required to achieve value-in-use.

The more an innovative climate stimulates innovativeness and tolerates risks and failures, the more project teams may be able to learn and dare to take a different perspective. Therefore, it is expected that in such a climate a strong portfolio mind-set can be more easily developed, which strengthens the relationship between innovative climate and value-in-use.

The higher the degree of market immersion, the more project teams are aware of and the better they are able to understand service users' needs. The better the overview of projects and their outcomes based on service users' needs, the higher the value-in-use. A portfolio mind-set is thought to be crucial for project managers to get an overview of other relevant projects in relation to their own projects and their outcomes. A portfolio mind-set is expected to help project managers understand how interdependent service or service elements support and complement each other, to increase value-in-use. Based upon the above, a (partially) mediating role of portfolio mind-set is hypothesized:

Hypothesis 7: Portfolio mind-set (partially) mediates (c.p.) the relationship between the antecedents (A. reflexivity; B. inter-project communication; C. inter-project collaboration; D. innovative climate; E. market immersion) and value-in-use.

4.3 METHODS, RESEARCH DESIGN AND ANALYTIC RESULTS

This section discusses sampling strategy, data collection, survey design, measures, and analytic results.

4.3.1 Sampling and Data Collection

To test the hypothesized effects of various project-level variables on value-in-use, an online survey was used to collect information about service innovation projects in the Dutch public sector. A purposive snowball sampling strategy was used to invite approximately 1000 project managers to participate in the study. An acceptable sample size was obtained with extensive support from two people in the field, and through Linked-in discussion groups, such as the Dutch chapter of the Project Management Institute (PMI). Moreover, respondents were recruited in collaboration with the Dutch department of the International Project Management Association (IPMA) and the Project Management Association of Dutch Municipalities. Purpose and relevance of the study were explained in the invitation. Project managers were asked to spread the invitation to colleagues and in their personal network.

Approximately two weeks after sending the invitation, the two practitioners and the first author sent reminders. Respondents were offered

an executive summary of the results. Ultimately, a total of 108 responses was received, resulting in a response rate of approximately 10.8%. Other online-based studies have reported comparable response rates (e.g., Hammedi et al., 2011; Lawson, Petersen, Cousins, & Handfield, 2009). A total of 103 surveys was usable for analysis. Five surveys with more than ten percent missing values were deleted. Table 4.1 outlines the sample characteristics. The following section includes more information about the included projects and the criteria used to include them in this study.

4.3.2 Survey Design

The potential for common method variance (CMV) or common source bias (Meier & O'Toole, 2012)[4] was limited by following several procedures proposed by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). First, where possible previously validated scales were used and adapted to the purpose of this study. A pre-test was conducted with 25 project managers to identify lacks of clarity, inconsistencies and complexity of the survey items. Based upon respondents' feedback, wordings and instructions were adapted in some instances. Before, during and after the pre-test we extensively discussed the survey in all its facets with a dedicated project manager in the public service field. Thus the chance of CMV produced by item characteristics (Spector, 1994) was further reduced.

Second, to prevent social desirability bias (Podsakoff et al., 2003) the invitation letter and introduction to the survey instructed respondents to respond in a way that best described their experience. It was stated that no right or wrong answers existed. Project managers were asked to select a project based on the following criteria: a (recently) finished project, which linked to other relevant projects within the organization as part of a portfolio or program. (N)SD projects addressing the same category of service users were included. Respondents were primed by asking them to describe the project in a general way. Table 4.1 includes more information about the projects included.

Third, the online survey was designed in such a way that it was impossible for respondents to retrieve answers to previous questions, making it difficult for respondents to identify patterns in the questions and providing

4 In contrast to general management literature, 'common method variance' is referred to as 'common source bias' in public management literature (Meier & O'Toole, 2012).

Table 4.1. Sample demographics.

Gender		Tenure (in years)		Project types		Project duration (in months)		Sector		Dynamics in sector		Experience in sector (in years)	
Female	26.2%	1-5	16.5%	Construction projects	9.7%	1-3	1.0%	Government/ ministry	42.7%	Extremely low	1.0%	1-5	24.3%
Male	68.9%	6-10	25.2%	Healthcare innovation	9.7%	4-6	7.8%	Social public service	11.7%	Low	5.8%	6-10	26.2%
Other	2.9%	11-15	22.3%	Innovation at ministry / legal changes	7.8%	7-9	10.9%	Fiscal public service	0%	Normal/ Moderate	36.9%	11-15	15.5%
N/A	1.9%	16-20	16.5%	Innovation in education	3.9%	10-12	19.4%	IT in public service	5.8%	High	38.7%	16-20	12.6%
		>21	17.5%	Innovation in urban planning	18.4%	13-24	30.1%	Energy and infrastructure	11.7%	Extremely high	15.5%	>21	19.4%
		N/A	1.9%	Process innovation	2.9%	25-36	11.7%	Infrastructure	5.8%	N/A	1.9%	N/A	1.9%
				Public transport innovation	1.9%	>37	17.5%	Healthcare	12.6%				
				Technical ICT innovation	34.0%	N/A	1.9%	Other	7.8%				
				Technical innovation	6.8%			N/A	1.9%				
				Other	4.9%								

N/A = No answer

consistent and socially desirable answers. This approach helps to limit consistency motif and social desirability biases (Podsakoff et al., 2003).

Harman's one-factor approach was used to assess whether common method bias was a problem (Podsakoff et al., 2003; Podsakoff & Organ, 1986). The principal components analysis of all independent and dependent variables showed twelve factors with Eigenvalues above 1.0. The first factor accounted for 25.36% of the total variance, indicating the absence of one major factor (Podsakoff et al., 2003; Podsakoff & Organ, 1986). Therefore, common method bias seemed not to present a major problem in the dataset.

4.3.3 Measures

Where possible, existing and validated scales from the portfolio management, innovation and service literature were used. All items were measured on seven-point Likert scales from "strongly disagree" (1) to "strongly agree" (7). Existing scales were adapted to the project management level (except for market immersion and innovative climate that were measured at the organizational level), in accordance with the objective of this study. The items were bi-directionally translated and presented to the respondents in Dutch. All constructs were reflectively measured, except for the dependent variable 'value-in-use', which was formatively measured.

Value-in-use[5] was operationalized based on research about 'convenience value' (Anderson & Srinivasan, 2003; Mathwick, Malhotra, & Rigdon, 2001; Pura, 2005). A service user perspective was captured in this operationalization through focusing on project managers' perceptions of convenience value for service users, e.g., the ability of a user to complete a task in an effective and efficient way by using the service (Pura, 2005). Value constellation theory (Normann & Ramirez, 1993; Patrício et al., 2011; Van Riel et al., 2013) stresses a focus on the combination of services, because in the case of complex service offers service users often combine multiple service elements together to satisfy a need.

Portfolio mind-set was operationalized with five items, as tested and developed by Kester et al. (2014). Items were adapted to the project level of analysis.

Reflexivity was operationalized in three dimensions: evaluation (three items) and discussion of processes (three items) (Schippers, Den Hartog,

5 We actually measure perceived 'value-in-use' as that what the respondent – a project manager – perceives, because we did not have access to the end-users of the services.

& Koopman, 2007) and adaptation (two items) (Hammedi et al., 2011). The wording was adapted to reflect a project team focus.

Inter-project communication was measured with four self-developed items inspired by Van Riel et al. (2004), including two items for informal and two for formal communication.

Inter-project collaboration was measured with four self-developed items, inspired by Kester et al. (2011), De Luca and Atuahene-Gima (2007) and Van Riel et al. (2004). We adapted the scales to reflect inter-project level, by including a focus on different 'project teams' instead of 'different departments' including two items for informal and two for formal collaboration.

Innovative climate was measured with three items of innovativeness from the operationalization by Bock et al. (2005), as adapted by Hammedi, Van Riel, and Sasovova (2013).

Market immersion was operationalized with six items based on Kester et al. (2011) and a scale from Li and Calantone (1998).

4.3.4 Analytic approach

To assess the measurement scales' psychometric properties and to test the relationships put forward in the conceptual model, PLS-SEM is used as method of analysis. The choice for PLS-SEM is consistent with the exploratory nature of the study, its ability to incorporate formative constructs, and the relatively small sample size. Due to the low number of observations mediation tests were not executed.

To assess the statistical significance of all model parameters percentile bootstrap confidence intervals based on 10.000 bootstrap runs are employed (Streukens & Leroi-Werelds, 2016).

4.3.5 Exploration of the data and descriptive statistics

The first step of the analysis involves exploring the data for possible multivariate outliers based on Mahalanobis' D. Applying a conservative cut-off value of $\alpha = 0.001$ (cf. Hair, Black, Babin, & Anderson, 2014) no outliers were detected. Descriptive statistics (i.e., means and standard deviation) are provided in Table 4.2. In addition, Table 4.2 contains all inter-construct correlations in the lower triangle.

Table 4.2. Overview of descriptive statistics, AVE, correlations and HTMT.

	Construct	Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Reflexivity-evaluation	5.579	1.097	0.758	0.647	0.581	0.305	0.388	0.322	0.478	0.491	0.486	na
2	Reflexivity-discussion	4.958	1.276	0.607	0.843	0.683	0.396	0.299	0.454	0.409	0.516	0.414	na
3	Reflexivity-adaptation	4.913	1.424	0.540	0.655	0.844	0.219	0.283	0.370	0.615	0.429	0.295	na
4	Communication-formal	5.248	1.517	0.299	0.386	0.215	0.853	0.488	0.342	0.721	0.276	0.567	na
5	Communication-informal	5.587	1.326	0.317	0.257	0.250	0.450	0.994	0.466	0.395	0.164	0.372	na
6	Collaboration	4.670	1.414	0.306	0.444	0.339	0.726	0.405	0.778	0.324	0.230	0.514	na
7	Climate	5.615	0.835	0.475	0.414	0.586	0.342	0.358	0.298	0.643	0.416	0.393	na
8	Immersion	4.966	1.188	0.479	0.515	0.381	0.276	0.076	0.234	0.405	0.659	0.458	na
9	Mind-set	4.918	1.299	0.488	0.410	0.291	0.566	0.352	0.514	0.396	0.472	0.842	na
10	Value-in-use	5.027	1.170	0.245	0.344	0.244	0.263	0.095	0.327	0.116	0.224	0.363	na

Mean and SD are calculated in SPSS.

On the diagonal the square root of the AVE is shown.
Below the diagonal (lower triangle) the latent variable correlations are displayed.

The upper triangle shows the HTMT values.
na = not applicable (because value-in-use is measured as a formative construct).

4.3.6 Psychometric properties

All scales in the study, with exception of the scale used to measure value-in-use, are reflective in nature. For these reflective scales the scales' uni-dimensionality, internal consistency reliability, item validity, within-method convergent validity, and discriminant validity were assessed. The accompanying numbers are summarized in Table 4.3.

Table 4.3. Psychometric properties of the measurement instrument.

Item	Reflexivity-evaluation	Loading	Sig.
	(λ_1 = 2.105; λ_2 = 0.550; IC = 0.795; AVE = 0.574)		
	As a project team …		
1	… we regularly tested different ways in which we could reach our project objectives.	0.721	**
2	… we discussed what we could learn from the past.	0.945	**
3	… we regularly checked whether our activities produced the expected results.	0.557	**
	Reflexivity-discussion	**Loading**	**Sig.**
	(λ_1 = 2.404; λ_2 = 0.431; IC = 0.880; AVE = 0.711)		
1	... we regularly discussed the methods we used.	0.847	**
2	... we regularly discussed whether the team was working effectively.	0.745	**
3	... we regularly discussed the used methods.	0.929	**
	Reflexivity-adaptation	**Loading**	**Sig.**
	(λ_1 = 1.660; λ_2 = 0.340; IC = 0.827; AVE = 0.713)		
1	... we regularly adapted existing procedures.	0.666	**
2	... we regularly implemented new procedures.	0.991	**
	Communication-Formal	**Loading**	**Sig.**
	(λ_1 = 1.742; λ_2 = 0.276; IC = 0.842; AVE = 0.727)		
	During this project …		
1	... members of our project team and members of other project teams talked to each other regularly during formal encounters. For example, at plenary project team meetings.	0.890	**
2	... members of our project team and members of other project teams communicated regularly about the project during formal encounters.	0.814	**
	Communication-Informal	**Loading**	**Sig.**
	(λ_1 = 1.800; λ_2 = 0.200; IC = 0.993; AVE = 0.987)		
1	... members of our project team and members of other project teams talked to each other regularly during informal encounters. For example, at the coffee machine, the water cooler or the printer.	0.639	**
2	... members of our project team and members of other project teams communicated regularly about the project during informal encounters.	1.251	**
	Collaboration	**Loading**	**Sig.**
	(λ_1 = 2.800; λ_2 = 0.962; IC = 0.858; AVE = 0.605)		
	During this project there was …		

1	... informal cooperation between members of our project team and members of other project teams on a regular basis.	0.649	**
2	... much informal cooperation between members of our project team and members of other project teams.	0.736	**
3	... formal cooperation between members of our project team and members of other project teams on a regular basis.	0.834	**
4	... much formal cooperation between members of our project team and members of other project teams.	0.872	**
	Innovative Climate	**Loading**	**Sig.**
	(λ_1 = 1.833; λ_2 = 0.742; IC = 0.675; AVE = 0.413)		
1	I encouraged project team members to suggest ideas for new possibilities.	0.753	**
2	I put much value on project team members that took risks even if this led to failure.	0.585	**
3	I encouraged project team members to find new methods by which to perform a task.	0.573	**
	Market Immersion	**Loading**	**Sig.**
	(λ_1 = 3.169; λ_2 = 0.818; IC = 0.812; AVE = 0.434)		
	In this project …		
1	... we regularly met end-users to learn their current and potential needs.	0.871	**
2	... we had thorough knowledge of needs of end-users.	0.756	**
3	(recoded) ... we rarely used personal interviews and focus groups with end-users.	0.721	**
4	... we analyzed information about end-users systematically.	0.420	**
5	(recoded) ... we integrated few information about the needs of end-users.	0.442	**
6	... project results have been evaluated regularly by end-users.	0.619	**
	Portfolio Mind-set	**Loading**	**Sig.**
	(λ_1 = 3.837; λ_2 = 0.485; IC = 0.924; AVE = 0.708)		
	During this project ...		
1	... our project team was aware of all other relevant projects.	0.853	**
2	... our project team had in-depth knowledge about each other relevant project.	0.739	**
3	... our project team understood how our project was related to other relevant projects.	0.868	**
4	... our project team knew at all times how many other relevant projects were in which stage.	0.887	**
5	... our project team anticipated potential bottlenecks between our project and other relevant projects that could occur.	0.853	**
	Value-in-use	**Weights**	**Sig.**
	End-users generate substantial more … by combining end products of different projects.		
1	... ease of use …	0.308	**
2	… gaining time …	0.239	**
3	... effectiveness …	0.268	**
4	… efficiency …	0.329	**

** Loadings or weights are significant at the 0.05 significance level.
IC = Inter-item correlation.

Uni-dimensionality is evidenced as all first Eigenvalues of the accompanying inter-item correlation matrices exceed the cut-off value suggested by Karlis, Saporta, and Spinakis (2003) and all second Eigenvalues are smaller than one. Internal consistency (reliability) is supported as all values exceed the minimum level of 0.70 (Nunnally & Bernstein, 1994). Proof for item validity comes from the fact that all loadings exceed 0.50 (and the majority even exceeding 0.70) while all are statistically significant. Within-method convergent validity is confirmed as all average variance extracted values exceed 0.50. The statistics in support of the abovementioned psychometric properties are listed in Table 4.2. Finally, discriminant validity is evidenced as all latent variable correlations are smaller than the relevant squared average variance extracted values as well as the magnitude of the HTMT values (Henseler, Hubona, & Ray, 2016). The relevant numbers regarding discriminant validity can be found in Table 4.2.

For the formative construct under study (i.e., value-in-use), content validity is warranted by capturing the multifaceted nature of the construct in the different items (cf. Leroi-Werelds, Streukens, Brady, & Swinnen, 2014). Regarding item validity, the value-in-use scale is characterized by items that have significant weights. Discriminant validity is established by constructing 95% confidence intervals for all latent variable correlations. None of these confidence intervals included an absolute value of 1 (see also Table 4.2).

4.4 RESULTS

In this section, the hypotheses are tested and results are reported.

4.4.1 Hypothesis testing

Table 4.4 contains all relevant information regarding the assessment of the structural model and the hypothesis testing procedure outlined in detail below.

Both endogenous constructs in our model are characterized by a coefficient of determination that is significant at the 5% level = 0.48; . Starting at the right-hand side of the conceptual model, the result shows that 'portfolio mind-set' has a positive and significant impact on 'value-in-use' at the 5% level. In terms of antecedents of the 'portfolio mind-set' construct, it is evidenced that 'formal communication' and 'market immersion' act as significant predictors of 'portfolio mind-set' at the 5% level. In addition, at the 10% significance level, the constructs 'collaboration' and 'reflexivity-

evaluation' also exert a positive impact on 'portfolio mind-set'. The data fail to provide support for a significant impact of respectively 'reflexivity-discussion', 'reflexivity-adaptation', 'informal communication' and 'climate' on 'portfolio mind-set'.

Table 4.4. Results hypothesis testing.

				Direct effects	Indirect effects	
Outcome	Antecedent	Coeff.	Sig.	Conclusion	Coeff.	Sig.
Portfolio mind-set	Reflexivity-evaluation	0.2	*	H2 supported at the 10% level	0.063	*
	Reflexivity-discussion	0.003	ns	H2 not supported		
	Reflexivity-adaptation	-0.062	ns	H2 not supported		
	Communication-formal	0.232	**	H3 supported at the 5% level	0.07308	**
	Communication-informal	0.106	ns	H3 not supported		
	Collaboration	0.175	*	H4 supported at the 10% level	0.055125	*
	Climate	0.062	ns	H5 not supported		
	Immersion	0.239	**	H6 supported at the 5% level	0.075285	**
Value-in-use	Portfolio mind-set	0.315	**	H1 supported at the 5% level	na	

Coeff. = coefficient

Sig. = significance

** significant at the 0.05 significance level

* significant at the 0.10 significance level

ns = not significant

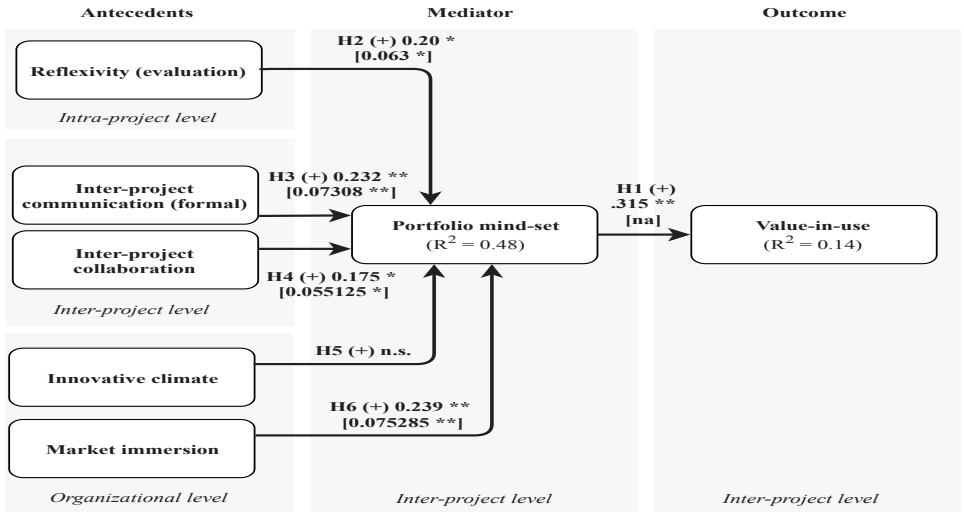
na = not applicable

The indirect effect was only tested if the direct effect was significant.

For the antecedents that exert a significant effect on 'portfolio mind-set', the significance of their indirect effects on 'value-in-use' is calculated following the procedure suggested by Nitzl, Roldan, and Cepeda (2016). The results of these analyses, which are also reported in Table 4.4, provide preliminary evidence for the notion that 'portfolio mind-set' mediates the impact of the antecedents on value-in-use. Given the sample size and the complexity of the model, direct effects of the antecedents on 'value-in-use'

were not included, as the accompanying parameter estimates are likely to be biased (see also Rucker, Preacher, Tormala, & Petty, 2011).

Figure 4.2 presents the estimated model with beta coefficients, significance levels and R^2 for both the direct and indirect effects models.



** significant at the 0.05 significance level
* significant at the 0.10 significance level
ns = not significant
Values between […] represent the beta coefficients and significance levels for the indirect effects.

Figure 4.2. Estimated conceptual model with direct and indirect effects (beta coefficients, significance levels and R^2).

4.5 DISCUSSION AND CONCLUSION

The findings of this study, based on observations from 103 project managers in the public service sector, provide strong support for the idea that portfolio mind-set plays a supporting role at the project level in generating value-in-use. We identified reflexivity (evaluation), formal inter-project communication, inter-project collaboration, and market immersion as antecedents of a portfolio mind-set at the project level.

Portfolio mind-set at the project management level positively influences value-in-use. Project teams that oversee the entire set of related projects are

able to raise awareness for synergies and coherence among the outcomes of different projects that service users combine. A portfolio mind-set results in a situation where service users generate substantially more ease of use, gaining time, effectiveness and efficiency in combining the end products of different projects.

The 'evaluation' dimension of reflexivity positively influences the development of a portfolio mind-set. A reflexive project team regularly stops and thinks about their project and its outcomes. Evaluation occurs by evaluating different ways of how project objectives can be achieved, discussing what can be learned from the past and checking whether activities produced the expected results. This reflexive attitude and/or behavior results in detailed in-depth knowledge about the own project, which is needed for creating a portfolio mind-set (see portfolio mind-set definition of Kester et al., 2011). The potential relevance to other projects can become clear through an evaluation of the project, its objectives and outcomes. Reflexivity has been shown to positively influence decision-making effectiveness and efficiency (Hammedi et al., 2011), but it also strengthens the build-up of a portfolio mind-set at the project management level.

Formal encounters and collaboration between members of different project teams (across the organization or with other organizations) help to create a portfolio mind-set. Consistent with findings of Van Riel et al. (2004) for individual innovation projects, frequent formal communication helps project teams to share project information and diffuse it through the organization. In line with Kester et al. (2011) we found that collaboration between project teams, rather than cross-functional collaboration, is an important antecedent of portfolio mind-set at the project management level. Project teams that informally or formally collaborate on a regular basis are able to develop a stronger portfolio mind-set at the project level.

Market immersion positively influences portfolio mind-set. When the entire group of project teams in an organization gathers, analyzes and embraces market research activities they are able to better understand service users' needs, which is consistent with the findings of Kester et al. (2011). Moreover, they are able to identify and oversee other relevant project address similar or related needs. Based on such understanding, project teams can identify opportunities for the creation of value-in-use, even in an early stage of developing new (public) services.

The discussion and adaptation dimensions of reflexivity (Hammedi et al., 2011), informal inter-project communication (Van Riel et al., 2004) and an innovative climate at the organizational level (Bock et al., 2005) appear not to directly affect the portfolio mind-set and value-in-use of complex services. Continuously evaluating and learning appear more profound when developing – a portfolio mind-set for – (new) (public) service than the (discussion of) methods or (adaptation of) procedures used. Incidental informal communication between project teams is not sufficient to create a portfolio mind-set. Structural formal inter-project communication seems to be more effective to develop a portfolio mind-set and services that offer value-in-use. Innovative climate does not have a significant effect on portfolio mind-set, which might be caused by the heterogeneity of projects and organizations included in the sample.

4.5.1 Theoretical Implications

A contribution is made to service innovation literature by empirically testing conceptual ideas about value constellations (Van Riel et al., 2013) in a resource-constrained public service context (Witell et al., 2017). Outcome-interdependent projects that are part of a portfolio or program can be considered a value constellation because these projects are interdependent in terms of the value-in-use they create for service users.

Moreover, a contribution is made to the project management literature by investigating the role of a portfolio mind-set at the project management level, rather than at the portfolio level (Kester et al., 2011; Kester et al., 2014). Stimulating a portfolio mind-set at the project management level significantly increases value-in-use in portfolios of public service development projects (discussion of antecedents above).

4.5.2 Practical Implications

This study shows that a portfolio mind-set helps project teams focus on how service users create value-in-use by combining service elements from different projects. Increasing the frequency of evaluation (reflexivity) within project teams, formal communication and collaboration between project teams, and market immersion at an organizational level appear to be effective and can be easily stimulated to improve a portfolio mind-set at the project management level.

The challenge for project managers in public service organizations is that they need to consider how value-in-use is generated by the end-user from an early project stage onwards. In public service innovation, a quest for accountability and transparency to the public and the administration (Hodgkinson et al., 2017; Osborne, Radnor, & Nasi, 2013) is often present. Consequently, a strong focus on control and administration of projects as isolated entities might become leading. The risk of such an approach is that the end-user of the services becomes the blind spot of project teams (Wägar, Roos, Ravald, & Edvardsson, 2012). Especially in a service domain where public means are used to develop innovations that must meet needs for society at large (Van der Waldt, 2011) taking an end-user perspective is important. This study has investigated one way in which project managers in public services can take such a service user perspective to develop a more coherent service offering.

4.5.3 Limitations and Suggestions for Future Research

The present study has limitations that need to be considered when interpreting the results. First, this research is based on cross-sectional data collected in several waves in one country. Future industry-specific studies could confirm the results in more specific (public) settings, such as healthcare, public transportation and or education, offered to different service users, such as patients, travelers and students. Studies in non-public service settings, such as retail, insurance, or professional services (Beltagui, Sigurdsson, Candi, & Riedel, 2017) such as law or banking services, could investigate situations in which service users have more freedom to choose their own service provider.

Second, data were obtained from managers of (N)SD projects in public organizations. Future research might entail data collection among multiple informants (Van Bruggen, Lilien, & Kacker, 2002) per organization, such as project-, program- and portfolio managers, and from end-users of the services, to reduce the risk of CMV bias and to increase internal validity (Hammedi et al., 2011).

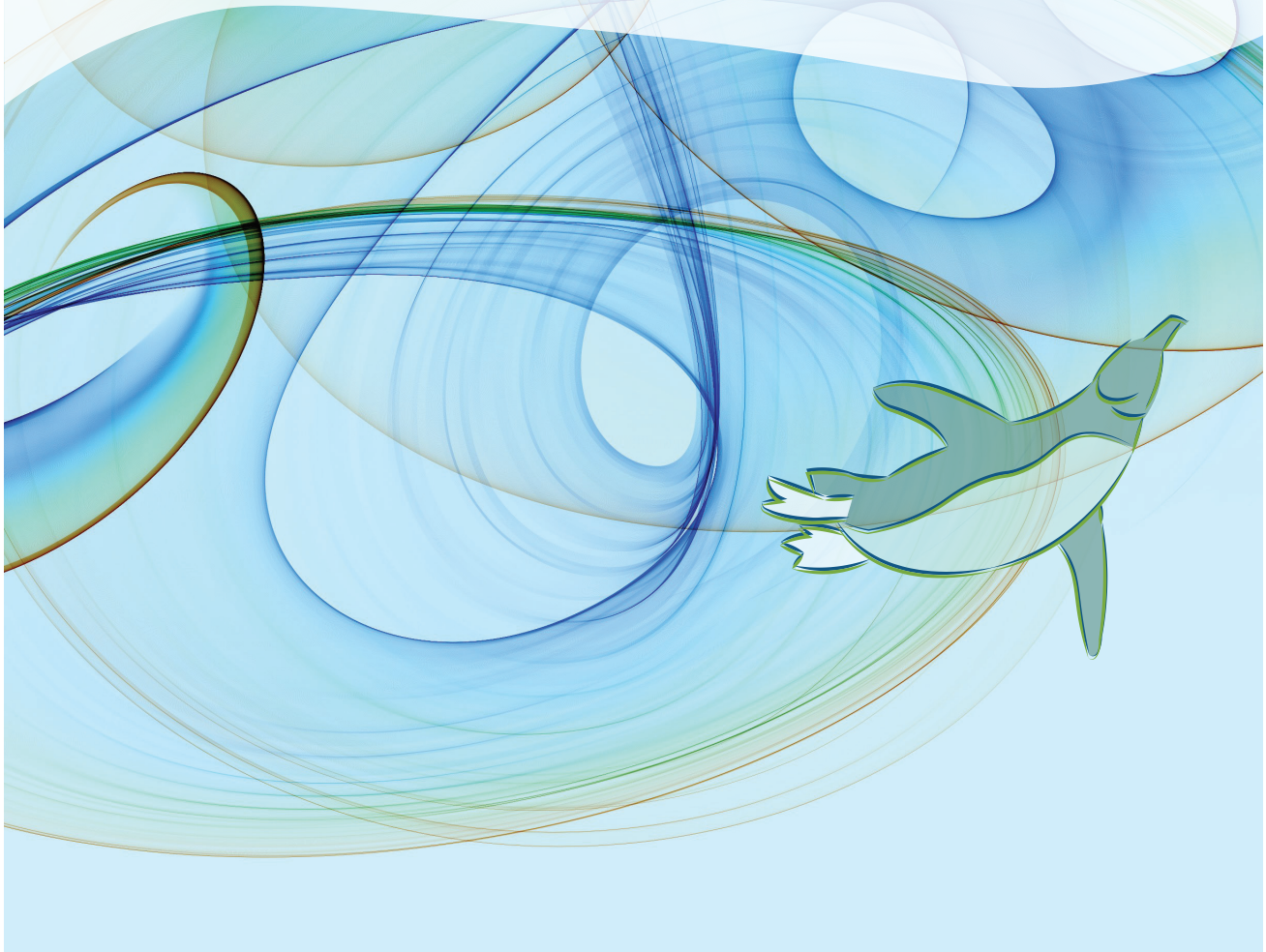
Third, this study focused on a single level of project-based organizations, the project management level. Future research might entail multi-level studies on organizational levels – such as program, portfolio and top management team level to provide a deeper understanding of value-in-use in the public sector (Hodgkinson et al., 2017; Van de Walle, 2016; Witell et al., 2017) based

on service or value constellation theory (Patrício et al., 2011; Van Riel et al., 2013). This study did not analyze the mediating role of portfolio mind-set. Future multi-level studies with larger sample sizes (than used in this study) might focus on the suggested mediation effect.

Fourth, the findings are based on self-reported perceptions of project managers. Future research might include the evaluation of service users about (non) public service innovations and their actual complementarity. These insights might, for example, contribute to research about customer journeys (Tax, McCutcheon, & Wilkinson, 2013), service experience and service design (Beltagui, Candi, & Riedel, 2016).

Chapter 5

General Discussion



The overall aim of this dissertation was the exploration of the innovation process in public service organizations to understand how innovation is organized and how a service end-user[1] perspective may be brought to bear on current project and portfolio management practices. Each chapter presents a different perspective to achieve this aim: I focused on coordination (Chapter 2), on ambidexterity (Chapter 3) and on creating value-in-use (Chapter 4). Using these perspectives, I have conducted two case studies in social services and healthcare respectively (Chapters 2 and 3). In the last study (Chapter 4), I took a more overarching view of the public service field with a quantitative research design and analyzed how and to which degree project managers' portfolio mind-set contributes to generating value-in-use for end-users through creating a more coherent service offering.

5.1 SUMMARY OF THIS DISSERTATION'S FINDINGS

5.1.1 Study 1

The findings of Study 1 indicate that managing a project portfolio in a public service organization indeed comes with challenges. In the case analyzed in this study, using portfolio management with a strong focus on accountability and resource use control hampered the integration of interdependent projects in the portfolio. The resulting fragmentation was partly compensated by emergent practices to re-integrate the portfolio. I showed how actors achieved coordination across various organizational levels through a range of informal practices, in particular 'collective reflecting' and 'integrating the portfolio'.

5.1.2 Study 2

In Study 2, I identified ten innovation practices in a general hospital that different actors used to pursue their innovation goals and that in combination helped to achieve ambidexterity. 'Intrapreneurial' practices identified and supported internal and external innovation and collaboration opportunities. 'Controlling' practices achieved transparency and control. 'Integrating' practices created cross-functional integration. The combination of these different practices enacted by different actors rather than a top-down organization design, enabled the organization to accomplish ambidexterity. Based on these practices, we identified three healthcare innovation roles that

1 In this chapter, we refer interchangeably to end-users and service users. In all cases we refer to the end-user (e.g. the customer, patient, citizen, etc.) and not to the professional who uses the service.

can help to create clarity in terms of responsibilities, division of tasks and reporting relations.

5.1.3 Study 3

In Study 3, I showed that in a public service innovation context a portfolio mind-set can play a supporting role at the project level in increasing value-in-use for end-users (Van Riel, Calabretta, Driessen, Hillebrand, Humphreys, Krafft et al., 2013). Evaluation through reflection, formal communication, collaboration, and market immersion were identified as antecedents of a portfolio mind-set at the project level. Reflective practices helped actors to evaluate how project objectives can be achieved, to discuss what can be learned from the past and to check whether activities produced the expected results. This reflexive practice resulted in detailed knowledge about the actors' own project, which forms the basis for creating a portfolio mind-set. Formal meetings aiming to communicate and stimulate collaboration between members of different project teams (across the organization or with other organizations) helped to share information and created a portfolio mind-set. Gathering all project teams to analyze information and embracing market research activities based on market immersion enabled actors to understand service end-users' needs, and allowed them to identify and oversee other relevant projects addressing similar or related needs, as required for a portfolio mind-set at the project level.

5.2 AN INTEGRATED PERSPECTIVE ON THE ROLE OF PROJECT AND PORTFOLIO MANAGEMENT PRACTICES IN PUBLIC SERVICE INNOVATION

Each study in this dissertation explored innovation in public services from a different theoretical background, perspective, or with a different research design. I will now synthesize the insights across these studies to answer the research question of my dissertation: What is the role of project and portfolio management practices in dealing with fragmentation of public service innovation?

5.2.1 Thinking and Doing

Project and portfolio management practices play a substantial role in dealing with fragmentation of public service innovation.

I highlighted the importance of reflexivity – a "stop-and-think attitude" and behavior (Hammedi, Van Riel, & Sasovova, 2011, p. 662) – within the portfolio team of ServPublic to evaluate their work and discuss potential future changes to further develop collaboration within the team in Study 1. In Study 3, I also showed that reflexivity (evaluation) positively influences the creation of a portfolio mind-set at the project level. Moreover, Study 1 showed that – next to formal collaboration – informal collaboration within the portfolio team (such as in the 'Morning Prayer') and with other project teams (such as in the 'Coherence and Interdependencies meetings') helped to share and integrate project information and experience. The 'integrating' practice reflected a portfolio mind-set, because it brought project and portfolio managers together to create a shared understanding about project interdependencies. Particularly the finding that this request for a focus on project interdependencies came from project managers was inspiring for the conceptual framework of the quantitative third study. Therefore, I conceptualized and measured a portfolio mind-set at the project level instead of at the portfolio level (Kester, Griffin, Hultink, & Lauche, 2011; Kester, Hultink, & Griffin, 2014). Study 1 showed that the interplay of informal and formal collaboration across organizational levels for public service innovation is important, because project and portfolio managers need to share (project) information and (project) knowledge to create an integrated portfolio. Study 3 showed that inter-project collaboration is an antecedent of portfolio mind-set, that helps to create an integrated service offering.

All studies emphasize a strong focus on collaboration. Study 1 shows a public organization with an intra-organizational focus that is considered as the extension of a ministry and therefore focused on internal control and reporting. Project and portfolio managers dealt with many decision-making layers in this hierarchically structured organization to show accountability and transparency of public spending. They had to cope with fuzzy ownership boundaries, because they had to 'legitimize' and align each decision with many colleagues. The strong focus on internal control seems to put external stakeholders like service users in a 'blind spot' (Wägar, Roos, Ravald, & Edvardsson, 2012). Public service organizations are increasingly part of bigger networks – such as in healthcare (D'Andreta & Scarbrough, 2016) – where public participation is essential to overcome fragmentation in delivering services (Van der Waldt, 2011). External collaboration at the eco-system level

becomes more prominent, but is difficult to achieve for organizations in stakeholder networks with "high levels of complex exchange, explicit tension and dispersion of control" like healthcare, energy and public transportation (Hillebrand, Driessen, & Koll, 2015, p. 422).

Nevertheless, I illustrated in Study 2 that healthcare innovation professionals used 'intrapreneurial' practices to collect resources for innovation by collaborating with external parties, and not solely with internal parties as in Study 1. Drawing on external resources for innovation to tackle grand challenges that would be insurmountable for a single organization is a trend that has also been observed in the area of utilizing big data (Deken, Berends, Gemser, & Lauche, 2017) or addressing sustainability (George, Howard-Grenville, Joshi, & Tihanyi, 2016; Seidl & Werle, 2018). Given that affordable healthcare is another 'grand challenge', it is likely that the healthcare sector will also see more of such inter-organizational collaboration being accessed through 'intrapreneurial' practices. The 'integrating' practices in Study 2 provide examples of how innovation among internal hospital innovation enthusiasts *and* external parties was accommodated in formal innovation seminars. These seminars are clear examples of the actual 'doing' of collaboration between different parties as it is called in practice theory (Nicolini, 2012).

I demonstrated the importance of reflexivity (evaluation), formal communication and collaboration among project teams to create a portfolio mind-set in Study 3. In this study, the qualitative findings from Studies 1 and 2 about the interplay of informal and formal ways of inter-project collaboration were investigated and demonstrated in a quantitative way. The practice of 'taking a service user perspective' from Study 2 served as inspiration for including 'market immersion' as an antecedent of portfolio mind-set in the conceptual model of Study 3. The practice of 'taking a user perspective' illustrated how healthcare innovation professionals thought from the eyes of the end-user (the patient) to explore, create and exploit innovation with more value-in-use. Market immersion captured this perspective by project teams that embrace market research activities to fully understand service users' needs and identify opportunities for the creation of value-in-use (cf. Kester et al., 2011).

In Study 1 the portfolio director explicated that assessing individual projects is not difficult but understanding the interdependencies across

projects is a real challenge. To deal with this challenge, I suggested in Study 3 that project managers might focus on the question how projects and their outcomes together create value-in-use. Moreover, this approach – and the degree of market immersion – describe a way for project managers to integrate a service end-user perspective into their project management practices. Taking a service end-user perspective is useful for project managers to better integrate projects and their outcomes and for portfolio managers to better integrate the portfolio.

Based on the combination of the three studies, I conclude that combining 'thinking' – cognitive awareness for 'collective reflecting' and evaluation within a project team and 'portfolio mind-set' between project and portfolio teams – and 'doing' – informal and formal communication and collaboration between project and portfolio teams – contributes substantially to understanding how to realize value-in-use for end-users. Project and portfolio management practices may thus play a supportive role in achieving more effective public service innovation. Conscious attention to value-in-use can help project and portfolio managers to take a service end-user perspective, either through collective reflexivity – discussion (as qualitatively shown in Study 1) or evaluation (as quantitatively shown in Study 3) – within a project team or through informal and formal communication and collaboration with other project teams (as shown in all studies). The three studies show that collaboration across organizational levels for public service innovation is important, because project and portfolio managers need to share (project) information and (project) knowledge to create either an integrated portfolio of innovation projects (see Studies 1 and 2) and or integrated service offering (see Study 3). Both intra-organizational (Study 1) and inter-organizational collaboration (Study 2) are applied in public service organizations, but the shift towards more networked public services demands more dense relationships with multiple stakeholders, especially service users, to develop integrated innovation offerings in public services that provide, for example, value-in-use in terms of ease of use, gaining time, effectiveness and (user-) efficiency (see Study 3).

5.2.2 Complex Integration Challenges

All studies in this dissertation focused – each in their own way – on integration. Study 1 focused on project and portfolio managers who integrated projects

in the portfolio through coordination. Study 2 pinpointed how professionals cross-functionally integrated innovation to accomplish ambidexterity within the hospital. Study 3 highlighted how project managers integrated projects based on the creation of value-in-use.

In Study 1, we learned that portfolio management can be complex, because proper coordination of NSD projects in the portfolio requires project *and* portfolio managers to be aware that portfolio management not only occurs at the portfolio level alone, but rather across the organization (Meifort, 2016). The involvement of multiple organizational levels creates many interfaces, for example for sharing information. It might be easier for project and portfolio managers to just optimize individual projects instead of considering all the interfaces. However, having a portfolio mind-set at project level was found to be essential for creating value-in-use (see Study 3).

Through bundling or integrating projects with complementary outcomes, projects in the portfolio can be organized. The project level results of Study 3 might also apply to the portfolio level. Portfolio managers might use a service user perspective to prioritize projects in the portfolio based on their creation of value-in-use. Such a perspective might provide a way to monitor projects based on their creation of value-in-use. This perspective can help to integrate NSD projects in a portfolio or program from an early stage of development onwards.

Particularly Study 2 illustrated the rather unstructured process of healthcare service innovation. Physicians with ideas for healthcare improvements often did not recognize themselves as innovators. They sometimes did not even realize the hospital offered support for innovation. Professionals' integrating practices facilitated cross-functional integration within this hospital through the 'Innovation Seminars' and 'From Idea to Process Meetings'. Study 1 also identified such cross-functional integration meetings, namely the 'Coherence and Interdependencies meetings' with project and portfolio managers. These cross-functional integration meetings facilitate information sharing across organizational levels, consistent with the works of Meifort (2016) and Kester et al. (2011). This was also shown in Study 3, with the relationships between formal communication and collaboration (at inter-project level) and portfolio mind-set (at project level).

Throughout this dissertation the relationship between project and portfolio management practices and their role in integration became clear.

The tensions in Studies 1 and 2 highlighted the 'complexity' and 'structureless organization' of – and (sometimes) implicit awareness of – project and portfolio management in public service innovation. Through a practice approach, I was able to explicate the implicit points of cognitive awareness in terms of practices. This enabled me to present and reflect on my findings on project and portfolio management practices with the respondents as a communicative validation. Further exploring the conceptual framework in Study 3 has allowed me to study the most important project and portfolio management practices on a more generalizable level than in Studies 1 and 2.

In summary, my dissertation provides rich descriptions on how various project and portfolio management practices could help public service professionals to coordinate (Study 1), enact and enable (Study 2) and achieve or improve (Study 3) service innovation in several public service settings.

5.3 DISCUSSION OF CONTRIBUTIONS

In this section, I outline and discuss the theoretical and managerial contributions of this dissertation. Table 5.1 summarizes the results and contributions of – the parts of – this dissertation.

5.3.1 Theoretical Contributions

Below, I discuss the theoretical contributions from a public service innovation perspective and from a project and portfolio management in public service perspective.

5.3.1.1 … from a Public Service Innovation Perspective

This dissertation contributes to the understanding of the emerging service innovation field of service innovation in resource-constrained environments (Witell, Gebauer, Jaakkola, Hammedi, Patricio, & Perks, 2017). I showed how achieving a coherent public service innovation offering still is possible, notwithstanding resource-scarcity and needs for control. For example, a conscious awareness of (outcome) interdependence among projects in a portfolio and value-in-use (Studies 1 and 3) and the immense intrinsic motivation of physicians, nurses and caregivers in a general hospital (Study 2) are helpful to achieve such an offering.

Furthermore, I explicated the 'invisible' practices and processes of how innovation in the public sector is managed as suggested by Fuglsang (2010).

Table 5.1. Summary table of the results, theoretical and practical contributions of the studies and dissertation.

	Results	Theoretical Contributions to …		Practical Contributions
Chapter 2 (Study 1)	Monitoring projects practices	… Portfolio Management Literature	Exploring the tension between control and integration to understand interplay of portfolio management practices and – public service –context in which the portfolio is managed (Martinsuo, 2013)	Understanding how innovation projects in a portfolio can be coordinated and managed in public service, where informal means are important next to formal means
	Integrating the portfolio practice		Complementing Kester et al. (2011) through identifying coordinating practices in response to the call how integrated coordination of portfolio management across organizational levels is accomplished (Meifort, 2016) and a focus on project interdependencies as a condition for re-integration of the portfolio (Killen & Kjaer, 2012) can facilitate this	Illustrating the consideration of the institutional context in evaluating a portfolio from the perspective of powerful institutional stakeholders, as well as users of their services, in relation to public accountability (Paul, 1992)
	Collective reflecting practice			
Chapter 3 (Study 2)	Intrapreneurial practices directed towards exploration)	… Ambidexterity Literature	Through analyzing innovation practices showing how the interplay of an array of practices enacted by actors on different organizational levels came together to accomplish ambidexterity in a bottom-up fashion (Birkinshaw & Gupta, 2013, O'Reilly and Tushman, 2013)	Making implicit healthcare innovation practices explicit
			Illustrating how innovation as emerging process began with idea generation on the shop floor (Zimmermann, 2015)	Showing how innovation professionals continuously address the seemingly conflicting objectives of exploitation and exploration within day-to-day actions and activities
	Controlling practices (directed toward exploitation)	… Healthcare Management Literature	Opening the black box of innovation activities – practices – at hospital level and went beyond that by considering innovation in networks (Thune & Mina, 2016)	Understanding how ambidexterity is accomplished in a general hospital that pursues innovation demonstrates how various healthcare innovation roles can help to create clarity in terms of responsibilities, division of tasks and reporting relations.
	Integrating practices (directed towards accomplishment of ambidexterity)		Identifying three healthcare innovation roles – intrapreneur, controller & integrator – to organize and structure healthcare innovation (which is often informal and unstructured) (Salge & Vera, 2009, Thune & Mina, 2016)	

	Results	Theoretical Contributions to …		Practical Contributions
Chapter 4 (Study 3)	A portfolio mind-set at the project level leads to higher value-in-use	… Service Innovation Management Literature	Empirically testing conceptual ideas about value constellations (Van Riel et al., 2013) in a resource-constrained public service context (Witell et al., 2017)	A portfolio mind-set helps project teams focus on how service users create value-in-use by combining service elements from different projects
	Reflexivity (evaluation), formal communication, collaboration, and market immersion were identified as antecedents of a portfolio mind-set at the project level	… Project Management Literature	Investigating the role of a portfolio mind-set at the project management level, rather than at the portfolio level (Kester et al., 2011, Kester et al., 2014)	The challenge for project managers in public service organizations is that they need to consider how value-in-use is generated by the end-user from an early project stage onwards
			Stimulating a portfolio mind-set at the project management level (Kester et al., 2011) significantly increases value-in-use in portfolios of public service development projects (Van Riel et al., 2013)	Especially in a service domain where public means are used to develop innovations that must meet needs for society at large (Van der Waldt, 2011) taking an end-user perspective is important. This study has investigated one way in which project managers in public services can take such a service end-user perspective to develop a more coherent service offering

Results	Theoretical Contributions to …		Practical Contributions
Chapter 5 (General Discussion)	… Project and Portfolio Management in Public Service	Understanding project management and project portfolio management as 'business techniques and terminology' and their boundaries in public service (Gronn, 2000)	Awareness for (outcome) interdependence in project and portfolio management, combined with practices of reflexivity (evaluation), collaboration, shared communication and market immersion enables organizations to better integrate public service innovations and to add value-in-use (managerial take home messsage)
		Showing how actor's emergent project and portfolio management practices can create an integrated public service innovation offering and prevent destruction of value for service users (Van de Walle, 2016)	
		Illustrating how a service end-user perspective can help to make the societal impact of public service innovation, in terms of effectiveness or value-in-use, clearer to involved stakeholders and can show how public service organizations can focus on public accountability (Paul, 1992) in project management and project portfolio management	
	… Public Service Innovation	Understanding the emerging service innovation field of service innovation in resource-constrained environments (Fuglsang, 2010; Hodgkinson et al., 2017; Witell et al., 2017)	
		Explicating the 'invisible' practices and processes of how innovation in the public sector is managed (Fuglsang, 2010)	
		Developing more coherent service innovation offerings that are more likely to do not fail to deliver the expected quality (Van de Walle, 2016; Van der Waldt, 2011; Van Riel et al., 2013)	
		Creating industry-based insights about how public service innovation is managed (Rubalcaba et al., 2012)	

I identified coordinating and innovating practices in social services and healthcare (Studies 1 and 2) and a portfolio mind-set on project level to increase value-in-use (Study 3). The latter finding is interesting for public service innovation, because public services need to serve a large number of service users with diverging needs. Particularly given resource constraints (Witell et al., 2017), one-on-one tailored services are almost impossible to be offered to every individual service user (Van der Waldt, 2011). A focus on value-in-use from early project stages onwards might be helpful to properly align public service innovations with the needs of different service users.

Such focus can help to prevent fragmentation of public services innovations (that are part of a portfolio). This 'facilitator' can help to develop more coherent service innovation offerings that do not fail to deliver the expected quality (Van de Walle, 2016; Van Riel et al., 2013) but lift up to the aim of providing high(er) quality public services (Van der Waldt, 2011).

In a broader light, this dissertation contributes to (public) service innovation management literature by providing industry-based insights about how public service innovation is managed (Rubalcaba, Michel, Sundbo, Brown, & Reynoso, 2012) in the often resource-constrained contexts of social services, healthcare and public services in general (Fuglsang, 2010; Hodgkinson, Hannibal, Keating, Chester Buxton, & Bateman, 2017; Witell et al., 2017).

5.3.2.1. … from a Project and Portfolio Management in Public Service Perspective

Project- and portfolio management are techniques and terminology from the business domain, that are used as a means in public service to create more control in terms of transparency and accountability (Gronn, 2000) in line with NPM (Dunleavy & Hood, 1994). My dissertation shows the boundaries of using these 'business' techniques in the unique environment of public services and proposes practices that academics can further explore as ways of organizing public service innovation.

This dissertation shows that managing public service innovation projects as isolated entities might help to create accountability and predictability, but creates fragmentation of the portfolio (Study 1) and consequently of the public service offering for service users (Study 3). Actors in public service (see section 1.5) focus on integration to deal with this fragmentation (Studies

1-3). They explicitly use several practices to coordinate towards a coherent public service innovation offering based on a focus on project (outcome) interdependencies and value-in-use (Studies 1 and 3) and intraorganizational (Study 1) or interorganizational collaboration (Study 2).

This dissertation shows how emergent project and portfolio management practices of actors (in different public organizations) focus on creating an integrated public service innovation offering and therewith preventing destruction of value for service users (Van de Walle, 2016). Taking a service end-user perspective in project and portfolio management in public service innovation contributes to a focus on the objective of effectiveness of public service innovation, next to that of efficiency (which remains important in a resource-constrained environment (Witell et al., 2017)). A service user perspective can help to make the societal impact of public service innovation, in terms of effectiveness or value-in-use, more clear to involved stakeholders, like service users, and can show how public service organizations can focus on public accountability (Paul, 1992).

5.3.2 Managerial Implications

In Studies 1 and 2, I investigated how project and portfolio managers and healthcare innovation professionals deal with the seemingly contradictory objectives of respectively portfolio control and integration, and exploitation and exploration.

In Study 1, I observed a formal emphasis on control, while integration and coordination across organizational levels was mainly achieved through informal means. Portfolio management practitioners in public services could opt for a more full-fledged implementation of portfolio management, and seriously rethink how their different institutional context could be considered in evaluating their entire portfolio from the perspective of powerful institutional stakeholders as well as users of their services, in relation to public accountability (Paul, 1992). Alternatively, they could simply allow room for informal solutions such as the 'Coherence and Interdependencies meetings' developed at ServPublic or the (formally initiated) 'Innovation Seminars' with an informal character at Rijnstate Hospital. The organization of these seminars should not be a goal in itself; fostering dialogues and organization of post-seminar follow-up may be even more important to continue the cross-fertilization of knowledge and to build a dense and longstanding network

of project, portfolio and innovation enthusiasts to facilitate public service innovation.

Moreover I identified three roles that can help healthcare innovation professionals to create clarity in terms of division of tasks, responsibilities and reporting relations and task structures to understand how bottom-up ambidexterity can be accomplished in healthcare (Study 2). These roles – intrapreneur, controller and integrator – can also be translated to other service settings and applied by project, portfolio and public service innovation professionals. The interplay of these roles helped to accomplish ambidexterity bottom-up, which is often seen as a matter of top down implementation. While top management commitment to innovation is undoubtedly important, the findings show that it is not the sole route to ambidexterity.

In Study 3, I explained how a portfolio mind-set at the project level helps to create value-in-use. Understanding value-in-use can help project managers and (their) project teams clarify and concretize the contribution of the project outcome (deliverable). Increasing reflexivity (evaluation) within project teams, formal communication and collaboration between project teams and market immersion on organizational level appear to be useful and easy to influence ways to improve a portfolio mind-set at project level.

In essence, the managerial take home message of my dissertation is that awareness for (outcome) interdependence in project and portfolio management, combined with practices of reflexivity (evaluation), collaboration, shared communication and market immersion enables organizations to better integrate public service innovations and to add value-in-use.

5.4 Reflecting on the Research process, Limitations, Boundary Conditions and Future Research

Study-specific limitations and boundary conditions and future research avenues were discussed in previous chapters. In this section I reflect on the overall research process, limitations, boundary conditions and future research of the overall dissertation.

Both case studies showed some limitations and boundary conditions related to their design. For each case, I gathered data from a single organization, in one country. While the design enabled collecting in-depth data across organizational levels and triangulating observations, interviews and document analysis to strengthen the robustness of the findings, the

design was not aimed at generalizability. Focusing on a single case meant it was not possible to compare structurally similar situations in other (types of) public organizations – such as tax services, public transportation or education – or other hospitals – such as academic, specialized or private hospitals (cf. Hillebrand, Kok, & Biemans, 2001). To complement this potential shortcoming, Study 3 was designed to test a selection of hypotheses derived from the qualitative findings in a quantitative study. All three studies have been developed through iteratively moving from data to theory and back. Together with my research team, I reflected upon and extensively discussed the data and findings. This approach was particularly necessary to look at the data from a more aggregate perspective. Particularly during the case studies, I noticed that I was sometimes introduced as 'a colleague' rather than 'a researcher', because I intensively shadowed project and portfolio teams over long periods of time. My supervisors helped me to take a step back from this involvement with the field through reflecting and asking critical questions.

Future research could focus on expanding the conceptual framework in Study 3 for public services management (cf. Hodgkinson et al., 2017). The model could be further specified through distinguishing types of public service innovation (such as service, process, technological, and business model innovation (Herzlinger, 2006)). This step might improve our understanding of project and portfolio management practices and their role in specific types of public service innovation. Besides, defining several stages of maturity in achieving coordination of projects in a portfolio across organizational levels similar to the Capability Maturity Model (Paulk, Weber, Garcia, Chrissis, & Bush, 1993) can sophisticate the conceptual framework. Furthermore, specific attention could be paid to project complexity through distinguishing technological, environmental and organizational complexity (Bosch-Rekveldt, Jongkind, Mooi, Bakker, & Verbraeck, 2011).

To further study the role of project portfolio management practices, future research might entail the link with the practices found in Studies 1 and 2 and the conceptual framework of Study 3 to project portfolio management performance, in terms of portfolio objectives of value maximization, balancing risk and strategic fit (Cooper, Edgett, & Kleinschmidt, 1999, 2001). Future research might even entail studies on other organizational levels – such as program, portfolio and organization-wide – to test the conceptual framework and provide a deeper understanding of creating value-in-use based on service

constellations theory (Patrício, Fisk, Falcão e Cunha, & Constantine, 2011; Van Riel et al., 2013). A further examination of a bricolage perspective for public services management, in which service innovation is initiated through bundling resources in resource-constrained environments, such as at the base of the pyramid, could enhance our framework and understanding of creating in value-in-use for public service users (Gebauer & Reynoso, 2013; Letaifa & Reynoso, 2015; Witell et al., 2017).

On a more aggregated level, the role of project and portfolio management practices in public service innovation can be investigated on interorganizational level. Innovation structures become increasingly complex and require collaboration among parties, which is increasingly boundary-spanning (Van Riel, 2013). Sharing information, and for example maintaining a portfolio mind-set might become extra challenging with partners across organizations.

5.5 Concluding Remarks

Coherence and synchronization of public services and/or their elements is essential for the creation of value-in-use by means of an integrated service offering. Particularly in a field financed by public money, the quest for public accountability is continuously present and rising. Service users gain more control in terms of spreading positive or negative experiences with value-in-use through for example social media. However, especially in the public service domain, a large group of vulnerable service users – such as low literate or mentally limited individuals and elderly (who are not necessarily helped by 'fancy' IT solutions) is present. Maybe these vulnerable service users are in your blind spot? I can only hope that this dissertation motivates academics, project and portfolio managers and other public service professionals to think from a service user perspective, especially when studying, introducing or managing public service innovation. Furthermore, I hope that the project and portfolio management practices shown explain professionals what they actually do and can do, or change, when they engage in managing service innovation in a public service setting. The role of project and portfolio management practices in public service innovation was found to be scientifically significant and substantial, but now it needs to become practically and societally significant with respect to the creation of value-in-use for any group of service users, like my sister Kirsten.

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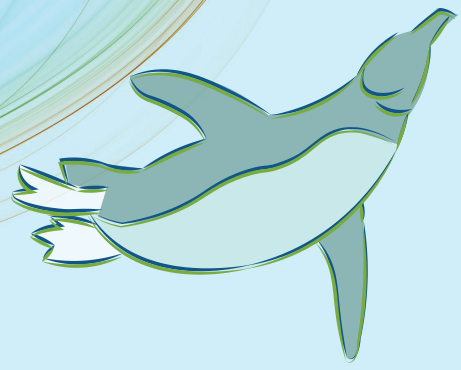

ENGLISH SUMMARY

Innovation has always been important for viability of organizations and creating competitive differentiation (Garud, Tuertscher, & Van de Ven, 2013; Helkkula, Kowalkowski, & Tronvoll, 2018). This dissertation focuses on service innovation in the Netherlands, because of the growing importance of the service sector (CBS, 2017). It particularly pays attention to the organization of the innovation process. In this dissertation, I build on the following definition of an innovation process as given by Garud et al. (2013, p. 776): "the sequence of events that unfold as ideas emerge, are developed, and are implemented within [organizations], across multi-party networks, and within communities".

New service development (NSD) or service innovation has been defined as: a novel (re)combination of resources (Gallouj & Weinstein, 1997; Lusch & Nambisan, 2015). Examples of resources are knowledge, money and technology. These resources are often scarce, especially in the public sector (Fuglsang, 2010). Continuous service innovation in public service is crucial for quality improvement and cost reduction, thus creating value for the diverging needs of the public (Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015; Rust & Huang, 2014). The tension between scarcity of resources and the importance of continuous service innovation for the public sector, makes public service innovation an interesting area of research.

Public services are the research context of my dissertation. I refer to public services as "services that are substantially regulated by public law and at least funded by the state" (Helderman, Bloemer, Van der Heijden, Peters, Souren, & Visser, 2016, p. 6). Examples are social services, healthcare and education. The end-users[1] or 'customers' of these services (hereafter called service users) often need to combine various (elements of) services to solve their increasingly complex problems, for example when they become unemployed or ill (Van Riel, Calabretta, Driessen, Hillebrand, Humphreys, Krafft et al., 2013). Service innovation is required to provide service users with a coherent (public) service offer.

Management techniques and terminology borrowed from the business domain are increasingly incorporated in the public services domain to manage (the innovation of) public services to create more transparency

1 In this summary, I refer interchangeably to end-users and service users. In all cases we refer to the end-user (e.g. the customer, patient, citizen, etc.) and not to the professional who uses the service.

and accountability (Gronn, 2000). Project management and project portfolio management are examples of techniques that are motivated by the pursuit of resource efficiency and control.

A project has been defined as: "a set of activities that (1) aims to produce a unique deliverable […] and (2) is time-bounded within clear beginning and ending points" (Luecke, 2004, p. xi). Managing projects, or project management, has been defined as: "the allocation, tracking, and utilization of resources to achieve a particular objective within a specified period of time" (Luecke, 2004, p. xi).

Portfolio management has been defined as: "a dynamic decision process whereby a business' list of active projects is constantly updated and revised. In this process, new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed or deprioritized; and resources are allocated and reallocated to active projects" (Cooper, Edgett, & Kleinschmidt, 1999, p. 335). This dissertation focuses on project portfolios, portfolios that consist of projects.

Using project and portfolio management in public services to coordinate or organize innovation creates tension. I have studied two of these tensions – project portfolio control versus integration of the portfolio and exploitation versus exploration – in-depth in a social services setting and a healthcare setting.

In Study 1 (Chapter 2) I present an in-depth case study of a large public project organization in social services, which has been using portfolio management for almost a decade to coordinate their portfolio, which consists of innovation and change projects. The portfolio managers had a challenging task. On the one hand they focused on project portfolio control in terms of providing (financial) transparency towards the ministry. On the other hand they strived for the integration of projects in the portfolio based on project interdependencies.

I observed that using portfolio management with a strong focus on accountability and resource use control hampered the integration of interdependent projects in the portfolio. The resulting fragmentation of the portfolio was partly compensated for by emerging practices – certain actions and routines – to re-integrate the portfolio. I describe how actors achieved coordination across various organizational levels and projects through a range of informal practices, in particular 'collective reflecting' and 'integrating the portfolio'.

In Study 2 (Chapter 3) I introduce another in-depth case study. Medical professionals, whose main task is patient care and who generate ideas based on their direct interaction with patients, often drive innovation in hospitals. Healthcare organizations need to cope with an organizational challenge: dealing with ambidexterity (March, 1991). Ambidexterity describes the need to balance a focus on efficiency and risk reduction through exploiting existing resources and a focus on innovating through exploration of new opportunities. Innovation in healthcare is often initiated at the shop floor. Therefore, ambidexterity needs to be organized differently.

In Study 2, I identify ten healthcare innovation practices (divided in three types) that help to accomplish ambidexterity in a bottom-up fashion in a general hospital. By means of 'intrapreneurial' practices, healthcare innovation professionals identified and supported internal innovation and external collaboration opportunities. Through 'controlling' practices they achieved transparency and control. 'Integrating' practices helped them to create cross-functional integration. Based on the healthcare innovation practices, I define three healthcare innovation roles that can help healthcare innovation professionals to create clarity in terms of division of tasks, responsibilities and reporting relations and task structures to understand how bottom-up ambidexterity can be accomplished in healthcare.

In Study 3 (Chapter 4), I investigate how and to which degree project managers' portfolio mind-set (cf. McGrath, Keil, & Tukiainen, 2006), i.e., their awareness of the extent to which their (N)SD project outcome contributes to outcomes of other (N)SD projects (Kester, Griffin, Hultink, & Lauche, 2011; Kester, Hultink, & Griffin, 2014), generates value-in-use for end-users through a coherent service offering.

In Study 3, I conclude that a portfolio mind-set at the project level leads to higher value-in-use. I identify reflexivity (evaluation), formal communication, collaboration, and market immersion as antecedents of a portfolio mind-set at the project level.

In summary, my dissertation provides rich descriptions on how various project and portfolio management practices could help public service professionals to coordinate (Study 1), enact and enable (Study 2) and achieve or improve (Study 3) service innovation in several public service settings.

The managerial take home message of my dissertation is that awareness for (outcome) interdependence in project and portfolio management,

combined with practices of reflexivity (evaluation), collaboration, shared communication and market immersion enables organizations to better integrate public service innovations and to add value-in-use.

NEDERLANDSE SAMENVATTING

Innovatie is altijd al een belangrijk proces geweest voor de levensvatbaarheid van organisaties en voor het creëren van differentiatie ten opzichte van de concurrentie (Garud, Tuertscher, & Van de Ven, 2013; Helkkula, Kowalkowski, & Tronvoll, 2018). Dit proefschrift focust op diensteninnovatie in Nederland, omdat het belang van de dienstensector sterk is toegenomen (CBS, 2017). Het richt zich specifiek op de organisatie van het innovatieproces. In dit proefschrift borduur ik voort op de definitie van een innovatieproces zoals die wordt gegeven door Garud et al. (2013, p. 776): "De reeks gebeurtenissen die zich ontvouwen als ideeën ontstaan, verder worden ontwikkeld en geïmplementeerd binnen [organisaties], in netwerken met meerdere partijen en binnen gemeenschappen".

Nieuwe dienstenontwikkeling (NDO) of diensteninnovatie kan worden gezien als een nieuwe (her)combinatie van bronnen (Gallouj & Weinstein, 1997; Lusch & Nambisan, 2015). Voorbeelden van deze bronnen zijn kennis, geld en technologie. Deze bronnen zijn vaak schaars, met name in de publieke sector (Fuglsang, 2010). Continue diensteninnovatie in de publieke sector is cruciaal voor kwaliteitsverbetering en kostenreductie, oftewel het creëren van waarde voor uiteenlopende behoeften van het publiek (Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015; Rust & Huang, 2014). Het spanningsveld tussen de schaarste van de bronnen en het belang van continue diensteninnovatie voor de publieke sector, maakt publieke diensteninnovatie tot een interessant onderzoeksgebied.

De publieke dienstverlening vormt de context van het onderzoek in dit proefschrift. Onder publieke diensten versta ik – in navolging van Helderman, Bloemer, Van der Heijden, Peters, Souren, and Visser (2016, p. 6) – diensten die substantieel gereguleerd zijn door publieke wetgeving en gefinancierd worden met publieke gelden. Voorbeelden zijn sociale diensten, de gezondheidszorg en het onderwijs. De eindgebruikers[1] of 'klanten' van deze diensten (die ik hierna servicegebruikers noem) moeten vaak verschillende (elementen van) diensten combineren om hun steeds complexere problemen op te lossen, bijvoorbeeld wanneer zij ziek worden of werkloos raken (Van Riel, Calabretta, Driessen, Hillebrand, Humphreys,

1 In deze samenvatting refereer ik afwisselend naar eindgebruikers en servicegebruikers. In alle gevallen doel ik op de eindgebruiker (bijv. De klant, patiënt of burger, etc.) en niet de professional die de dienst gebruikt.

Krafft et al., 2013). Diensteninnovatie is vereist om aan klanten een coherent (publiek) dienstenaanbod ter beschikking te stellen.

Om (de innovatie van) publieke diensten te managen, worden steeds vaker managementtechnieken en -termen vanuit het bedrijfsleven geïntegreerd in het domein van de publieke diensten, die het creëren van transparantie en verantwoording tot doel hebben (Gronn, 2000). Project- en portfoliomanagement zijn voorbeelden van managementtechnieken die zijn ingegeven door het streven naar resource-efficiëntie en controle.

Een project wordt gedefinieerd als "een set van activiteiten die (1) gericht zijn op het produceren van een uniek resultaat […] en (2) tijdsgebonden zijn, met een helder begin- en eindpunt" (Luecke, 2004, p. xi). Projectmanagement, oftewel het managen van projecten, wordt gedefinieerd als "de toewijzing, het bijhouden en het gebruik van bronnen om een bepaald doel binnen een specifieke tijdsperiode te bereiken" (Luecke, 2004, p. xi).

Portfoliomanagement wordt gedefinieerd als "een dynamisch besluitvormingsproces waarbij een lijst met actieve projecten van een organisatie constant wordt geactualiseerd en gecorrigeerd. In dit proces worden nieuwe projecten geëvalueerd, geselecteerd en gerangschikt; bestaande projecten kunnen worden versneld, gestopt of herordend; en bronnen worden gealloceerd of geheralloceerd naar actieve projecten" (Cooper, Edgett, & Kleinschmidt, 1999, p. 335). Dit proefschrift focust op projectportfolio's, oftewel portefeuilles die bestaan uit projecten.

Het gebruik van project- en portfoliomanagement in publieke diensten om innovatie te coördineren en te organiseren creëert spanningen. Ik bestudeer twee van deze spanningen – projectportfolio-controle versus integratie van de portfolio en exploitatie versus exploratie – grondig, zowel binnen de sociale dienstverlening, als in de gezondheidszorg.

In Studie 1 (Hoofdstuk 2) presenteer ik een diepgaande gevalsstudie (*case study*) van een grote publieke projectorganisatie in het sociale domein, die portfoliomanagement sinds nagenoeg een decennium gebruikt om haar portfolio, bestaande uit innovatie- en veranderprojecten, te coördineren. De portfoliomanagers hadden een uitdagende taak. Aan de ene kant focusten zij strikt op projectportfoliocontrole in termen van het geven van (financiële) transparantie aan het ministerie. Aan de andere kant streefden zij naar integratie van projecten in de portfolio op basis van projectafhankelijkheden.

Ik observeerde dat het gebruik van portfoliomanagement met een sterke focus op verantwoording en controle van bronnen werd ervaren als een belemmering voor de integratie van onderling afhankelijke projecten in de portfolio. De resulterende fragmentatie van de portfolio werd gedeeltelijk gecompenseerd door spontaan ontstane praktijken – bepaalde acties en routines – om de portfolio te re-integreren. Ik beschrijf hoe project- en portfoliomanagers coördinatie bereikten tussen verschillende organisatieniveaus en projecten door middel van een reeks informele praktijken, die kunnen worden omschreven als 'collectief reflecteren' en 'integratie van de portfolio'.

In Studie 2 (Hoofdstuk 3) introduceer ik een andere gevalsstudie. Medische professionals, wier primaire taak patiëntenzorg is, zijn vaak degenen die ideeën genereren voor innovatie in ziekenhuizen op basis van interactie met patiënten. Medische professionals zijn dus vaak de bron van innovatie. Zorginstellingen krijgen dan ook te maken met een uitdaging: omgaan met ambidexteriteit (March, 1991). Ambidexteriteit beschrijft de noodzaak om te balanceren tussen een focus op efficiëntie en risicovermindering door het exploiteren van bestaande bronnen én een focus op innovatie door het exploreren of ontdekken van nieuwe mogelijkheden. Omdat innovatie in de zorg vaak op de werkvloer ontstaat, moet ambidexteriteit anders worden georganiseerd.

In Studie 2 identificeer ik tien zorginnovatiepraktijken (onderverdeeld in drie typen), die helpen om ambidexteriteit vanaf de werkvloer in een algemeen ziekenhuis te bereiken. Door middel van 'intrapreneuriële praktijken' identificeerden en ondersteunden medische professionals interne innovatiemogelijkheden en externe samenwerkingsmogelijkheden. Door 'beheersingspraktijken' bereikten ze transparantie en controle. 'Integratiepraktijken' hielpen hun om functie-overschrijdende integratie te creëren. Op basis van deze zorginnovatiepraktijken identificeer ik drie zorginnovatierollen om taakverdelingen, verantwoordelijkheden en relaties en taakstructureren, gerelateerd aan het bereiken van ambidexteriteit vanaf de werkvloer, in een zorgomgeving te verhelderen.

In Studie 3 (Hoofdstuk 4) bestudeer ik hoe en in welke mate de 'portfoliogedachte' (bijv. McGrath, Keil, & Tukiainen, 2006) van projectmanagers – dat wil zeggen: hun bewustzijn van de mate waarin hun (N)DO-projectuitkomst bijdraagt aan uitkomsten van andere (N)DO-projecten

(Kester, Griffin, Hultink, & Lauche, 2011; Kester, Hultink, & Griffin, 2014) – gebruikswaarde creëert door een coherent dienstenaanbod.

In Studie 3 concludeer ik dat een portfoliogedachte op projectniveau leidt tot hogere gebruikswaarde. Ik identificeer reflexiviteit (evaluatie), formele vormen van communicatie, samenwerking en marktimmersie als antecedenten van een portfoliogedachte op projectniveau.

Samenvattend, biedt mijn proefschrift uitgebreide beschrijvingen van verschillende project- en portfoliomanagementpraktijken die professionals in de publieke sector zouden kunnen helpen bij het coördineren (Studie 1), vaststellen en mogelijk maken (Studie 2) en het bereiken of verbeteren (Studie 3) van diensteninnovatie in verschillende publieke contexten.

In essentie laat mijn proefschrift zien dat bewustzijn van (uitkomst-) afhankelijkheden in project- en portfoliomanagement, gecombineerd met reflexiviteit (evaluatie), samenwerking, communicatie en marktimmersie organisaties in staat stelt te zorgen voor betere integratie van publieke diensteninnovaties en daardoor waarde toevoegt voor servicegebruikers.

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CURRICULUM VITAE

Anouk den Ambtman was born in Tiel, the Netherlands, on January 3rd, 1989. She finished secondary school (VWO at RSG Lingecollege, Tiel) in 2007. After that, she started studying Business Administration at Radboud University (Nijmegen, the Netherlands) for which she received a Bachelor's degree in 2010 and a Master's degree with a focus on Marketing in 2011.

In 2012 she obtained a position as a Researcher in Services Management at the University of Namur, Belgium. Here, she conducted a qualitative analysis for an incubator regarding entrepreneurship, open innovation and co-working spaces.

In February 2013, she started her PhD research on the role of project and portfolio management practices in public service innovation at the department of Business Administration, sections Marketing and Organizational Design and Development of Radboud University, in joint supervision with the University of Namur.

She participated in several international conferences to present parts of this thesis: Prebem, Quality In Service Excellence and the corresponding Doctoral Consortium, European Group of Organizational Studies, International Project Management Association World Congress and Frontiers in Services and the related Doctoral Consortium. She also attended several national and international PhD workshops and courses: Let's Talk About Services Workshops, Practice Studies Workshop, Writing in the Sciences (Stanford University (MOOC)), Making Sense of Service Logic (CTF Karlstad (MOOC)), Academic Writing, Presentation Training and Scientific Integrity. She taught in the Bachelor program of Business Administration (Management Game and Marketing) and supervised several bachelor theses.

Currently, Anouk works as a post-doctoral researcher and project coordinator at Radboud University (department of Economics) and the Sint Maartenskliniek in Nijmegen. Her future ambition is to pursue her career as project and/or innovation manager in healthcare.