

Linking Project Management with Business Strategy

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Introduction

Recognition of the strategic importance of project management (PM) in the corporate world is rapidly accelerating. One reason for this acceleration may be a strong belief by business leaders that aligning project management with business strategy can significantly enhance the achievement of organizational goals, strategies, and performance. However, empirical literature that offers advice on how to achieve this alignment is scanty. Many companies are suffering from misaligned projects and a lack of a systematic approach to align project management with the business strategy. Although projects are the basic building blocks of organizational strategy in many companies, project management is not often recognized as a functional strategy and is rarely perceived as a business process, making the achievement of a project management /business strategy alignment even more difficult.

This study addresses three aspects of an under-researched topic in the strategic management literature, *aligning project management with business strategy*, by examining the alignment in terms of:

- (1) a two-way influence between project management and business strategy (the *nature* of the project management/business strategy alignment),
- (2) a *process* used for achieving the project management/ business strategy alignment, and
- (3) the degree to which a project is aligned with a business strategy (an *alignment score*).

In particular, an empirically based *theoretical framework* is developed to highlight the impact of business strategy on project management (and vice-versa), and to explain the mechanisms used to strengthen that alignment. In addition, the alignment scores are calculated to quantitatively complement data from the field study.

Theoretical Background

Business Strategy and Business Strategy Typologies

Generally, the definitions of business strategy focus on how to better deal with competition (Tse & Olsen, 1999) by means of creating competitive advantages (Hamel & Prahalad, 1989), advantages that provide organizations with the benefits that will sustain them when attracting customers and defending themselves against competitive forces (Thompson & Strickland, 1995). The literature discusses multiple business-strategy typologies, e.g., Miles and Snow's typology (1978), Porter's generic strategies (1980), Treacy and Wiersema's typology (1995). In this paper, I present only one, Porter's generic strategies, using it as the foundation for aligning project management and business strategy.

Porter (1980) claimed that to achieve a sustainable competitive advantage, an organization must reinforce its chosen strategies. Depending on the scope, there are three generic strategies that can result: cost leadership, differentiation, and focus. According to Porter, generic strategies—when an organization chooses only one—provides the organization with the ability to achieve competitive advantages and outperform their competitors. However, if an organization pursues more than one generic strategy, it will perform below its capability. Porter referred to the latter type of organization as stuck-in-the-middle. Despite this, the proliferation of global competition is compelling more organizations to focus on a single combination of generic strategies (Harrison & St. John, 1998). Many researchers and practitioners (e.g., Hill, 1988; Miller & Friesen, 1986; Phillips, Chang, & Buzzell, 1983; White, 1986) refer to this combination as the best-cost strategy. In this paper, three of the above mentioned business strategies were used for the analysis, each of which is described as follows:

- Cost leadership: Organizations pursuing a cost leadership strategy seek to gain competitive advantage and increase market share by being the lowest cost producers in the industry (Porter, 1980).
- Differentiation: Organizations pursuing a differentiation strategy seek to position themselves in the marketplace with a distinct identity that satisfies the desires of their customers (e.g., fast time-to-market,

superior quality and service, innovative features). This differentiation allows the organization to charge a premium price (Porter, 1980).

- Best-cost: Under certain conditions, many researchers argue that a combination of strategies may be the best way of creating a sustainable competitive advantage (e.g., Hill, 1988; Miller & Friesen, 1986; Phillips, Chang, & Buzzell, 1983; White, 1986). In particular, organizations may more effectively create a sustainable competitive advantage when they combine cost leadership and differentiation, when they provide low-cost products and address customer values (fast time-to-market, superior product quality, etc.).

Project Management

Project management is a specialized form of management, similar to other functional strategies, that is used to accomplish a series of business goals, strategies, and work tasks within a well-defined schedule and budget. The essence of project management is to support the execution of an organization's competitive strategy to deliver a desired outcome (i.e., fast time-to-market, high quality, low-cost products) (Milosevic, 2003). As opposed to the traditional stereotype, the recent literature recognizes project management as a key business process (Jamieson & Morris, 2004). This view defines an organization as the process rather than the traditional functional or matrix form and describes project management as one of the key business processes that enable companies to implement value delivery systems. Therefore, when organizations link their projects to their business strategy, they are better able to accomplish their organizational goals. Shenhar's Strategic Project Leadership (SPL) framework (1999) identifies the project management elements that organizations should align with business strategy, elements such as project strategy, spirit, organization, process, and tools. (For this paper, I have adapted the SPL framework, adding metrics and changing project spirit to project culture.)

Alignment Literature

Research in the literature has examined the idea of alignment in various management areas. For example, many studies have discussed the alignment between tasks, policies, and practices (e.g., Boyer & McDermott, 1999; Kathuria & Davis, 2001); others have emphasized the relationship between alignment and performance in regards to organizational hierarchy: corporate, business, and function (e.g., Papke-Shields & Malhotra, 2001; Youndt, Snell, Dean, & Lepak, 1996). The literature frequently mentions research and development (R&D), production, human resources, and information technology—among others—as functional strategies and uses these as the variables to examine alignment in relation to the business strategy. Because project management is similar to these functional strategies, it too should be aligned with the business strategy. However, the traditional literature on aligning project management with the business strategy is vague. Most studies link the business strategy with project management through project selection, viewing it as part of the alignment process (e.g., Baker, 1974; Bard, Balachandra & Kaufmann, 1988; Cooper, Edgett & Kleinschmidt, 1998a; Englund & Graham, 1999; Hartman, 2000). Added to this is project portfolio management (PPM and also called pipeline management), another concept suggested in the literature to ensure the strategic alignment of project management and business strategy (Turner & Simister, 2000). Cooper, Edgett, and Kleinschmidt (1998b) define PPM as a dynamic decision-making process through which an organization can update and revise its list of active projects. The organization's choice of business strategy is what drives their PPM process, the major purposes of which are to select and prioritize projects (Cooper et al., 1998b), balance projects (Archer & Ghasemzadeh, 1999; Cooper et al., 1998b), align projects with the business strategy (Cooper et al., 1998b), manage rough-cut resource capacity (Harris & McKay, 1996; Wheelwright & Clark, 1992), and articulate empowerment boundaries for project and functional management (Harris & McKay, 1996).

Only recently have researchers started to explore the alignment of project management more thoroughly (e.g., Artto & Dietrich, 2004; Jamieson & Morris, 2004; Papke-Shields & Malhotra, 2001; Srivannaboon & Milosevic, 2004). For example, Jamieson and Morris (2004) suggest that most of the components comprising the strategic planning process—internal analysis, organizational structures, control systems—have strong links to project management processes and activities. As a result, these strongly influence an organization's intended business strategies. Similarly, Artto and Dietrich (2004) suggest that an important managerial challenge involved in aligning project management and business strategy is encouraging individuals to participate in using emerging strategies to create new ideas and renew existing strategies. These studies suggest a need for more research in this area; none, however, explicitly talks about the framework for aligning project management and business strategy comprehensively.

Research Design

To complete this study, I integrated two overlapping research phases: data gathering and data analysis. During data gathering (phase 1), I conducted a literature review so as to understand the general research on aligning project management and business strategy. In parallel with the literature review, I researched case-studies over a ten-month period, studying the alignment in market-leading organizations through semi-structured interviews (ranging from 60 to 120 minutes per interview) with individuals holding key organizational positions, individuals such as senior managers, program/ project managers, and team members—as well as a few customers—in order to obtain information from different perspectives (Boynton & Zmud, 1984). In addition to the interviews, I reviewed related documents—meeting minutes, project descriptions, risk logs—to triangulate and validate the findings.

To select the reviewed cases (companies, projects, and participants), I defined multiple criteria and identified the cases most relevant to such criteria as theoretical sampling and project frame of reference (projects completed in at least six month or under) as well as the project management experience of the participants (at least 3 years).

I then classified these projects into different types, including strategic projects (creating strategic positions in markets and businesses), extension projects (improving or upgrading an existing product), utility projects (acquiring and installing new equipment or software, implementing new methods or new processes, reorganization, re-engineering), and R&D projects (exploring future ideas, no specific product in mind) (Shenhar, 2001). These projects were also categorized in regards to external customers (external contract or consumers), internal customers (internal users or another department), or both. I also evaluated each project in relation to such success dimensions as project efficiency, impact on the customer, direct organizational success, and team leader and team spirit (Shenhar, Levy, Dvir, & Maltz, 2001). After each interview (phase 2: data analysis), I transcribed the conversation and coded it. I then wrote case studies, 25-30 pages per case, which later I sent these cases to the companies to verify the accuracy of the transcriptions so as to enhance the validity of the research. I then performed within-case, cross-case, and content analyses. Altogether, I studied eight cases (Cases A to H) in seven organizations, a study that involved nine projects of differing size, type, and complexity (42 interviews). During phase 3, I engaged a panel of five experts—from academia (3 professors) and industry (2 practitioners)—to validate the essential findings. These experts generally agreed on the findings; they also contributed views, which I integrated into the findings to sharpen the theoretical framework.

For each case study, I employed a self-typing method (Conant, Mokwa, & Varadarajan, 1990) to classify the business strategy, one based on Porter's generic strategies (1980), which I used to illustrate the impact of the business strategy types on the composition of project management elements. I chose Porter's generic strategies to classify business strategies types because:

- Porter's generic strategies are well accepted and operationalized in the literature (e.g., Harrison & St. John, 1998; Kim & Lim, 1988; Miller & Dess, 1993; Reitsperger, 1993; Veliyath, 2000).
- Porter's generic strategies focus on the strategic positioning dimension of the business strategy (Kald, Nilsson, & Rapp, 2000), the underlying way in which an organization relates to its product, where differentiation (i.e., quality, time-to-market), cost, and a combination of both are often addressed as a project's major objectives, constraints, and requirements.

This study comprised two differentiation strategy companies (Cases A and B), one cost leadership company (Case H), and five best-cost companies (Cases C, D, E, F, and G). I coded the examined project as xS or xUS, where x represents a case, S represents a successful project in that case (projects AS, BS, CS, etc.), and US represents an unsuccessful project in that case (project AUS). In studying the nature of alignment, I adapted the elements of project management from Shenhar's SPL framework (1999), elements such as project strategy, organization, process, tools, metrics, and culture. I adopted this framework because it is well-publicized and tested.

Analyses & Results

An empirically grounded theoretical framework was developed with three major and novel aspects as follows.

The Nature of the Project Management /Business Strategy Alignment

The first aspect of this research relates to the configurations of project management as influenced by types of business strategy. I followed an inductive logic of specific to general practices to derive the propositions that explain the interaction between business strategies and project management elements. The general process of obtaining the propositions was based on case study research, which heavily used within-case, cross-case, and content analyses. Detailed propositions of Porter’s generic strategies (1980) were developed and further generalized into typology-free propositions, without restricting them into any single business strategy typology.

Here, it was found that business strategy realizes its influence on project management via the competitive attributes of the business strategy (e.g., time-to-market, quality, cost). These competitive attributes are used in a deliberate fashion to determine the configuration and emphasis placed on different project management elements (strategy, organization, process, tools, metrics, and culture). For example, if the competitive attribute of time-to-market is chosen, the project strategy’s configuration should be tailored to support its schedule focus and the time-to-market competitive attribute by adopting the strategic focus that allows projects to ignore their cost and product features in trade-off decisions in order to attain time-to-market (dropping product features, spending additional money, etc.). Similarly, the project process should be tailored to accomplish the time-to-market competitive attribute by overlapping or combining process phases, milestones, and activities, i.e., a project manager runs a combo-milestone (combination of two minor milestones) to skip small project details and to speed up the project. Exhibit 1 summarizes the configurations of project management elements, as influenced by each type of Porter’s business strategies I found from the field study.

		DEGREE OF DIFFERENTIATION	
		LOW	HIGH
C O S T	H I G H	Not available	<p style="text-align: center;">(1) Differentiation Strategy <i>(Examples: Time-to-market or Quality Differentiation)</i></p> <p>Emphasis is placed on:</p> <ul style="list-style-type: none"> • (Strategy) Schedule or quality project success measure • (Org.) A flexible structure to facilitate project speed or product quality • (Process) A flexible process to speed up projects or maximize product quality • (Tools and Metrics) Schedule- or quality-oriented tools and metrics • (Culture) Rewarding time-to-market speed or quality
	L O W	<p style="text-align: center;">(2) Cost Leadership Strategy <i>(Example: Process Improvement)</i></p> <p>Emphasis is placed on:</p> <ul style="list-style-type: none"> • (Strategy) Cost-efficiency project success measures • (Org.) A flexible structure to adapt to changes in process improvement • (Process) A highly standardized and built-on template process • (Tools and Metrics) Cost- and schedule-driven tools and metrics • (Culture) Cost-conscious culture 	<p style="text-align: center;">(3) Best-cost Strategy <i>(Example: Quality/cost)</i></p> <p>Emphasis is placed on:</p> <ul style="list-style-type: none"> • (Strategy) Quality and cost project success measures • (Org.) A flexible structure to ensure the best product quality at the minimum cost • (Process) A standardized but flexible process • (Tools and Metrics) Quality/cost-oriented tools and metrics • (Culture) Rewarding quality/cost culture

Exhibit 1. Summary of Project Management Configurations per Porter’s Generic Strategies

The competitive attributes and configurations in Exhibit 1 are examples of many. In reality, there are numerous combinations of competitive attributes that companies can use as sources of advantage to compete with their rivals. Similarly, there are also many alternatives to tailor project management elements to support the competitive attributes. Clearly, all three strategic types influence project management elements through the competitive attributes that were chosen as a basis of competition for individual strategic types. Therefore, I suggest six propositions, one for each project management element:

- Proposition 1: The *competitive attributes* of the business strategy drive the *focus* and *content* of project *strategy*.
Proposition 2: The *competitive attributes* of the business strategy drive the *focus* and *content* of project *organization*.
Proposition 3: The *competitive attributes* of the business strategy drive the *focus* and *content* of project *process*.
Proposition 4: The *competitive attributes* of the business strategy drive the *focus* and *content* of project *tools*.
Proposition 5: The *competitive attributes* of the business strategy drive the *focus* and *content* of project *metrics*.
Proposition 6: The *competitive attributes* of the business strategy drive the *focus* and *content* of project *culture*.

Note that these propositions are presented in an identical fashion. My intent is that structure of the propositions be based on (i) two items that are major variables or units of analysis in the framework (business strategy and project management elements) and (ii) two items that express major attributes of a project management element that the type of business strategy affects (focus and content). These types of propositions are often used by Eisenhardt (1988, 1989a).

Interestingly, I found cases where project management elements not only support but also impact business strategy. I call this relationship the reciprocal relationship of project management and business strategy. This relationship occurs when companies obtain from their projects information about the ways they adapt their business strategy, a process that Mintzberg (1994) refers to as an emergent strategy approach.

An explicit example of this relationship is Project AUS and its business strategy. This project's failure is related to the window of opportunity. Although the project was initially aligned with the organization's business strategy, the product that resulted from the project was released after the market had shifted and customers began looking for a more complex product. This project also failed because the project team did not appropriately validate the product definition (as part of the project's strategy) with the key customers throughout its life cycle. As a result, Project AUS failed because of inefficient stage gate reviews that lacked the feedback necessary to detect significant threats, such as a market shift. The company, however, later adjusted its stage gate reviews to cover market shifts as a measure to prevent such failure from repeating.

This example implies that in order to ensure project performance, project managers must realign the project strategy, the organization and its culture, and the processes, tools, metrics of realizing projects with a project's progress. Another proposition concerning the reciprocal relationship between project management and business strategy involves the operating conditions of reviewed projects, which are revealed at stage gate reviews. Results of stage gate reviews may impact the business's strategies and its competitive attributes because of environmental changes. Therefore, I suggest the 7th proposition as follows.

Proposition 7: Project management elements may impact business strategy based on the operating conditions of reviewed projects.

The Process Used for Achieving the Project Management/ Business Strategy Alignment

The second aspect of this research relates to the detailed alignment process, including strategic planning, project portfolio management, and project life cycle management. Projects are first selected into the project portfolio to support the implementation of the business strategy (alignment at the strategic level). Then, during project execution, alignment with the business strategy is monitored (alignment at the project level), and information is fed back to business leaders to allow for adaptation of the business strategy (alignment at the emergent strategic feedback level).

Here, it was found that most companies used project stage-gates to adapt and maintain the alignment during the course of the project execution. This level of the mediating process provides strategic feedback, usually resulting from environmental changes, that can lead to what Henry Mintzberg (1994) calls "emergent strategy", or a strategy that is not intended or planned but emerges from a stream of managerial decisions through time.

With the propositions and mediating processes, a theoretical framework for aligning project management with the business strategy is constructed (See Exhibit 2). The propositions are used as the connectors between business strategy and each of project management elements (and vice-versa) through statements of interrelationships (P1-P6, P7). Mediating processes are mechanisms to ensure that organizations create and maintain the alignment. For the sake of illustrating the processes in general, I have used the traditional phases of the project life cycle, including conception, planning, execution, and closing. Each company, however, uses different project life cycle phases, selecting those that are most relevant to their industry, company culture, and other significant issues.

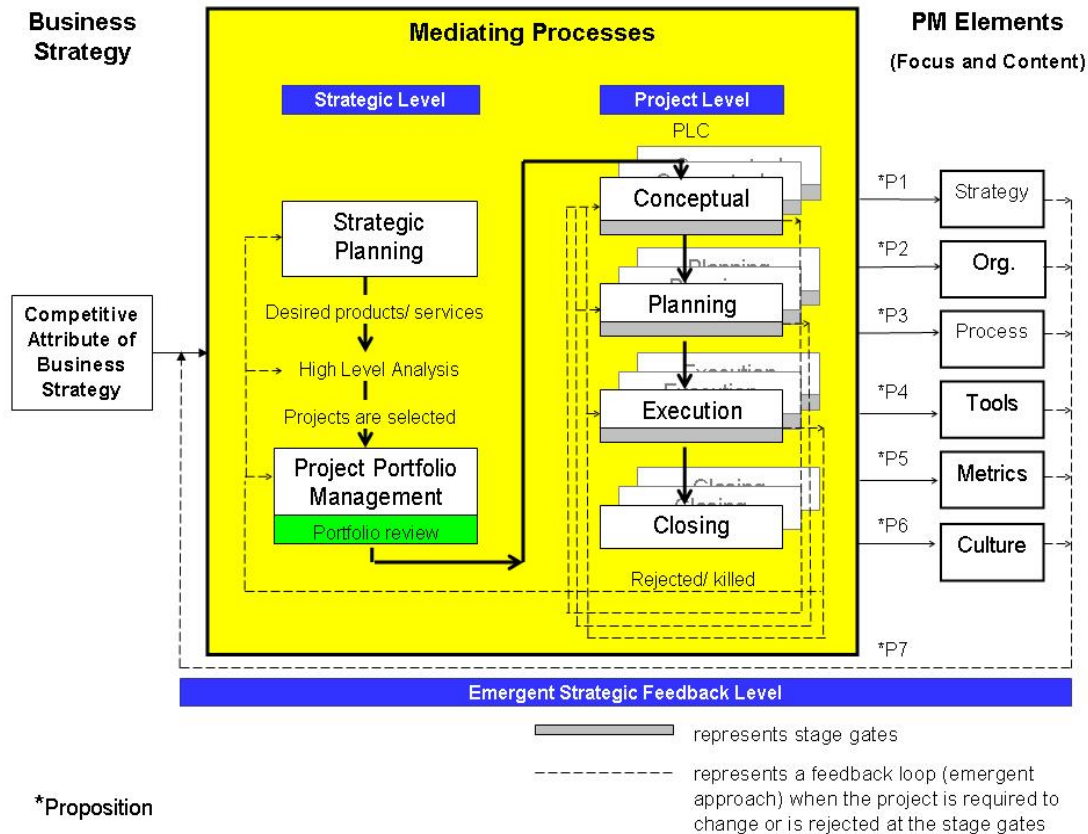


Exhibit 2. A Theoretical Framework for Aligning Project Management with Business Strategy

It is the competitive attributes of the business strategy that drive the focus and the content of the project management elements. The propositions I have outlined in the framework describe the interrelationships between project management elements and business strategy. To establish and maintain the processes used to align project management elements and business strategy, I suggest that organizations use mediating processes—strategic planning and project portfolio management—at the strategic level to interpret their business strategy in the context of project management. Organizations initiate and select projects for their project portfolio to fulfill business needs; they then implement a standard life cycle that includes project planning and project monitoring (the primary mediating processes at the project level) to ensure the quality of the alignment between project management elements and business strategy. One of the major control mechanisms organizations use to ensure that their projects align with their expectations as the project progresses from one project phase to the next is the stage gate. This mediating process provides strategic feedback that can lead to what Mintzberg (1994) calls emergent strategy.

The Alignment Scores

The third aspect of this research addresses the extent to which the examined projects are compatible with the priorities set by the business units. I adapted the Euclidean distance method to translate the project management/business strategy alignment into the numeric values. In doing so, I analyzed each case study and extracted matched pairs of executives and project managers regarding their perceptions of the priorities in the business unit and

examined projects respectively. Two sets of modified surveys for the priorities were created and sent to executives, project managers, and team members. Executives were asked to rate the importance of management priorities in their businesses. Similarly, project managers and team members were asked to rate the importance of multiple project priorities in reference to the examined projects. These were done on a five-point Likert scale with values ranging from 1 (not at all important) to 5 (extremely important).

To operationalize the alignment score, I assumed that the alignment is inversely related to the difference between two elements. In other words, the alignment was viewed as the opposite of the level of disagreement (e.g., executives and project managers, project managers and team members, executives and team members). Then, the first step was to calculate the disagreement (or misalignment) score based on the Euclidean distance using a square root of the sum of squared differences between the perceptions (executives and project managers, project managers and team members, executives and team members) (formula 1).

$$\text{Disagreement (misalignment score)} = \sqrt{\sum_{i=1}^n (\overline{X}_{Ei} - \overline{X}_{PMi})^2} \dots\dots\dots (1)$$

where \overline{X}_{Ei} = the average value of executive perception
 \overline{X}_{PMi} = the average value of project manager perception

The second step was to convert the disagreement score to an alignment score by subtracting their respective disagreement score from the maximum disagreement score (formula 2).

$$\text{Alignment score} = \text{Maximum disagreement score} - \text{Misalignment score} \dots\dots (2)$$

Maximum disagreement score for n = 4 can be calculated by assuming that executives give the maximum value of 5 while project managers provide the minimum value of 1, or vice versa.

$$\begin{aligned} \text{Maximum disagreement score} &= \sqrt{(5-1)^2 + (5-1)^2 + (5-1)^2 + (5-1)^2} \\ &= 8 \end{aligned}$$

Then, formula 2 can be revised to formula 3 below:

$$\text{Alignment score} = 8 - \text{Misalignment score} \dots\dots\dots (3)$$

From this calculation method, the alignment scores of the examined projects vary from 5.26 to 7.4 (65.8% to 92.5%). The average score was 6.85 (85%). Exhibit 3 summarizes the alignment scores (survey responses were insufficient in some cases).

Case (project)	PM/Business Strategy Alignment Score 0-8 (percentage)			Average
	Exe-PM	PM-TM	Exe-TM	
A (AS)	6.94 (86.8%)	-	-	6.94 (86.8%)
A (AUS)	7.23 (90.4%)	-	-	7.23 (90.4%)
B (BS)	7.09 (88.6%)	6.07 (75.9%)	6.07 (75.9%)	6.41 (80.1%)
C (CS)	6.28 (78.5%)	6.36 (79.5%)	5.97 (74.6%)	6.20 (77.5%)
D (DS)	6.77 (84.6%)	6.41 (80.1%)	5.26 (65.8%)	6.15 (76.9%)
E (ES)	6.44 (80.5%)	-	-	6.44 (80.5%)
F (FS)	-	-	-	-
G (GS)	7.4 (92.5%)	-	-	7.4 (92.5%)
H (HS)	6.61 (82.6%)	-	-	6.61 (82.6%)
Average	6.85 (85%)	6.28 (78.5%)	5.77 (72.1%)	

Legend: Exe – Executive, PM – Project manager, TM – Team member
Exhibit 3. The Project Management-Business Strategy Alignment Scores

Surprisingly, I found a case where the alignment did not automatically lead to the success of the project (Project AUS), although the literature claims that the performance can be improved through a better fit (e.g., Chan & Huff, 1993; Cooper, 1993; Luftman, Lewis, & Oldach, 1993; Papke-Shields & Malhotra, 2001; Wheelwright & Clark, 1992; Youndt, Snell, Dean, & Lepak, 1996). It is even more surprising to learn that the alignment score of Project AUS showed the second highest value (7.23), or roughly 90%. Yet, the project was perceived as an unsuccessful project by the project team and the upper management. Part of the major reason for that project failure, as mentioned earlier, was related to the window of opportunity. The product was released when most of the market had shifted and customers were looking for a much more complex product, although the project was fully aligned with the business strategy at the beginning. This leads to a new implication that in order to ensure project performance, the project management elements (strategy, organization, process, tools, metrics, and culture) must be periodically realigned as the project progresses (the emergent approach). In other words, the project management/ business strategy alignment should be a dynamic process. In addition, this finding leads to a need for future research in the area of project management/ business strategy alignment and project success relationship.

On the other hand, I also found projects during the data collection phase that were not well-aligned with the business strategy but turned out to be successful. Those projects were initiated under special circumstances and were either regulatory projects or fulfilled immediate operational needs.

Discussion

In this study, I explained an inductive logic process—from specific to general practices—as a means to derive the propositions. The general process of developing these propositions was based on case study research, which heavily used within-case, cross-case, and content analyses. I also developed detailed propositions for Porter’s generic strategies, which I generalized into typology-free propositions.

Similarly, I used inductive logic to develop an overview describing the mediating processes at different levels. The general process was based on a case study research and used within-case and cross-case analyses. The framework resulting from this analysis explains the alignment process at the strategic level, the project level, and the corrective emergent feedback level, as well as captures the interrelationships project management and business strategy.

The framework satisfies the major characteristics for a theoretical framework, as suggested by Dubin (1978), which includes units/variables, laws of their interaction, system boundaries, and propositions.

- *Units/ variables*: The variables or units of analysis in the framework consist of two major elements: project management elements (strategy, organization, process, tools, metrics and culture) and business strategies (differentiation, cost leadership, and best-cost).
- *Laws of their interaction*: The interaction of variables in the framework can be seen as a two-way influence between project management elements and business strategy, one that is perceivable through a formal or an informal alignment process by translating business needs into project actions and using project operating conditions to more effectively deploy business strategy.
- *System boundaries*: The boundary of the framework is the organizational business units or departments supporting them. The project management/business strategy alignment occurs within this boundary.
- *Propositions*: Seven propositions of the framework are derived from the content analysis of multiple cases. The propositions explain the unique interactions of each project management element with the business strategies.

Contributions

This study expands on previous, mostly anecdotal work by incorporating a rigorous theoretical approach into the proposed framework. Although Jamieson and Morris (2004) identify strategic planning, portfolio management, and emergent approach as important steps in the alignment process, with information that supports this research, they do not provide a framework and do not position their research as a set of case studies or as a theoretical foundation for alignment. Furthermore, Turner and Simister (2000) argue, conceptually and without an empirical validation, that portfolio management is an important step in aligning projects with the business strategy. In comparison with the existing literature, the framework contributes three elements:

- *Comprehensive*: This framework includes—and relates—all levels of participants (executives, middle managers, project managers, team members, customers), different levels of management processes (strategic, tactical, operational), and variables (project management elements, business strategy). It integrates these into a coherent structured set of relationships based on propositions that describe the phenomenon of the project management/business strategy alignment in different situations.
- *Empirically established and validated*: The framework is based on a diverse set of companies and projects as well as real-world data. It also takes a multi-level view (no single-source bias) to develop a strong theoretical framework.
- *Contingent*: The framework captures different configurations of project management elements to account for specific business strategies (differentiation, cost leadership, and best-cost), and thus presents a contingency approach based on the differences.

Research Limitations

Although Eisenhardt (1989b) argues that four-to-ten cases provide a sufficient range of measure and for analytic generalizations, one major limitation in the study is the relatively small number of cases that I used to develop the framework (8 cases). This study may also suffer from a bias of company management views. However, I was able to minimize any such bias by using multiple data sources (review of related documents received from companies, the existing literature among others) and validating the findings with a panel of experts.

Future Study

The research findings and limitations suggest the following directions for future research regarding project alignment. First, the alignment measurement methodology deserves further empirical study. If that is done in a comprehensive manner, it would be possible to standardize the measurement and create a framework for comparative studies of the alignment of various business strategy types and project types. That would also enable further studies to determine the degree of alignment required under different circumstances to assure project and business success. This contingency approach should also be applied in the next study. Needed is a large sample study that focuses on the quantitative correlations of various strategy types and project management elements.

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