

# Impact of customer integration on project portfolio management and its success—Developing a conceptual framework

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## Abstract

The growing number of company projects requires comprehensive management, project portfolio management (PPM), for strategic alignment and efficient use of resources. In parallel, companies face customers demanding higher value, and joint value creation with customers is considered a key success factor in the future. Project portfolios delivering products and services for customers implicate a link between PPM and an increased customer focus. Combining the research fields of marketing and PPM for the first time, this study proposes customer integration into PPM. I develop a framework describing the impact of customer integration into PPM on project portfolio success mediated through relationship value. Furthermore, the study describes relevant aspects for customer integration on the project portfolio level and identifies interfaces for cross-functional integration of a customer portfolio representative within the PPM process. The findings and limitations of this study are discussed, and further research is suggested. © 2012 Elsevier Ltd. APM and IPMA. All rights reserved.

*Keywords:* Project portfolios; Project portfolio management; Customer integration; Project portfolio success; Customer relationship management

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## 1. Introduction

Projects are ubiquitous in today's business environment and include various objectives: develop and market new products and services, change internal processes, or implement business strategy. Project work has gained larger shares of companies' activities and budgets, and project landscapes are becoming more complex. An effective and efficient *single* project management is no longer sufficient for success, but rather a structured and proactive management of the project landscape becomes necessary to stay competitive (Elonen and Arto, 2003). The task of project *portfolio* management (PPM) is to carry out a set of projects under the sponsorship of a specific organization, whereby the projects share and compete for scarce resources (Archer and Ghasemzadeh, 1999). PPM can be considered to be a set of business practices that integrates projects with other business operations (Levine, 2005) and that includes key activities such as decision making on which pro-

jects are to be given priority, which projects are to be added to or taken out of the portfolio, and how to allocate resources (Archer and Ghasemzadeh, 2004; Dammer and Gemünden, 2006).

In parallel, companies are confronted with customers demanding value-adding activities, such as joint product development, financing, or consulting services (Homburg et al., 2002). Companies introduce concepts and processes such as customer relationship management (CRM) or key account management for a closer customer relationship and better service (Ernst et al., 2011; Frow and Payne, 2009), aiming to create value both for the customer and for the company (Boulding et al., 2005). Furthermore, customer prioritization and the management of customer portfolios have received more attention in research and practice (Homburg et al., 2008, 2009; Terho, 2009). A customer portfolio should be managed along the customers' value contributions to the relationship portfolio, not just the customers' value contributions to the firm alone (Homburg et al., 2009). However, optimization of individual portfolios does not necessarily optimize the overall business performance; an alignment between the different portfolios is needed (Tikkanen et al., 2007).

Researchers and practitioners consider customer integration a crucial success factor on the single project level. Particularly

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in new product development (NPD) projects, this factor has received much attention (Cooper et al., 2004; Thomke and von Hippel, 2002). In addition, the literature suggests the co-creation of value, i.e., the consideration of the customer in the value creation process, prioritization of customers' points of view and the enhanced identification of customer wants and needs (Lusch and Vargo, 2006; Payne et al., 2008). Despite these propositions to shift the focus to the customer, customer integration has so far not been a focus at the project portfolio level.

There is a missing link between the growing importance of PPM and the increasing focus on the customer. Implicitly, the customer is mirrored in single projects' objectives. However, the questions of whether the customer should play a role in the project portfolio setting, and if so, what kind of role the customer should play, have not yet been extensively examined. Existing PPM research focuses on processes, tasks, tools, and instruments for PPM, or defines the role of project portfolio managers (Jonas, 2010). PPM can be considered to be a hub of an intra-company system that connects projects and operations (Levine, 2005). Thus, academia must ask whether to include other company functions into PPM, and if so, which functions to include and how. A combination of relationship and project management approaches are needed (Tikkanen et al., 2007). The missing link between PPM and customer relationships calls for an investigation of whether customer integration into PPM can increase project portfolio success. This central question provokes the following subquestions: Should customers be considered in decisions on which projects to be given priority, which projects to be added or taken out of the portfolio, and how to allocate resources between the projects? Can customer integration into PPM create value for all involved parties? How can PPM as a hub be connected to the customer?

To my knowledge, this study develops the first conceptual framework to provide avenues to answer these questions. The framework links customer integration with portfolio success. I introduce relationship value as a mediator between customer integration and portfolio success. This framework enhances the rapidly developing body of knowledge in the PPM field and addresses the call for extended research in PPM to understand modern companies (Söderlund, 2004). For the first time, I combine PPM and marketing approaches to establish a cross-functional view on PPM. The study also further enhances marketing research by connecting customer relationships to PPM. The potential of customer integration has only been described for *single* projects, but not for project *portfolios*. In addition, the potential of customer relationships for value creation has only been investigated in the context of existing *product* portfolios, not *project* portfolios. Furthermore, I propose a construct to measure relationship value both for the customer and for the supplier. Finally, I identify links and interfaces between PPM and marketing by analyzing typical PPM and customer relationship management processes. In addition to theory contribution, this study serves as a foundation for future empirical research on the influence of customer integration on PPM, and it offers practitioners useful starting points to put this approach into practice.

Project portfolios can contain different types of projects, such as research and development (R&D) projects, IT projects,

organizational change projects, or infrastructure projects. This study focuses on project portfolios with relevance for external customers, such as R&D projects for specific customers or other projects, which deliver a specific offering to external customers through contractual agreements. Projects with internal customers (departments or business units) also need an orientation toward the internal customer or user, respectively (Ives and Olson, 1984; Maguire and Ojiako, 2008; Mento et al., 2002; Sirkin et al., 2005). However, these types of projects are outside of the scope of the framework presented here.

In the next section, I provide a theoretical overview of PPM and customer integration on the single project level. This section is completed by transforming customer integration into the customer portfolio on the project portfolio level. Customer relationship management is suggested as an approach to manage a portfolio of customer relationships and as a means for customer integration on the portfolio level. In the subsequent section, a conceptual framework will be developed. This framework proposes a relationship between customer integration into PPM and portfolio success mediated through relationship value. The study concludes with a discussion of the findings.

## 2. Project portfolio management and customer integration

### 2.1. Project portfolio management

PPM has gained importance in practice and has consequently received attention as a field of academic research (Arto and Dietrich, 2004; Dammer and Gemünden, 2006; Patanakul and Milosevic, 2009). Archer and Ghasemzadeh (1999) define project portfolios as a set of projects that is executed and managed under the sponsorship and management of a specific organization. A coordinated PPM represents an organization's investment strategy (Dye and Pennypacker, 1999) and delivers increased benefits to the organization beyond the results of projects managed independently by leveraging synergies (Loch and Kavadias, 2002; Platje et al., 1994; Project Management Institute, 2008). Evaluation, prioritization, and selection of projects are important in aligning the portfolio with the company's strategy (Archer and Ghasemzadeh, 2004; Cooper et al., 2001; Dammer and Gemünden, 2006; Martinsuo, 2001). Moreover, a well-selected portfolio should optimize utilized resources and should represent a balance between associated risks, size of projects, and short- and long-term goals (Archer and Ghasemzadeh, 1999; Petit and Hobbs, 2010).

Several institutions have defined standards for PPM suggesting a wide range of tasks spread over multiple phases (Association for Project Management, 2006; Gaupin, 2006; Project Management Institute, 2008). This study follows Jonas' (2010) approach to structure the managerial tasks into one PPM process with a chronological sequence of four strongly interdependent phases: portfolio structuring, resource management, portfolio steering, and value capturing. This approach offers a comprehensive view of all PPM activities and does not only focus on specific tasks (Killen et al., 2008; Martinsuo and Lehtonen, 2007). The whole process should be considered a cycle, as the portfolio is being reassessed and readjusted continuously with a cycle

frequency depending on specific industry and market dynamics (Dammer and Gemünden, 2006; Petit and Hobbs, 2010).

The initial phase of *portfolio structuring* includes all tasks to set up the target portfolio derived from the company's business strategy (Jonas, 2010): strategic portfolio planning, evaluation of project proposals and the selection and prioritization of projects. These tasks should recur in alignment with the company's strategic planning cycles (Archer and Ghasemzadeh, 2004; Meskendahl, 2010; Platje et al., 1994). PPM is a means for senior management to operationalize the business strategy and to define products, markets, and technologies (Cooper et al., 1999; Dammer and Gemünden, 2006). The portfolio strategy defines what the portfolio is expected to achieve and guides the ongoing portfolio management (Cooper et al., 2000; Levine, 2005). Comprehensive information on associated value and risks of each project and on interdependencies between projects and available resources is needed (Archer and Ghasemzadeh, 2004).

The second phase of *resource management* should handle portfolio-related issues only (Jonas, 2010). This perspective spares the project portfolio manager from the day-to-day quarrels of the on-going organizational challenge of resource allocation (Engwall and Jerbrant, 2003) and focuses on specific portfolio-related aspects. Nevertheless, overarching project resource planning and approval are among the most challenging tasks in PPM because many project portfolios suffer from either lack of resources or ineffective allocation (Association for Project Management, 2006; Cooper et al., 2000; Engwall and Jerbrant, 2003). Resource management provides an initial resource allocation derived from portfolio structuring and continuously re-allocates resources in case of change requests (Jonas, 2010).

*Portfolio steering* includes all recurring activities needed for an ongoing portfolio coordination (Müller et al., 2008). It includes continuously monitoring portfolio status regarding strategic alignment and resource utilization as well as developing corrective actions when deviations from the target portfolio or portfolio strategy are observed (Jonas, 2010; Levine, 2005). In addition, portfolio steering comprises coordinating projects across departments to identify possible synergies and redundant or obsolete projects for abortion (Loch and Kavadias, 2002).

The *value capturing* phase includes portfolio-relevant tasks at the end or after any single project life cycle (Jonas, 2010): portfolio exploitation, organizational learning, and securing project success. Portfolio exploitation implies utilization and dissemination of project results as well as utilization of lessons learned from earlier projects for ongoing projects (Jonas, 2010). Organizational learning aims to maintain and secure relevant experiences and knowledge acquired both during project execution (evaluation of project results or post-project reviews) and during portfolio management, e.g., through evaluation of customer impact through portfolio results (de Reyck et al., 2005).

This generic PPM process integrates customers indirectly during strategy development and at the end of the process when evaluation and securing project success comes into play. However, it does not reflect co-creation of value. Joint value creation in close collaboration with the customer is considered to be a key success factor in the future (Ulaga and Eggert, 2006b). This co-creation

of value has already found its way into single project management (Cooper et al., 2004; Ernst et al., 2010). The question is how to integrate the customer into the PPM process. In the following discussion, this train of thought will be further developed by reviewing the role of the customer on the project level to identify relevant interfaces. The study focuses on R&D and NPD portfolios. Therefore, research results from this field serve as a point of origin for the following section.

## 2.2. Customer integration on the project level in the literature

Customer integration is an integral element of NPD best practices (Ernst, 2002; Ernst et al., 2010; Henard and Szymanski, 2001) and one of the strongest discriminators between best and worst performing companies (Cooper et al., 2004). Gruner and Homburg (2000) found that customer integration during the early (i.e., idea generation and concept development) and late stages (i.e., prototype testing and market launch) of the NPD process can increase new product success (see also Ernst et al., 2010). These findings suggest that customer integration can be helpful in certain stages of the PPM process as well.

Three other research streams also provide insights into the role of user input for new product success. First, according to the *lead user theory*, value is maximized when specific customers are integrated who develop a general need comparatively early relative to the majority of customers. Urban and von Hippel (1988) provided a process model to involve lead users, and Herstatt and von Hippel (1992) showed that this heuristic approach can also lead to a significant increase in value creation in the case of low-tech products. Second, the literature on market orientation states that customer-oriented product development enhances new product success (Jaworski and Kohli, 1993; Narver et al., 2004). Third, the relationship marketing and network literature demonstrates that information exchange and collaboration with customers are beneficial for NPD (e.g., Gemünden et al., 1996).

A common method of integrating the customer into the NPD process is to set up cross-functional teams of marketing and R&D to enable information exchange on customer needs, product positioning and features (Griffin and Hauser, 1996). Marketing therefore serves as a customer representative. Various studies provide an overview of R&D-marketing integration mechanisms and their positive impact on project success (Leenders and Wierenga, 2002; Moenaert et al., 1994). Troy et al. (2008) identified a direct link between integration and new product success even though the relationship between cross-functional integration and new product success is complicated. Consequently, a common method for customer integration is to utilize the marketing function as a customer representative.

Having described the relationship between interdepartmental integration and success, the term itself must be specified. There are multiple definitions of "integration". One research stream describes it as an interactive process with a focus on communication activities (e.g., meetings, information exchange) (Moenaert et al., 1994). Studies support a positive relationship between interaction and success (Griffin and Hauser, 1992; Maltz and Kohli, 1996). Another research stream sees it as a collaborative process. Interdepartmental

relationships are characterized by teams and resource sharing (Lawrence and Lorsch, 1986) with shared values and common goals (Souder, 1987). A third perspective combines both streams and suggests a multidimensional view: information sharing, involvement, communication, and teamwork (Brettel et al., 2011; Song and Song, 2010). In their empirical study, Kahn and Mentzer (1998) found that collaboration has a much stronger effect on performance than interaction. They suggest that the interactive viewpoint should dominate to establish the contact between departments and that collaboration should drive the process of integration.

Involving a single customer in a project portfolio management process seems effective in case the whole portfolio includes projects for this specific customer. Apart from this rare exception, project portfolios serve numerous customers who form a customer portfolio. Therefore, on the project portfolio level, customer integration does not involve a single customer but rather involves a portfolio of customer relationships. The integration entails interaction and collaboration between the PPM function and a representative of the portfolio of customer relationships, i.e., the marketing function.

### 2.3. Customer integration on the portfolio level

#### 2.3.1. From single customer to customer portfolio

The transformation from single project level to portfolio level implies a transformation from integrating a single customer to integrating a customer portfolio. The corresponding activity to managing a project portfolio is managing the according portfolio of customer relationships. Relationship marketing considers relationship building and management as crucial success factors for companies (Grönroos, 1994). Tikkanen et al. (2007) describe the customer relationship portfolio as the key “source of revenues and knowledge that facilitates an understanding of customer value creation and thus developing the company’s offerings” (Tikkanen et al., 2007, pg. 199). However, various relationships fulfill different functions in the long term (Walter et al., 2001). Research suggests that companies should adjust their relationship management activities to the relationship value to the company and focus on managing a complete spectrum of relationships from strategic partnerships to selective transactions (Johnson and Selnes, 2005).

Regarding the project portfolio, there are numerous interdependencies between the customer relationship portfolio and the project portfolio that need to be managed (Tikkanen et al., 2007). For example, successful projects can further strengthen already existing relationships and improve acquisition of new customers; strong customer relationships may help selling new projects, or a short-term view on project completion may lead to a negative impact on quality and customer relationships. An interconnected optimization between the managed portfolios is needed to maximize business performance (Tikkanen et al., 2007). The management of the customer relationship portfolio is a task of the marketing function through a customer relationship management process, which addresses all customer-related aspects, such as identifying the right customers, building customer knowledge, developing customer relationships, and shaping

their perceptions of the company and its offerings (Srivastava et al., 1999). Therefore, customer integration on the portfolio level suggests a connection of the customer relationship portfolio and the project portfolio, a connection of the customer relationship management process and the project portfolio management process.

#### 2.3.2. Managing the customer portfolio through the CRM process

The term CRM emerged among IT vendors and practitioners in the mid-1990s and was often utilized to describe customer-oriented technology solutions, such as sales force automation software (Payne and Frow, 2005). Academic and managerial literature does not have a consensus definition for CRM, which has caused confusion (Zablah et al., 2004). CRM is often inappropriately equated with CRM technology (Reinartz et al., 2004). Frow and Payne (2009) provide a comprehensive definition of CRM as an over-arching strategic approach to create shareholder value by developing appropriate relationships with key customers. It usually involves the identification of appropriate business and customer strategies, the acquisition and dissemination of customer knowledge and the management of the co-creation of value. CRM is being distinguished from relationship marketing, which is concerned with various stakeholders of the company including customers, distributors, suppliers, or employees (Frow and Payne, 2009).

Academic studies have found ambiguous results on the success of CRM implementation (Boulding et al., 2005; Reinartz et al., 2004), which can be caused by a lack of understanding between the causal relationship between CRM and company performance (Ernst et al., 2011), an insufficient understanding of the effects on cost and profit efficiencies (Krasnikov et al., 2009) or a lack of understanding of the value of the customer (Ryals, 2005). Despite these ambiguous results, it is widely accepted in the marketing literature that CRM is an effective approach to collect and analyze useful customer information to increase customer satisfaction and ultimately improve company performance (Ernst et al., 2011). However, this potential has only been investigated in the context of existing *product* portfolios, not *project* portfolios. Ernst et al. (2011) found that CRM has a positive effect on new product performance, and it has an even much stronger effect on new product performance than do other forms of customer integration. Until now, PPM has lacked the shifting focus to the customer. Given that it is a success factor that is important for single project management, an investigation is needed to determine whether customer integration can play a role on the project portfolio level as well. The subsequent section develops a conceptual framework for this investigation and identifies interfaces between the management of project portfolios in the PPM process and the management of customer relationship portfolios in the CRM process.

### 3. A conceptual framework for success

PPM aims to “maximize the contribution of projects to the overall welfare and success of the enterprise” (Levine, 2005, pg.22) by maximizing *portfolio success* (Archer and Ghasemzadeh, 2004;

Arto, 2001; Martinsuo and Lehtonen, 2007), which is not only represented by a single financial figure, but describes a cumulative benefit to the company. Customers buy project results when the supplier relationship can create value for them. Their satisfaction is increased when their perception of the value of the relationship is increased. In this case, they strengthen their loyalty to the company and add new ideas to the portfolio. A higher *relationship value* should have a positive impact on project portfolio success. Customer integration, in turn, aims to create relationship value *for* the customers as well as *from* the customers. Successful customer integration into PPM is expected to have an impact on relationship value of the portfolio. Thus, relationship value is assumed to act as a *mediator* between customer integration and portfolio success, i.e., by keeping the relationship value constant, no significant effect is expected between the two. Customer integration into PPM can have different effects on relationship value in different phases of the PPM process. Therefore, the link between customer integration and relationship value is expected to be *moderated* by sundry process phases. The suggested conceptual framework is depicted in Fig. 1 and described further in the following section.

3.1. Influence of value creation on project portfolio success

3.1.1. Definition of project portfolio success

After many studies have shown that financial criteria alone are insufficient for a long-term view of success, scholars have developed multi-dimensional concepts on project, portfolio, and company level (Martinsuo and Lehtonen, 2007; Müller et al., 2008). Shenhar et al. (2001) added consideration of both the performance during execution and the success of the outcome. Therefore, financial results and performance criteria constitute the first dimension of project portfolio success: average project success. Two other PPM objectives by Cooper et al. (2002) form two other dimensions: alignment of the portfolio

to the business strategy and portfolio balance according to the company’s resources and capabilities. Project results can also offer value that is realized in the future, which represents the fourth dimension. Consequently, project portfolio success consists of average project success, strategic fit, portfolio balance, and future preparedness.

According to Shenhar et al. (2001), the dimension *average project success* contains market performance and commercial performance of project results as well as the fulfillment of project performance criteria. Market performance reflects whether sales objectives as market share or sales volume have been met (Griffin and Page, 1996; Shenhar et al., 2001). Commercial performance measures are derived from standard financial performance measures (Griffin and Page, 1996). Project performance is measured with criteria such as budget, schedule, and quality fulfillment (Levine, 2005; Shenhar et al., 2001). Other researchers expanded this view (Arto and Wikström, 2005; Dietrich and Lehtonen, 2005; Engwall and Jerbrant, 2003; Söderlund, 2004) and found that a broader set of criteria for project management, including customer satisfaction, has a significant positive effect on portfolio success (Martinsuo and Lehtonen, 2007). Platje et al. (1994) stated that the comprehensive management of all projects within a portfolio creates additional value beyond managing the projects individually. Even though this added value is often not realized due to the complexity of portfolio interdependencies, PPM usually pays off by reducing double work and achieving synergies (Dammer et al., 2006; Meskendahl, 2010). Consequently, average project success (reflecting the first dimension of project portfolio success) includes financial success, evaluation of project completion timeliness, budget and quality extended by fulfillment of customer satisfaction, and use of synergies.

The central proposition of *strategic fit* states that organizational performance results from a fit between factors such as strategy, structure, technology, or environment (Bergeron et

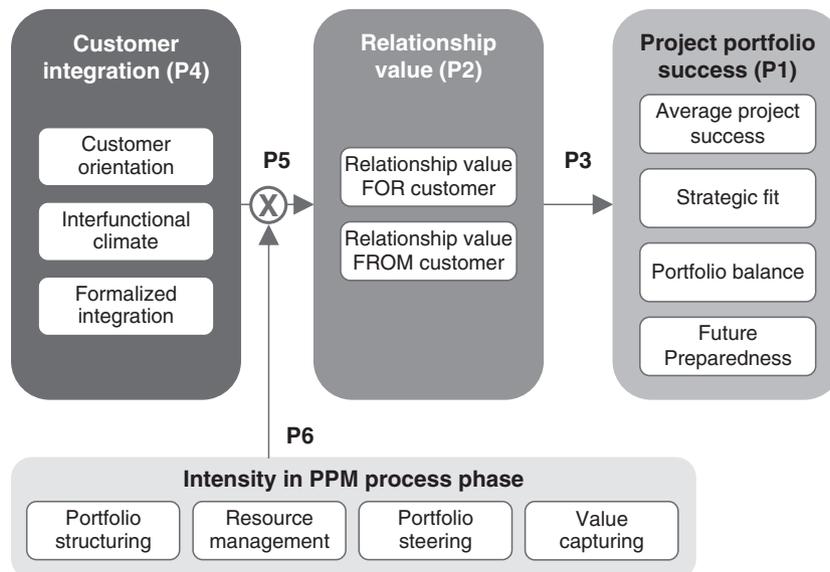


Fig. 1. Conceptual framework.

al., 2001). Strategic fit of a project portfolio represents the degree to which the project portfolio reflects the company's strategy. Studies show that resource allocation aligned with the company's objectives (Chao et al., 2009; Ernst, 2002) and gap analyses between actual and desired statuses are key measures for strategy implementation (Arto and Dietrich, 2004). I adopt the concept of strategic fit by Dietrich and Lehtonen (2005) because it offers a comprehensive view on the alignment of project goals with strategy, of resources with strategy and of the extent to which the portfolio reflects strategy.

A *balanced portfolio* in project management is a desired combination of projects that enables a company to achieve its objectives with the least amount of risk associated with the portfolio (Archer and Ghasemzadeh, 1999). The project management literature states that a portfolio needs to be balanced along numerous dimensions to maximize the value of the portfolio (Cooper et al., 2002; Dammer et al., 2006; Killen et al., 2008). However, these dimensions depend on the market and industry environment (Archer and Ghasemzadeh, 2004). Archer and Ghasemzadeh (1999) suggest associated risk, project size and the balance between short-term versus long-term projects. Killen et al. (2008) consider project type, risk level and resource adequacy as key to balancing the portfolio. Regarding NPD, Chao et al. (2009) expand the project duration aspect with a balance between short-term benefits from incremental improvements of existing products and long-term benefits through radically new services and products. In conclusion, portfolio balance in this study includes a well-adjusted risk level, project timing (long-term vs. short-term including constant generation of cash flow (Meskendahl, 2010)), project type, e.g., an appropriate equilibrium between new and existing technologies and areas of application (Chao et al., 2009), and a constant usage of resources.

*Future preparedness* reflects the preparedness of the organization and its technological infrastructure for future needs (Levine, 2005; Shenhar et al., 2001). It evaluates long-term benefits and opportunities offered by the projects, which are mostly indirect and can eventually be realized after the projects have been completed. Typical long-term benefits are the creation of new markets, the development of new or improved technologies or processes, the acquisition of new skills and competencies and brand value or employer reputation. Moreover, additional benefits include enhanced adaptiveness to react quickly to technology or market changes (see also Cannon and Homburg, 2001). Consequently, the following proposition is stated:

**Proposition 1.** *Project portfolio success consists of average project success, strategic fit, portfolio balance, and future preparedness.*

### 3.1.2. Definition of value

Anderson and Narus (1999) credit the key role of functionality or performance to value. Companies must understand the mechanisms and methods of value creation (Flint et al., 1997; Wilson, 1995). The concept of value has been revisited by marketing practice and academia for the last 30 years because of its conceptual importance, its links to other central marketing constructs, such as price, quality, or satisfaction, and its

potential for insight into customer behavior (Gallarza et al., 2011).

In general, value is considered to be trade-off between benefits and sacrifices (Barry and Terry, 2008). Value in business markets can be defined monetarily as well as in a broader sense including non-monetary revenues such as competence, market position, or social rewards (Wilson, 1995). As stated above, this study aims to provide a link between the project portfolio and the customer relationship portfolio. In a business relationship, at least two parties work together in order to add value for both parties. Therefore, establishing this link must aim to increase value for all partners of the relationship. Value creation does not only consider single transactions but rather is aimed to support a longer relationship and create relationship value. Despite growing attention, only a few conceptualizations of relationship value have emerged (Barry and Terry, 2008).

The majority of marketing research is concerned with value for the customer because of the assumption that companies will only be successful if they offer more value to customers than do their competitors (Anderson, 1995; Ravald and Grönroos, 1996). However, customers are becoming a key source of competitive advantage as companies can also profit from product ideas, market access, or other input from their customers (Anderson et al., 1994; Wilson, 1995). Furthermore, customer integration aims to create value both for the customer and for the company (Boulding et al., 2005). Therefore, this study considers relationship value emerging out of customer integration into PPM for both parties of the relationship:

**Proposition 2.** *Relationship value is split up into relationship value FOR the customer as well as relationship value FROM the customer.*

**3.1.2.1. Relationship value FOR customer.** Understanding the concept of customer value is critical for achieving the goals of the organization (Menon et al., 2005). Value can be conceptualized as a ratio of benefits received and sacrifices encountered by customers (Anderson and Narus, 1999; Ulaga and Eggert, 2006b; Zeithaml, 1988). There are two main research streams regarding value in business-to-business markets: one focusing on the object of the transaction, i.e., the product, and the other focusing on the relationship (Lindgreen and Wynstra, 2005). Research has come to the point where concepts of value must consider both the product as well as certain offerings beyond the product (Čater and Čater, 2009; Lindgreen and Wynstra, 2005).

Menon et al. (2005) decompose benefits into core benefits and add-on benefits and split sacrifices into purchasing price, acquisition costs, and operations costs (see also Cannon and Homburg, 2001). Core benefits are defined as the required basic features so that a customer engages in the relationship (Menon et al., 2005). They are a necessary condition for the customer to consider the company as a possible business partner. Ulaga and Eggert (2006a) also break down sacrifices to direct costs, acquisition costs, and operation costs. However, they identified different dimensions to relationship benefits: core offering, sourcing process, and customer operations. These

dimensions offer a more specific differentiation and have received higher acceptance in the marketing literature (Barry and Terry, 2008; Čater and Čater, 2009). They allow for the assessment of important value drivers for a supplier's value offering (Lefaix-Durand and Kozak, 2010), which is why this study follows Ulaga and Eggert's (2006b) approach.

They split up relationship benefits into three domains: core offering, sourcing process, and customer operations. Similar to the definition of core benefits, *core offerings* are necessary conditions suppliers have to fulfill only to be considered as a supplier and include product quality and delivery performance. Product quality has the most significant impact on the customer's value perception and describes the extent to which a product or an outcome meets customer's requirements and technical specifications (Zeithaml, 1988). Delivery performance consists of consistently meeting delivery schedules, flexibly adjusting to delivery changes, and accurately making the deliveries themselves. Beyond the core offering domain, suppliers can create value in the *sourcing process* with service support and personal interaction (Barry and Terry, 2008). Service support represents the supplier's capacity to provide value-added services to the customers (Ulaga and Eggert, 2006a) and includes the supplier's responsiveness to customers' concerns (Lapierre, 2000), the supplier's capability of information management, and the supplier's outsourcing capacity (Ulaga and Eggert, 2006a). Personal interaction involves interpersonal ties between the customer and the supplier that improve communication, problem solving, and mutual understanding of each other's goals (Ulaga and Eggert, 2006a). The third domain of relationship value takes *customer operations* into account and includes the supplier's know-how and capability to shorten time-to-market. The supplier's business understanding, reliability, and flexibility can provide value to customers (Barry and Terry, 2008) by offering thorough knowledge of supply markets and advising new sourcing alternatives (Ulaga and Eggert, 2006a), by improving customer's existing products as a result of the understanding of customer products and processes, and by assisting in new product development. Suppliers can improve time-to-market by reducing cycle times through improving design work, developing prototypes quicker, and accelerating testing and validation processes (Ulaga and Eggert, 2006b).

Relationship sacrifices can also be split up into the same domains (Cannon and Homburg, 2001; Menon et al., 2005). Sacrifices encountered by the customers in the core offering domain are direct costs of the exchanges, which represent the main relationship sacrifice driver (Ulaga and Eggert, 2006a). In the sourcing process domain, customers encounter acquisition costs, which can be reduced by taking over and optimizing inventory management or order handling of the customer (Menon et al., 2005). Finally, suppliers can help customers in reducing operations costs by customized products or idea contributions to reduce costs in the customers' manufacturing processes. Some researchers propose evaluating relationship sacrifices in one single cost dimension only as direct product cost, as it dominates the cost dimension (Čater and Čater, 2009).

**Proposition 2a.** *Relationship value for the customer involves benefits and sacrifices in the dimensions of core offering, sourcing process and customer operations.*

**3.1.2.2. Relationship value FROM customer.** Relationship value seen from the supplier's point of view is commonly structured into what functions the *customer* can contribute to the relationship as proposed by Walter et al. (2001). They argue that while suppliers provide value to their customers, they are also required to extract value out of their relationships. Suppliers need to understand how relationship value can be created (Lindgreen and Wynstra, 2005). The functions can be differentiated into direct functions and indirect functions. Direct functions have an immediate effect on the supplier, whereas indirect functions have an indirect effect from a direct or indirect connection to other relationships (Walter and Ritter, 2003). In this study, the split-up of value into benefits and sacrifices will be applied indirectly by transfer to the functions. Sacrifices are considered as weakening of a function in exchange for others' benefit, and they are already considered in the specific functions.

*Direct functions* of customers do not concern other relationships and have an immediate effect. The three direct functions are profit, volume, and safeguard function. Profit generation is a pivotal prerequisite for the survival of a company (Walter et al., 2001). Customers can also create relationship value for a company in case the company needs to surpass a certain level of capacity utilization for economies of scale. In this case and when a company makes concessions in prices for customers buying high volumes, the customer fulfills the volume function (Walter and Ritter, 2003). The third direct function is the safeguard function that improves the cost efficiency of the company: because of uncertainties in competitive markets, companies establish certain relationships that are of use as insurance against crises or difficult situations (Lindgreen and Wynstra, 2005). In case other customers refuse to accept purchases, these "emergency customers" ensure some business even though it may be an unfavorable deal (Walter et al., 2001).

*Indirect functions* of customers are beneficial in the future, in other relationships or other projects (Walter et al., 2001). Essential indirect functions include the innovation function, market function, scout function, and access function. It can be advantageous to work with customers who are considered to be technologically advanced or who own a high product or process expertise. Innovations developed in cooperation with a customer may improve the value of the company's *future* offerings both to this customer and to *other* customers (Gemünden et al., 1992), and the customer fulfills the innovation function. A prestigious customer's referrals and recommendations can help in establishing contacts with new potential exchange partners, a feature referred to as market function (Walter and Ritter, 2003). Regarding the scout function, a customer can also act as an external source of information regarding market or technological developments (Walter and Ritter, 2003). A customer's experience in handling stakeholders such as official authorities, trade associations, chambers, and banks can be of

significant help to facilitate procedures or negotiation, a feature called the access function (Walter et al., 2001).

A customer can fulfill more than one function (Lindgreen and Wynstra, 2005), and the functions are interrelated and dynamic (Möller and Törrönen, 2003). In addition, the emphasis of each function can vary from customer to customer and to the same customer over a longer period of time (Anderson et al., 1994). Moreover, the functions also can play an essential role for customer prioritization in the portfolio selection process. Relationship value is therefore directly connected both to the customer prioritization strategy and to the portfolio strategy.

**Proposition 2b.** *Relationship value from the customer consists of direct and indirect functions that customers fulfill for the company.*

### 3.1.3. Influence of relationship value on portfolio success

Value creation in PPM becomes increasingly more important (Söderholm et al., 2008; Winter and Szczepanek, 2008; Winter et al., 2006). A greater focus is needed on the value that projects and portfolios can contribute to organizations. Projects and portfolios should be considered to be a value creation process providing value for customers, which constitutes a much broader view than the traditional engineering view of temporary production (Winter and Szczepanek, 2008).

The maximization of relationship value for the customer through projects leads to average project success, as relationship value is positively related to customer satisfaction (Lam et al., 2004), which in turn is a sub-dimension of average project success (Martinsuo and Lehtonen, 2007). After a long discussion on the classification of value and satisfaction, research now understands value as an antecedent to satisfaction (Gallarza et al., 2011). The main flow of effects in the studies considered “moves from perceived quality and perceived price to perceived value to satisfaction to loyalty” (Gallarza et al., 2011, pg. 186). Several empirical studies support a positive relationship between product quality and delivery performance with customer satisfaction (Čater and Čater, 2009). However, product quality can also be considered to be a necessary pre-condition and not as a differentiator between suppliers. Personal interaction and supplier know-how also have a positive influence on customer satisfaction (Čater and Čater, 2009). The authors explain the lack of influence of time-to-market and service support on customer satisfaction with the assumption that both may be channeled through the dimensions of supplier know-how and personal interaction, respectively (Čater and Čater, 2009).

In turn, customer satisfaction is positively related to customer loyalty (Flint et al., 2011; Lam et al., 2004), which can positively affect strategic fit, portfolio balance, and future preparedness. In addition, customer loyalty can also give feedback on customer satisfaction (Gallarza et al., 2011). Maximizing relationship value for strategically prioritized customers can increase a portfolio’s strategic fit and balance.

Regarding relationship value from the customer, direct functions contribute to average project success. Customers fulfilling volume and safeguard functions ensure portfolio balance and

strategic alignment regarding portfolio and customer strategies. Safeguard customers can serve as insurance against future crises and improve the balance and preparation for the future. Thus, direct functions contribute to every dimension of project portfolio success. Regarding indirect functions, an innovative customer can significantly increase average project success through his or her innovative contribution. An innovative customer can add ideas for new projects or generate synergies by accelerating *other projects* through his or her innovation function. Or, the innovation contribution by this customer can improve the functionality for project delivery to *other customers*. A prestigious customer with a market function can further drive the company’s business and improve the strategic fit of the portfolio according to customer and portfolio strategy as well as directly influence average project success. Projects with a customer collecting and disseminating market or technology information role (source function) can improve portfolio balance or increase strategic fit. Furthermore, they provide easier access to other stakeholders or future markets (access function), which in turn are needed for average project success in the future, thus contributing to the dimension of future preparedness. Consequently, an increase in relationship value both for the customer and from the customer increases portfolio success:

**Proposition 3.** *Relationship value is positively related to project portfolio success.*

## 3.2. Influence of customer integration on relationship value

### 3.2.1. Dimensions of customer integration

In the context of single projects, an important focus is on integrating the marketing and R&D. This focus contains an integration of cross-functional teams as well as a cross-functional collaboration on the management level. Customer integration into PPM has already been suggested as a cross-functional integration between marketing and the PPM function. Moreover, the focus of this study is on portfolios with relevance for external customers such as R&D projects. Therefore, aspects of customer integration into PPM through a customer representative from marketing will be derived from the marketing-R&D integration.

Research has proposed various definitions for cross-functional integration, which can be classified into two main categories (Ernst et al., 2010; Kahn, 1996; Olson et al., 2001): an attitudinal approach considering integration as “collaboration” (a mutual process with common understanding and goals) and a behavioral approach describing the intensity of interaction and information-sharing between the actors. Most studies prefer the behavioral approach (e.g., Ernst et al., 2010; Olson et al., 2001) as these attitudes are more intangible and abstract (Kahn, 1996). However, I also include the attitudinal approach as a part of the cultural aspects as, to my knowledge, collaboration and mutual understanding between marketing and PPM has not been investigated until now. Customer integration therefore considers cross-functional attitudes of the involved parties and cross-functional behavior regarding the level of interaction between marketing and PPM. Cross-functional attitudes consider social circumstances in the organization, which either facilitate or complicate the integration.

In this study, I will concentrate on the two most obvious aspects: customer orientation and the inter-functional climate between marketing and PPM. Regarding cross-functional behavior, the concept of formalized integration will be presented.

*Customer orientation* is a key success factor for the marketing function, PPM and the company. The concept is extensively discussed in the literature on market orientation (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990; Narver and Slater, 1990; Narver et al., 2004). Market orientation, to which the evolution of CRM can be traced back to (Boulding et al., 2005), can be described either as organizational cognition or organizational behavior. The cognitive perspective regards customer orientation as a part of an overarching corporate culture (Deshpandé et al., 1993). The behaviorists do not focus on corporate culture but rather on specific resultant activities (Steinhoff, 2006). The cognitive approach implies a problematic measurement of shared beliefs and values whereas the behavioral approach lacks a theoretical foundation (Kok et al., 2003). There is a trend to the behavioral approach (Steinhoff, 2006) as the original authors of the cognitive approach distance themselves from it (Deshpandé and Farley, 1998). For this reason, this study focuses on the behavioral approach.

Kohli and Jaworski (1990) split up the market orientation construct in three dimensions: generation of market intelligence, dissemination of market intelligence, and responsiveness to market intelligence. As this study focuses on customers and not on the market in general, it further evaluates the work by Narver and Slater, which has been developed in parallel to that of Kohli and Jaworski. Narver and Slater (1990) split up the market orientation construct into three distinctive components: customer orientation, competitor orientation, and inter-functional coordination. A competitor orientation can be counterproductive when the focus lies on competitors rather than on customer needs (Deshpandé et al., 1993) and should be included in an effective marketing and CRM strategy (Payne and Frow, 2006). Therefore, competitor orientation will not be part of the utilized construct. Inter-functional coordination will be part of the cross-functional behavior described below. The customer orientation construct combines a responsive part addressing the expressed needs of customers as well as a proactive part addressing latent and future needs of customers (Blocker et al., 2011; Flint et al., 2011; Narver et al., 2004).

Regarding the climate between different functions, some differences between marketing and R&D groups are necessary and desirable. However, conflicts and disharmonies can seriously disrupt collaboration (Souder, 1981). Therefore, the inter-functional climate, i.e., mutual trust and commitment between customer relationship management and PPM, is as much an indicator of a working integration as it is for the marketing and R&D integration, according to Moenaert et al. (1994). Recent developments in relationship marketing also offer an approach to this aspect, even though the aspect is focused on external relationships (Rodríguez et al., 2007: 916). Relationship marketing introduced the commitment-trust theory by Morgan and Hunt (1994), which describes commitment and trust as key variables of a relationship. In relationship marketing, trust is described as the company's belief that a business partner will

perform actions that will yield positive effects for the company (Morgan and Hunt, 1994). In turn, the company also believes that the business partner will not take unexpected actions that will affect the company negatively. Although the relationships between trust and information exchange or relationship quality are obvious, empirical evidence is scarce (Rodríguez et al., 2007). Commitment is also considered a key factor in relationships (Morgan and Hunt, 1994) and is defined as “an enduring desire to maintain a valued relationship” (Moorman et al., 1992, pg. 316). Regarding intra-firm relationships, commitment is also considered to be relevant (Rodríguez et al., 2007).

The integration of the marketing and the R&D function constitutes the blueprint for the cross-functional behavior between marketing and PPM. The marketing-R&D interface is a critical success factor for NPD projects, and a cross-functional process with close cooperation of different functional areas is needed (Ernst et al., 2010; Griffin and Hauser, 1996; Henard and Szymanski, 2001). The literature suggests different approaches to integration (Kahn and Mentzer, 1998). There are studies that emphasize the importance of communication alone (Moenaert et al., 1994; Walker and Ruekert, 1987). Other studies suggest a comprehensive view of integration with the key elements being communication and collaboration (e.g., Kahn and Mentzer, 1998). The construct of formalized integration uses the comprehensive view and focuses on communication, i.e., centralization and formalization (Moenaert et al., 1994), as well as collaboration (Kahn and Mentzer, 1998) and is therefore proposed in this study to represent cross-functional behavior.

**Proposition 4.** *Customer integration into PPM consists of customer orientation of the company, inter-functional climate between marketing and PPM as well as formalized integration.*

### 3.2.2. Influence of customer integration on relationship value

Responsive and proactive customer orientation yields better product quality and enhances new product success (Narver et al., 2004) as well as customer satisfaction (Flint et al., 2011). Blocker et al. (2011) found that proactive customer orientation is actually the most consistent driver of value relative to other firm capabilities. The harmony of the inter-functional climate increases flow of information between the departments and increases innovation success (Moenaert et al., 1994) and therefore can improve product quality and delivery performance with more innovative products and services. Moreover, this harmony improves personal interaction with the customer as well as supplier know-how as perceived by the customer. As a formalized integration similarly enhances new product success (Kahn, 1996) and consequently product quality and service support, the integration aspects on organizational level increase relationship value for the customer. Regarding relationship value from the customer, a better project portfolio can lead to a more efficient fulfillment of the direct functions through the customers. In case the customer plays an important role in innovation, the integration into PPM can be hypothesized to further increase the customer's innovation function in analogy to the impact on new product performance. Relationship value for the customer can be increased when the portfolio

and the projects are being managed more effectively and more efficiently because of the integration. On the other hand, relationship value from the customer can be increased, when customers have a better understanding of the overall project portfolio and its interdependencies through improved collaboration. Thus, the following proposition is stated:

**Proposition 5.** *Customer integration into PPM has a positive influence on relationship value.*

### 3.3. Intensity of customer integration in different PPM process phases

The strategic approach of customer relationship management has been introduced as the process of managing the company's portfolio of customer relationships and is now being investigated as a means of identifying possible interfaces between the management of the project portfolio and the portfolio of customer relationships.

#### 3.3.1. Interfaces between PPM and the management of customer relationships

Payne and Frow (2005) present the first conceptual framework for CRM suggesting relevant cross-functional activities. Lambert (2010) describes CRM as a macro-business process including every business function as well as customers and suppliers. This approach is very general and lacks a focus on specific activities done within specific departments. The aim of this study is to investigate a company's project portfolio and not a whole supply chain's portfolio of activities. CRM indeed "requires a cross-functional integration of processes, people, operations, and marketing capabilities" (Boulding et al., 2005, pg. 156). On the other hand, not every employee in a firm is a Customer Relationship Manager. Therefore, I will further utilize the framework by Payne and Frow (2005). A closer look at this framework reveals several potential interfaces to PPM. The framework consists of five key CRM processes: strategy development, value creation, multichannel integration, information management, and performance assessment. Similar to the PPM process, the CRM framework should also be considered to be a cycle, not as a linear process (Payne and Frow, 2006).

The *strategy development* process is based on the company's business strategy and customer strategy. Analogous to strategy development during portfolio structuring, the business strategy serves as a foundation for the customer strategy. Developing the customer strategy involves evaluating the current and future customer base and identifying its segmentation (Lambert, 2010; Payne and Frow, 2005). Furthermore, it also includes examining industry and competition characteristics in order to ensure a sustainable, future-oriented strategy (Payne and Frow, 2006). Thus, the customer strategy provides customer prioritization and segmentation information for the project portfolio, which can serve as a strong basis for portfolio structuring, resource management, and portfolio steering. Strategic portfolio planning, evaluation, prioritization, and selection of projects during portfolio structuring should be aligned with the customer strategy

according to important customers and customer segments. The same holds true for resource management and portfolio steering, where key customers or segments should be considered for resource allocation, development of corrective actions or abortion of redundant projects.

The *value creation* process transforms results of strategy development into propositions to create value—both for the customer and for the organization (Boulding et al., 2005). Key elements are: determining the value the company can create *for* the customer, determining the value the company can extract *from* the customer relationship, and maximizing the lifetime value of the focus segments (Payne and Frow, 2005). As the project portfolio process is also considered to be a value creation process (Winter and Szczepanek, 2008), the three key elements of the CRM value creation process constitute key information for the PPM process: the evaluation of relationship value created for customers by the project portfolio, the relationship value created from the customer for the portfolio, and the lifetime value of the focus segments that can be achieved with the portfolio results. These data represent fundamental criteria for portfolio structuring, resource management, and value capturing as they bring together value propositions created by the portfolio and value creation as measures for a successful customer strategy and a successful link to PPM.

CRM *multichannel integration* delivers the most appropriate combinations of marketing channels in order to interact with the customers (Payne and Frow, 2005). It ensures positive interactions with the customer and creates a single view of the customer in case the customer interacts with several channels (Payne and Frow, 2006). CRM serves as an intermediary between customers and PPM. In case a project portfolio contains several projects with the same customer, multichannel integration can provide one face to the customer in order to leverage synergies between the projects. Multi-channel integration therefore contains a minor interface to portfolio steering.

The *information management* process is focused on the collection, processing, and use of customer-related data from all customer interaction points. It aims for extensive customer insight and appropriate marketing actions (Payne and Frow, 2005). This process delivers data for use by other CRM processes (e.g., for customer segmentation and estimation of value creation); therefore, it can also help to leverage synergies regarding several projects with one customer and touches portfolio steering.

The *performance assessment* process identifies strategic alignment to CRM's goals and delivers information on future improvement opportunities (Payne and Frow, 2005). It obtains information such as customer lifetime value, customer acquisition and retention costs, which are directly related to the joint value creation process (Boulding et al., 2005). Performance assessment can deliver substantial information and feedback on project success, and therefore, this process interacts with value capturing. Corresponding to the explanations above, possible interfaces between CRM and PPM are shown in Fig. 2.

Both process models for PPM and CRM have been described, and possible interfaces have been identified. The integration in

the single phases of the PPM process will be further investigated in the following section.

3.3.2. Relevance of integration in different PPM process phases

Portfolio structuring essentially consists of strategy development for portfolio and project selection. Strategy development is the corresponding process in the CRM framework. The customer prioritization strategy is an integral part of the customer strategy (Homburg et al., 2008; Zeithaml et al., 2001) and can provide the discussion basis on project prioritization for the portfolio. Therefore, the customer prioritization strategy constitutes an important component of the integration of strategy development processes. Homburg et al. (2008) discovered that customer prioritization leads to a positive impact on relationships with important customers, but does not affect relationships with less important customers.

Customer prioritization also yields a prerequisite for project selection and the subsequent resource management. However, resource management is more of an operative rather than a strategic task, and it is highly dependent on the outcome of the portfolio strategy process. Therefore, it can be assumed that customer integration has a higher impact on relationship value in portfolio structuring than it does on resource management.

Portfolio steering can be considered to be the most time-consuming phase of the PPM process. In this phase, the customer could be integrated for the escalation or reprioritization processes of the portfolio. Processes should be defined with regard to what needs to be done in case there are urgent customer inquiries and a response of the PPM is needed. However, all actions in this phase depend on the priority given to the customers in previous phases. Thus, the relevance of customer integration for this process phase can assumed to be lower than in portfolio structuring.

During value capturing, the customer can be supported by using project results. The company can offer trainings, quality assurance, and other after-sales services. In addition, the customer can also be used as a source for innovation, for new project ideas. Finally, the company also should try use experiences made during the projects as lessons learned for future endeavors. Consequently, value capturing is similar to portfolio structuring a very relevant phase to create relationship value.

Regarding the PPM process phases, customer prioritization during portfolio structuring, resource management, and portfolio

steering has a positive impact on relationships with important customers and therefore yields an effect on relationship value for the customer. However, the effect is assumed to be much higher during portfolio structuring than it is during the two other process phases. An efficient value capturing process and therefore project execution phase can lead to better prices being offered to customers and therefore to a higher relationship value for the customer.

All PPM process phases offer possibilities to integrate the customer through a customer representative such as the marketing function. However, the process phases can be assumed to have a different impact on value creation. A portfolio strategy aligned with the company’s customer strategy is expected to lead to a higher relationship value than is informing the marketing function of day-to-day activities in portfolio steering. Resource management is highly dependent on portfolio structuring. Value capturing, on the other hand, can actively be managed in accordance with marketing and can significantly increase relationship value for the customer by improving project results, as well as increasing value from the customer by generating new ideas for the portfolio. Therefore, it is expected that the optimal intensity of customer integration into PPM should depend on the PPM process phases.

**Proposition 6.** *The intensity of integration should vary in different PPM process phases. The PPM process phase therefore exerts a moderating impact on the relationship between customer integration and relationship value.*

4. Discussion

A global management of the project landscape, PPM, is necessary to strive for a competitive advantage. (Dammer et al., 2006; Elonen and Arto, 2003). Furthermore, companies are facing more challenging customers (Homburg et al., 2002) and are keen on serving customers better. Customer integration and PPM alone are not new research fields. However, the growing importance of both has not yet paved the way to an integration of both approaches. In this study, customer integration is presented as a means to further develop PPM and to better satisfy customer needs. The management of customer relationship portfolios and project portfolios should be brought together (Tikkanen et al., 2007). A conceptual framework is developed that describes the

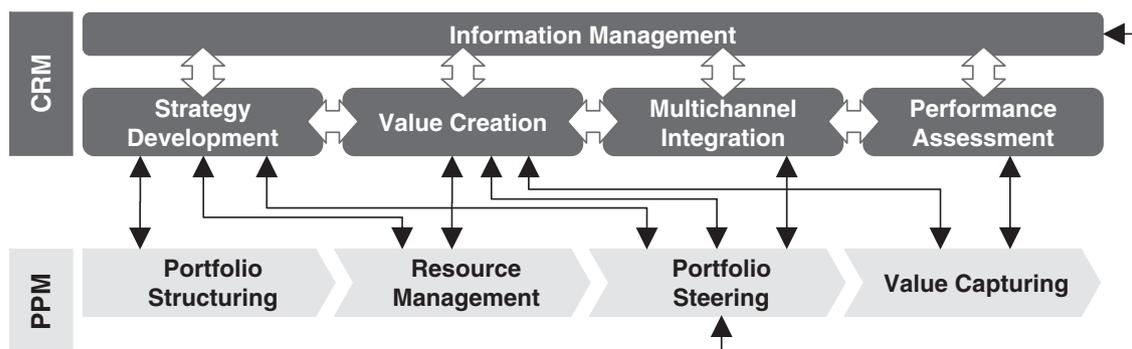


Fig. 2. Possible interfaces between CRM and PPM.

relationships between customer integration into PPM and portfolio success. The construct of relationship value is introduced as a central mediator between customer integration into PPM and portfolio success. Customer integration into PPM is suggested through a connection between the management of the customer relationship portfolio and PPM. A CRM process serves as a blueprint for the management of the customer relationship portfolio.

This study has several implications for the research and practice of PPM. It closes the missing link between the growing importance of PPM and the growing importance of the customer. The study investigates customer integration on the project portfolio level for the first time. It suggests that the customer portfolio should be considered in decisions on which projects to prioritize, which projects to be added or taken out of the portfolio, and how to allocate resources among the projects. The conceptual framework that has been developed enhances the rapidly developing body of knowledge in PPM, and it combines PPM and strategic marketing approaches for a department-level view on PPM. It describes one connection between business operations and projects, whereas PPM is the hub between both (Levine, 2005).

This study also enhances marketing research by presenting a new application for the strategic marketing approach CRM in PPM. The potential of customer integration and customer relationship management has so far only been investigated in the context of existing product portfolios, not complete project portfolios. The study also suggests a construct for measuring relationship value, both for the customer and for the respective company. The framework includes a strong assumption that relationship value completely mediates the relationship between the customer integration and project portfolio success. This assumption is only adequate if the measurement of relationship value represents the net value, i.e., if it includes costs or sacrifices for the integration as well. Otherwise, the direct effect could also be negative.

The managerial implications of this study are somewhat limited as the conceptual model must be empirically tested. However, some important conclusions can be drawn. On the basis of the propositions, companies can apply the suggested factors of the model to develop a portfolio prioritization strategy in accordance with the customer prioritization strategy. The dimensions of portfolio success serve as benchmark for their PPM (Meskendahl, 2010). In addition, practitioners are presented with starting points to interconnect customer relationship portfolio management and project portfolio management. Interfaces between both processes have been identified. Customer orientation, inter-functional climate and the formalized integration of marketing and PPM are important aspects for this interconnection.

Regarding this study's limitations, the conceptual model focuses on project portfolios consisting of projects with external customers. Project portfolios with internal customers, such as IT projects, contain different characteristics. Future users of IT systems can also be considered to be customers of IT projects. However, there is no function as the marketing function available to represent these users in the PPM process. In addition, the derivation of constructs is based on research on R&D projects. An

extension of other types of projects may lead to adjustments of the conceptual model.

There are two avenues for future research based on this study: an empirical validation of the conceptual model and the model's further development. The propositions can be tested within a quantitative study investigating companies with a project portfolio with a certain number of simultaneously executed projects. In addition, a multiple-informant design for PPM and success measures from diverging management levels should be incorporated to obtain a broad view of customer integration, PPM activities and success as well as to avoid biased results. In addition, this study can also serve as a starting point of a recurring, longitudinal study in the PPM context to better understand modern companies (Söderlund, 2004). The conceptual model itself can be enhanced by considering other types of projects in the portfolio: projects with internal customers or users of the project results. Moreover, the relationship portfolio can be extended to other relationships than customers, e.g., suppliers and other external stakeholders. Seeing PPM as a hub, the framework can be adjusted to investigate the connection between projects to other business operations and functions in the company. The model can also be further developed by adding internal and external moderating factors as well as control and contextual factors to ensure a statistically profound investigation. Moreover, deviating from marketing research, customer attributes can be determined to answer the question of which customers should be considered in PPM.

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