Ilkka Ojansivu

EXPLORING THE UNDERLYING DYNAMICS OF BUYER-SELLER INTERACTION IN PROJECT AFTERLIFE
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University of Oulu, P.O. Box 8000, FI-90014 University of Oulu, Finland

Abstract

The marketing view of a business relationship that follows the handover of a project reflects an era before services became common in the industry. At that time, business relationships were assumed to end after project handover, especially in commercial terms. Since then, services have become an integral part of project business, enabling the emergence of a post-project business relationship. It can be validly argued that the literature has not sufficiently recognized the changing practices of project-based companies. Obviously, a business exchange can outlive a project handover, but the consequences for buyer-seller interaction remain unexplored.

This study describes and explains the underlying dynamics of buyer-seller interaction in project afterlife. Interaction is considered to be an inherently dynamic process that is dependent on a continuous yet variable exchange of services. The theoretical foundation of this study builds on the literature on interaction and networks as well as the literature on project marketing and management. The empirical part of the study is conducted as a combination of single and multiple qualitative case studies in five different project contexts: content management systems, windmills, mining, engineered wood solutions, and paper machines. Eighty-two personal interviews provide the primary data.

This study comprises an overview and four individual papers that contribute to a process-based understanding of post-project interaction. The study primarily contributes to the project marketing research. First, the results indicate that buyer-seller interaction varies between three extreme orientations, making the development of a post-project business relationship inherently dynamic and challenging to manage. Second, the study expands theory regarding post-project interaction by describing four typical relationships in service-intensive projects. Third, the study extends the theoretical lens of project marketing and provides analytical tools to examine post-project interaction. Fourth, the study clarifies the role of key individuals in mediating change in post-project nets. Fifth, the study identifies several intergroup tensions that restrain interaction and proposes methods to overcome these tensions.

Keywords: business relationships, buyer-seller interaction, networks, project afterlife, service-intensive projects
Ojansivu, Ilkka, Projektitoimituksen jälkeisen liikesuhteen kehitys ja dynamiikka. 
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Markkinoinnin yksikkö 
Oulun yliopisto, PL 8000, 90014 Oulun yliopisto

Tiivistelmä


Tutkimuksen teoreettinen tausta koostuu projektimarkkinoinnin ja projektijohtamisen kirjallisuudesta, joiden taustat ovat pääosin teollisten liikesuhteiden tutkimuksessa. Laadullisen tapahtumatuotantoen taustavuosina on toteutettu viidessä eri projektikontekstriä, joita ovat tuulivoima, kaivosala, paperikone, sisällönhallintajärjestelmä ja jalostettu puolellyikkö. Pääaineisto koostuu 82 haastattelusta.

Tämä tutkimus koostuu johdanto-osiosta ja neljästä tutkimuspaperista, joiden tuloksena on prosessipohjainen viitekehys liikesuhteen kehityksestä. Tulokset ovat merkittäviä erityisesti projektimarkkinoinnin näkökulmasta, sillä ne osoittavat asiakkaan ja myyjän välisen vuorovaikutuksen vaihtelevan kolmen aäriyypin välillä tehdyn liikesuhteen kehityksessä dynamiisen ja vaikeustavun. Tutkimus laatii näkemystä projektitoimituksen jälkeisestä vaihdannasta tunnistamalla neljä palveluvaihdantaan pohjautuvaa suhdetyyppiä. Lisäksi tutkimus kehittää työkaluja projektitoimitusten jälkeisten liikesuhteiden analyysiin ja laajentaa projektimarkkinoinnin teoreettista pohjaa. Tutkimus selventää myös avainhenkilöiden toimintaa projektitoimituksen jälkeisissä lähiherkoissa ja tunnistaa keinoja, joilla liikesuhdetta rasittavia henkilöiden välisiä jännitteitä voidaan välttää.

Asiasanat: liikesuhde, palvelu-intensiivinen, projektitoimituksen jälkeinen, verkosto, vuorovaikutus
Acknowledgements

The path to this dissertation can be considered rather unorthodox. Six years ago, deep in the backcountry of British Columbia, I could not visualize an academic career. I had a feel for the mountains, harsh wind and snowstorms. I had a plan: stay outdoors and avoid bureaucracy. However, who decides which route we take? I do not know, but we must decide whether to take chances. I did, and I am glad that I did.

First, I would like to thank Professor Kimmo Alajoutsijärvi for his broadmindedness. It takes guts to endorse someone “glued to a snowboard” for an academic career when there are numerous more traditional candidates available. Nevertheless, the only requirement he gave me was to “cut the hair and grow up.” I have been fortunate to have two supervisors. Considering the busy schedule of Kimmo as a Dean at the time, I do not think that I would have managed without the help of Professor Jari Salo. During my first years as a doctoral student, Jari always motivated me to stay productive with smaller writing projects and conference papers. We have gone on several memorable conference trips together, and Jari has always had time to comment on my research.

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Academic life is not just about research; it is also about teaching and giving back to the academic community by sharing one’s research with students. I have been fortunate to be surrounded by people who share my passion for teaching. I
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I have participated in two research projects during this research. I would like to thank everyone who has worked with me on these projects. I am also grateful to the companies involved in the research process for this thesis. Unfortunately, I cannot mention them by name. I sincerely hope that the research findings benefit the participating companies as much as these companies have enriched my academic journey.

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Fortunately, I have not been alone on this journey, as there were several of us completing our doctoral studies in the Department of Marketing. I would like to thank my other fellow doctoral students, D.Sc. Teaa Palo, D.Sc. Elina Pernu, D.Sc. Tuula Lehtimäki, D.Sc. Kerttu Kettunen, M.Sc. Minna Mäläskä, M.Sc. Outi Nuojua, and M.Sc. Waqar Nadeem, for our enjoyable discussions over lunch and coffee breaks. I would also like to thank M.Sc. Jan Hermes and D.Sc. Sari Laari-Salmela from the Department of Management and International Business for our interesting discussions regarding various aspects of organizational and institutional theory, which have broadened my own research interests.

I would like to conclude by addressing all of my friends and family. To my mother Riitta and father Tapio: you have always supported and encouraged me unconditionally whether conquering mountains or academic life. Thank you for that and for more. I also wish to thank the rest of my family and friends for sharing this academic journey and for reminding me of the life beyond research.
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Oulu, September 2014

Ilkka Ojansivu
List of original papers

This thesis comprises the introductory chapters and the following papers:

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1 Introduction

“When all the roads come to an end, one must consider continuing the journey…”
(Rantamala, 1977)

1.1 Background

Research paradigms often justify their existence through narrow concepts and definitions. This tendency has been evident in business-to-business marketing diverging from McCarthy’s (1960) 4P framework (e.g., Alajoutsijärvi et al. 2000, Hadjikhan & Laplaca 2013), service marketing differentiating from “goods-dominant logic” through IHIP characteristics (e.g., Lovelock & Gummesson 2004, Spring & Araujo 2009), and project management emphasizing the “iron triangle” (e.g., Atkinson 1999) to distinguish it from other management disciplines, to name a few. Project marketing is no different, with the D-U-C model setting the research guidelines (Cova & Salle 2007, Söderlund 2011a).

The problem with narrow definitions is time—the only consistent element of business relationships and society at large is change (Peters et al. 2013a). Concepts that explain social phenomena are essentially anchored to predominant circumstances. When these circumstances change, new concepts must be created, or old concepts adapted. At best, concepts help researchers to make sense of complex events in their inherent context. A negative side effect arises, however, when the existing concepts begin to dominate research and prevent any new ideas from surfacing (Ghoshal 2005). What could have been an eye-opening idea at one point could become a burden and a reason for inertia after time passes. Thus, a logical question arises: why do research paradigms adhere to stagnant concepts?

One of the reasons is reciprocity; researchers respect their colleagues’ efforts and prefer to change their own focus rather than question the status quo. Thus, researchers tend to behave as a bull in a china shop, carefully selecting words to avoid major academic backlash. However, this type of behavior is not productive; concepts are period pieces of reality, as they are not meant to remain in perpetuity but will continue to have historical value (e.g., Grönroos 1994, Van Waterschoot & Van den Bulte 1992). Concepts are meant to illustrate how thinking within a certain research paradigm has evolved over time and how researchers have adapted to changing circumstances. The question of why these observations are relevant to the research at hand thus emerges. This question relating to the
fundamental behavioral hypothesis of post-project interaction will be explored subsequently.

The central tenet of this research is understanding post-project buyer-seller interaction, a theme that has remained in the backdrop of project marketing since the D-U-C model was established in the mid-1990s to differentiate project marketing from other business-to-business marketing (e.g., Cova & Hoskins 1997, Cova et al. 2002: 13–21, Mandjak & Veres 1998, Skaates et al. 2002b, Skaates et al. 2003). In the model, “D” stands for discontinuity, “U” represents uniqueness, and “C” indicates the complexity of individual projects. What may have legitimated the existence of a research paradigm can cause its subsequent stagnation. In essence, these features characterize what project marketing is and what it is not. When the correspondence between project marketing theory and the empirical world continues to decline, project marketing loses its managerial relevance. In fact, this declining relevance has been a general trend in business research for the last three decades (Bennis & O’Toole 2005, Ghoshal 2005, Vermeulen 2007, Mintzberg 2004). However, as the famous Finnish author Irmari Rantamala (1977) noted in the midst of civil war, there is no single moment for despair; the journey must continue. The aim of this thesis is exactly that—to propose new journeys for project marketing research. First, however, one must understand what has changed in project business to make the D-U-C features so forbidding.

Many project-based businesses, such as paper machines (Lamberg & Ojala 2006), windmills (Traber & Kemfert 2011), elevators and escalators (Salonen 2011), and software systems (Rajala & Westerlund 2007), are gradually aging and approaching industry maturity. As a result, fewer projects are delivered per year, but projects are simultaneously becoming larger and more complex as customers seek to gain economies of scale. For example, in the 1960s, there was a yearly global market for approximately 140-220 paper machines, whereas in the early 21st century, this number had decreased to less than 50 machines; at the same time, the amount of paper produced annually has increased from 50 to 350 million tons, and the price of a paper machine has reached 500 million euros (Toivanen 2005). Similarly, in the windmill industry, there is a demand for larger turbines (Ojansivu et al. 2015). Meanwhile, competition has become fierce, and customers’ bargaining power has skyrocketed (Kerzner 2013, Toivanen 2005), causing smaller margins and uncertain project sales for project suppliers. What, then, is the drawback of the D-U-C model?
The uniqueness (U) and complexity (C) characteristics remain valid; in fact, as projects have grown in size, the complexity and uniqueness of projects has even increased (see Jalkala et al. 2010). It is the first characteristic of the framework (D) that requires clarification. Project discontinuity can be conceptualized broadly in two ways (Mandjak & Veres 1998): either as an irregular demand for projects or, more specifically, as a period after project delivery when economic exchange has ceased but social bonds remain. A central focus area of project marketing has been to manage discontinuity and to maintain the “sleeping relationships” (Hadjikhani 1996) in order to secure future project sales (Cova & Salle 2007, Hadjikhani et al. 2012, Jalkala et al. 2010). However, the increasingly uncertain project demand has forced project suppliers to develop new revenue streams based on service business (Artto et al. 2008, Davies et al. 2007, Kujala et al. 2013). During this process, the two sides of discontinuity have become one another’s repellent; irregular demand is compensated by a high proportion of project-related services, which translates into a buyer-seller interaction that does not fit the previous description. How, then, should we explain these emerging business relationships?

One possibility is to ignore these relationships and to maintain the sleeping relationships that still exist to some extent. However, as “servitization” (Baines et al. 2009, Johnson & Mena 2008, Leiringer et al. 2009, Vandermerwe & Rada 1989) appears to be a one-way street, there may be little to study after a few years. Typical project businesses, such as power generation, railway rolling stock, offshore oil and gas, and construction, are increasingly generating higher revenue streams from service components than from capital goods (Alderman et al. 2005, Davies 2004, Gebauer et al. 2010, Salonen 2011). Alderman et al. (2005) offer an example of this economic value when describing a train project worth 1.8 billion euros, of which a 12-year service contract accounted for 912 million euros. In this respect, suppliers may even use a project as a “Trojan horse” merely to acquire a more profitable service contract.

However, if these business relationships do not fit into the previous description, then why should they be studied at all? Perhaps they simply resemble continuous business relationships despite the strenuous efforts to distinguish project marketing as a separate field. Nevertheless, the present research will argue the reverse: post-project interaction in service-intensive projects does not bear resemblance to the linear form of relationship development (e.g., Dwyer et al. 1987, Ford 1980) or to sleeping relationships (Hadjikhani 1996); rather, post-project interaction is of a different type (Ojansivu et al. 2013). In this research,
the terms “post-project” (Engwall 2003) and “project afterlife” (Söderlund 2011b) refer equally to the point following project handover (Skaates et al. 2002b: 399), at which the customer begins to operate the supplied system. “Service-intensive” is used to describe a project in which service exchange accounts for a significant part of project delivery. Here, “delivery” is considered broadly, beyond project implementation and handover, to refer to the entire usable life of the system and the related service exchange.

1.2 Research questions

This research aims to provide insight into the dynamics of post-project interaction by deeply exploring relationships with meticulously chosen theoretical constructs, including interaction processes (Brennan & Turnbull 1999, Håkansson 1982, Håkansson & Waluszewski 2013, Möller & Wilson 1995), the interaction orientation (Alajoutsijärvi et al. 2001, Campbell 1985, Möller & Wilson 1988, 1995), the relationship atmosphere (Hadjikhani & LaPlaca 2013, Håkansson 1982, Wilson 1995), and relationship dimensions (Holmlund & Törnroos 1997). Through these concepts, we begin to comprehend discontinuity in a broader sense than the mere economic facet that has plagued previous project marketing research (Alajoutsijärvi et al. 2012, Jalkala et al. 2007).

The central argument here is that although services enable economic exchange and thus relationship continuity, the resulting interaction is far from stable and foreseeable. In fact, a tendency toward relationship regression and even dissolution arises in the post-project stage (Ojansivu et al. 2013). Furthermore, Alderman et al. (2005) note that the logics of the project and service business are genuinely different, thus imposing severe challenges for service exchanges following project handover. Through the study of post-project service exchange, these challenges and the underlying dynamics of buyer-seller interaction in project afterlife can be understood.

This research focuses on individual projects rather than two sequential projects, which previous project marketing research studies have scrutinized (e.g., Hadjikhani 1996). By studying single projects, this thesis departs from the previous thinking: the post-project stage is not something that the supplier needs to “overcome” (Jalkala et al. 2010) to acquire a future project; rather, it is a central part of relationship development, with distinct economic value regardless of subsequent projects. This perspective emphasizes the value of post-project relationships for project suppliers and the need to study their dynamics in detail.
This study accordingly aspires to build the conceptual and empirical foundations for forthcoming project marketing research by providing a preliminary understanding of post-project relationships. To do so, this research examines the following main research question:

*How does post-project buyer-seller interaction develop in service-intensive projects?*

The main research question is complemented by four sub-questions:

1. *How do the post-project buyer-seller interaction process, interaction orientation, and relationship atmosphere develop in service-intensive projects?*
2. *What types of post-project buyer-seller interaction development paths can be recognized in service-intensive projects?*
3. *How do individuals mediate change at different interorganizational levels in service-intensive projects?*
4. *What types of intergroup tensions can be identified in service-intensive projects?*

Each sub-question is linked to its equivalent paper (e.g., the first sub-question is answered in the first paper) with a specific theoretical and analytical focus. The first sub-question (“*How do the post-project buyer-seller interaction process, interaction orientation, and relationship atmosphere develop in service-intensive projects?*”) provides the theoretical foundations for the remainder of the thesis. This paper shows how interaction processes, the interaction orientation, and the relationship atmosphere evolve in a content management system (CMS) buyer-seller relationship. More specifically, this paper describes the development from the pre-project stage to the project and post-project stages (i.e., it incorporates the project history into the analysis).

The second sub-question (“*What types of post-project buyer-seller interaction development paths can be recognized in service-intensive projects?*”) is proposed to broaden both the theoretical and the contextual perspectives of the study. The interaction process perspective of the first paper is complemented by antecedent and outcome variables, and the service-intensive project context expands from CMSs to engineered wood, mining, windmill, and paper machine projects. Simultaneously, the level of analysis is higher, as four illustrative post-project relationship types are proposed.
The third sub-question (“How do individuals mediate change at different interorganizational levels in service-intensive projects?”) addresses both the contextually embedded nature of buyer-seller interaction and the role of individuals in mediating change. The unit of analysis shifts from the company level that is used in previous papers to the individual level, as the focus is on interaction between people at various interorganizational levels, namely, the hub firm, the dyad, and the focal net. The central proposition is that the developments in the hub firm, the dyad, and the focal net are interrelated primarily through a few central individuals and the influence of these individuals that is earned during the formation of the dyad and focal net.

The fourth-sub question (“What types of intergroup tensions can be identified in service-intensive projects?”) aims to identify professional groups typical of service-intensive projects and to illustrate the inbuilt tensions between individuals belonging to opposite groups. These tensions are then linked to the development of buyer-seller interaction in the wind turbine and CMS project context. The focus is on interaction between individual professionals, continuing the focus of the previous paper. This paper extends the theoretical perspective of the thesis by building on intergroup behavior, particularly the concepts of trust and commitment. The central argument is that individuals representing certain professional groups with their group identification influence project interactions and thus the development of buyer-seller relationships.

Each individual paper plays a role in answering these research questions, but a broader conceptual research framework is built to integrate the central theoretical concepts of the study. The empirical part of the study is qualitative by nature, and both single and comparative case studies from five different service-intensive project contexts are analyzed. Using several service-intensive project contexts enables a broader contextual explanation (Welch et al. 2011). As an outcome of the study, the findings of each of the four papers are analyzed, and an empirically grounded framework is proposed to answer the main research question of the study: How does post-project buyer-seller interaction develop in service-intensive projects? Among the four individual papers that compose this study, the first paper has been published in a peer-reviewed international journal, the second has been accepted for publication in a peer-reviewed international journal, the third is a manuscript that is currently under journal review, and the fourth paper has been published in the 14th European Academy of Management (EURAM) conference proceedings. The details, paper-specific research questions, and contribution of the present author for the papers are presented in Table 1.
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Paper-specific RQ</th>
<th>Contribution of the present author</th>
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<tr>
<td>I</td>
<td>Ojansivu I, Alajoutsijärvi K &amp; Salo J (2013) Development of buyer-seller interaction in service-intensive projects. Industrial Marketing Management 42(8): 1318–1327.</td>
<td>What kinds of interaction orientations and development patterns can be recognized in the post-project stage?</td>
<td>The present author had the main responsibility of planning and writing the paper, as well as collecting and analyzing the empirical data.</td>
</tr>
<tr>
<td>II</td>
<td>Ojansivu I, Alajoutsijärvi K &amp; Salo J (2015) Business relationships during project afterlife: antecedents, processes, and outcomes. Journal of Business and Industrial Marketing. Forthcoming in issue 30.</td>
<td>What kinds of post-project relationships there are in service-intensive projects? What are the antecedents and processes leading to their development?</td>
<td>The present author had the main responsibility of planning and writing the paper.</td>
</tr>
<tr>
<td>III</td>
<td>Ojansivu I (2014) Afterlife of service-intensive projects: the network perspective. Manuscript.</td>
<td>How does the interplay between different interorganizational levels influence the content of business relationships? How does the hub firm’s management (operational, middle, and top management) mediate change at different interorganizational levels?</td>
<td>The present author was solely responsible for the entire work.</td>
</tr>
<tr>
<td>IV</td>
<td>Ojansivu I &amp; Alajoutsijärvi K (2014) Archetypes of project professionals in service-intensive projects: analyzing inbuilt tensions. Proc 14th EURAM Conference. Valencia, Spain.</td>
<td>What are the typical professional groups in service-intensive projects? What are the primary tensions between these professional groups during service-intensive projects?</td>
<td>The present author had the main responsibility of planning and writing the paper, as well as collecting and analyzing the empirical data.</td>
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For paper I, the present author was responsible for planning and conducting the study as well as writing the paper. Some of the data were analyzed in cooperation with co-authors but were based on thorough case descriptions offered by the present author. The co-authors provided valuable insights during the research process and helped modify and revise the text. The theoretical part of the paper was compressed, and the results were discussed in cooperation among the authors. For paper II, the present author was primarily responsible for planning and writing the paper, but the data collection and analysis were more equally
divided between the authors. The data for the windmill and mining cases were collected during two research projects in which the present author planned and guided the data collection process but did not participate in the actual fieldwork. Having full access to the data, the present author was able to analyze the data and eventually construct the case studies. The two other cases in the paper concerning paper machines and engineered wood solutions (EWS) were provided by the co-authors.

For paper III, the present author was solely responsible for the entire work. For paper IV, the present author was responsible for planning and writing the paper. The windmill case used the same data as in paper II, but the CMS case data were collected and analyzed solely by the present author. The co-author of paper IV provided valuable insights during the research process and helped modify and revise the text of the paper.

1.3 Outline

The thesis comprises two parts. The first part is an overview consisting of seven chapters that use a step-wise approach to answer the main research question and to contribute to a process-based understanding of post-project interaction. The four individual research papers constitute the second part of the thesis.

The study begins with an introduction that presents the background for the topic of the study. The second chapter, “Project marketing and relationship discontinuity,” presents the theoretical underpinnings of post-project buyer-seller interaction. The third chapter, “Service-intensive projects and the broadening of post-project interaction,” details the study context and discusses its implications for the phenomenon. The fourth chapter, “Construction of the process framework,” presents the conceptual framework based on the discussed theoretical foundation. The fifth chapter, “Methodology,” describes the methodological choices of the study. The chapter begins by discussing the philosophical positioning of the study in detail and then describes the research process, case study design, selected cases, data collection, and analysis. The sixth chapter, “Results and contributions,” provides a summary of each of the four research papers and answers the related sub-questions of the study. Moreover, the theoretical and managerial implications of the research papers are proposed. The final chapter, “Conclusions,” provides an answer to the main research question of the study and presents an empirically grounded process framework. The theoretical and managerial contributions of the study are presented, and the study
is subsequently evaluated. Finally, the limitations of the study and future research avenues are discussed.
2 Project marketing and relationship discontinuity

Because of the rapid increase in project operations and project-oriented working methods, a new paradigm of project-based firms and project business has emerged (Tikkanen et al. 2007). Subsequently, project business has become a growing area of interest and has increasingly received attention from both the academic and managerial sides of marketing (Artto & Wikström 2005). A project-based firm can be defined as a company that uses external delivery projects for business purposes (e.g., Söderlund 2004, Whitley 2006). Further, project business can be defined in the following way: “Project business is the part of business that relates directly or indirectly to projects, with a purpose to achieve objectives of a firm or several firms” (Artto & Wikström 2005: 351). Several definitions of the term “project” exist because it can be applied to a variety of contexts (e.g., Cova & Salle 2005). In this study, the term is defined as “a complex transaction covering a discrete package of products, services and other actions designed to create (capital) assets for the buyer over a certain period of time” (Cova & Holstius 1993: 107).

To date, a considerable amount of academic research has focused on the topics of projects and project business (for reviews, see Artto & Wikström 2005, Skaates & Cova 2005, Söderlund 2004). Thus far, however, the research has been quite fragmented, as it represents several research traditions, with the most well-known traditions being project management (e.g., Packendorff 1995), project marketing (e.g., Skaates & Tikkanen 2003), and systems selling (e.g., Mattsson 1973). The present research aims to understand the dynamics of post-project buyer-seller interaction and thus contributes to research on project marketing.

Project marketing is a rather young offshoot of industrial marketing, as the first publications date back to the early 1990s (e.g., Bansard et al. 1993, Cova et al. 1994, Hadjikhani 1996). In contrast, researchers began investigating systems selling in the early 1960s in the USA (Murray 1964, Page & Siemplenski 1983), and research on project management is rooted in military space programs from the 1950s (Söderlund 2004). Project marketing can be broadly defined as a multifunctional process of managing networks and buyer-seller interaction within and between projects in businesses, in which the value creation process includes the entire project cycle (Cova & Holstius 1993, Jalkala et al. 2010).

The project cycle has attracted a reasonable amount of attention among scholars within project-related research (e.g., Artto 2001, Cova & Holstius 1993,
The different stages of the process are commonly called the project cycle or the project life cycle. Other names for the process include the solution life cycle (Artto et al. 2008) and the integrated solutions life cycle (Brady et al. 2005). Further, Mandjak and Veres (1998) distinguish the pre-realization, realization, and post-realization stages of projects, whereas Engwall (2003) distinguishes the pre-project, project, and post-project stages. Each project stage brings together specific professionals and organizational units for limited set of time (Blomquist & Wilson 2007, Skaates et al. 2002b) with both temporary and permanent organizational structures (Dahlgren & Söderlund 2001, Packendorff 1995, Lundin & Söderholm 1995) complicating the coordination of the business relationship after the project handover (Ojansivu 2013). Furthermore, customer specific knowledge is often jeopardized between project stages (DeFillippi & Arthur 1998, Lehtimäki et al. 2009, Prencipe & Tell 2001, Skaates et al. 2002b), which create the need to continuously monitor and manage the business relationship.

The key objective of project marketing is to create, maintain, and manage relationships that enable or support the future demand for projects (Cova & Hoskins 1997, Cova et al. 1994, Tikkanen et al. 2007). Management of relationships after project handover (i.e., post-project relationships) is especially central to project marketing, as these relationships are considered inherently discontinuous. In project marketing research, the importance of the problem of discontinuity has been widely recognized (e.g., Hadjikhani 1996, Mandjak & Veres 1998, Skaates et al. 2002a and 2002b), and in fact, the management of discontinuity has been considered to be the foremost strategic issue in project marketing (Hadjikhani 1996). Nevertheless, existing research has primarily focused on explaining the discontinuous nature of buyer-seller relationships resulting from the lack of economical transactions between projects (Cova & Hoskins 1997, Jalkala et al. 2007). Moreover, research has emphasized the social dimension of relationships (i.e., social exchange, trust, attraction, and social bonds) as tools for maintaining relationships in between two sequential projects when they might not be any economical transactions (e.g., Cova & Salle 2000, Skaates et al. 2003). The structural dimension of such relationships has been considered problematic, and according to Skaates et al. (2003), resource ties and activity links are seldom present in situations of discontinuity.

Research on the social dimension of post-project business relationships has revealed several concepts that have been widely referenced in project marketing. Project marketing milieu (Cova et al. 1996, Skaates et al. 2002a) highlights the
socio-economic dimension of interaction by describing the local network of business and non-business actors that share certain rules of the milieu. The concept is used in a proactive manner to anticipate bids and success in ongoing projects (Cova et al. 1996). Another concept overlapping with project marketing milieu is the ritual approach of managing extrabusiness relationships (Cova & Salle 2000). The term “extrabusiness relationships” refers to interactions that are solely based on social exchange. These relationships are maintained after project handover to maintain certain social ties despite the lack of an economic exchange (Ibid 2000).

A sleeping relationship (Hadjikhani 1996 and 1998, Hadjikhani et al. 2012) is used in project marketing to describe the relationship discontinuity between two sequential project orders. The concept dates back to the beginning of the 1980s and to the studies by Palmer et al. (1986) examining the relationships between actors and movie producers in the film industry. Hadjikhani (1996) introduced the concept to project marketing in the mid-1990s. He argues that although discontinuity is not exceptional in business relationships, it creates substantial problems in project marketing. At the time, project delivery was believed to terminate the exchange of resources abruptly when the contractual obligations were fulfilled (Ibid 1996). The characteristics of interactions changed, and the relationship became a sleeping relationship. More specifically, a sleeping relationship was defined as a relationship without contract-related activities and resource ties but with possible bonds of after-market dependency, social ties, and trust (Ibid 1996, Skaates et al. 2002b).

What all three project marketing concepts—milieu, extrabusiness relationships, and sleeping relationships—have in common is the central hypothesis regarding discontinuity: only social exchange is expected to endure. Given that this type of thinking, which has elucidated the break in the economic exchange as a source and the social side of the relationships as a solution, has epitomized contemporary discontinuity research in project marketing for more than a decade, a closer examination of the contextual background is necessary. Research by Skaates et al. (2002a) is based on empirical evidence from the Danish construction industry, research by Cova and Salle (2000) is based on the aerospace industry, and research by Hadjikhani (1996) is focused on the mining and railway industry. In summary, the current state of discontinuity research is strikingly narrow.

Arguably, the current research on discontinuity has not been empirically broad and theoretically robust enough to develop a general theory (Peters et al.
2013a) of project marketing. Post-project business relationships based solely on social exchange hardly reflect today’s broad scale of project business. Such relationships might replicate the relationships in particular industries at a certain point in time (from the late 1980s to the late 1990s) but do not necessarily reflect the current state of the business environment. A sleeping relationship is an illustrative and powerful concept, but it does not provide much latitude for other forms of interaction. Post-project relationships that do include even a moderate level of contracts or economic exchange do not fit into the central premise of the concept. Henceforth, the concept of a sleeping relationship is viewed as merely one type of post-project relationship, as a plethora of other types of post-project relationships can be expected with different discontinuity constructions.

2.1 Alternative approaches to post-project interaction

Because of its evolving nature, several research disciplines are involved in project business, each having specific objectives (Cova & Salle 2005). Project marketing views a project largely from the supplier’s perspective (e.g., Cova et al. 1994), project management considers the project manager’s perspective (e.g., Pinto & Prescott 1988), industrial marketing is interested in the long-term development of business relationships (e.g., Ford 1980), and systems selling originates from the supplier’s value creation process and thus considers the entire project life cycle (e.g., Brady et al. 2005).

Similar to the scattered views pertaining to projects, theory on post-project business relationships is not coherent. What occurs in business relationships after project handover is debatable. In the paragraphs that follow, four distinct views have been carefully selected and elaborated from the literature (Table 2). The aim is to specify the current state of theory by highlighting the affiliation or “link” between the four distinct theoretical views on projects, business relationships and post-project business relationships. Specifying the conceptual overlap between these theoretical views is central to theory development. When a certain theme is discussed at length in the literature, the link is considered an explicit one, while an implicit link means that the theme is not part of the visible focus on the theoretical discussion.

The first view is titled “project as a temporary organization”, and it reflects traditional project management and early project marketing thinking. This view considers a project to have a clear end date and the business relationship to be connected to a short project life cycle (e.g., Ford et al. 1988, Goodman 1981,
Hyden 1976, Lundin & Söderholm 1995, Packendorff 1995). Accordingly, business relationships end after project delivery, and negotiation tactics are the central marketing activities that enable firms to win a project contract (Hadjikhani 1996). The focus is on the temporary one-off and non-recurring nature of project activities, not on achieving continuous business interaction. The prospect of a post-project business relationship is not discussed in the literature.
<table>
<thead>
<tr>
<th>Approach</th>
<th>References</th>
<th>Link to projects</th>
<th>Link to business relationships</th>
<th>Link to post-project business relationships</th>
</tr>
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<tbody>
<tr>
<td>Project as a temporary organization</td>
<td>Ford <em>et al.</em> 1988, Goodman 1981, Hyden 1976, Lundin &amp; Söderholm 1995, Packendorff 1995</td>
<td>Explicit link: a project has a clear beginning and ending</td>
<td>Implicit link: a business relationship may co-exist with a temporary project, but they are not associated with the temporary organization</td>
<td>No link: The prospect of a post-project business relationship is not elaborated explicitly or implicitly</td>
</tr>
<tr>
<td>Customer-based project management</td>
<td>Artto 2001, Artto <em>et al.</em> 2008, Pinto &amp; Rouhainen 2001</td>
<td>Explicit link: project delivery has a clear beginning and ending, but the project cycle can be extended</td>
<td>Implicit link: through the extended project cycle that encompasses the time before and after actual project delivery</td>
<td>Implicit link: through the extended project cycle that encompasses the time before and after actual project delivery</td>
</tr>
<tr>
<td>Sleeping and extrabusiness relationships</td>
<td>Cova &amp; Salle 2000, Hadjikhani, 1996 and 1998, Hadjikhani <em>et al.</em> 2012, Skaates <em>et al.</em> 2002b, Skaates <em>et al.</em> 2003</td>
<td>Explicit link: every project has a particular project marketing cycle</td>
<td>Explicit link: the goal of the supplier is to sequentially deliver projects to the same customer</td>
<td>Explicit link: how to manage social relations between projects in the absence of resource exchange</td>
</tr>
<tr>
<td>Project as an episode</td>
<td>Anderson <em>et al.</em> 1994, Ford 1980, Håkansson 1982: 16, Vaaland &amp; Håkansson 2003</td>
<td>Implicit link: a project is viewed as any other exchange event between the interacting parties</td>
<td>Explicit link: the success or failure of a project is directly linked to the long-term development of the relationship</td>
<td>Implicit link: the business relationship is viewed as an aggregate entity from which the post-project relationship is not conceptually separated</td>
</tr>
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The second view is labeled “customer-based project management” (e.g., Artto 2001, Artto et al. 2008, Pinto & Rouhiainen 2001). This view represents the later project management research emphasizing the extended view of projects and customer-centric project management (Cova & Salle 2005). The business relationship is considered an integral part of the customer’s perceived value (Pinto & Rouhiainen 2001: 11) and is therefore critical for project success. However, the focus is on managing project delivery and related stakeholders rather than on maintaining a long-term business relationship. A similar approach is provided by the emerging project-related service research (for a review, see Skaates & Cova 2005) that shares the customer-centered view of projects.

The third view, “sleeping and extrabusiness relationships,” highlights the discontinuity element of business relationships as the most critical element of project marketing (Cova & Salle 2000, Hadjikhani 1996). According to this view, the business relationship continues after project completion as a sleeping or extrabusiness relationship that can be loosely explained as a relationship without contract-related activities and resource ties but possibly with the bonds of after-market dependency and social ties (Cova & Salle 2000, Hadjikhani 1996, Skaates et al. 2002b, Skaates et al. 2003).

The fourth view, “project as an episode,” emphasizes the long-term development of a business relationship. This view perceives projects from a broader perspective as a stage of relationship development among other activities (e.g., Anderson et al. 1994, Ford 1980, Håkansson 1982: 16, Vaaland & Håkansson 2003). Consequently, the focus is not on the individual project but on the development of long-term business relationships, which may involve the delivery of several projects. This perspective is reflected in the two “nested” management levels suggested by Alajoutsijärvi (1996: 268, Skaates et al. 2002b: 391), where the first level involves managing relationships and networks related to individual projects and the second level refers to a longer period of activity of multiple projects, including possible periods in which there are no projects.

This overview demonstrates that the current project-related literature does not provide a coherent picture of business relationships after project handover. Although several studies consider post-project business relationships (Bengtson et al. 2001, Cova & Salle 2000, Hadjikhani 1996, Skaates et al. 2002b, Skaates et al. 2003), these studies largely focus on various aspects of social exchange. Furthermore, Alajoutsijärvi et al. (2007) argue that project marketing research tends to take the elements of the D-U-C model for granted without in-depth
investigation and contextual consideration. Only recently has the contextual nature of project business generated interest among researchers (Engwall 2003, Jensen et al. 2005). In particular, the different types of relationship discontinuities have not been studied sufficiently (Jalkala et al. 2010, Jalkala et al. 2007), largely because of the overemphasis on the project sales phase, which is apparent in project cycle models that tend to describe only the period before the project contract (Mandjak & Veres 1998, Tikkanen et al. 2007). Thus, research on the dynamics of post-project business relationships in project marketing is clearly needed.
3 Service-intensive projects and the broadening of post-project interaction

The nature of project business has evolved rapidly over the last two decades (Artto et al. 2008, Davies et al. 2007), and projects have increasingly begun to resemble complex industrial products and systems (COPS). These types of systems require a wide variety of services after project delivery and throughout the project life cycle (Brady et al. 2005, Davies et al. 2007, Hobday 2000), which has enabled project-based companies to move downstream in the value chain toward high-value added services (Brax 2005, Davies 2004, Hax & Wilde 1999, Oliva & Kallenberg 2003, Penttinen & Palmer 2007, Wise & Baumgartner 1999). As a result of this development, post-project business relationships based solely on service exchange have emerged (Artto et al. 2008, Filiatrault & Lapierre 1997, Gebauer et al. 2010, Kumar et al. 2004). Analogously, the project-related service literature has expanded (for reviews, see Skaates & Cova 2005, Tyler et al. 2007), as illustrated in the plethora of business service categorizations (Brax 2013, Mathieu 2001, Wise & Baumgartner 1999).

When a project supplier is delivering service-intensive projects, its business relationships are likely to endure. In a project context such as that related to paper machines, windmills, and CMSs, the product life cycle could endure for decades, leading to extremely long service relationships (Alderman 2005, Filiatrault & Lapierre 1997, Kumar et al. 2004). Post-project service relationships are thus becoming increasingly important for project suppliers, and some companies are already earning more revenues from project-related services than from project delivery (Gebauer et al. 2010). These services can range from maintenance to support, customization, development, and consultation (Artto et al. 2008, Kujala et al. 2013, Matthyssens & Vandenbempt 2010).

Services inevitably change the nature of post-project interaction, which was long considered an entirely social phenomenon. This development appears to challenge one of the most fundamental characteristics of project business—the concept of relationship discontinuity. Relationship discontinuity can be broadly viewed in two ways (Mandjak & Veres 1998): in a broad sense, discontinuity relates to the lack of transactional relationships (i.e., irregular demand for projects), whereas in a more narrow sense, discontinuity relates to the long-term development of a specific business relationship and to the time period between two individual project assignments when economic transactions may not occur.
The rapid development of services in project business naturally affects this second view of discontinuity.

Although the link between services and discontinuity appears to be simple and appealing, it requires a more profound examination. Transforming a project into a service relationship inevitably affects the interaction processes; the subject of exchange, coordination, and adaptations in the relationship are modified (Ojansivu et al. 2013). Thus, understanding precisely how buyer-seller interaction develops in project afterlife from the project supplier perspective becomes crucial.

Alderman et al. (2005) argue that project and service business logics are genuinely different and that a project supplier that is more experienced with projects than with services could thus face challenges in its customer relationships. These difficulties stem from the different characteristics of products and services (e.g., Brax 2013, Mathieu 2001, Wise & Baumgartner 1999). In a conventional product-like project business (Alajoutsijärvi et al. 2012), there are concrete project milestones or outcomes that can be evaluated at a certain point in time (e.g., the project’s sale, implementation or handover) with variables such as time, budget, and performance (e.g., Atkinson 1999). With the exception of fundamental project elements, such as service quality reviews, there are no static project milestones in a service-intensive project business. Rather, exchange is an ongoing process that is dependent on the customer needs, which vary significantly over time until the serviced system (e.g., software, paper machine, or windmill) is replaced at the end of its usable life cycle (Ojansivu et al. 2013). Service-intensive projects combine both worlds—static project milestones and the dynamic service exchange process—and the transition into project afterlife represents the primary challenge of service-intensive projects. In this study, the “transition” from project- to service-centric interaction refers to a process that begins with the first contacts directed toward cooperation and that continues until the end of the usable life of the supplied system.

A plethora of research describes how product-oriented companies have been transformed into service-oriented companies and what obstacles they have faced (e.g., Brax 2005, Kowalkowski et al. 2012, Matthyssens & Vandenbempt 2008). In service-intensive projects, however, this transition occurs in every business relationship. Let us consider a typical windmill prototype project (as depicted in paper IV). Up to two years may be required to acquire a project contract, and during this period, trust and commitment are principally built between commercial professionals. The design, development, and delivery of the generator
primarily involve engineering, and this process takes approximately two years. If the outcome is satisfactory, then the windmill producer orders a large amount of similar generators for a specific wind farm. The windmill producer evaluates both the generator supplier’s ability to deliver the project (based on time, budget, and performance) and the continuous service process (including replacement parts, onsite metrics, problem diagnostics, and maintenance). However, the service process is often managed by the generator supplier’s service organization (or by a subcontractor) that does not have prior experience with the project. This situation can jeopardize the post-project business relationship, which tends to include not only maintenance services but also development and consultation services (Ojansivu et al. 2015, Ojansivu & Alajoutsijärvi 2014). The transition into project afterlife is thus a delicate and fragile period.

To add more complexity, interaction orientation between the project buyer and the project seller tends to change during this transition (Ojansivu et al. 2013, Ojansivu & Salo 2011), as described in Fig. 1. Buyer-seller interaction is competitive and buyer dominated during bidding (top left quadrant) but becomes more cooperative during the delivery process (lower right quadrant). During the post-project stage, the interaction varies between two poles: development services foster cooperative interaction (top right quadrant), whereas maintenance services make interaction more passive (lower left quadrant). Post-project interaction tends to be a combination of these two extremes, thus creating a variety of different relationship types (Ojansivu et al. 2015).
Ojansivu et al. (2015) divide these relationship types into four broad categories: sleeping, passive, active, and interactive. All of these relationships can encompass interactivity—a necessary ingredient of social intercourse. Here, interactivity is used for its prevalent connotation that fits the “interactive category”. These relationships are dynamic by nature, meaning that a passive relationship can turn into an active relationship; similarly, an interactive relationship may degenerate into a sleeping relationship. This dynamism relates to the characteristics of the service exchange and interaction orientation (Ibid). Sleeping relationships are buyer dominated and do not involve service exchange. These relationships exist because the seller is dependent on the reference value and prospective project sales. Passive relationships are characterized by coopetitive interaction, which refers to a combination of competition and cooperation (Bengtsson & Kock 2000), and the exchange of basic maintenance services (in-the-field needs, spare parts, training, and care services). In active relationships, the focus turns from a buyer’s supporting business processes to its core business, and therefore, the service exchange is scrutinized by top management. In addition to maintenance, exchange also comprises development services (evaluation/consulting, design/R&D, and field/prototype testing), and the interaction is cooperative.
Interactive relationships differ from active relationships in that cooperation extends to the buyer’s complete value chain and other core business processes, such as marketing (Ibid).

Ojansivu and Salo (2010) argue that two important questions guide potential service exchange during the post-project stage. First, can the buyer benefit from the project without supporting services? This question relates to the complexity of the project (Brady et al. 2005, Davies et al. 2007). If the project is simple, then the customer is unlikely to invest in an after-sales service. Second, can the buyer acquire supporting services without the original project supplier? This question relates to the degree of proprietary technology that the project contains (Teece 1986, West 2003). If the project is built on overly general technological solutions, the customer may be able to obtain services from competing service suppliers. In this case, it would be beneficial for the supplier to increase the share of proprietary technology, which would prevent customers from switching to competing suppliers. Fig. 2 presents the resulting four service market alternatives (see also Campbell 1985).

Fig. 2. Classification of four different post-project service markets (adapted from Ojansivu & Salo 2010).

Sleeping relationships can largely be expected from independent buyer’s markets; the supplied project is simple, and there is no demand for after-sales services. In dependent seller’s markets, passive relationships are typical; the supplied project is simple but contains proprietary technology, and after-sales services can be obtained from the original project supplier only. These relationships are typical in software projects, where the seller offers updates, upgrades the software and provides helpdesk services (Alajoutsijärvi et al. 2000, Hoch et al. 1999: 27). Another appropriate example would be elevator and escalator projects, which are bundled with maintenance services (Gebauer et al. 2010). When the market is
interdependent, projects are complex, and post-project services are mandatory, though competing suppliers can offer such services. This situation is typical for windmills and paper machines, which are often maintained by third parties. Interdependent markets can host all but sleeping relationships. A dependent captive market leads to customer lock-in, which is typical when the project is extremely complex and proprietary, such as a project in complicated software systems that are linked to other electronic interfaces. In these situations, post-project services are obligatory, and they can be acquired only from the original project supplier. A dependent captive market can host a variety of relationships (passive, active, and interactive), but over a longer period of time, seller dominance tends to deteriorate both trust and cooperative interaction (Ojansivu et al. 2013).

When services increasingly dominate more traditional project businesses, the various post-project business relationships are likely to continue to broaden. However, understanding the natural tendency for interaction to evolve and the characteristics of different service and market combinations is a good starting point for studying post-project interaction.
4 Construction of the process framework

To study post-project business relationships, one must make certain assumptions concerning the nature of these relationships. These assumptions in turn direct the research toward a particular research tradition. Research on business relationships can be categorized into at least three partly overlapping conceptual perspectives: Anglo-American relationship marketing, the Nordic school of services and relationship marketing, and the work of the Industrial Marketing and Purchasing (IMP) Group (Tikkanen et al. 2007). Project marketing has been closely associated with research conducted by the IMP Group and by a research community called the International Network for Project Marketing and Systems Selling (INPM) (Günter & Bonaccorsi 1996, Skaates et al. 2002b). This study continues the project marketing research tradition and builds on the interaction perspective associated with work of the IMP Group conducted in the field of industrial marketing (Axelsson & Easton 1992, Ford 1990, Håkansson 1982, Håkansson & Snehota 1995, Håkansson et al. 2009, Möller & Wilson 1995, Turnbull et al. 1996).

Business relationship development has been studied extensively in the marketing literature (e.g., Hadjikhani & Laplaca 2013, Möller 2013, Wilkinson & Young 2013). Attempts to portray business relationship development can be divided into three broad categories: input-output models, phase models, and process models (Halinen & Törnroos 1995, Van De Ven 1992). Input-output models and phase models have been criticized for oversimplifying the complex and contextually embedded nature of business relationships (Alajoutsijärvi 1996). The present research aims to study post-project interaction, which is dynamic and continuous by nature because of the exchange of service; thus, the process model perspective is chosen as the starting point (e.g., Halinen & Tähtinen 2001; Havila & Wilkinson 2002, Holmlund 2004).

Generally, interaction in buyer-seller relationships can be described to involve three basic processes: exchange, coordination, and adaptation (Håkansson 1982, Möller & Wilson 1995 and 1988). Exchange process is at the core of buyer-seller interaction. Exchange is typically described by four elements: product or service exchange, information exchange, financial exchange, and social exchange (Håkansson 1982: 16). An established approach in business marketing is to distinguish between resource exchange and social exchange (Möller & Wilson 1995: 41). Resource exchange includes physical, technological, financial, and informational or know-how elements, whereas social exchange pertains to human
communication through which meaning is communicated and values are potentially interpreted and learned. Coordination process relate to mechanisms that facilitate the control of exchange process. These mechanisms include decisions, rules, and procedures as well as the “terms of trade” that contribute to the efficiency of such relationships (Möller & Wilson 1995: 27). Adaptation process refers to actions that interacting parties perform to gain greater benefit from the exchange relationship. These actions may involve the modification of resources, skills, operations, goals, attitudes, and managerial values (Möller & Wilson 1995: 27, Wilson 1995).

Interaction process reveals the continuous nature of exchange, but to depict the content or substance of the business relationship (Håkansson & Snehota 1995: 28-35, Håkansson & Waluszewski 2013) at a certain point in time, a more suitable conceptual tool is needed. A widely referenced framework for this purpose is the ARA model (Håkansson & Johanson 1992: 29, Håkansson & Ingemansson 2013, Lenney & Easton 2009), which describes relationships through actors, activities, and resources. Nevertheless, this study adopts the relationship dimensions framework developed by Holmlund and Törnroos (1997), which incorporates the ARA model (structural dimension) while also describing the behavioral aspects of interaction that are somewhat deficient in the ARA model (Hadjikhani & Laplaca 2013). The behavioral aspects of interaction are important, considering the specific features of trust in projects (Meyerson et al. 1996). The framework of Holmlund and Törnroos (1997) differentiates between the structural, economic, and social aspects of a business relationship.

The structural dimension of post-project relationships is closely related to visible aspects of these relationships, as it embodies the activity patterns and flows of goods between companies (Holmlund & Törnroos 1997). The basic groups of variables in the structural dimension include activity links, resource ties, and actor bonds (Håkansson & Snehota 1995: 2–34, Håkansson & Johanson 1992: 28). Activity links include technical, administrative, commercial, and other activities of an organization that can be connected to those of another organization in various ways. Resource ties connect various resource elements, such as technological, material, and knowledge resources as well as other intangibles, between two organizations. Relationships provide opportunities to access resources, but relationships themselves can also be considered resources (Håkansson & Snehota 1995: 2–34). Actor bonds refer to connections between actors in the network through which actors perceive each other and form their identities in relation to each other (Håkansson & Snehota 1995: 32–34). Structural
bonds develop over time as the levels of investment, adaptation, and shared technology increase to a point at which the relationship would be difficult to terminate. Structural bonds act as a vector of force that holds relationships together (Wilson 1995). Organizational adjustments, such as project teams and other temporary arrangements that are typical of project business (Dahlgren & Söderlund 2001, Packendorff 1995, Lundin & Söderholm 1995), are also viewed to belong to the structural relationship dimension.

The economic dimension refers to the investment and financial adjustments that the interacting parties make (Holmlund & Törnroos 1997). If adaptations in a business relationship require investments that are specific to the relationship, then the relative dependence between the interacting parties and the switching costs may increase. Non-retrievable investments refer to the relationship-specific commitment of resources that cannot be recovered if the relationship ends (Wilson 1995). Economic bonds may encompass cross-shareholding, credit arrangements, special payment arrangements, prices, and opportunity costs (Wendelin 2004: 66–67).

The social dimension is related to how people in organizations interact with one another (Holmlund & Törnroos 1997). Concepts associated with this dimension include commitment, trust, atmosphere, attraction, and social bonds. Social bonding can be described as the degree of mutual personal friendship and liking between buyers and sellers (Wilson 1995). The central premise underlying the social bonding concept is the notion that buyers and sellers who have a strong personal relationship are more committed to maintain the relationship than less socially bonded partners (Morgan & Hunt 1994, Wilson & Mummalaneni 1986). Trust in projects has some specific features that require more detailed elaboration (Kadefors 2004, Maurer 2010, Smyth et al. 2010). The various specialized professionals in projects need to work together for a limited period of time without the prior experience of being colleagues, but they need to be able to trust one another to accomplish the necessary tasks. Actors tend to form “swift trust” and to rely more on the professional roles and conceptions that they embody rather than on the individuals themselves (Grabher 2002, Meyerson et al. 1996). Considering that service-intensive projects necessitate the transition from a temporary type of project organization to a more permanent service exchange, the social and behavioral aspects of interaction are important for understanding relationship development.

The relationship atmosphere refers to the power-dependence relationship between companies, the tendency toward cooperation or conflict, the overall
closeness or distance between interacting parties, and their mutual expectations (Håkansson 1982, Wilson 1995). Expectations for post-project service exchange can vary greatly (Ojansivu et al. 2015). In an extreme situation, the buyer might decline to sign any service contract and might settle for a warranty period, especially if the prior experience with the seller is negative. If the service targets life-cycle partnerships that encompass the entire lifespan of the product, then the buyer is not likely to cooperate in the absence of a prior history with the seller or other experience with the seller’s capability.

Closely associated with the social dimension of business relationships, interaction orientation refers to the behavioral tendency of a company to favor certain interaction behavior (Möller & Wilson 1988: 417–418), which can be competitive, cooperative, command, submission or something between these extremes (Alajoutsijärvi et al. 2001, Campbell 1985, Möller & Wilson 1988 and 1995). These relational continuums are interesting in project business because companies may change their interaction orientation during a project. Separate project-specific tasks influence the relationship atmosphere and interaction orientation, as relationship structures and practices must be adjusted. Therefore, both atmosphere and interaction strategies should be acknowledged in a dynamic setting, ranging from one extreme to another during different stages of the project process. Indeed, interactions rarely involve the extreme types of interaction behavior but rather typically involve more moderate behavior within the two continuums (Easton & Lundgren 1992).

Ojansivu et al. (2013) argue that interaction orientation in service-intensive projects can be classified by certain characteristics related to the relationship atmosphere and interaction process. A competitive orientation is characterized by a type of exchange that is conducted at arm’s length with infrequent social exchange, short-term financial exchange, and superficial information exchange. Coordination is achieved by formal “normative-based” governance mechanisms, and adaptations are weak, at best. The relationship atmosphere is reserved owing to low levels of mutual expectations and social closeness. Potential conflicts may concern only a specific object of exchange and its contract rather than the long-term relationship.

Given the abstract and intangible nature of services, the project buyer and seller may find it difficult to agree on the terms or the concrete scope of the project; therefore, trust becomes a central issue. Cooperative orientation entails a partnership type of exchange with frequent social, long-term financial, and confidential information exchange. The relationship atmosphere is reinforcing,
marked by high mutual expectations and strong social bonds. In this situation, potential conflicts are not limited to a specific product but may involve the entire relationship and its past, present, and future states. However, conflicts may also be functional and therefore may be mutually beneficial. Coordination is trust-based and informal, leading to strong adaptations and interdependency. Buyers and sellers possess equal power, which is used in a non-coercive manner to secure a mutually beneficial relationship atmosphere.

In domination orientation, one-sided adaptations lead to a lock-in type of exchange (Grabher & Ibert 2011) in which the submissive party has no options. Coordination is achieved through formal maintenance contracts, and the dominating party is willing to use its coercive power, which can create dysfunctional conflicts and a repressive relationship atmosphere. In service-intensive projects, sellers tend to have proprietary rights to the system, which creates additional risks for the customer (Teece 1986, West 2003), and neither party knows precisely the amount or quality of services that is needed at the end of the useful life of the system. Fig. 3 combines the theoretical concepts of the study into a conceptual process framework for post-project buyer-seller interaction development. This framework will be used in the concluding chapter to reexamine the value of each paper in contributing to our understanding of post-project interaction.
The interaction process (exchange, adaptation, and coordination) forms the center of the framework. This process instigates change in the interaction orientation (competitive-cooperative and buyer-seller dominance), the relationship dimensions (economic, social, and structural), and the relationship atmosphere (reserved, reinforcing, or repressive). As an example, when service exchange diminishes in the post-project stage from development to basic maintenance activities, a less cooperative interaction orientation and a reserved relationship atmosphere are likely to arise (Ojansivu et al. 2013). Furthermore, the structural relationship dimension is altered, as temporary organizational arrangements dissolve (Ojansivu & Alajoutsijärvi 2014, paper III). The interaction orientation, relationship dimensions, and relationship atmosphere create a feedback loop in the interaction process, as they can either strengthen or weaken the current state of interaction. Dissolving temporary organizational arrangements such as project teams during passive maintenance results in simpler relationship coordination, fewer mutual adaptations, and increasing social distance (Ojansivu et al. 2015, Ojansivu et al. 2013).
Buyer-seller interaction is influenced not only by the exchange, coordination, and adaptation process but also by the environment. Because of company embeddedness, interactions within the dyad do not occur in a vacuum; rather, they are continuously renewed by the relationships among the dyad members within their socially constructed environment (Anderson et al. 1994, Möller et al. 2005). Three types of contextual variables are considered in the present research: company characteristics, project characteristics, and the focal net (Alajoutsijärvi et al. 1999) of the project buyer and seller. Company characteristics generally refer to the properties of the interactants, which can be classified from the company level to the personal level. Project characteristics relate to the exchange process, but they are discussed here as part of the contextual variables to increase clarity. Two types of project characteristics are identified: project complexity and proprietariness. Complexity is created by the know-how demands of a customer company and a seller company as well as by the variety and number of actors involved (Mandjak & Veres 1998). Complexity also refers to the level of tailoring that the system requires when it is supplied to the customer (Hoch et al. 1999). The proprietariness of the project relates to the degree of proprietary technology that it contains and the intellectual rights associated with it (Teece 1986, West 2003).

Understanding the interplay between different interorganizational levels is also important to understand buyer-seller interaction. In the process framework, the internal company, dyad, and focal net of the buyer and seller are distinguished to clarify the analysis (see Anderson et al. 1994, Möller & Halinen 1999, Ritter & Gemünden 2003). Business relationships and networks (and, likewise, all social structures) are considered to have causal powers that both enable and restrict individuals (Peters et al. 2013b). Change can be mediated in both directions: from the internal company to the dyad to the focal net or from the focal net to the dyad to the internal company. Furthermore, change can be confined or connected; the former indicates changes limited to the dyad, whereas the latter also has implications for connected relationships (Halinen et al. 1999).
5 Methodology

5.1 Ontology and epistemology

Social science researchers are expected to clarify the research philosophy that guides their research design (Burrell & Morgan 1979, Lincoln et al. 2011). This study adopts the perspective of critical realism (Archer 2000, Bhaskar 2008, Easton 2010), which has recently gained popularity in research on business relationships and networks (Ryan et al. 2012). The ontological assumption of critical realism is that a real world exists independently of our mind and that our knowledge of this world is fallible and based on theory (Easton 2010). However, reality is viewed to be socially construed and contextual (Easton 2010).

The central tenet of critical realism is that social structures (such as business relationships and networks) have causal powers and that temporality is central to understanding the underlying mechanism of social structures (Archer 1995). This assumption is particularly vital to the study of business relationships, in which individuals, social practices, and social structures are intricately interrelated over the course of time (Araujo & Easton 2012, Havila & Wilkinson 2002, Medlin 2004, Peters et al. 2013b). Business relationships both enable and constrain what companies and individuals are able to do, as relationships take time to develop and are therefore not quickly recoverable (Storbacka & Nenonen 2009).

This research follows the morphogenetic approach to critical realism from Archer (1995), who considers agency and structure to be temporally interlinked (Ehret 2013, Peters et al. 2013b). At any particular moment, business relationships and networks are viewed to consist of existing structures that constrain and enable agents whose interactions produce intended and unintended consequences, leading to an elaborated structure (Archer 1995, Bhaskar 2008). This viewpoint emphasizes analytical dualism, meaning that the causal dynamics between structure and agency, and especially their relative influence, can be studied temporally. However, the cause and effect paths are not direct as in positivism research; rather, social phenomena occur in open systems (Bhaskar 2008). Hence, the central tenet of the present research concerns naming and describing broad, generative mechanisms that operate in the world (Healy & Perry 2000).

In critical realist philosophy, the researcher’s task is to identify and explain related mechanisms and processes (Ryan et al. 2012, Sayer 1992). As Miles and
Huberman (1994: 5) claim, “lawfulness comes from the regularities and sequences that link together phenomena. From these patterns, we can derive constructs that underlie individual and social life.” Even ideas, tools, stories, and knowledge can have causal power if they form a pattern within social systems (Ghoshal 2005, Peters et al. 2013b). These causalities bear resemblance to a self-fulfilling prophecy in which things that are believed become real over time (Miles & Huberman 1994: 5). However, the causality assumption of critical realism is contextual; thus, the same mechanisms can produce different outcomes in different circumstances (Sayer 1992).

In this study, individual actors’ perceptions of and experiences related to post-project buyer-seller interaction form the social reality, which is partly accessible to the researcher through empirical observations. However, the results are always interpretations (Easton 2010) because there are differences among real, actual, and empirical domains (Bhaskar 2008). Mechanisms operate in the real domain. Between the empirical domain, where observations are made, and the real domain is the actual domain, where events occur (Bhaskar 2008). As such, the process of interpretation intervenes between the empirical and the actual domains, restricting the researcher’s ability to explain certain mechanism (Easton 2010). Thus, the researcher is an essential part of the knowledge production process, as the underlying mechanisms are exposed through his/her perceptions and thought processes (Easton 2010). Thus, causal explanations do not stem from collecting observations; rather, they emerge from an exploration beyond the realm of the observable (Collier 1994). As Popper observes, reality consists of abstract things that are borne from people’s minds but that exist independently of any one person (Magee 1985). Thus, a participant’s perception is not reality; rather, it is “a window to reality through which a picture of reality can be triangulated with other perceptions” (Healy & Perry 2000).

The methodological underpinnings of this research that follow critical realism philosophy evolved as the thesis progressed, and they are therefore only implicitly elucidated in the individual papers. The central premises of critical realism philosophy that relate to abduction, continuous endeavors to explore and explain, and the desire to capture the mechanism and structures for change have nevertheless been followed from the beginning of the research process.
5.2 Abductive research process

The present research has involved a complex and intertwined process of empirical inquiry and theoretical discovery. In hindsight, this study has used an abductive research process with several phases of systematic combining (Dubois & Gadde 2002). The abductive research process of the study is presented in Fig. 4. This research process began in 2005 with a master’s thesis assignment from a rapidly growing software company specializing in CMS systems. The aim was to study the influence of a recent acquisition on the customer relationships of the acquired company.
Data on five customer relationships were collected between fall 2005 and summer 2006. The findings were interesting, as the customer reactions were rather scant; the acquisition did not appear to have occurred at all. In retrospect, it can be stated that the exchange observed in the investigated relationships was that of
passive maintenance, and only longitudinal examination would reveal the character of these relationships.

As the doctoral studies commenced in late 2008, the type of buyer-seller behavior evident in the five customer relationships was studied more thoroughly. It soon became evident that the contemporary theories of post-project interaction did not bear much resemblance to the previously discovered relationship characteristics. However, according to several senior colleagues, the proposal to study post-project interaction beyond social exchange and especially sleeping relationships (Hadjikhani 1996) conflicted with the mainstream project marketing theory and was therefore suggested to be an unwise research approach.

As a result, the research took the direction of value co-creation and service-dominant logic, which seemed to be interesting at the time. Meanwhile, the Deccmac research project arose in 2010 with the possibility of studying windmill project businesses. After one of the proceeding papers on value co-creation was published, research interest was drawn back to post-project interaction, with a theoretical background derived from interaction orientation, relationship atmosphere, and power relations. With an eagerness to apply these concepts to post-project interaction, new data on the original five customer relationships were collected in the winter of 2012, resulting in paper I (Ojansivu et al. 2013).

The Cleantech research project provided an opportunity to broaden the context of the study between 2011 and 2013. This project focused on environmental solutions and brought together many international companies delivering service-intensive projects. Unfortunately, only one data set for the mining industry proved to be pivotal for the research. Concurrently, further analysis of the CMS data led the researcher to collect a new round of interview data in the summer of 2012 and to examine the focal net of the actors in paper III.

Because of frustration with the Cleantech project, the researcher began to analyze data from the Deccmac research project in the summer of 2013, particularly the windmill case. Furthermore, data from the previous year were accessible and required analysis. Analysis of the data from the windmill and mining cases and the data from the two co-authors (concerning EWS and paper machines) resulted in paper II (Ojansivu et al. 2015).

The analysis of the windmill case revealed similarities between the windmill cases and the CMS case in terms of the intergroup tensions evident in the service-intensive projects. After reanalysis of both data sets, a new and exciting research direction, focusing on the perspective of individuals in projects, surfaced. In paper IV, the CMS and windmill data are combined to promote theory development.
(Eisenhardt 1989, Eisenhardt & Graebner 2007) through a comparative case study showcasing the inbuilt tensions between individuals representing certain professional groups.

5.3 Case study design

Details regarding the analytical techniques are presented in the individual papers, but in this subsection, an overview of the chosen approaches is provided. The selected method is a qualitative case study (Yin 1994: 39–40), with slight variations in each of the four papers. A case study design is well suited to research adopting a critical realist perspective on business relationships, as such a design enables an in-depth analysis of a small number of social entities with multiple sources of data (Easton 2010). Thus, a case study method can be utilized to explain the various events that are associated with the research phenomenon (Yin 1994). More specifically, this study adopts the instrumental case research method (Stake 1995), in which a participant’s perceptions are not studied to promote their own perceptions but are studied to provide a glimpse of the reality beyond those perceptions (Healy & Perry 2000). In this research, a case refers to an empirical example of post-project interaction between a project buyer and a project seller.

In paper I, three cases were selected, whereas paper III is based on a single case design. Both of the papers concern the CMS project business, and the time span of the inquiry is three decades (1994–2012), necessitating a longitudinal research method (Pettigrew 1987). A qualitative historical case study with abductive reasoning (Dubois & Gadde 2002) is used to benefit from theoretically deduced dimensions and empirical material. Periodization by turning points is used to summarize and structure the historical material into chronological periods (Hollander et al. 2005). Such an approach is recommended when the focus is on the continuity of and changes within a phenomenon that is contextually embedded (see Halinen & Törnroos 2005, Pettigrew 1987).

In papers II and IV, a comparative case study design is adopted (Cunningham 1997, Eisenhardt 1989). The cases are chosen on theoretical grounds (Glaser & Strauss 1967: 49, Stake 1995: 4) to highlight conceptual models in practice and to illustrate post-project behavior; therefore, the purpose is primarily descriptive. The cases are also used for another purpose. Even with a limited sample, the validity of the chosen theoretical concepts can be evaluated, albeit in a preliminary fashion. This objective can be achieved by examining whether the proposed concepts are useful in interpreting the potential development in post-
project relationships, whether some of the concepts are superfluous, and whether new concepts should be constructed to describe the phenomenon. In this sense, the cases could also be utilized in the construction of tentative theory (Eisenhardt 1989, Johnston et al. 1999).

5.3.1 The unit of analysis

The present research aims to understand post-project buyer-seller interaction. However, the concept of a buyer and seller is not unambiguous (Easton 2010). Similarly, project business involves two overlapping or “nested” dimensions of a project and a business relationship (Alajoutsijärvi 1996, Skaates et al. 2002b), which also require clarification. The following question thus arises: what should the unit of analysis be when studying post-project buyer-seller interactions in service-intensive projects?

In this research, the unit of analysis is the buyer-seller interaction occurring in project afterlife, that is, the buyer-seller interaction occurring after project handover. Depending on the case study design, however, the concept of a buyer and a seller is approached slightly differently. In papers I and II, the company level is considered; that is, the perceptions of the interviewee are largely expected to reflect the company. In papers III and IV, the research focus is directed toward individuals and their interactions, which represents a rather unexplored but insightful approach to studying business relationships (Medlin 2012). Consequently, buyer-seller interaction is viewed through the perspectives of individuals at various interorganizational levels. Therefore, an interviewee is not expected to represent a view of the entire company but rather merely provides one individual perspective.

As noted earlier, the prospect of sequential project delivery (occurring in the future, perhaps 20 years later) is not the focus in this study. Rather than undermine the value of such prospects, the intent here is to focus on continuous service exchange, which constitutes a tangible interaction; by contrast, future prospects may provide some direction for interaction, but it is difficult to generate cash flow from such interactions in the present. Clarifying this point also simplifies the distinction between a project and business relationship—why should they be considered separately in the first place?

The central argument in IMP-related research is that “a project” is a building block of something greater—that is, a business relationship (e.g., Håkansson 1982: 16, Vaaland & Håkansson 2003). A project’s importance can even be
trivialized to “an episode” among other episodes (Skaates & Tikkanen 2003), such as an important meeting with a client or a quarrel leading to diminishing trust. If the analysis level is raised sufficiently (e.g., studying the interaction between the largest companies in the world, such as General Electric and one of its prime customers in aviation, Boeing), then the dozens of projects between them (e.g., the latest GE90, GE90-115B, and GE90-110B engine projects) do form a continuous business relationship. However, if we consider a medium-sized company supplying software systems or windmills for medium-sized customers, then the project and business relationships are difficult to distinguish from one another. At least from the customer perspective, there is no difference—the customer has ordered a system that will be used for the next 5-20 years, and all interactions with the supplier during the useful life of the system relate to the system. As such, the project can no longer be considered an “event” or an “episode”; rather, the project constitutes the interaction, without which there is no business relationship. Certainly, exchange can broaden over time, but it will most likely be related to the supplied system and the associated technologies.

From the supplier perspective, it is practical to separate the two entities purely for organizational reasons. Project professionals involved in project sales and project implementation are relocated to other projects as soon as their specific task is completed (Dahlgren & Söderlund 2001, Packendorff 1995, Lundin & Söderholm 1995). Therefore, it is convenient to separate the continuous exchange of services from project sales and implementation and, for example, to use a distinct service organization, as larger project suppliers such as Kone or Wärtsilä do (Salonen 2011).

In this research, project and business relationships are not distinct; rather, they form an inseparable entity fostering dynamics in post-project interaction in project afterlife. Moreover, “interaction” refers to the behavior of the project buyer and seller directed toward their mutual interest. Continuity is built not through sequential project delivery but through continuous service exchange. Furthermore, dynamism originates not from the two “nested levels” (Alajoutsijärvi 1996, Skaates et al. 2002b)—that is, the simultaneous management of a project relationship and a business relationship (the project has been already delivered)—but from the transition of a static outcome-centered project to a process-centered service exchange. However, the “nested” nature does exist to some degree because the specialists who have designed the project are often required to address complicated technical dilemmas and to guide the more advanced development activities during the post-project stage (see Ojansivu &
Alajoutsijärvi 2014). As such, the service exchange will never be entirely disconnected from the original project, even if the supplier uses a separate service organization for maintenance tasks.

### 5.4 Data collection and analysis

In describing the relevant interactions, the main source of data was semi-structured interviews (Kumar et al. 1993, Arksey & Knight 1999). The present author was responsible for conducting and analyzing 31 interviews, and the two co-authors were responsible for a total of 22 interviews. Furthermore, 21 interviews were carefully selected and analyzed by the present author from the Deccmac project archive, and 8 interviews were selected from the Cleantech project archive. In all, 82 interviews were used in this study (see Table 3).

<table>
<thead>
<tr>
<th>Cases</th>
<th>Data sources</th>
<th>Primary data</th>
<th>Complementary data</th>
<th>Primary data for paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS</td>
<td>Present author</td>
<td>31 interviews</td>
<td>Internal company documents, public documents, firm homepages, and other firm-related material</td>
<td>I, III, and IV</td>
</tr>
<tr>
<td>EWS and Paper machine</td>
<td>Co-authors</td>
<td>22 interviews</td>
<td>Internal company documents, public documents, firm homepages, and other firm-related material</td>
<td>II</td>
</tr>
<tr>
<td>Mining</td>
<td>Cleantech project archive</td>
<td>8 interviews</td>
<td>Internal company documents, public documents, firm homepages, and other firm-related material</td>
<td>II</td>
</tr>
<tr>
<td>Windmill</td>
<td>Deccmac project archive</td>
<td>21 interviews</td>
<td>Internal company documents, public documents, firm homepages, and other firm-related material</td>
<td>II and IV</td>
</tr>
</tbody>
</table>

All interviews were recorded with the interviewees’ permission and were then transcribed and analyzed accordingly. In addition, the interviews were supplemented with informal discussions to make sense of the phenomenon and to clarify the informants’ perspectives. The present author and the co-authors had access to complementary data, including annual reports, company newsletters, meeting minutes, documentary and archival data, confidential memos, and industry-specific statistics on the business relationships. These data enabled the researcher to triangulate the respondents’ answers, as is suggested in the literature.
In the mining and windmill cases, the complementary data primarily comprised publicly available documents, as access to internal company documents was restricted to the archival data for the two research projects. The present author did not conduct fieldwork in these research projects but guided the data collection and research designs and therefore had an “insider” perspective on both the windmill and mining cases.

Qualitative data analysis was used with the iterative phases of data reduction, data display, and conclusion drawing (Miles & Huberman 1994). Directed and conventional content analysis (Duriau et al. 2007, Hsieh & Shannon 2005) was used to analyze the text-based data. First, the material relating to the post-project stage was extracted with descriptive codes and conventional content analysis. Subsequently, directed content analysis was applied to form more interpretive and explanatory pattern codes according to the preliminary theoretical conception. This step allowed the present author to iteratively link the data to theory and ultimately to produce new concepts and frameworks (Eisenhardt & Graebner 2007). Thus, the data analysis aimed to provide analytic generalizations (Yin 1994) and to determine how previous theories of post-project interaction compare with the empirical evidence obtained in this research.

5.5 Empirical contexts

5.5.1 Content management systems case study

In papers I and III, CMSs form the context of the research. The seller develops a web technology-based system and a digital user interface design. The main product is a CMS that is available to customers under license for which the seller retains the intellectual property rights (see, e.g., Downs et al. 2003). The CMS has been customized for large public sector customers, such as educational institutions, cities, universities, and governmental agencies. The CMS of the seller utilizes the .NET framework developed by Microsoft, and the CMS is therefore connected to the Windows platform. The projects of the seller often involve half of the CMS being customer tailored, making them rather complicated. Furthermore, a CMS is typically integrated into a customer’s other information management systems, including electronic booking, healthcare, social welfare, information security, and electronic services. Thus, the customer is strongly
dependent on the seller, and the costs to switch to an alternative system are high (Grabher & Ibert 2011, Lohtia & Krapfel 1994).

The lifespan of a CMS system is up to 5-7 years, but the lifespan can be considerably lengthened with updates and upgrades and by actively developing the system with the supplier. The supplier is a typical example of a firm operating in the service-intensive project business, providing a variety of services ranging from basic maintenance to sophisticated development, education, and consultation services. Customers typically become intensively involved in the system development after the possibilities are explored while using the system. Indeed, there is a learning curve for a CMS, as it takes time to educate the staff of larger organizations to fully benefit from the system. Many of the ideas for improving a CMS arise while using the system, and subsequent development activities stabilize the otherwise unstable project revenue streams for the supplier.

5.5.2 Windmill case study

The windmill case appears in papers II and IV. The buyer is an international firm that manufactures, supplies, installs, and offers maintenance services for wind turbines. The seller is an international manufacturer of frequency converters and generators for wind turbines. The seller offers design, development, education, and maintenance services to its customers, which are predominantly large wind turbine manufacturers.

Wind turbine manufacturers typically use several subcontractors, but five or six critical components of a wind turbine require partnership-type cooperation. These components are likely to be responsible for 90% of failures that disable turbines. Frequency converters and generators belong to this category; therefore, such development projects are scrutinized intensely by wind turbine manufacturers (see Baroudi et al. 2007).

Every wind farm differs depending on its local temperature, wind direction, humidity, and other climactic variables. Therefore, a prototype wind turbine must be designed and tested before serial production can be initiated. The prototype project tends to last up to three years, and the subsequent serial production can last from six to twelve months. However, the lifespan of a wind turbine is approximately 20 years; thus, a long-term commitment to after-sales and maintenance is required. In fact, the post-project stage does not end before the wind turbine is replaced or decommissioned. Once the prototype project is delivered to and approved by the customer, the seller takes care of installation,
training, spare part provision, and on-site metrics. Furthermore, development activities between the customer and the seller also continue because the technologies develop rapidly and because competition for more powerful wind turbines is intense.

5.5.3 Mining case study

The mining case study is used in paper II. The seller is a global supplier of chemical solutions to customers from various industries, such as paper, oil, and mining. The customer is an internationally recognized mining company focusing on nickel and zinc. For the mining company, the chemical supplier offers water treatment solutions that are used in ore processing, production, and refining, as well as wastewater treatment. The mining segment presents a fairly new area of business for the seller, but as environmental legislation becomes stricter and the public becomes increasingly aware of environmental issues, water-related solutions are becoming increasingly important for mining companies (Akcil & Koldas 2006, Chong et al. 2010). In this case, the customer is using a specific treatment process to leach nickel, requiring substantial amounts of tailings water; thus, a project with the seller was initiated to develop customized water treatment solutions.

5.5.4 Paper machine case study

Developed in paper II, the paper machine case study is based loosely on the research by Alajoutsijärvi et al. (2000). The paper machine industry has been at the forefront of Finnish technology innovations for decades (e.g., Lamberg & Ojala 2006), and this industry presents an interesting case study for this research, as service components have been integrated into this industry since the 1970s (Toivanen 2005). The seller’s paper mill was one of Finland’s leading paper manufacturers in the 1950s. It belonged to the Finnish Corporation, which was in turn one of the largest forestry industry firms in Europe. The mill commissioned a major rebuilding of two paper machines in 1957 from the industry’s global leader, a firm from the USA. The large project did not result in favorable outcomes, and the relationship between the Finnish Corporation and the machine manufacturer ended acrimoniously amidst product volume production and quality issues.

Following the disastrous collapse of this relationship, the Finnish Corporation initiated a strategic partnership with a small Finnish paper machine manufacturer,
which gradually took over responsibility for supplying all new machines, major rebuilds and maintenance services. Following its collaboration with Finnish Corporation, the once small paper machine manufacturer established a worldwide reputation for designing and implementing projects and maintenance services for paper production. The paper machine case study illustrates a project that transformed into a several decades long partnership and service-exchange relationship.

5.5.5 Engineered wood solutions case study

The EWS case is elaborated in paper II. The supplier of the case study provides a variety of traditional wood products to customers in the UK and other areas of Europe. Since early 2000, the firm has shifted from traditional wood products to engineering various environmentally friendly wood solutions from different types and grades of wood (e.g., McKeever 1997) for its customers in the construction industry. The wood industry has gradually moved to adopting different types of services in its ecosystem (Sathre & Gustavsson 2009), but these services are not yet included in the firm’s offerings. Thus, the firm’s relationships with its customers (typically construction firms) become dormant after project delivery while the firm waits for new customer projects to arise from sleeping relationships or from new customers. The firm relies on current and sleeping customers to act as references to assist in acquiring new customers.
6 Results and contributions

In this chapter, the four original papers of the thesis are summarized, the related sub-questions are answered, and the theoretical and managerial implications are presented.

6.1 Development of the post-project buyer-seller interaction process, interaction orientation, and relationship atmosphere in service-intensive projects

The first research question (“How do the post-project buyer-seller interaction process, interaction orientation, and relationship atmosphere develop in service-intensive projects?”) was approached in paper I by devising a research framework in which interaction orientation was deconstructed through the interaction processes (exchange, coordination, and adaptation) and the relationship atmosphere and in which a development pattern was observed to result from a shift in the interaction orientation over time. The research framework was used to analyze three longitudinal cases (CMS projects), including two cases that spanned more than a decade. The development of each case was scrutinized in detail, and the similarities and differences among the cases were combined to describe the characteristics of interaction during the project stages, especially in the post-project stage.

Empirical illustrations enable an understanding of what continuous service-exchange truly signifies in service-intensive projects. The findings indicate that interaction develops in the post-project stage through three main orientations (cooperative development, buyer-led development, and seller-led maintenance) that vary over time, creating unique development patterns. These orientations refer to different types of interaction between the project buyer and seller, which is easily detectable in the exchange elements and relationship atmosphere. Thus, depending on the prevailing orientation, the same business relationships can appear in very different lights to an external observer, and a longitudinal setting is required to study them. The cooperative development orientation appears to precede the other two orientations, and this orientation is consequently a prerequisite for establishing long-lasting projects. These orientations embody specific interaction process and atmosphere characteristics, which are discussed below.
In the cooperative development orientation, the power distribution between the buyer and the seller is equal, and the relationship can be described as extremely cooperative. The development of services creates a long-term financial commitment, and the exchange is best described as a partnership comprising frequent social and core expertise exchange. Coordination is informal and based on trust. Adaptations, including those to social and structural ties, work processes, schedule and technical aspects, occur frequently. The relationship atmosphere is reinforcing, with high mutual expectations and a high degree of social closeness, which further support project continuity.

The buyer-led development orientation is characterized by cooperative interaction, and relationship coordination is informal and based on trust. The requirements of the buyer surpass what the seller can offer, and the buyer is willing to invest extensively in service development. Therefore, the buyer is able to dominate the interaction, and the seller risks compromising its own strategic direction to please the demanding customer. Adaptations occur frequently, and the relationship atmosphere is reinforcing, as both parties diligently strive for new service innovations. However, the seller’s expectations and desire for closeness remain moderate because of the unequal power distribution in the relationship.

The seller-led maintenance orientation is best described as coopetitive (Bengtsson & Kock 2000), a state referring to a simultaneous combination of cooperation and competition. Social and information exchange is only occasional, as exchange generally involves fixed yearly payments for maintenance services. Relationship coordination is formal and is based on a maintenance contract rather than trust. Social ties and employer relationship adjustments are weak, but fixed structural ties exist because of prior relationship-specific investments (Lohtia & Krapfel 1994). These investments are CMS specific because of the proprietary rights of the supplier (Teece 1986, West 2003), resulting in increased seller dominance. The relationship atmosphere is repressive, as customers are locked into the relationship; further, the social distance is greater, and the expectations of both parties are uncertain.

The findings challenge the traditional view of a project as having a clear end: projects cease to exist because of a lack of long-term vision from management rather than because of inherent discontinuity. Services have the potential to promote continuity and to stabilize revenue streams that are otherwise reliant on irregular project sales; however, without an understanding of post-project interaction, projects might not develop into long-term business relationships. The key conclusions are as follows: First, service-intensive projects create a unique
foundation on which post-project interaction can develop, as discontinuity is not a limiting factor. Second, none of the identified orientations resemble a sleeping relationship (Hadjikhani 1996), which is considered the most likely type of relationship involved in post-project interaction. Third, the future of the relationship becomes dependent on not only social relationships but also the seller’s ability to offer versatile services. These services, especially development services, are the source of relationship-specific investments (Lohtia & Krapfel 1994) that have the potential to create structural ties (Holmlund & Törnroos 1997, Wilson 1995) and to bind firms together.

By describing the evolution of post-project interaction, the results contribute to recent project marketing (Cova & Salle 2011, Jalkala et al. 2010) and project management research (Söderlund 2011b) emphasizing project afterlife. The findings may be interesting to researchers studying discontinuity (Hadjikhani et al. 2012), as service-intensive projects embrace characteristics of both discontinuous and continuous business relationships: while service exchange continues, the content varies as the interaction evolves between the three specific orientations. Additionally, the findings related to post-project service exchange are relevant to recent research on the downstream movements of project sellers (Davies et al. 2007, Penttininen & Palmer 2007).

From a management perspective, several key notions are crucial. First, both rewards and risks are associated with each of the three post-project orientations. Development and maintenance services both create additional sales and continuity, but they lead to an unhealthy power structure in which the customer eventually becomes locked in. Central management should therefore maintain a reinforcing relationship atmosphere with informal and trust-based coordination. Second, management should develop the sensitivity to recognize change in the three post-project orientations and to react before the trust and commitment built over the course of the relationship are jeopardized. Third, in relation to the previous recommendation, project managers should not be changed during the post-project stage when possible, as new managers lack relationship history-specific knowledge and are therefore unable to detect changes in the interaction orientation. Fourth, management needs to bridge transitions between interaction orientations. Managers who are involved in projects moving toward maintenance or moving from maintenance to development should pay close attention to this transition process because the relationship atmosphere is extremely fragile and can easily deteriorate, even in the presence of strong, long-lasting structural ties. Finally, trust is critical to service-intensive projects, as it promotes continuity;
therefore, managers should be careful not to use power in a coercive manner, which could place trust at risk.

6.2 Post-project buyer-seller interaction development paths in service-intensive projects

The second research question (“What types of post-project buyer-seller interaction development paths can be recognized in service-intensive projects?”) is addressed in paper II. This research builds on previous interaction studies (Brennan & Turnbull 1999; Hadjikhani & LaPlaca 2013, Håkansson 1982, Möller & Wilson 1995, Ring & Van de Ven 1994) and empirical research to construct a conceptual research framework of development paths. Subsequently, the framework is illustrated in practice by applying it to a comparative case study in four different project contexts: EWS, chemical solutions, windmills, and paper production.

The findings of the empirical study support the view of the research framework in that at least four potential post-project relationship paths exists. These relationships are labeled as sleeping, passive, active, and interactive, and they can be expected to cover a majority of the different post-project relationships in service-intensive projects. Furthermore, the findings indicate that these relationships embody certain antecedent and process characteristics and result in four distinct development paths.

Being able to categorize relationships and to indicate development paths is important for several reasons. First, categorizing relationships and development paths allows us to comprehend the complex nature of post-project interaction; whether the interplay between a project buyer and a project seller develops beyond a sleeping relationship is contingent upon the overlap between the participants’ interaction orientation, their relationship experience, and their post-project expectations. Second, development paths reveal the dynamism in the interaction—the service exchange enables relationship development (Ojansivu et al. 2013). Thus, an active relationship could become an interactive or passive relationship over time. Third, anchoring post-project relationships by using well-defined interaction concepts facilitates proper theoretical analysis; without such an approach, project marketing would be unable to proceed.

Finally, paper II contributes to the perception of discontinuity. Evidently, economic exchange is not the central problem in service-intensive projects (Jalkala et al. 2010, Ojansivu et al. 2013), as most post-project relationships have
an inbuilt minimum service level (e.g., Alderman et al. 2005, Salonen 2011). However, attaining the heights of more advanced service exchange encompassing both the customer’s core business processes and important parts of the value chain requires time and demands mutual trust and commitment. Understanding the dynamism in the development paths (i.e., why some post-project relationships deepen into interactive relationships while others degenerate into passive or sleeping relationships) should be the central tenet of future research. Relationship discontinuity is a more comprehensive phenomenon than the lack of economic exchange assumed in previous literature (e.g., Cova & Salle 2007, Skaates et al. 2002b). Accordingly, the concept of interaction irregularity is proposed. It refers to variation in the exchange, coordination and adaptation process that is significant for relationship development.

The findings of the presented papers are important for theory development, as the focus of project marketing now extends from overcoming periods of discontinuity with sleeping relationships to the management of other types of post-project relationships in service-intensive projects. These relationships and the service exchange that they incorporate have distinct economic value regardless of whether a sequential project is involved. The research framework developed in this study can be used as a preliminary outline for future project marketing studies focusing on specific post-project relationships.

For managers involved in service-intensive projects, the findings provide practical guidance for handling various post-project relationships. These study findings will help managers to initiate, maintain, and develop post-project relationships by linking each illustrative relationship with its antecedents and processes. Thus, managers can increase their awareness of the differences between sleeping, passive, active, and interactive relationships and enhance their ability to avoid mismatches between their antecedents, processes, and outcomes. Examples of such a mismatch could be a seller aiming for an active relationship without first comprehending the buyer’s core business processes and earning the buyer’s trust or a seller using power in a coercive manner and thereby jeopardizing the buyer’s commitment to the relationship. Furthermore, each illustrative relationship can be used as an umbrella category to map a company’s various post-project relationships in its account portfolio. This categorization of relationships enables managers to allocate the company’s resources more effectively and to analyze the risks and rewards associated with the composition of the portfolio.
The development paths can also be applied across different relationships. Companies might convince their customers to upgrade from maintenance to development services and therefore to initiate an active relationship with certain benefits. Similarly, relationships may need to be downgraded if they consume an excessive amount of resources. It can be beneficial for companies to agree that a certain relationship become a sleeping relationship while new strategic directions are considered.

6.3 Individuals mediating change at different interorganizational levels in service-intensive projects

The third research question (“How do individuals mediate change at different interorganizational levels in service-intensive projects?”) broadens the perspective of the research by adding different interorganizational levels (the hub firm, the dyad, and the focal net) to the analysis. Paper III describes a historical case study focusing on the interaction between a post-project business relationship, its focal net, and the wider industry network in the context of CMS projects. The lengthy time span, extending to three decades (1994–2012), requires dividing the single case description into four chronological periods bounded by turning points (Hollander et al. 2005). This description includes the incremental emergence and transformation of a focal net into a unique post-project application net (Möller et al. 2005, Möller & Rajala 2007).

Interaction between different interorganizational levels is addressed by devising a conceptual research framework that describes dyadic interactions through structural, economic, and social dimensions (Holmlund & Törnroos 1997) and that connects the dyad to the focal net by using the concept of a network identity (Anderson et al. 1994, Håkansson & Snehota 1995: 205–209). Additionally, following the advice of Halinen et al. (1999), events are used to identify influential moments in business relationships.

The findings indicate that the existing models of business relationships and networks, including the framework devised in this paper, do not sufficiently explain the relationship dynamics in the case of service-intensive projects. Apparently, an internal event in the hub firm (IT project manager resignation) can trigger incremental change in the dyad (cessation of development activities) while translating into radical change in the focal net (dissolution). As a result, the present author more thoroughly investigated the capability of individuals to mediate change at different interorganizational levels.
To clarify the findings and to understand the circumstantial influence of individuals, the concept of *sphere of influence* is proposed. This concept has been previously used in the network context in sociology to study interlocking directorates (Levine 1972) and in geography to reveal the optimal coverage for facilities (Revelle 1986). Here, the concept is adopted to describe an individual’s influence within the confines of the interorganizational level, the organizational hierarchy, and time. First, an individual’s capacity to influence interactions and to manage a service-intensive project in dyads and focal nets is dependent on the interorganizational level at which the individual acquired his or her credibility. As an important role in the focal net cannot guarantee influence in the hub firm or dyad, having influence in the hub firm and the dyad does not necessarily lead to a powerful role in the focal net. Second, the organizational hierarchy can curtail the capacity of individuals to act independently. Obviously, higher formal positions within an organization are associated with greater autonomy, albeit within certain limits. Finally, an individual’s influence appears to be related to time and to be connected to other people because the influence of other individuals changes when people become disconnected from this social structure.

The case study revealed that the hub firm’s IT project manager was a central figure, as her sphere of influence was often a mediator of change. One could even argue that the development activities in the dyad and the focal net were largely based on her influence. Her role could be considered to be that of the innovation facilitator described by Knight and Harland (2005), as she established a web of external relationships and motivated the individuals within those relationships to work together. One of the reasons for her active role is connected to the high employee turnover throughout the service-intensive project. Anyone who manages to remain party to a business relationship gains informal power through his or her knowledge of the project history and the central actors involved. Another cause relates to the short history of service-intensive projects: participants in such projects do not necessarily know what to expect of the post-project period; therefore, an inspiring, active, and insightful project manager can generate change in the hub firm and can act as a conduit to the dyad and the associated relationships.

Consequently, the key individuals’ sphere of influence determines whether an event becomes critical and connected or whether it remains incremental and confined to a specific interorganizational level. The sphere of influence concept contributes to recent network research (e.g., Hadjikhani & LaPlaca 2013, Möller & Rajala 2007, Möller & Svahn 2009) by specifying how individuals mediate
change at different interorganizational levels. Clearly, post-project application nets are intentional and manageable, but they are not necessarily intentional and manageable by the hub firm. Such networks are managed by individuals, whose sphere of influence determines whether the events are enacted or absorbed. Furthermore, the findings contribute to recent research on project marketing (Cova & Salle 2011, Hadjikhani et al. 2012, Jalkala et al. 2010) and project management (see Söderlund 2011b) by establishing that project afterlife is not restricted to the social dimension of business exchange. Indeed, dyadic development activities can produce extremely long post-project service relationships (more than a decade in the case study) and can enable similar development activities in the connected dyads.

The key managerial implications of the current research are as follows: First, even the most stable focal nets can disintegrate rapidly if the key person in charge of the net withdraws from the hub firm. Accordingly, a supplier whose development activities are dependent on a few key customers (and their resources) can drift toward inertia when the net structure between these customers suddenly dissolves. Recognizing innovation facilitators and interacting with them can allow the key person to have influence over the focal net. Second, at the level of the focal net, an individual’s position in his/her organization’s hierarchy does not appear to have any influence; thus, the individual’s ability to manage change is entirely based on the informal credibility that others judge them to have earned over the course of the net’s emergence. As such, managers should participate actively in post-project nets if they wish to have any power in their development. Finally, ensuring that the innovation facilitator has broad support is crucial in projects for which the outcomes resonate throughout the organization. This importance was evident in the case study, as the development activities progressed smoothly when all the organization levels were committed and willing to participate. However, when the loyalty of middle management evaporated, the enthusiasm of top management also declined, eventually forcing the customer’s IT project manager to resign.

6.4 Types of intergroup tensions in service-intensive projects

The fourth sub-question (“What types of intergroup tensions can be identified in service-intensive projects?”) is the focus of paper IV. The observations derived from the previous papers highlighted certain “inbuilt” tensions between professionals, especially during the transition from project implementation to
continuous service exchange. The paper focused on these tensions by identifying professional groups in service-intensive projects and by analyzing the tensions between individuals belonging to these groups. The paper presents a comparative case study of CMS and windmill projects.

The findings indicate that four typical professional groups associated with service-intensive projects exist. These groups stem from firms’ different orientations toward a project (short or long term; commercial or technological). Professionals sharing a roughly similar orientation in these two dimensions constitute a professional group whose members can be expected to work together productively. These groups (and the professionals belonging to them) are labeled as lead generators, problem solvers, technology developers, and relationship developers. In the following paragraphs, these four groups are analyzed more deeply.

Projects begin by identifying leads, and those who find leads are called lead generators. Professionals belonging to this group are positioned as having a short-term and commercial orientation toward a project. They are typically sales professionals whose involvement in a project is limited to the pre-project stage and to the task of finding leads, both of which result in challenges in the formation of relational trust. Interaction remains formal and superficial, as only task-related issues are discussed (see Lindkvist 2004, Thamhain & Wilemon 1975). Behavior is more likely to be calculated and to lead to the emergence of swift trust, as professionals interact only to find leads and to earn related incentives. In the windmill case study, leads were generated by the sales agents representing each market area, whereas in the CMS case, advertising agencies with large account portfolios that included prospective clients for CMS projects created many of the leads. Thus, the personal contacts of the CMS sales manager with the advertising agencies’ sales agents were crucial.

The second identified group is called problem solvers, who have a short-term, technological orientation toward projects. These individuals are typically highly specialized engineers who participate in project teams and who focus on instant solutions to narrow technical problems that emerge during implementation. These professionals are accustomed to an organizing matrix structure based on project operations (Ford & Randolph 1992, Knight 1976), as their knowledge is often loaned to internal and customer projects for specific time periods. The length of their presence varies, but they tend to be associated with project planning and implementation and tend to be motivated by project-related success criteria such as time, budget, and project performance (see Atkinson 1999). Opportunities for
developing relational trust primarily concern other professionals addressing the same engineering challenge; therefore, swift trust is the major modus operandi. In the CMS case study, application designers solved the technical problems, whereas in the windmill case study, technical engineers were responsible for such problems.

The third group is labeled technology developers, who have a long-term, technological orientation toward projects. Compared with the previous group, these people tend to concentrate on long-term roadmaps of different technologies, which entail their presence throughout several project stages and possibly beyond in some projects. Frequent social exchange allows for informality, the emergence of relational trust, and the gradual transformation of professional relationships into friendships (see Heide & John 1992, Van de Ven & Walker 1984). The technology developers were typically leading application designers in the CMS case and were leading technical account managers in the windmill case, all of whom had senior positions and authority. Project managers and engineers who are responsible for maintenance and after-sales services would be another example of professionals belonging to this group.

The professionals belonging to the fourth group, referred to as relationship developers, view projects from the perspective of project-based business and focus on the revenue logic of the company, the negotiation of contractual terms, and the achievement of commercial goals. Interaction exceeds immediate tasks to cover personal and confidential company issues, such as core expertise exchange and the discussion of reciprocal collaborations that enable the development of life-long trust. Relationship developers are motivated by customer satisfaction and company profits rather than by project success criteria. Thus, this orientation is directed toward maintaining continuous business relationships and achieving relational trust (Anderson et al. 1994, Anderson & Weitz 1989, Morgan & Hunt 1994). Professionals with this orientation tend to have backgrounds in procurement, business development, or relationship management. In the windmill case, these professionals were typically key account managers. In the CMS case, sales managers were typically oriented toward long-term customer satisfaction.

The four different orientations essentially reflect the behavior of professional groups, but when a particular orientation becomes widely accepted, it can depict the behavior of an organizational unit or even a company. Every person has a unique orientation toward a project (short or long term; commercial or technological) that will influence how he or she interacts with other project professionals. This unique orientation is conceptualized as a person’s project
ethos. Intergroup tensions can be expected when the project ethos of two professional groups are too dissimilar. The fit between various professionals can be anticipated in advance by sketching their project ethos and by determining how much their orientations overlap.

The tensions between project professionals are surprisingly similar in both the CMS and windmill project contexts, and these similarities can facilitate theory development (Eisenhardt 1989, Johnston et al. 1999) and analytical generalizations (Yin 1994). The different orientations toward a project (short or long term; commercial or technological) developed in this research, as well the concept of a person’s *project ethos*, are valuable in understanding intergroup tensions in service-intensive projects. These findings can contribute to research on temporary organizations (Defilippi & Arthur 1998, Lundin & Söderholm 1995, Packendorff 1995, Turner & Müller 2003), the social aspects of project coordination (Bresnen et al. 2003, Dahlgren & Söderlund 2001), and trust in projects (Kadefors 2004, Maurer 2010, Meyerson et al. 1996, Rousseau 1998, Smyth et al. 2010) by specifying the sources of intergroup challenges embedded in the “inbuilt” nature of service-intensive projects. These findings will be particularly valuable in view of recent project marketing (Jalkala et al. 2010, Salonen 2011) and project management studies (Alderman 2005, Kujala et al. 2013, Söderlund 2011b) emphasizing project afterlife and related organizational challenges. From a managerial perspective, it is crucial to analyze potential tensions between project professionals in advance. In theory, six possible tensions exist between the four groups (lead generators, problem solvers, technology developers, and relationship developers). In practice, however, only a few types of tension appear to recur over time, as most of the direct interactions in the CMS and windmill projects occur between technology developers and relationship developers. As such, their project ethos should be scrutinized. More specifically, the following four areas of tensions between these two professional groups were observed in the case findings and should thus be addressed by management.

1) *Stereotypes.* Relationship developers and technology developers typically denigrate one another’s contributions by using stereotyping, as indicated in statements such as “sales representatives do not understand the basics of technology” or “engineers do not know how to communicate.” Managers need to intervene because customers can witness such quarrels and may become confused. 2) *Perceptions of trust.* Relationship developers highlight relational trust and interpersonal chemistry between parties, whereas technology developers either trust or mistrust the technology and the chosen solution rather than the
person representing it. Managers can handle such a situation by educating relationship developers on technology details and by educating technology developers about the importance of trust and commitment in business relationships. 3) Internal politics. Relationship developers and technology developers are strongly reliant on others in their professional group. This tendency creates inefficiency and buck-passing, as the other professional group must approve every trivial decision. A possible approach for addressing this situation is to divide these professional territories into mixed teams. 4) Lack of cooperation. Relationship developers and technology developers are dependent on one another’s competences. Nevertheless, they prefer to interact primarily with their counterparts in the other organization (e.g., the seller’s engineers interact with the customer’s engineers), leading to communication gaps. Managers could ease information flow by obligating joint negotiations with both relationship and technology developers present from the seller and buyer companies.
7 Conclusions

This chapter begins by answering the main research question of the study. An empirically grounded process framework is then proposed. The theoretical and managerial contributions are presented, followed by an evaluation of the study. Finally, the limitations of the study and future research avenues are discussed.

7.1 Exploring the underlying dynamics of buyer-seller interaction in project afterlife

The primary research question of the study was, “How does post-project buyer-seller interaction develop in service-intensive projects?” To answer this question, the underlying dynamics of post-project interaction were studied in five different service-intensive project contexts (CMS, mining, EWS, windmill, and paper machine). As noted in the introduction chapter of the thesis, previous conceptualizations of post-project interaction signified a “tunnel vision” assuming a lack of economic exchange after project delivery (Jalkala et al. 2010, Söderlund 2011a). This previous tendency resulted in a plethora of concepts related to the social aspects of interaction. Equally, the theoretical constructs of long-term buyer-seller interaction required “fine tuning” to perceive the dynamism of post-project interaction, as explained in Chapter 2.1.

Given the lack of proper theoretical constructs available, this thesis has been a fascinating journey in theory development (Eisenhardt 1989, Johnston et al. 1999), resulting in several state-of-the-art concepts and theoretical frameworks combined into the conceptual process framework in Fig. 3. This chapter discusses the main contributions of each paper to the overall theme of the thesis and the ability of the process framework to explain post-project interaction development. Finally, an empirically grounded framework (Fig. 5) based on the findings of the four papers is proposed.

Paper I contributes to the overall theme of the thesis by describing how post-project buyer-seller interaction develop according to three different orientations (cooperative development, buyer-led development, and seller-led maintenance) that have certain characteristics related to the interaction process and relationship atmosphere. As an example, a competitive orientation refers to a buyer-seller relationship with equal power, an arm’s-length exchange, formal normative-based coordination, weak adaptations, and a reserved relationship atmosphere. Anchoring each orientation in well-recognized theoretical constructs allows for
analytical generalization (Yin 1994) beyond the contextual contingency that tends to plague B2B research (Hadjikhani & LaPlaca 2013). A framework with a diamond shape was devised to move beyond linear models (e.g., Dwyer et al. 1987, Ford 1980) and to capture the dynamism of such interaction. Thus, the temporal dimension could be incorporated into the analysis, and changes in the three post-project orientations over time could be observed.

This framework is suitable for the longitudinal analysis of business relationships under constant changes. However, it lacks explanatory power; specifically, it is exceptional in describing development but does not allow much latitude for explaining why things occur in a certain way. In paper I, events were used to analyze the reasons underlying the observed change. However, events were not incorporated into the interaction processes (exchange, coordination, and adaptation); therefore, the analysis remained somewhat arbitrary. As a result, the diamond shape was not incorporated into the process framework (Fig. 3). However, the four extreme types of orientations (cooperative, competitive, and buyer or seller dominance) were included.

Paper II presents four post-project relationship types (sleeping, passive, active, and interactive) and describes their characteristics through illustrative case examples. A conceptual research framework was devised to illustrate the path from the initiation of a relationship through project afterlife. These paths enable analytical generalization (Yin 1994) and theory building (Eisenhardt 1989, Eisenhardt & Graebner 2007), as the antecedent and process characteristics are attached to well-established theoretical constructs. As an example, the antecedents of an interactive post-project relationship embody expectations of reciprocity and social closeness, leading to institutionalized exchange with a cooperative orientation and complex coordination. Hence, by elucidating relationship causalities, the main research question can be answered further; certain relationship antecedents lead to specific processes, which result in a particular type of post-project relationship.

The four development paths yield a rather linear view of development. However, development is not straightforward, as it is contingent upon the interplay among participants’ interaction orientation, relationship experience, and post-project expectations. Post-project interaction is expected to vary among the four alternatives and is therefore dependent on the commitment and investments of the interacting parties. The framework mainly aims to bridge the gap between theory and practice and, consequently, is designed to be descriptive and illustrative. The framework has significant managerial value in combining
complex theoretical constructs with their real-life counterparts; however, it does not explain why post-project interaction varies and instead primarily describes the four alternatives.

The four alternative post-project relationship configurations of paper II are not incorporated into the process framework (Fig. 3) because, at any given time, interaction is considered to be a unique combination of the interaction orientation, relationship atmosphere, and relationship dimensions. Thus, the process framework adopts a broader perspective of post-project interaction, given the potential for more variety beyond the four alternatives. The process framework would enable a more thorough analysis of the four developments paths, but this objective would require a different case setup. In paper II, the case illustrations cover the post-project stage. Describing the development of each relationship from its initiation to each project’s afterlife would require a single case study that focuses on one particular relationship at a time (e.g., a passive relationship). The interaction irregularity concept presented in paper II is integrated into the empirically grounded process framework as the central explanatory element. With this concept, analysis of the previously described paper I can be advanced, as interaction irregularities could explain the variance between the three identified orientations over time.

Paper III addresses interaction development from the network perspective and elucidates the role of individuals in mediating change at different interorganizational levels. A longitudinal case study illustrates how the internal, dyadic, and net developments become interrelated over time through several key individuals. Apparently, the development of post-project relationships and nets is dependent on individuals’ actions with respect to four main issues. First, services enable extremely long post-project relationships; therefore, the few individuals who remain active in the project and who understand the involved technology become increasingly powerful. Given the high employee turnover in projects (Dahlgren & Söderlund 2001, Packendorff 1995, Lundin & Söderholm 1995), the longer the post-project service exchange extends, the more central these individuals become; their knowledge related to the original project design, technology, persons involved, and formal and informal agreements becomes irreplaceable. Second, these few individuals have the capacity to fuel cooperative development activities (through their influence) and to prevent the interaction from transforming into passive maintenance (see also paper I). Third, the development of the dyad and the focal net occurs through individuals involved in strong horizontal development collaboration. This cooperation can resonate even
at the industry level and can influence the market positions of the involved actors in subsequent years, as explained in paper III. Fourth, in the focal net, described as the post-project application net (Möller et al. 2005; Möller & Rajala 2007), an individual’s position in his/her organizational hierarchy does not appear to have any bearing on the development of nets. Thus, an individual’s ability to manage in nets is entirely based on the informal credibility that others perceive that individual to have earned over the course of the net’s emergence.

From the conceptual research framework presented in paper III, several elements are derived to create the process framework (Fig. 3). These elements include the relationship dimensions (Holmlund & Törnroos 1997), interorganizational levels (Anderson et al. 1994, Möller & Halinen, 1999, Ritter & Gemünden 2003), and concepts related to change (Halinen et al. 1999). As illustrated in paper III, these prevalent concepts were not sufficient to explain the central role of individuals in service-intensive projects. For this purpose, the concept of sphere of influence was proposed to explain an individual’s influence embedded at the interorganizational level, in the organizational hierarchy and over time. An individual’s sphere of influence enables analysis of the interplay between agency and structure in a temporal setting.

The longitudinal case study of paper III would benefit from the interaction irregularity concept, as it would enable a deeper analysis of the change mediated by individuals. Rather than viewing the resignation of the major change agent as merely a critical event, one may consider whether there were specific interaction irregularities leading to this situation. Furthermore, the sphere of influence concept does not explain the congruence between the sphere of influence of several individuals. Given that only a few individuals tend to become powerful over the course of a service-intensive project, it is vital to understand how and why interpersonal tensions surface in the manner described in paper III and to determine whether these tensions are related at the intergroup level.

Paper IV continues the theme of paper III and addresses the central role of individuals in service-intensive projects. Paper IV thus contributes to the overall premise of the thesis by explaining the sources of tensions between project professionals and by suggesting ways to reduce these tensions. The results of a comparative case study are derived from four projects conducted in the CMS and windmill contexts. The tensions that are identified are not linked to the historical development of a specific relationship but are discussed more broadly. Thus, the process framework (Fig. 3) explaining continuous development would not add much value to this analysis.
The four identified project orientations (short or long term; commercial or technological) and the resulting project ethos concept are interesting from the perspective of the longitudinal case description presented in paper III. Analyzing the project ethos of the two central individuals could explain why they encountered conflict, with drastic consequences for the dyad and the focal net. Perhaps their views of the future commercial and technological prerequisites of the CMS did not match, or perhaps their expectations for their interaction with the seller were not compatible. The latter possibility has implications for paper II, which incorporated post-project expectations into the context of relationship antecedents. Based on the above discussion, an empirically grounded process framework is presented in Fig. 5.

![Fig. 5. An empirically grounded process framework for post-project buyer-seller interaction development.](image)

The framework is composed of relationship variables (the interaction process, relationship atmosphere, relationship dimensions and interaction orientation), contextual variables (buyer and seller, project and focal net characteristics), change processes (instigation, influence and mediation) and change categories (incremental and radical categories). The center of the framework illustrates the
interaction process (exchange, coordination and adaptation). The distinctive characteristic of a business relationship in project business—discontinuity—is considered to be broader than the mere lack of economic exchange. In the empirically grounded framework, the concept of interaction irregularity is applied (Ojansivu et al. 2015) and defined as variation in the exchange, coordination, or adaptation process that is significant for relationship development. The term “development” is used broadly as an aggregate of the relationship variables in a longitudinal setting. It does not refer to the progression of predetermined relationship stages or lifecycles; instead, the composition of interaction is unique and relationship-specific at any point in time (e.g., Medlin 2004, Halinen 1998).

Interaction irregularity instigates change in the interaction orientation, relationship dimensions, and relationship atmosphere. When only the nature and content of the interaction vary, change is incremental; however, when irregularity has the potential to generate radical change (i.e., to dissolve or initiate relationships), it is considered to be critical (Halinen et al. 1999).

The changes in the interaction orientation, relationship atmosphere and relationship dimensions have a feedback loop to the interaction process, and thus, the outcomes of these changes will influence forthcoming interaction (and interaction irregularity). Other variables that will influence interaction are the characteristics of the buyer and seller, characteristics of the project and the environmental context where the business exchange takes place, especially the focal net.

In the framework, the central role of individuals in mediating change is represented by three concepts: the sphere of influence of the key individuals involved, the congruence of their project ethos, and post-project expectations. As described in paper II, these expectations can vary from a basic warranty period to reciprocal service development (Ojansivu et al. 2015). Individuals can enhance, diminish or “buffer” interaction irregularity, as they have the capacity to mediate change.

Intergroup tensions are also incorporated into the framework (belonging to the contextual variables), including the tensions between project professionals that may be broader than the fit between the project ethos of the few key individuals with a critical sphere of influence. Although “rank-and-file” members of a project may appear to be trivial, on a larger scale, they compose the project teams of both the buyer and the seller and therefore must get along well for the business relationship to succeed (Ojansivu & Alajoutsijärvi 2014).
Taken together, the findings imply that post-project buyer-seller interaction development is a process in which interaction irregularity and individuals play a major role. Interaction irregularity instigates change in the interaction orientation, relationship atmosphere, and relationship dimensions. Individuals with strong spheres of influence mediate change, and their project ethos and expectations thus contribute in explaining interaction development.

The business relationships that unfold after project handover in service-intensive projects differ from other types of business relationships. In B2B marketing, a relationship can be defined as an “interdependent process of continuous interaction and exchange between at least two actors” (Holmlund & Törnroos 1997: 305), and in project marketing, a relationship can be defined as a discontinuous process of interaction with expectations of future economic exchange (see, e.g., Hadjikhani 1996, Skaates et al. 2002b). A post-project relationship in service-intensive context is thus defined as an interdependent process of continuous service exchange with inbuilt interaction irregularity between at least two actors.

“Inbuilt” interaction irregularity refers to the continuous yet variable exchange of service. Different services (e.g., support, maintenance, customization, development and consultation) necessitate specific interaction, and when the content of service exchange changes, the coordination and adaptation process as well as the interaction orientation, relationship dimensions and relationship atmosphere evolve (Ojansivu et al. 2013, Ojansivu et al. 2015, paper III). For example, the termination of development services creates an interaction irregularity in the exchange process, which may spread to the coordination and adaptation process. Development services entail a cooperative interaction orientation with frequent social exchange and strong social bonds (Ojansivu et al. 2013). The amount of professionals and competence that are required diminish when development services cease, and thus, relationship coordination becomes easier, and mutual adaptations lessen (Ojansivu et al. 2013, Ojansivu & Alajoutsijärvi 2014). Similarly, an irregularity in the coordination process may spread to the adaptation and exchange process. For instance, when a project supplier reorganizes relationship coordination by replacing managers and transferring project professionals to other projects, this may aggravate the customer, who may respond by decreasing mutual adaptations and postponing future investments.

This connectedness between relationship variables is not, however, unambiguous. Maintenance service exchange may remain unchanged and stable
regardless of the termination of development services. Likewise, if a customer decides to decrease its dependency on the seller by refusing to upgrade or further develop the supplied system, the previous relationship-specific investments will, however, remain intact (Ojansivu et al. 2013). In the course of time, the stability created by maintenance services and previous adaptations may open up possibilities to broaden the service exchange again. This concurrent existence of change and stability makes post-project interaction inherently dynamic.

The concept of interaction irregularity facilitates the analysis of post-project interaction as it enables the researcher to go beyond the obvious and visible continuity or discontinuity of economic exchange. Parts of the exchange, coordination and adaptation processes vary over time, while simultaneously, other parts remain stable. This constant tension between stability and change, or the “stability-change paradox” (Holmlund et al. 2014), is the foremost characteristic of post-project interaction.

7.2 Theoretical contributions

This study elucidates the dynamics of buyer-seller interaction in the afterlife of service-intensive projects. As noted by Jalkala et al. (2010: 128), “maximizing the profits of a single project is no more the primary target; instead companies in the project business aim at bringing superior value to the customer throughout the whole customer relationship.” The authors argue that the focus of project suppliers is increasingly on project afterlife, characterized by versatile service exchange. Hence, the overall theme of this research is to provide current and future directions for project business. More precisely, this study provides six theoretical contributions.

First, this research extends the abundant theoretical research on project marketing. Most of the existing concepts have focused solely on social exchange, neglecting other forms of interaction (Hadjikhani 1996, Cova et al. 1996, Cova & Salle 2000). By describing the spectrum of post-project interaction beyond social exchanges in service-intensive projects, this study provides the foundations for future research (Ojansivu et al. 2015). Indeed, there is a need for theoretical constructs concerning post-project interaction, as projects gradually become service intensive (Salonen 2011). The empirically grounded framework (Fig. 5), especially the interaction irregularity concept, offers a preliminary attempt to study buyer-seller interaction in these new circumstances.
Second, this study contributes to research on project afterlife (Alderman 2005, Jalkala et al. 2010, Kujala et al. 2013, Salonen 2011, Söderlund 2011b) by revealing the dynamism inherent to post-project interaction. The previous concepts yielded a rather static view of project afterlife, which was viewed to be either “lifeless” and sleeping (Hadjikhani 1996) or conflated with other episodes in the long-term business relationship and thus largely ignored (Håkansson 1982: 16, Vaaland & Håkansson 2003). This study indicates that post-project interaction in service-intensive projects is dynamic by nature, as the interaction orientation, relationship atmosphere, and relationship dimensions tend to vary greatly over time (Ojansivu et al. 2013, Ojansivu et al. 2015, paper III). This dynamism extends to interorganizational structures, which need to be adjusted frequently to ensure successful post-project interaction (Ojansivu & Alajoutsijärvi 2014).

Third, this study contributes to the B2B network literature (e.g., Hadjikhani & LaPlaca 2013, Möller & Rajala 2007, Möller & Svahn 2009) by specifying the relationship between agency and structure. The current literature is divided over the question of network manageability (Möller 2013, Möller et al. 2005, Ritter et al. 2004), as some researchers view networks to be intentionally developed or ‘orchestrated’ (Dhanaraj & Parkhe 2006) by a hub firm in the form of ‘strategic nets’ (e.g., Möller & Rajala 2007, Parolini 1999), while other researchers (e.g., Ford 2011, Håkansson & Ford 2002) consider networks to organically emerge and be beyond the control of a single company. This study views post-project application nets as intentional and manageable (but not necessarily by the hub firm). To clarify this point, the concept of an individual’s sphere of influence was coined. Accordingly, individuals manage nets, and their sphere of influence determines whether certain events are enacted or absorbed. This individual or ‘human perspective’ on change represents a rather unexplored but insightful approach to studying business relationships and networks (Medlin 2012, Medlin & Törnroos 2007, Ritter & Gemünden 2003).

Fourth, this study contributes to the literature on B2B relationships by combining several well-established interaction concepts. The previous research on business relationships has examined interaction processes (Brennan & Turnbull 1999, Håkansson 1982, Håkansson & Waluszewski 2013, Möller & Wilson 1995, Wilson 1995), the relationship atmosphere (Hadjikhani & LaPlaca 2013, Håkansson 1982, Wilson 1995), and the interaction orientation (Alajoutsijärvi et al. 2001, Campbell 1985, Möller & Wilson 1988 and 1995) rather loosely. In this study (papers I and II), theory is extended to form justifiable patterns. For example, a competitive orientation parallels an arm’s length type of
exchange, equal power, formal normative-based coordination, weak adaptations, and a reserved relationship atmosphere. Such theory development and refinement are prerequisites for B2B research to move beyond mid-range theories (Peters et al. 2013a).

Fifth, this research has implications for the project management literature. Typically, the project management literature has focused on the project execution phase and has disregarded project afterlife (Söderlund 2004). However, the emergence of project-related services (Kujala et al. 2013) has increased the interest in post-project activities (Söderlund 2011b). Amidst the project management research, this study contributes to research on temporary organizations (Defillippi & Arthur 1998, Lundin & Söderholm 1995, Packendorff 1995, Turner & Müller 2003) by describing post-project buyer-seller interface development through intertwined temporary and permanent interorganizational arrangements (Ojansivu & Alajoutsijärvi 2014). Moreover, the project ethos concept contributes to research on the social aspects of project coordination (Bresnen et al. 2003, Dahlgren & Söderlund 2001) and trust in projects (Kadefors 2004, Maurer 2010, Meyerson et al. 1996, Rousseau 1998, Smyth et al. 2010), as it explains the intergroup tensions between project professionals embedded in the “inbuilt” nature of service-intensive projects.

Sixth, in addition to the contributions of the individual papers, the study as a whole contributes to the more general discussion about the role of project afterlife within the entire product life cycle (Cova & Salle 2011, Söderlund 2011b). The perspective adopted in this research highlights the value of post-project relationships regardless of whether projects are delivered sequentially. Accordingly, the post-project stage is not something that the supplier needs to “overcome” (Jalkala et al. 2010) to acquire future projects; rather, it is a central part of relationship development, with distinct economic value rooted in the continuous exchange of services and with unique value delivery logic (Kujala et al. 2013, Wikström et al. 2009).

7.3 Managerial contributions

This study offers managerial implications for companies and managers operating in service-intensive projects, particularly with respect to post-project buyer-seller interaction. Although the basic assumptions about post-project business relationships may be simple (that is, deliver the project to the customer and begin charging monthly payments for a variety of services), the results of this study
indicate that the development of a strong and mutually beneficial post-project business relationship is a challenging process to manage. This challenge largely results from the unique nature of service-intensive projects, which combine both static project milestones and a dynamic service exchange process. With this issue in mind, this study postulates five practical implications that will assist management in addressing post-project buyer-seller interaction-related issues.

First, this study provides managers with insights into the fundamental challenges of post-project relationship coordination. In contrast to the pre-project and project stages, the post-project stage has no overarching goal, such as obtaining a project contract or delivering a project on time and within the budget and specific performance criteria. Hence, it is challenging to direct customer responsibility in the seller organization, and motivate both customers and sellers managers to commit themselves to relationship development. The result may be reduced interaction and a “no-man’s land” that the project seller’s employees attempt to avoid, and thus, there may be no initiative to broaden the exchange, resulting in only ad-hoc responses to customer inquiries. This situation is problematic because the study findings highlight the importance of cooperative development activities, without which it is unlikely that the relationship will evolve beyond basic maintenance service exchange. More precisely, the findings indicate that attaining the heights of more advanced service exchange, encompassing both the customer’s core business processes and important parts of the value chain, requires time and demands mutual trust and commitment. Therefore, it is critical to ensure that the same person remains in charge of the business relationship from the beginning of the project because of the customer-specific knowledge and interpersonal chemistry that become embedded in the project history. These resources cannot be transferred quickly from one person to another because they must be learned and earned—for better and for worse—over the project life cycle.

Second, in relation to the previous note, the present research provides managers with an understanding of the importance of carefully choosing the individuals who have contact with customers and motivating them to actively work on post-project business relationships. This study illustrates how these relationships can grow into long-term success stories over the course of a decade, resulting in innovative solutions resonating even at the industry level when both parties are willing. Jalkala et al. (2010) note that project business companies are increasingly adopting key account management programs and are building their organizations around customers rather than projects. This strategy may be clever,
but how does one actually build a customer-oriented organization in service-intensive projects? The findings of this study indicate that the central consideration when firms choose the person(s) responsible for a specific customer relationship (and possibly when they build a team around this relationship) is the fit between individuals’ project ethos. Although projects pair professionals with specific capabilities, the central persons in charge of the relationship from the buyer and seller sides should share a similar perception of the project’s temporality and both the commercial and technological underpinnings. If one person, for example, is accustomed to solving narrow technological problems during project implementation, whereas the other person is commercially oriented toward the entire project life cycle, then these two individuals might perceive the business relationship very differently and might struggle to find common ground.

Third, this study presents a comprehensive map for managers to develop four types of post-project business relationships: sleeping, passive, active, and interactive. Each of these illustrative relationships can be used as an umbrella category to map a company’s various post-project relationships. This categorization of relationships enables managers to effectively allocate a company’s resources and to analyze the risks and rewards associated with the composition of the customer portfolio (Tikkanen et al. 2007). Emphasizing sleeping relationships implies low costs and returns but also, more notably, difficulties in predicting demand. By contrast, interactive relationships generate business opportunities beyond individual projects; however, their reciprocal nature consumes resources and demands considerable management attention. Balance in the portfolio is context dependent and requires a profound understanding of the business.

Fourth, this study helps managers to grasp the sources of changes in post-project interactions, which is generally a necessary capability in managing business relationships. Because post-project interaction is a continuous process, managers should pay attention to the everyday interactions in key business relationships. More precisely, changes in the content of exchanges (what is exchanged), relationship coordination (how it is exchanged), and adaptations (what the parties are willing to invest) should be investigated. These changes are labeled interaction irregularities when they have the potential to influence relationship development. Over time, interaction irregularities become tangible in the relationship dimensions, interaction orientation, and relationship atmosphere, which, taken together, translate into the way that interaction “feels” on a daily basis. The study findings indicate that during the periods in which the interaction
orientation (power and cooperation) changes from one extreme to another, relationships are particularly vulnerable and can even end suddenly. A typical example of such a change is when a cooperative development period transforms into seller-dominated passive maintenance; such a situation tends to aggravate a buyer accustomed to constant attention from an active seller.

Finally, this study emphasizes the importance of managers associated with post-project business relationships. Clearly, their capabilities determine whether the potential for continuous, versatile, and long-term post-project service exchange becomes a reality or fades away. These managers differ from those who bring projects into existence (sales and implementation) for two important reasons: First, post-project services stabilize revenue streams that are otherwise reliant on irregular project sales (Artto et al. 2008, Kujala et al. 2012). Second, unlike projects, which face harsh competition, small margins, and narrow specifications (Kerzner 2013, Toivanen 2005), post-project service exchange is not a fixed project milestone but is a continuous process that can be broadened over time, as illustrated in this study. In principle, as long as the service exchange is mutually beneficial, there are no limits to this interaction, apart from the available technology and its adoption rate. Therefore, skillful and insightful managers who are able to build interpersonal trust and commitment during the post-project stage are the more important resource for companies operating in service-intensive projects.

7.4 Evaluation of the study

The quality of scientific research conducted within a certain paradigm should be evaluated based on criteria designed for that specific paradigm (Healy & Perry 2000). This study adopted the critical realist paradigm to examine post-project buyer-seller interaction. Critical realism is a form of realism (Easton 2002) and thus, the evaluation of this study follows the quality criteria for case study research within the realism paradigm, particularly the six criteria developed by Healy and Perry (2000).

Ontological appropriateness refers to the compatibility between the phenomenon being studied and the view of reality within the realism paradigm (Healy & Perry 2000: 122). The view of reality and the unit of analysis guiding this research are explained at length in Chapter 5. This study aims to describe and explain the complex social science phenomenon of post-project buyer-seller interaction, in which the existing reality is only partly accessible through participants’ perceptions (Bhaskar
The research phenomenon under scrutiny clearly resembles the view of reality within the realism paradigm; that is, post-project interaction is viewed as a social phenomenon outside people’s minds, but it can be accessed by triangulating participants’ perceptions.

Contingent validity refers to the validity of the generative mechanisms and the contexts in which they are embedded (Healy & Perry 2000: 123). This type of validity concerns ontological issues and is reflective of an open systems perspective rather than a direct cause-and-effect path (Bhaskar 2008, Yin 1994). To meet this criterion, Healy and Perry (2000) suggest explanations rather than descriptions of social phenomena, theoretical and literal replication, and solid portrayal of the contexts. The present study aimed to probe beyond the surface and to continuously ask why things occur in a certain way. This approach was necessary because the previous literature had adopted a rather confined approach to post-project interaction, which was hardly comparable with the empirical evidence presented in this study. All the cases were selected purposefully, primarily on theoretical grounds (Glaser & Strauss 1967: 49, Stake 1995: 4), to depict theory in practice and to explain underlying mechanisms by comparing the similarities and differences found among the cases (Cunningham 1997, Eisenhardt 1989). Thus, the chosen approach resembles both the theoretical and literal replication of Yin (1994), as the cases were selected for their ability to depict both contrasting and similar results that foster theory development (Eisenhardt & Graebner 2007) and contextualized explanation (Welch et al. 2011).

The focus of the critical realism perspective that centers on structures and explanations for change (Archer 2000, Bhaskar 2008, Easton 2010) proved increasingly important as the research progressed. In the empirically grounded process framework (Fig. 5), the mechanism for change was elaborated from the conceptual process framework (Fig. 3) by adding the concept of interaction irregularity and the mediation change process. Thus, interaction irregularity was perceived to instigate change in the interaction orientation, relationship atmosphere and relationship dimensions, and the outcomes of these changes were viewed to influence forthcoming interactions, thus forming a feedback loop. Individuals were considered to mediate change via their sphere of influence, project ethos and post-project expectations. The endeavor to explain mechanisms of change was perhaps most apparent in paper II, where four relationship development paths were theoretically deconstructed with antecedents, processes and outcomes following their empirical illustration in practice.

The use of multiple perceptions concerns epistemology and refers to the triangulation of several data sources and the use of several peer researchers’
interpretations of those triangulations (Healy & Perry). Multiple interviews, supporting evidence, broad questions, triangulation, a researcher’s awareness of his/her own values, and peer review for published reports have been suggested to improve the quality of research (Healy & Perry). All of these measures were applied; however, some challenges must be addressed. First, the question regarding the researcher’s awareness of his/her values is problematic because the present author did not collect the data for the windmill and the mining cases. The present author guided data collection in the mining case study and mostly guided data collection in the windmill case study (one data set was collected before the present author joined the research project), and the interview patterns were prepared in cooperation with others; thus, the present author was able to suggest a value-neutral tone. Second, the data covered post-project buyer-seller interaction but were originally collected for more specific purposes; in particular, the windmill data focused on project buyer-seller communication, and the mining case focused on customer value of service-intensive projects. However, the interview patterns involved in both cases were sufficiently broad to yield a thorough description of post-project interaction (see Appendixes 6-8). Third, the collaboration with co-authors enabled two additional case studies: EWS and paper machines. Unlike the windmill and mining data sets, which were collected and transcribed by research colleagues but analyzed by the present author, the two co-authors were solely responsible for the EWS and paper machine data sets and their analysis. However, the present author and the co-authors had already developed an open working atmosphere while spending nearly two years writing paper I. Thus, thorough discussion of the empirical data, data analysis, and identification of the key contributions were achieved. The two co-authors expected the present author to continuously explain the data and the conclusions derived. Thus, the convergence of evidence considering the findings and the logic of the reasoning were constantly reconsidered, and the findings were influenced by not only the present author but also the co-authors’ interpretations. The interpretations of key empirical events were also discussed with peers (academic colleagues) who were not co-authors of the paper, as recommended by Gibbert et al. (2008).

The interviews were primarily retrospective, which generates certain challenges. Especially in papers I and III describing the CMS projects, the time period under scrutiny was notably long, extending to three decades. As such, the perceptions of events and activities may have been affected by what the interviewees remembered or what they wished to emphasize when the interview occurred. This possible problem was addressed through data triangulation (Denzin 1978, Patton 1990). This approach involves comparing the different
perspectives presented by the interviewees, sharing critical findings with subsequent interviewees while exposing them to repetitive dissection, and comparing the interviews with other sources, such as industry reports, newspaper articles, meeting minutes, confidential memos, and trade statistics on the dyadic business relationships.

Methodological trustworthiness is related to the possibility of auditing the research through a case study database and using quotations in the written report (Healy & Perry 2000). Using data summaries, case selection descriptions, and data analysis and ensuring general openness in procedures are recommended (Healey & Perry 2000). This study sought to achieve transparency by thoroughly documenting and reporting the cases and the research process and by using direct interview quotations when appropriate. The researcher maintained a case study database that includes electronic files of all data as well as handwritten notes and analysis documentation. General guidelines for qualitative data analysis (Miles & Huberman 1994) were followed, although the steps applied in each individual paper were somewhat unique, depending on the research setting.

Analytic generalization refers to realism research being more suitable for theory building than for theory testing (Healy & Perry 2000), given the complexity of the real world, excluding the possibility for statistical generalization (Yin 1994). From the beginning, this study aimed to provide a contextualized explanation (Welch et al. 2011) in which “researchers make sense of particular events by classifying them as belonging to a class or broader phenomenon and by making reference to existing theories, generalities and known patterns” (Welch et al. 2011: 749). In this study, the existing theories of project marketing, buyer-seller interaction, and business networks formed the basis for the research design. Many of the extant concepts associated with post-project interaction were reconsidered on the basis of the empirical findings. These findings were then enriched with more illustrative concepts and linked back to extant theories (Yin 1994). Welch et al. (2011) suggest that while iterating between the particular and the general, researchers can refine and reassess theories or even propose rival explanations. In this manner, the sleeping relationship (Hadjikhani 1996) concept was complemented with passive, active, and interactive post-project relationships (Ojansivu et al. 2015); interaction orientation was combined with exchange and relationship atmosphere characteristics (Ojansivu et al. 2013); and the sphere of influence (paper III), interaction irregularity (Ojansivu et al. 2015), and project ethos (Ojansivu & Alajoutsijärvi 2014) concepts were developed to more accurately describe the current reality of service-intensive projects.
Construct validity refers to how well a study actually covers the constructs in the theory being built. Using prior theory to define constructs, maintaining a case study database, and triangulating data are suggested to improve construct validity (Healy & Perry). In this study, the initial conceptualizations of post-project interaction strongly relied on studies on B2B interaction, such as those by Håkansson (1982), Möller and Wilson (1995), Alajoutsijärvi et al. (1999), and Vaaland and Håkansson (2003). Project-related service research (Artto et al. 2008, Davies et al. 2007, Penttinen & Palmer 2007) was also influential, as it provided the empirical context for the study. Subsequently, the theoretical lenses and the empirical research also spanned to project network research (Mele 2011, Owusu & Welch 2007) and to intergroup behavior between project professionals (Bresnen et al. 2003, Dahlgren & Söderlund 2001). The constructs that were derived from previous research were applied in collecting and analyzing the data, and the findings were linked back to the existing constructs; however, the research process was not as straightforward as suggested in the literature (Yin 1994, Gibbert et al. 2008). Not all the findings were “prescribed” through previous theories; some surfaced during the abductive research process (Dubois & Gadde 2002). Indeed, the beginning of the study was inductive, as the original aim was to study the influence of an acquisition on the customer relationships of the acquired company. However, the present author was acquainted with the theoretical underpinnings of buyer-seller interaction and networks; thus, the empirical research shifted from studying acquisition to covering the interesting peculiarities of post-project interaction. These peculiarities were addressed briefly in a preliminary manner in the M.Sc. thesis, which provided the theoretical foundations for the D.Sc. thesis.

Another pitfall considers the opportunity for the key informants to review the transcripts and drafts (Gibbert et al. 2008). In the CMS case study, it was convenient to conduct informal discussions with the key informants regarding their interpretations of the main events and exchange transcripts through e-mail. Furthermore, all the examined companies received the M.Sc. thesis in printed form; thus, they were familiar with the theme and were excited about the study when the two new interview rounds commenced. However, in the windmill and mining cases, such an informal and open approach was challenging because many of the key informants had changed positions, switched to other companies, or simply lost interest when the manuscripts were ready for review. One of the customer companies had gone bankrupt, and another was undergoing liquidation. To improve construct validity in the windmill and mining cases, peer researchers
familiar with the empirical material reviewed the main interpretations of these cases as well as the research papers (Healy & Perry 2000).

7.5 Limitations and future research avenues

Any choice of methods and contexts necessarily implies a set of limitations and avenues for further inquiry. Here, I identify four of these limitations. First, the central argument in this study has been to view post-project interaction as a rather contradictory phenomenon—a continuous process plagued by interaction irregularity. Continuity stems from long-term service exchange, and irregularity stems from the lack of concrete project milestones, which make the service exchange people dependent and variable. The longitudinal studies (papers I and III) depicted how post-project interactions develop through periods of active development and passive maintenance and demonstrated how key individuals have the ability to influence the interaction in both directions. The study context was the Finnish CMS project business, for which three cases were scrutinized. The use of multiple cases enhances the validity of the research (Gibbert et al. 2008, Yin 1994), but the findings are restricted to contextualized explanation (Welch et al. 2011). The scrutinized contexts were described in detail to enable readers to make their own interpretations of the findings, to increase their understanding of the findings, and to enable a transfer of knowledge to other contexts (Lincoln & Guba 1985). In the future, it would be interesting to study other service-intensive project contexts in longitudinal settings and to compare the findings through pattern matching (Eisenhardt 1989, Yin 1994).

Second, describing interaction development and explaining it from the perspective of a critical realist researcher are demanding tasks (Easton 2010 and 2002). Given the theory building focus of this study, it was necessary to illustrate the theoretical constructs in practice through the case studies (Healy & Perry 2000). This approach led to rich case descriptions and an emphasis on how questions (papers I and III), perhaps at the expense of why questions, which were incorporated into the analysis in the latter parts of the papers to explain the underlying mechanisms (Bhaskar 2008). Papers II and IV were primarily illustrative and were oriented toward what questions. In the future, it would be useful to focus more on why questions and to explain the dynamism in the four post-project relationships identified (paper II) and the intergroup tensions between project professionals (paper IV) at length.
Third, the causal mechanism proposed in the empirically grounded research framework requires empirical testing. The framework makes assumptions about how different variables influence as well as instigate and mediate change in buyer-seller interaction. More specifically, the framework views interaction irregularity, a concept iteratively built over the course of this study, as the principal source of dynamism. The transferability of this concept to various contexts (Lincoln & Guba 1985), as well as its ability to explain the findings of the individual papers more deeply, was discussed in the concluding section in a preliminary fashion. The explanatory power of this concept should be validated, for example, with an in-depth longitudinal case study focusing on post-project interaction dynamics.

Fourth, this study and all its insights can be argued to rely on an interpretation that may exceed the limits of the empirical evidence presented (papers II and IV). However, this limitation is acceptable in revelatory case studies that seek to reveal unique features of certain phenomena through insights that are more important than the specifics of the empirical evidence supporting them (Yin 1994). Indeed, this study has been revelatory in many respects, given the somewhat narrow theoretical and empirical perspectives of past research (e.g., Hadjikhani 1996, Cova et al. 1996, Cova & Salle 2000). The findings of this study offer an excellent starting point for forthcoming case studies with more confirmatory aims (see e.g., Johnston et al. 1999).

This study has aimed to propose new journeys for project marketing research, as suggested in the introduction. Overall, this study offers a broadened theoretical lens for the study of post-project buyer-seller interaction in service-intensive projects. Post-project interaction without service exchange arguably still exists to some extent in less sophisticated industries, but this possibility is not the focus of this study. The next step is to apply all the concepts developed in this study and to restore the managerial relevance of project marketing research. This task will not be easy, as absorbing new knowledge always requires discarding the past, which on this occasion culminates in the orthodoxy of relationship discontinuity (e.g., Tikkanen et al. 2007) and sleeping relationships (Hadjikhani 1996). The future of project marketing is brighter than ever if we are willing to approach it openly and diligently.
References


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Patton MQ (1990) Qualitative evaluation and research methods. USA CA, Sage Publications.


Traber T & Kemfiert C (2011) Gone with the wind?—Electricity market prices and incentives to invest in thermal power plants under increasing wind energy supply. Energy Economics 33(2): 249–256.
Appendix 1 General interview themes, CMS case study (round 1 A)

The following is a generic list of interview themes that were used in the first round of the CMS case study for the key informants of the company acquiring the project seller.

1. Background information
2. Description of the field of business of the acquirer
3. The products and services of the acquirer
4. The acquisition
5. The due diligence in the acquisition
6. Customer relationships and the acquisition
Appendix 2 General interview themes, CMS case study (round 1 B)

The following is a generic list of interview themes that were used in the second round of the CMS case study for the project seller’s key informants.

1. Background information
2. What is your job description following the acquisition?
3. What is your relationship with the customer under scrutiny?
4. Project management and customer relationships
5. Acquisition and its influence on the acquired company
6. Acquisition and its influence on the organizational culture of the acquired company
7. Acquisition and its influence on the customer relationships of the acquired company
Appendix 3 General interview themes, CMS case study (round 1 C)

The following is a generic list of interview themes that were used in the first round of the CMS case study for the project buyer’s key informants.

1. Background information
2. Exchange in the business relationship
3. Dependency and reciprocity in the business relationship
4. Project management and business relationships
5. Cooperation between local CMS users
6. The acquisition
7. Business relationship before the acquisition
8. Business relationship after the acquisition
9. Concrete changes in the business relationship
Appendix 4 General interview themes, CMS case study (round 2)

The following is a generic list of interview themes that were used in the second round of the CMS case study for the project buyer’s key informants.

1. Background information
2. Development of exchanges in the business relationship
   - Economic
   - Social
   - Information
3. Development of the relationship atmosphere
   - Power and dependency
   - Social distance
   - Conflicts and cooperation
   - Expectations
4. Development periods in the business relationship
5. Major changes in the business relationship
Appendix 5 General interview themes, CMS case study (round 3)

The following is a generic list of interview themes that were used in the third round of the CMS case study for the project seller’s and buyer’s key informants.

1. Background information
2. Development of exchanges in the business relationship
   - Economic
   - Social
   - Information
3. Development of the cooperation between CMS users
   - Focal net
   - Industry network
4. Development of the relationship atmosphere
   - Power and dependency
   - Social distance
   - Conflicts and cooperation
   - Expectations
5. Development periods in the business relationship
6. Major changes in the business relationship
Appendix 6 General interview themes, Windmill case study (round 1)

The following is a generic list of interview themes that were used in the first round of the windmill case study.

1. Background information
2. Product and market strategy
   - What are the main elements of the business exchange?
   - What are the benefits of the exchanged offering?
   - How would you describe the offering in a few words?
   - What influences the purchase decision?
3. Communication strategy
   - What is the seller’s main marketing message?
   - Does the marketing message correspond to the benefits of the business relationship?
4. Communication in the business relationship
   - When do you communicate with the buyer/seller?
   - How would you describe the current communication?
5. Interaction in the business relationship
   - How is your relationship with the buyer/seller?
   - How well do the buyer’s and seller’s values match yours?
   - What may hinder a successful relationship?
   - How are conflicts solved?
   - How do you envision the business relationship in five years?
   - What are the main elements of a long-term business relationship in the windmill project business?
Appendix 7 General interview themes, windmill case study (round 2)

The following is a generic list of interview themes that were used in the second round of the windmill case study.

1. Background information
2. Business relationships
   - How are they initiated?
   - What happens to the business relationships when the projects end?
3. Projects
   - What are the main project stages?
   - When does the project end?
   - Are some project stages especially challenging for business relationship development?
4. Communication in the business relationship
   - What does communication in the beginning of the project and in the period before the project contract is signed include?
   - Does the communication continue after the project handover?
   - What are the main sources of tensions in communication during the project?
Appendix 8 General interview themes, mining case study (A)

The following is a generic list of interview themes that were used in the mining case study with the seller.

1. General information
2. Relationship with customer
   - What type of customers can you identify in the mining industry (competitive/cooperative/short-term/long-term)?
   - How do these customers differ from one another?
   - How would you describe a successful relationship?
3. Customer value
   - How would you define customer value?
   - In your opinion, how could the case company provide more value to its customers?
4. Project process
   - How would you describe the beginning of the process?
   - Who contacts/what is done/how is it done?
   - How do customers identify their business problems?
   - Are there any particular phases?
5. Service exchange
   - Are products and services bundled together or sold separately?
   - Are there different alternatives for different customers?
6. Post-project service exchange
   - How does case company maintain its relationships with customers after delivery?
   - Do you have maintenance or support services?
   - How do you aid customers after delivery?
   - How could the company strengthen its after-delivery support?
Appendix 9 General interview themes, mining case study (B)

The following is a generic list of interview themes that were used in the mining case study for the project buyer.

1. General information
2. Relationships with the seller
   - How did the relationship begin?
   - How would you describe the current state of the relationship?
3. Customer value
   - How well does the seller understand your requirements?
   - How important is the seller’s offering to your business?
4. Project process
   - What stages does the buying process include?
   - Is the supplied solution customized, and if so, how?
   - How does the relationship change during the different project stages?
5. Service exchange
   - Are products and services combined or sold separately?
   - Do you buy other types of services from competing suppliers?
   - During which parts of the production process do you use these services?
6. Post-project services
   - What is the role of after-sales services?
   - How would you describe the post-project relationship with the seller?
   - How is communication organized after delivery, and what types of activities do you engage in with the seller?
   - How can the seller recognize changing customer requirements after project delivery?
   - Is it beneficial to maintain a relationship with the seller between projects?
Appendix 10 Generic CMS platform

Source: Downs et al. (2003).
Appendix 11 Modern windmill structure\(^2\)

\(^2\) Source: Center on Globalization, Governance, and Competitiveness, Duke University.
Original papers


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Original publications are not included in the electronic version of the thesis.
52. Ainali, Saara (2011) Alueiden työllistyvyyden rakennet ja kehitys tavaratuotannon ja palvelujen vuorovaikutuksessa
53. Juho, Anita (2011) Accelerated internationalisation as a network-based international opportunity development process
55. Orjasniemi, Seppo (2012) Studies on the macroeconomics of monetary union
56. Kauppinen, Antti (2012) The event of organisational entrepreneurship : disrupting the reigning order and creating new spaces for play and innovation
59. Pernu, Elina (2013) MNC making sense of global customer relationships
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