

The influence of business strategy on project portfolio management and its success — A conceptual framework

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Abstract

Firms are facing more difficulties with the implementation of strategies than with its formulation. Therefore, this paper examines the linkage between business strategy, project portfolio management, and business success to close the gap between strategy formulation and implementation. Earlier research has found some supporting evidence of a positive relationship between isolated concepts, but so far there is no coherent and integral framework covering the whole cycle from strategy to success. Therefore, the existing research on project portfolio management is extended by the concept of strategic orientation. Based on a literature review, a comprehensive conceptual model considering strategic orientation, project portfolio structuring, project portfolio success, and business success is developed. This model can be used for future empirical research on the influence of strategy on project portfolio management and its success. Furthermore, it can easily be extended e.g. by contextual factors.

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Keywords: Project portfolio management; Strategic orientation; Strategy implementation; Project portfolio success

1. Introduction

According to Mankins and Steele (2005), firms realize only 63% of their strategies' potential value and Johnson (2004) reports that 66% of corporate strategy is never implemented. While strategy implementation – frequently considered as the graveyard of strategy (Grundy, 1998) – was neglected, the main emphasis in strategy research has been on the formulation side of strategies (Grundy, 1998; Morris and Jamieson, 2005). But as Hrebiniak (2006) states, it is more difficult to make strategy work than to make strategy. This is where project portfolio management comes into play. Shenhar et al. (2001) emphasize that projects and especially project portfolios are “powerful strategic weapons” as they can be considered as a central building block in implementing the intended strategy (Cleland, 1999; Dietrich and Lehtonen, 2005; Grundy, 2000).

Project portfolio management – defined as the simultaneous management of the whole collection of projects as one large

entity – is therefore gaining more and more importance in theory and practice (Artto and Dietrich, 2004; Dietrich and Lehtonen, 2005; Patanakul and Milosevic, 2009). A project portfolio is a set of projects that share and compete for scarce resources and are carried out under the sponsorship and management of a particular organisation (Archer and Ghasemzadeh, 1999). The coordinated management of a portfolio delivers increased benefits to the organisation (Platje et al., 1994). Current literature highlights the importance of project portfolio management in evaluating, prioritizing, and selecting projects in line with strategy (e.g. Archer and Ghasemzadeh, 2004; Cooper et al., 2001; Englund and Graham, 1999). It is pre-eminent in choosing the “right projects” and therefore an important part of strategic management in organisations (Morris and Jamieson, 2005; Shenhar et al., 2001).

So far, there are a few studies exploring single aspects of the linkage between strategy, project portfolio management, and business success. Müller et al. (2008) show the positive relation between strategy conform portfolio selection and project portfolio performance. A few other studies found project prioritization as part of the portfolio management process to be a key success factor (e.g. Cooper et al., 1999; Elonen and Artto, 2003; Fricke et al., 2000). Again, other studies observed a

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positive influence of project portfolio performance on business-level results (e.g. Cooper et al., 2000, 2004a,b; Killen et al., 2008). However, there exists no study on an overall framework covering the whole cycle from strategic planning via project portfolio management to business success. Consequently, I suggest a general framework consisting of strategic orientation, project portfolio structuring, project portfolio success, and business success. Here, the object of analysis is the project portfolios with a focus on internally sponsored projects, e.g. R&D or IT projects (Archer and Ghasemzadeh, 1999). Project portfolios under external sponsorship like customer delivery projects are out of the scope of this article as their management has different characteristics and limitations.

Business strategy describes the way in which a firm decides to compete in the market compared to its competitors (Varadarajan and Clark, 1994; Walker and Ruekert, 1987). This paper builds on the strategic orientation concept originally proposed by Venkatraman (1989) to evaluate business strategy. The strategic orientation describes a firm's general posture towards corporate behaviour and performance (Talke, 2007). The concept overcomes the empirical limitations of the widely applied classificatory approaches (e.g. Miles and Snow, 1978; Porter, 1980; Wright et al., 1995) as it assesses strategy along multiple traits or dimensions general to all firms (Morgan and Strong, 2003). Project portfolio structuring is the periodical process of evaluation and selection of new project proposals and ongoing projects under strategic and other given restrictions (Archer and Ghasemzadeh, 1999). To assess project portfolio management and its effects the results have to be made measureable and have to cover a wider perspective than the isolated project (Dietrich and Lehtonen, 2005; Martinsuo and Lehtonen, 2007). Consequently, project portfolio success is evaluated based on the widely agreed multi-dimensional objectives suggested by Cooper et al. (2002). As it is no end on itself, successful project portfolio management needs to contribute to the overall business objectives. Therefore the business success is considered on the basis of the concept from Shenhar et al. (2001) regarding immediate and long-term results from project portfolio management.

Fig. 1 shows the general framework of this paper. It suggests that the effect of strategic orientation on business success is mediated by portfolio structuring and project portfolio success. At the same time, a moderating effect of strategic orientation on the relationship between project portfolio structuring and project portfolio success is suggested.

Addressing the call for more and extended research in project portfolio management to understand modern firms (e.g. Söderlund, 2004) as well as to close the gap between strategy

formulation and strategy implementation (Morris and Jamieson, 2005) this paper makes two contributions to the literature. First, I apply the concept of strategic orientation to the context of project portfolio management and its success. Secondly, I develop a comprehensive conceptual model on the relationship between strategic orientation, project portfolio management, and business success.

In the following, the general framework is described in detail. Starting from right side, the relation between project portfolio success and business success is analysed in Section 2 and the conceptual model is introduced. Further, the influence of project portfolio structuring on project portfolio success is described in Section 3. In Section 4, the influence of strategic orientation on project portfolio structuring as well as the moderating effect of strategic orientation on the relationship between project-portfolio structuring and project portfolio success is explored. The paper closes with a discussion of the results and an avenue for further research.

2. Influence of project portfolio success on business success

2.1. Definition of project portfolio success

The objectives of project portfolio management suggested by Cooper et al. (2002) are well established in the project management literature (Coulon et al., 2009; Elonen and Arto, 2003; Killen et al., 2008; Martinsuo and Lehtonen, 2007). The main goals are: maximization of the financial value of the portfolio, linking the portfolio to the firm's strategy, and balancing the projects within the portfolio in consideration of the firm's capacities. The study follows this notion in the definition of the project portfolio success. However, several studies criticize that projects and their success are usually analyzed as independent objects that are isolated in their execution and evaluation (Dietrich and Lehtonen, 2005; Martinsuo and Lehtonen, 2007). Martinsuo and Lehtonen (2007) show that successful single project management is a necessary but not sufficient condition for successful project portfolio management. Hence, the first objective of Cooper et al. (2002) is divided into two separate dimensions: (1) the average single project success of the portfolio regarding the fulfilment of time, budget, quality, and customer satisfaction objectives, as well as (2) the use of synergies between projects within the portfolio, which covers the interdependences between projects. The portfolio's (3) overall fit with the firm's business strategy and (4) the portfolio's balance are the third and fourth dimensions on project portfolio success as suggested by Cooper et al. (2002).

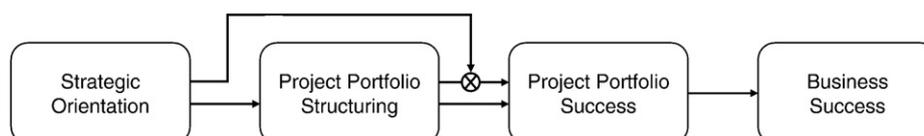


Fig. 1. General framework.

2.1.1. Average single project success

Most research in project management literature still focuses on the single project level (Arto et al., 2009) and limits its attention to the success criteria of budget, schedule, and quality compliance (Shenhar et al., 2001; Shenhar and Levy, 1997). However, more and more research takes on a wider project perspective going beyond this “iron triangle” (Atkinson, 1999) in assessing the project success (Arto and Wikstrom, 2005; Dietrich and Lehtonen, 2005; Engwall and Jerbrant, 2003; Söderlund, 2004). Several additional project success criteria, especially covering the fulfilment of customer and market needs, have been proposed (Dvir et al., 1998; Griffin and Page, 1996; Shenhar et al., 2001). Martinsuo and Lehtonen (2007) documented in their study that project management with a broader set of success criteria has a strong and significant effect on project portfolio efficiency.

Therefore, the average success over all projects within the portfolio forms the first dimension of project portfolio success. The often used success criteria of delivering projects on time, within budget, and to specifications (Pinto and Prescott, 1988; Shenhar et al., 2001) are extended by the customer satisfaction dimension. Furthermore, the average compliance with performance objectives, target costs, and target quality is taken into account as this reflects the projects fulfilment of product specifications (e.g. Griffin and Page, 1996).

2.1.2. Use of synergies

According to Platje et al. (1994) the coordinated management of all projects within a portfolio delivers benefits beyond the results of independently managed projects. This wider view of project management is shared by several other studies (Cooper and Edgett, 2003; Engwall and Jerbrant, 2003; Martinsuo and Lehtonen, 2007; Patanakul and Milosevic, 2009). Although these additional benefits are often not put into practice due to complexity of the numerous interdependencies within the portfolio, it is worth the efforts to reduce double work and enhance synergies regarding technologies, marketing, knowledge and resources (Loch and Kavadias, 2002; Verma and Sinha, 2002). Zirger and Maidique (1990) for instance show in their research that product success increases if a firm's competencies are already considered during the initiation of new projects. Meta-analyses by Henard and Szymanski (2001) as well as Pattikawa et al. (2006) proved that the use of market and technology synergies is positively related to the success of projects. Kaplan and Norton (2006) emphasize the importance of synergies from a corporate strategy perspective.

Therefore, the second dimension of project portfolio success constitutes the use of technical and market synergies between projects within the portfolio.

2.1.3. Strategic fit

Research on fit or alignment has been examined by different areas in management literature (Srivannaboon and Milosevic, 2006). The concept of strategic fit originally stems from organizational research with the central proposition that performance of an organization is the result of fit between two or more

factors such as strategy, structure, technology or environment (Bergeron et al., 2001; Schoonhoven, 1981). Therefore, the strategic fit of the project portfolio describes the degree to which the sum of all projects reflects the business strategy. Despite the acceptance of strategic fit as one of the major objectives of portfolio management, the literature on it is limited (Srivannaboon and Milosevic, 2006). Coulon et al. (2009) constitute that firms with a qualitatively high portfolio management achieve a higher level of strategic alignment. Resource allocation according to the firm's objectives (Chao et al., 2009; Hendriks and Voeten, 1999; Kaplan and Norton, 2005) and gap analyses between actual and intended state to take corrective actions are identified as fundamental aspects within strategy implementation (Arto and Dietrich, 2004). Hence, portfolio management has to achieve an optimal alignment of projects to each other and should only pursue projects that are in line with the business strategy. Still, there is not much literature on a theoretical construct strategic fit for project portfolios.

This study basically follows the concept of strategic fit by Dietrich and Lehtonen (2005). The dimension assesses the alignment of project objectives with strategy, the alignment of resources with strategy, and the degree to which the portfolio reflects the overall strategy.

2.1.4. Portfolio balance

The idea of a balanced portfolio is based on modern portfolio theory by Markowitz (1952, 1991). This theory has been adapted by strategic management literature in the 1970s, where different approaches were introduced by several management consultancies. Applied to project management the desired combination of projects is a balanced portfolio that enables a firm to achieve its objectives without being exposed to unreasonable risk (Mikkola, 2001). According to project management literature, a portfolio has to be balanced along a range of dimensions to provide the best value to the organisation (Archer and Ghasemzadeh, 1999; Cooper et al., 2002; Killen et al., 2008). However, there is no consistent convention on the dimension to cover. According to Chao and Kavadias (2008) and Chao et al. (2009) success for project portfolios on new product developments requires the balancing between short-term benefits from incremental improvements of existing products and long-term benefits achieved through radically new products and services. Killen et al. (2008) constitute project type, risk level, and resource adequacy as criteria for balancing the portfolio. Archer and Ghasemzadeh (1999) point out the relevance of the dimensions project size and short term versus long term projects. Many of the criteria named in literature are not independent of each other, e.g. long-term projects normally come along with a bigger project size or innovative projects implicate a higher risk, so that the dimensions have to be adjusted to the area of application.

In this study, portfolio balancing considers the constant utilization of resources along the project execution as well as the constant generation of cash flow (Killen et al., 2008; Mikkola, 2001). Moreover, the risk level and the balance between new and existing technologies respectively areas of application is covered (Chao and Kavadias, 2008; Chao et al., 2009; Killen et al., 2008).

2.2. Definition of business success

Most organizations traditionally follow merely financial measures to evaluate and assess their business success (Cameron, 1986). But as many studies have shown these measures alone are insufficient indicators for a firm's long-term success and led to the development of multi-dimensional success measurement models such as The Balanced Scorecard (Kaplan and Norton, 1996), Intellectual Capital (Edvinsson and Malone, 1997), and Success Dimensions (Dvir and Shenhar, 1992). Accordingly it has been proposed in project management research that project portfolio management and its success should also be examined in a multi-dimensional way on the project, portfolio, and business level (Blomquist and Müller, 2006; Martinsuo and Lehtonen, 2007; Müller et al., 2008). As there is no established multi-dimensional model for project portfolios so far, the project success framework by Shenhar et al. (2001) is applied and adopted in this study to the portfolio context.

According to Shenhar et al. (2001) the success assessment of projects and therefore also of portfolios has to cover the performance during the execution as well as the success of the result. It will not be distinguished between project and product success as in many other studies (Baccarini, 1999) since they are both part of the framework (Shenhar et al., 2001). The first two success dimensions, namely project efficiency and impact on the customer, cover the project execution phase and are already covered earlier in this study by the average single project success dimension. The third dimension "business success" and the fourth dimension "preparing for the future" deal with the project results and consequently examine short-term economical effects and long-term implications (Shenhar et al., 2001). These product-related dimensions consider success from the business or corporate level respectively. Accordingly, short-term (1) economic success and long-term (2) preparing for the future are adopted as proposed by Shenhar et al. (2001) and adjusted to the portfolio perspective.

2.2.1. Economic success

The economic success dimension consists of the two subsets market performance and commercial performance (Shenhar et al., 2001). This dimension immediately and directly addresses the impact the project portfolio may have on the firm. In the new product development literature it is often referred to as new product success measure (Killen et al., 2008). Market success describes the extent to which sales objectives like market share or sales volumes are achieved (Griffin and Page, 1996; Shenhar et al., 2001). These goals are often assessed in comparison to competitors' performance to account for environmental changes. Commercial success measures are derived from the classical financial management criteria like ROI, profit, or break even (e.g. Griffin and Page, 1996) and are mostly compared to the initial objectives. Griffin and Page (1996) identify and analyse in their study on project success measures a broad set of market and commercial criteria and constitute that the combination of measures depends on the firm's situation and strategy. Thus, there is no agreed standard upon market and

commercial measures neither for projects nor for portfolios (Shenhar et al., 2001).

Here, the firm's economic success of the project portfolio considers the share of revenue generated by new products compared to competitors and the overall revenue share of new products with and without predecessor products (Brown, 1998; Killen et al., 2008). In addition, the overall compliance of products with market goals, return targets, and amortization schedules is assessed (Griffin and Page, 1996).

As Shenhar et al. (2001) clarify, the economic success dimension is not only applicable to product related projects respectively portfolios. All kind of projects and portfolios that deal with the performing organization by affecting cycle time, yield, quality and so forth can be measured and evaluated.

2.2.2. Preparing for the future

Preparing for the future is the longest-term dimension and addresses the preparation of the organisation and the technological infrastructure for prospect needs (Shenhar et al., 2001). This dimension examines the long-term benefits and opportunities from the projects, which are mostly indirect and can only be realized long after the projects have been completed. Typical perspectives highlighted by Shenhar et al. (2001) are: creation of new markets, development of new or improved technologies and processes, building of new skills and competencies. Furthermore the ability to react to external challenges like technology or market changes is examined (Shenhar et al., 2001). Like economic success, this dimension is also applicable to all different kind of projects respectively portfolios.

In this study, preparing for the future consists of a theoretical construct derived from Shenhar et al. (2001) and adapted to the portfolio context. It covers the sufficiency of new technologies and competencies developed within the project portfolio. Furthermore, the development of new products, markets, or technologies in comparison to competitors is considered and its degree to which this will create the future of the industry (Escrig-Tena and Bou-Llugar, 2005; Shenhar et al., 2001).

2.3. Direct influence of project portfolio success on business success

The managerial focus of firms has shifted towards the management of project portfolios as a whole and towards the effective link of this to the overall business purposes (Arto and Dietrich, 2004; Dietrich and Lehtonen, 2005). Consequently, successful project portfolio management delivers additional benefits to the organization beyond time, budget, and quality compliance (1994). In several latter studies Cooper et al. (2000, 2004a,b) examine the achievement of their suggested objectives of project portfolio management and give partial support to a positive relation between portfolio-level results and business-level results (see also Martinsuo and Lehtonen, 2007; Müller et al., 2008). Killen et al. (2008) observe in their study a positive correlation between project portfolio performance measures and new product success, which is one major part of business success. As Shenhar et al. (2001) demand, project respectively project portfolio management has to contribute to the immediate

and long-term success of the firm. This view is supported by various other scholars (e.g. Martinsuo and Lehtonen, 2007). Following this line of argumentation, the following proposition (P1) is put forward and illustrated – as well as the overall conceptual model – in Fig. 2:

Proposition 1. *Project portfolio success consists of average single project success, project balance, strategic fit, as well as use of synergies and is positively related to business success consisting of economic success and preparing for the future.*

3. Influence of project portfolio structuring on project portfolio success

3.1. Definition of project portfolio structuring

Different denotations exist in the project management literature for the process of screening, assessing, and selecting projects for a portfolio (Archer and Ghasemzadeh, 1999; Blichfeldt and Eskerod, 2008; Cooper et al., 2001; Martinsuo and Lehtonen, 2007; Müller et al., 2008). While some authors refer to this whole process as project or portfolio selection, others name just one step of the process selection. The term project or portfolio prioritization is also used ambiguously. Additionally, a number of authors apply the process to new projects whereas others explicitly emphasize also the review of ongoing projects (e.g. Archer and Ghasemzadeh, 1999). This study follows the broad definition of Archer and Ghasemzadeh (1999) who understand the process as a periodical activity of strategic consideration, project evaluation, and portfolio selection of all new project proposals and ongoing projects that meet the firm’s objectives in a favourable manner without exceeding available resources or violating other constraints. To avoid confusion regarding the denotations this will be referred to as project portfolio structuring in the following.

As there is no fixed standard to the project portfolio structuring process, consequently there is also no established standard theoretical construct to evaluate the degree of portfolio structuring (Killen et al., 2008). As a result, strategic portfolio considerations are assessed by analysing (1) the consistency of the project portfolio with the corporate and business strategy. The process of project evaluation and portfolio selection is addressed by (2) the degree of formalization, which also analyses the consistent application to all projects. Finally, the consideration of constraints within the structuring process is covered by (3) the degree of integration of firm’s functions as well as by the degree of (4) diligence in finally selecting the portfolio. The consideration of specific project evaluation tools as analysed by several other studies (e.g. Blichfeldt and Eskerod, 2008; Henriksen and Traynor, 1999) is out of scope of this study.

3.1.1. Consistency

Projects and accordingly project portfolios are an important part of the strategic management for a firm as they enable a successful strategy implementation (Shenhar et al., 2001). Consequently, the multifaceted benefits and goals of a portfolio must be set before the selection of projects in order to meet the firm’s overall objectives. Corporate strategy therefore is typically operationalised on a business level and further filtered down to the portfolio and eventually project level (Archer and Ghasemzadeh, 1999; Morris and Jamieson, 2005). According to the principles of portfolio management the firm’s resources then have to be allocated within the portfolio in line with strategy (Cooper and Edgett, 2003; Martinsuo and Lehtonen, 2007). Several studies in project management research deal with the strategy-portfolio linkage and outline the importance of consistency between both (Archer and Ghasemzadeh, 1999; Arto and Dietrich, 2004; Grundy, 1998; Morris and Jamieson, 2005). Cooper et al. (2000) identify the missing link between

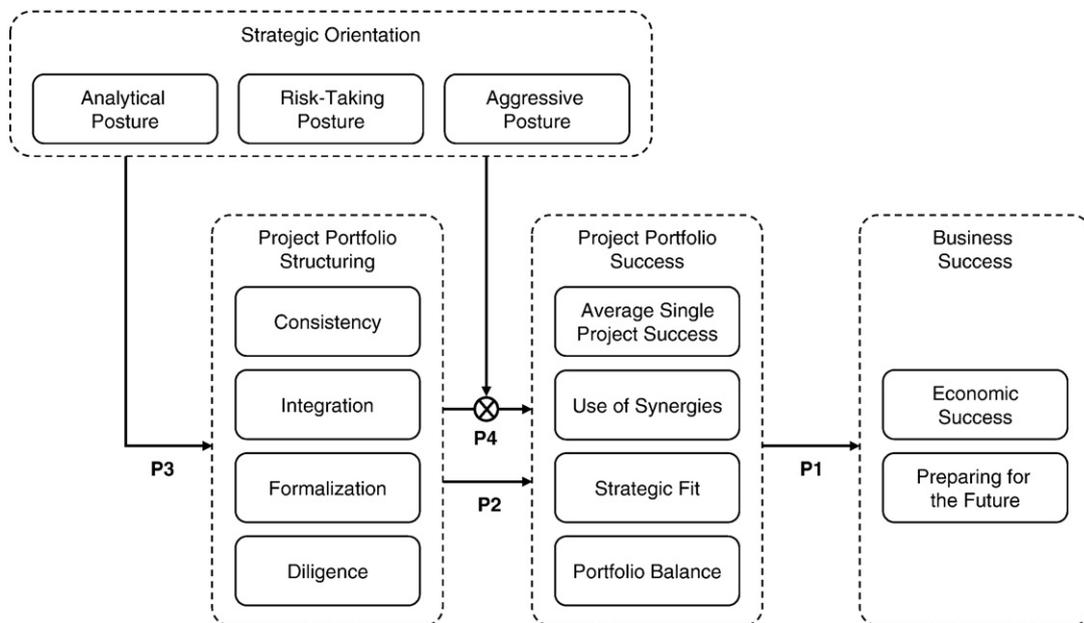


Fig. 2. Conceptual model on the relationship between strategic orientation, project portfolio management, and success.

strategy and portfolio selection as one of six major problems in portfolio management (Elonen and Arto, 2003). The strategic planning process of a firm is a common and highly effective means to break a strategy down to the portfolio level (Morris and Jamieson, 2005).

Thus, consistency evaluates the degree to which the strategic planning process forms the basic conditions for the portfolio and how closely strategic and portfolio planning are linked to each other (Park et al., 2001; Reitmeyer, 2000; Schäffer, 2007). Moreover, it is considered how strictly business drivers and portfolio goals are broken down from the strategic objectives (Park et al., 2001).

3.1.2. Formalization

The importance of formalisation of project portfolio management processes has been emphasised by numerous studies (e.g. Cooper et al., 1999, 2001; Dietrich and Lehtonen, 2005; Martinsuo and Lehtonen, 2007). Cooper et al. (1999, 2004a,b) show a positive influence of process formalisation on portfolio management efficiency (Martinsuo and Lehtonen, 2007). This also applies to the project portfolio structuring process (Cooper et al., 1999; Fricke et al., 2000; Payne, 1995). Several scholars therefore suggest a rigorous, clear, and formal approach to portfolio selection (Fricke et al., 2000; Patanakul and Milosevic, 2009). The following aspects for a formalized portfolio structuring are highlighted within the literature: suitable and accurate data, explicit and objective criteria, reasonable and clear rules, transparent and known procedures (Archer and Ghasemzadeh, 1999; Blichfeldt and Eskerod, 2008; Cooper et al., 1999, 2000; Fricke et al., 2000; Martinsuo and Lehtonen, 2007; Patanakul and Milosevic, 2009; Payne, 1995). Furthermore, it is pointed out that this formal process needs to be applied consistently to all current and new projects on a periodical basis (Archer and Ghasemzadeh, 1999; Cooper et al., 2001; Coulon et al., 2009).

As there is no standard portfolio structuring formalization (Killen et al., 2008), a conceptual factor is derived from literature and adapted to project portfolios. It considers the degree of overall process formalisation and the transparency of rules and processes (Cooper et al., 2001; Fricke et al., 2000). Regarding the project assessment, the accuracy of evaluation and the objectivity of criteria are examined (Salomo et al., 2008; Sandt, 2004; Schäffer, 2007). Finally, the consistent application of the formalities to all projects within the portfolio is covered (Cooper et al., 2001).

3.1.3. Integration

Project portfolio management is a multi-dimensional process which has many overlaps with the entire functional organisation, such as R&D, marketing, IT, production etc. (Cooper et al., 2001; Coulon et al., 2009; Kahn et al., 2006). Thus, the portfolio structuring process is generally a committee process, where the mainly affected functions are involved in the portfolio decisions (Archer and Ghasemzadeh, 1999; Coulon et al., 2009; Mikkola, 2001). Integration of stakeholders during the portfolio structuring process is typically limited to the firm's internal functions. Although external stakeholders like customers or

suppliers play an important role during the idea generation or the project execution (Mikkola, 2001), they are not involved in the portfolio decisions. The integration assesses the degree to which these functions of a firm take part in the portfolio structuring process. This includes the extent to which all relevant functions are involved as well as their different perspectives are accounted for in the process (Archer and Ghasemzadeh, 1999).

Therefore, a theoretical construct from accounting literature regarding functional integration during the strategic planning process is adapted (Schäffer, 2007; Weber et al., 2003). It examines whether the corporate functions concerned by the projects are adequately represented and to which extent they are involved in the portfolio decision process. In addition, it assesses to which degree the different functional perspectives are considered along the structuring process.

3.1.4. Diligence

As there is generally more demand for resources from projects than there are resources available (Archer and Ghasemzadeh, 1999; Coulon et al., 2009), project portfolio management is concerned with selecting the "right" projects (Blichfeldt and Eskerod, 2008). To be in line with a target portfolio derived from the corporate strategy, the selection of projects is to be made carefully (Mikkola, 2001). It has to address the importance of the long-term perspectives as well as to account for the interrelation between the projects (Mikkola, 2001). As there is mostly not only one set of projects leading to the target portfolio, scenarios of different combinations should be taken into account for portfolio decisions (Archer and Ghasemzadeh, 1999). Additionally, the interdependencies within the portfolio have to be considered as they could change the advantageousness of projects (Archer and Ghasemzadeh, 1999; Payne, 1995). Furthermore, innovative and long-term projects, e.g. basic or platform technologies, need to be carefully considered as firms tend to select the short-term and easy projects (Cooper et al., 2000). A study from the Product Development and Management Association (PDMA) points out the overemphasis of incremental versus innovative efforts of most firms (Adams and Boike, 2004; Chao and Kavadias, 2008). The study indicates a strong positive relationship between success and a mix of efforts. This can also be applied to the mix between long-term and short-term projects. Consequently, project portfolio management has to deal with sharing resources, technologies or platforms and components across a multitude of projects (Martinsuo and Lehtonen, 2007; Nobeoka and Cusumano, 1997).

This diligence in structuring the project portfolio will be evaluated by a theoretical construct based on the current literature. It assesses whether the firm has a picture of a target portfolio to be achieved and if the portfolio structuring process is overall appropriate to select the "right" projects (Cooper et al., 2000). Moreover, the degree to which scenarios are used, interdependencies are considered, and the mix of innovative and long-term projects is accounted for, is covered (Archer and Ghasemzadeh, 1999; Cooper et al., 2000).

3.2. Direct influence of project portfolio structuring on project portfolio success

Project portfolio structuring encompasses periodical evaluation, prioritization, and selection of new project proposals as well as ongoing projects (Archer and Ghasemzadeh, 1999). It therefore has a direct linkage to the project portfolio success as it determines the projects to be successfully managed (Coulon et al., 2009). Several empirical studies found supporting evidence on the positive relation between portfolio selection and project portfolio performance (Müller et al., 2008). Prioritization is identified by Fricke et al. (2000) as success factors, while Elonen and Arto (2003) as well as Cooper et al. (1999) find a lack of systematic project evaluation and portfolio selection as problems in portfolio management. Müller et al. (2008) confirm the positive correlation between portfolio selection and project portfolio performance in a quantitative, empirical study. Based on these findings, I suggest the following proposition (Fig. 2):

Proposition 2. *Project portfolio structuring consists of consistency, integration, formalization, as well as diligence and is positively related to project portfolio success.*

4. Influence of strategic orientation

4.1. Definition of strategic orientation

In strategy research the content-related perspective has been widely applied and is described more commonly as strategic orientation (Ketchen et al., 1996; Manu and Sriram, 1996). It mainly focuses on the characteristic of the business strategy as outcome of strategic decision processes and its manifestation within the firm (Veliyath and Shortell, 1993). The business strategy thereby describes the way in which a firm decides to compete in the industry in comparison to its competitors (Varadarajan and Clark, 1994; Walker and Ruekert, 1987).

The strategic orientation of firms is observed in the literature by the narrative, the classificatory, and the comparative approach (Manu and Sriram, 1996). The first approach is mainly used for qualitative research of case studies as it seeks to verbally describe a firm's unique strategy as a whole (Ginsberg and Venkatraman, 1985; Morgan and Strong, 2003). It is consequently not suitable for theory testing in quantitative research, as it does not measure variables to assess and compare strategies. The classificatory approach categorizes firms' strategies regarding specified arguments into different defined groupings, which are commonly known as typologies (Miles et al., 1978; Porter, 1980) or taxonomies (Wright et al., 1995). It is well established in the management literature and widely applied when considering business strategies (Morgan and Strong, 2003; Rajagopalan, 1997). Although it overcomes many of the restrictions of the narrative approach, the classificatory method is limited to intergroup comparison and therefore does not allow group internal assessments (Speed, 1993).

The comparative approach to strategy assessment evaluates a firm's strategy along a number of traits and dimensions, which are common to all firms (Morgan and Strong, 2003). Strategy

can be measured and consequently be made comparable in terms of emphasis along different strategic dimensions. This overcomes the limitation of the assumption of mutual exclusivity of the classificatory approach. The comparative framework proposed by Venkatraman (1989) captures the general strategic mindset of a firm and is therefore different from concepts concentrating on one or selected functional orientations such as market orientation (e.g. Jaworski and Kohli, 1993; Narver and Slater, 1990) or technology orientation (e.g. Gatignon and Xuereb, 1997; Voss and Voss, 2000). Comparably, the concept of entrepreneurial orientation (Covin and Slevin, 1988; Lumpkin and Dess, 1996) has received a large amount of theoretical and empirical attention in entrepreneurship research (Covin et al., 2006; Rauch et al., 2009). It represents a firm's posture towards entrepreneurial decisions and actions (Lumpkin and Dess, 1996) and consequently also reflects a firm's strategic mindset. As the focus here is on established firms with a portfolio not only of new ventures but of all different kind of projects the approach of Venkatraman (1989) for strategic orientation will be followed. His framework comprises aggressiveness, analysis, defensiveness, futurity, proactiveness, and riskiness as six dimensions of strategic orientation and shows also broad overlaps with the characteristics of entrepreneurial orientation (Rauch et al., 2009; Talke, 2007). The concept was later adapted by Morgan and Strong (2003). As it refers to the overall strategic orientation on the corporate level it is also called corporate mindset (Talke, 2007).

In the following the three dimensions (1) analytical, (2) risk-taking, and (3) aggressive posture of firms are further considered here. With this, the study follows the findings of related studies, which include proactiveness as one item in the aggressive posture (Antoncic and Hisrich, 2001; Knight, 1997; Talke and Hultink, 2010). Due to observed problems of discriminant validity (Venkatraman, 1989), futurity is covered by the analytical posture whereas defensiveness as the opposite to the aggressive posture is omitted. The three considered dimensions of strategic orientation are adapted and applied for the purpose of this paper to the project portfolio context.

4.1.1. Analytic posture

The analytical posture refers to the firm's abilities in systematically generating information and building knowledge to secure competitive advantages (Morgan and Strong, 2003). Analytical firms interpret a wider selection of information to derive substantial management implication from it. Prior studies show that the systematic application of analytical activities like data gathering and interpretation is important for proficient decision-making and finally for firm performance (e.g. Goll and Rasheed, 1997). Strategic decisions regarding the project portfolio should be made in a broader context and carefully consider internal competencies as well as external environmental data (Archer and Ghasemzadeh, 1999). The theoretical construct analytic posture is considering systematic environmental analysis, e.g. regarding new technologies or market developments, as well as strategic competence and technology development.

4.1.2. Risk-taking posture

The risk-taking posture describes the manner in which decisions are made and how actions are taken regarding their most likely outcomes (Talke, 2007). A risk-taking posture encourages firms to enter new markets, follow trends, and develop or apply new technologies (Miller and Friesen, 1978). This is especially important in resource allocation situations like committing significant resources to uncertain projects (Dess and Lumpkin, 2005). Thus, it is an important parameter in the process of project portfolio determination (Morgan and Strong, 2003). The willingness to take chances regarding new technologies and major project decisions add up to the theoretical factor on the firm's risk-taking posture.

4.1.3. Aggressive posture

The aggressive posture characterizes a firm's behaviour towards external opportunities or threats (Covin and Covin, 1990). It ranges on a continuum from offensiveness to defensiveness and has often been seen as essential for firms in unstable and competitive environments (Venkatraman, 1989). The aggressiveness posture determines the intensity of a firm's efforts to capitalize on new technologies or serve new market needs to secure or increase its competitive advantage (Fombrun and Ginsberg, 1990; Lumpkin and Dess, 2001). By addressing environmental changes or striving for market or technological leadership, the firm's aggressive behaviour has a strong influence on portfolio decisions regarding the exploitation and assignment of resources to different projects (Morgan and Strong, 2003). The conceptual factor on the firm's aggressive posture covers the openness to apply and introduce innovations in comparison to its competitors.

4.2. Direct influence of strategic orientation on project portfolio structuring

Several studies point out the relevance of strategic orientation for corporate behaviour and performance (Morgan and Strong, 2003; Talke, 2007; Talke and Hultink, 2010). Applied to project portfolio management the firm's strategic orientation significantly influences the portfolio decisions and therefore the structure of the portfolio. A firm's posture towards the dimensions of strategic orientation determines the degree to which an organisation follows the general conditions regarding project evaluation and portfolio selection in line with overall strategic objectives. A more analytical posture for example will lead firms to consistently allocate their resources in a formalized and diligent process on a broad functional integration while a more risk-taking or aggressive posture may result in less formalized and diligent process. In their study, Müller et al. (2008) prove the positive influence of strategy conform portfolio selection on portfolio management performance. Shenhar et al. (2001) conclude that project portfolio planning should become an integral part of the firm's strategic thinking. Therefore, I put the following proposition forward (Fig. 2):

Proposition 3. *The three dimensions of strategic orientation, namely analytical posture, risk-taking posture, and aggressive posture, have a direct influence on project portfolio structuring.*

4.3. Moderating influence of strategic orientation on the relationship between project portfolio structuring and project portfolio success

Whereas there is a positive direct relationship between project portfolio structuring and project portfolio success as proposed earlier, the quality of the relationship may also be influenced by the strategic orientation of a firm.

So far there are a limited number of empirical studies analysing the moderating effect of strategic orientation in general (Slater et al., 2006) and to the best of my knowledge no studies on this effect in project portfolio management. Slater et al. (2006) show in their study that strategic orientation – although based on the typology of Miles and Snow (1978) and Porter (1980) – moderates the relationship between different elements of the strategy formulation capability and performance. These strategy formation capabilities as understood by Slater et al. (2006) can be compared to the process of forming the project portfolio and accordingly to project portfolio structuring. Consequently a firm's project portfolio structuring capability is a dynamic capability (Teece et al., 1997) that, when matched with the strategic orientation, leads to a better project portfolio results. For instance, firms with a distinct risk-taking and/or aggressive posture could, by implementing a more formalized and diligent structuring process with the integration of more functions, realize a higher project portfolio success. Thereby they would force the organization to follow an obligatory structure and minimize for example mere gut or opportunistic decisions. Firms with a strong analytic posture could avoid red tape and therefore missed opportunities due to delayed decisions by easing the process of portfolio structuring.

Overall, the strength of the relationship between project portfolio structuring and project portfolio success is most likely to vary by the different dimensions of strategic orientation (Slater et al., 2006). This argumentation is also in line with results from studies on the moderating influence of entrepreneurial orientation on performance (e.g. Atuahene-Gima and Ko, 2001; Tan, 1996). Based on these findings applied to project portfolio management I propose (Fig. 2):

Proposition 4. *Strategic orientation is moderating the relationship between project portfolio structuring and project portfolio success.*

5. Conclusion and discussion

This paper explores the influence of business strategy on project portfolio management and its success. Hence, the strategic orientation concept was applied to the project portfolio management literature and merged in a general framework. Based on this, the three dimensions strategic orientation, project portfolio structuring, project portfolio success, as well as business success and their direct relationships and the

moderating effect of strategic orientation on the project portfolio structuring-project portfolio success relation were analysed and outlined in four propositions. An overall comprehensive conceptual model on the relationship between strategic orientation, project portfolio management, and business success was introduced.

The study has certain implications for research and practice of project portfolio management. The developed conceptual model expands existing theories in project portfolio management and contributes to close the gap between strategy formulation and strategy implementation. The strategic orientation approach, originally suggested by Venkatraman (1989), was adapted to the project portfolio perspective. The theoretical factors for project portfolio structuring were derived from the existing project management literature and extended by findings from contiguous disciplines. Furthermore, the objectives of project portfolio management proposed by Cooper et al. (2002) were extended and combined to an overall project portfolio success factor covering average single project success, portfolio balance, strategic fit, and use of synergies. Finally, a business success construct to evaluate the immediate and long-term impact of project portfolio success on the business level was developed by adopting the concept of Shenhar et al. (2001) to the portfolio level. These well-elaborated theoretical factors can be used and further refined by future research in this area. Although the managerial implications are limited as long as the conceptual model is not empirically validated, some conclusion affecting practice can be drawn. Based on the propositions, firms can apply the suggested factors of the model to design a strategy conform project portfolio selection process. The proposed success factors can be used to evaluate and benchmark their project portfolio management. The findings further support firm's acceptance of project portfolio management as a holistic approach with strong strategic impact.

This study has some strength and limitations that need to be considered. It presents a comprehensive model covering the whole cycle from strategic planning to project portfolio management and business success. Therefore, not only extracts are taken into account but also the effects of project portfolio management on the business level. Additionally, the model's design is not limited to a specific project type or industry and consequently allows the broad application to any project portfolio with internal project sponsors. This is also a limitation of the study as portfolios with external – customer sponsored and contracted – projects have different characteristics and can scarcely be captured by this model. Furthermore, the process of project portfolios steering beyond the periodical structuring activities is not subject to the study.

Two tracks for future research based on this paper are the empirical validation and the further development of the conceptual model. The propositions should be tested by a quantitative empirical study. To ensure an understanding of the research topic, analysed firms should have a project portfolio with several simultaneous internally sponsored projects. Furthermore, a multiple informant design for project management and success measures from different management levels should be considered to get a broad picture of strategic orientation, portfolio

management activities, and business success as well as to avoid biased results. Additionally, further research could extend the model to the project portfolio steering perspective as well as to various contingencies. Moreover, the conceptual model could be adapted to project portfolios with external sponsorship.

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