

Using a Social Capital Lens to Identify the Mechanisms of Top Management Commitment: A Case Study of a Technology Project

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ABSTRACT ■

The implementation of large-scale technology projects is still fraught with failures resulting in tremendous costs to organizations. One of the factors that is widely recognized as critical for achieving technology implementation success (and, for that matter, projects in general) is top management commitment. The actual mechanisms by which top management impacts project success, however, have not received much attention in the project management literature. We use a case study approach here to illustrate how social capital theory provides a useful lens for understanding how top management's actions impact project success and show how project success is strengthened by the enhancement of social capital through top management commitment. We employ causal maps to clarify, illustrate, and visualize the complex interactions between top management commitment and social capital in facilitating project success. This study contributes to the literature and theory on the mechanisms by which top management commitment influences project success by offering propositions for future research.

KEYWORDS: enterprise-wide technology; top management commitment; project success; social capital; culture; trust; norms and values

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INTRODUCTION ■

Companies continue to engage in technology implementation. Despite advances in technology, as well as project management know-how, technology implementation project failures still abound. We cite a few technology implementation failures below but many more make front-page news daily, including the very public Obamacare “go live” systems issues a few years ago in the United States. Other examples of recent technology implementation failures, as reported in *Computerworld* between 2012 and 2013, include:

1. The U. S. Air Force announced the cancellation of an enterprise resource planning (ERP) project that had already cost US\$1 billion (Thibodeau, 2013);
2. Avantor Performance Materials lodged a suit against IBM in November 2011 because of problems with the implementation of an SAP-based software system;
3. Major Brands, a beverage distributor, sued Epicor in 2013 because their ERP project was deemed useless after a two-year effort (Thibodeau, 2013); and
4. A project created to modernize case management within the California court system was scrapped even after the state had spent over US\$300 million on the software (Kanaracus, 2012).

These failures continue to occur despite the fact that the domain of knowledge on technology implementation as well as on project management continues to increase. The functionality of the technology being implemented has risen, the skills of the people involved in technology implementation projects have increased, and the technological capabilities of organizations have improved (Hardaway, Harryvan, Wang, & Goodson, 2016). Yet, we continue to see too many technology implementation project failures; thus, more detailed studies on technology implementation are required to enhance our understanding of how to implement these projects successfully.

The project management literature abounds with studies on the critical success factors (CSFs) for projects (Young & Poon, 2013; Boonstra, 2013; Shao, Feng, & Liu, 2012; Müller & Turner, 2007; Nah, Lau, & Kuang, 2001; Willcocks & Stykes, 2000; Bingi, Sharma, & Godla, 1999); however, very few studies address the *mechanisms* by which these factors influence project

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success. That is, for a critical success factor, such as “stakeholder engagement,” what are the available ways of engaging stakeholders and which work best? Or how do you “tightly control scope,” which is another critical success factor. This study focuses on the critical success factor of top management commitment during a technology implementation project. We use a case study approach employing social capital theory as a lens to focus on the specific mechanisms through which top management commitment can facilitate project success. In other words, how was top management commitment demonstrated? What did it affect? Who was impacted? And how did it change their behavior?

The study of top management commitment is important because simply “feeling committed” to a project isn’t sufficient to make the project a success. Commitment means being actively engaged with the project and project team. There are many different factors that can lead to project success and, frequently, only top management has the authority to address these factors. Although budgets and schedules are clearly issues that top management can easily deal with, the expected benefits from the project’s scope/quality is usually the most important outcome, because the benefits are the justification for funding the project in the first place. Project quality is impacted more by soft issues such as engagement, communication, coordination, rewards, and motivation; however, although these aspects are under their control and are critical to project success, they have not received much attention in project management research. If top management isn’t actively engaged with the project, these issues usually won’t reach them through the formal channels. There are, of course, as many different definitions of success in a project as there are stakeholders. In the case studied here, in addition to the business benefits, senior management also wanted the company to move away from a culture

of technology implementation failures and feel successful about a project crucial to the firm’s future.

Studies that discuss technology implementation success and the factors involved (e.g., Meredith, 1981) go back decades and, more recently, have provided explanations as to why they are important (e.g., Saade & Nijher, 2016). What are often missing, however, are the mechanisms, as noted earlier, by which the identified factors actually influence project success (Boonstra, 2013; Shao et al., 2012; Young & Poon, 2013; Sarker & Lee, 2003). This study attempts to fill part of that gap by presenting the findings from a study undertaken to understand how top management commitment enhanced an organization’s social capital to facilitate project success. We propose here that social capital is an important factor in helping understand how top management commitment influences project success.

The remainder of this article is composed of four sections. In the next section we present a literature review of the studies on top management’s impact on project success, and an overview of social capital theory and its role in technology implementation projects. In the section following we present our research method, with discussions on the case study approach, the data collection, and analysis of the data. This section is then followed by the presentation and discussion of our findings, using causal maps to illustrate the complex relationships between top management commitment, social capital, and project success; the section also includes additional contributions in the forms of propositions for future research. We end the article with our conclusions, which include a discussion of the limitations of the study and potential future avenues of research.

Literature Review and Background Theories

Top Management Commitment

As noted earlier, many studies have been conducted on the factors that impact

project management success within organizations (e.g., Young & Poon, 2013; Boonstra, 2013; Shao et al., 2012; Ifinedo & Nahar, 2006; Nah et al., 2001; Davenport, 2000; Willcocks & Stykes, 2000). Consistently, top management commitment shows up as a critical success factor in these studies. We use the term *top management commitment* to capture the various ways that engagement, involvement, oversight, influence, leadership, and support of senior management occurs in the project management environment. Top management commitment is important because top management “controls” the resources within organizations; in times of budget overruns, scope changes, unexpected delays, and other such crises, their commitment will be necessary in obtaining much needed resources. Specifically, for information technology projects, top management commitment might, for example, imply extra budgetary allocation because of the need for business process reengineering and the extra training that accompanies such projects.

Young and Poon (2013) and others (Shaul & Tauber, 2013; Young & Jordan, 2008) have noted that successful technology implementation is totally dependent on the strength and sustained commitment of top management. For example, technology implementation projects very often require some form of business process reengineering, but reengineering without the assurance of committed leadership is very likely to lead to failure because top management’s commitment influences the roles of other stakeholders and project participants (Shaul & Tauber, 2013), and thereby top management commitment’s impact on the quality of the project. Open and visible commitment of top management sends a message to other senior members of the organization on the importance of the project, thereby engendering needed action, such as budget or schedule changes from those individuals when challenges arise in the project environment

(Ifinedo & Nahar, 2006; Davenport, 1998). Without top management commitment there will be no one to persuade the senior managers running functional silos within the company to temporarily subordinate the interests of their functional areas to those of the project when difficulties arise. Top management needs to sell the rationale for the project with visible enthusiasm and by championing the project's activities in order to enhance the quality of the project outcome (Boonstra, 2013).

Studies on the implementation of enterprise-wide technology rarely offer insights beyond those expected from conventional wisdom (Young & Poon, 2013; Robey, Ross, & Boudreau, 2002). For example, several studies identify top management support, user involvement, empowered implementation teams, project planning, skills, and so on, as important factors for achieving technology implementation success (e.g., Young & Poon, 2013; Boonstra, 2013; Shao et al., 2012; Nah et al., 2001; Willcocks & Stykes, 2000; Bingi, Sharma, & Godla, 1999). At the same time, the specific mechanisms describing the application of these factors, such as top management commitment, are often lacking in the studies (Young & Poon, 2013, Boonstra, 2013; Shao et al., 2012; Sarker & Lee, 2003). Boonstra (2013) observed that the types of behavior that underlie and why top management commitment is sometimes demonstrated and at other times withdrawn—are rarely identified in project management research. In particular, it is often not clear what *type* of top management commitment contributes to project success, and *when* and *how* it is beneficial.

Furthermore, a theoretical framework for explaining the results obtained from the implementation effort is often lacking. We address these concerns by proposing social capital theory (discussed in detail in the next subsection) as a viable lens for explaining technology implementation success. We use a case study approach with causal maps in an attempt to “make sense” of how

successful technology implementation was achieved within an organization through the enhancement of social capital.

Social Capital Theory and Technology Implementation

Social capital theory provides a useful framework for conceptualizing, classifying, and drawing lessons for technology implementation. Social capital represents the set of resources embedded in the relationships among actors in an organization. It is a resource residing within an organization that reflects the nature of social relations within the organization (Adler & Kwon, 2002; Bolino, Turnley, & Bloodgood, 2002; Putnam, 1993). Social capital provides the opportunity to reduce time spent gathering information, facilitates information flows, enhances knowledge creation and exploitation (Burt, 2000; Lin, 2001; Nahapiet & Ghoshal, 1998), and improves creativity (Perry-Smith & Shalley, 2003). Specifically, social capital enables individuals to gain access to information and skills that build up the human capital within the organization, which then enhances the knowledge creation and transfer facilitated by the relationships; this ultimately contributes to enhanced organizational performance, such as success in innovative activities and project implementation (Mehta, 2014; Haas, 2006; Earl, 2001; Grover & Davenport, 2001). Social capital in combination with project leadership behavior builds trust among project participants, which then leads to project success. Tansley and Newell, (2007) observed that the manner in which project leadership confronts and addresses technology implementation challenges contributes to the building and use of social capital, which then influences project success.

The application of social capital theory as a lens in project management research is not new, although the volume of research in this area is light (Tansley & Newell, 2007). In a review of published studies in key operations

management journals, Matthews and Marzec (2012) identified project management as one of the key research themes that have been addressed using social capital theory. These researchers observed that the gradual accumulation of social capital within organizations could lead to organizational-level transformations in the form of a continuous improvement culture, thereby building up the confidence levels of teams and enabling them to execute projects successfully. As they note, “the accumulation of social capital facilitates the cognitive and behavioral changes necessary for the adoption of new approaches” (p. 7090) to technology implementation. Similarly, Shao et al. (2012) noted that the transformative behaviors of project leaders can help contribute to project success when leaders are able to convince others within the organization to adopt the organization's goals as their own.

Social capital influences the development of intellectual capital by facilitating the conditions necessary for relationship building, and the exchange and combination of ideas and adherence to collective norms and values within organizations (Robert, Dennis, & Ahuja, 2008; Yli-Renko, Autio, & Sapeinza, 2001; World Business Council for Sustainable Development [WBCSD], 2009). Strong interactions among project participants also increases the beliefs about the usefulness of the projects they are engaged in and helps sets expectations about their (team members) behaviors in the project environment (Tansley & Newell, 2007).

Several different classifications of social capital exist in the literature; our focus, however, is on the impact of individual elements of social capital regardless of how they might be categorized in the literature. The elements of interest include relationships, trust, norms and shared values, culture, and their impact on organizational outcomes, specifically project management success. Social capital theory postulates that networking relationships among

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actors provide value through the opportunity to tap into resources embedded in those relationships (Mehta, 2014; Weber & Weber, 2010; Lin, 2001).

Norms and values refer to what people feel, having a sense of shared vision and shared representations, interpretations, and systems of meaning among groups (Harpham, 2008). Norms and shared values permit cooperation among groups and the strengthening of relationships (Nahapiet & Ghoshal, 1998). Team members who share the same vision about the aspirations and goals of a project are likely to give their best efforts toward the attainment of those goals.

Trust refers to the extent to which individuals think others within the community can be consistently relied upon. In a project management environment, the degree of trust imbued in the relationships among employees assures employees that all project-related decisions will be made in the best interests of the company. The high levels of trust will influence team members' actions, and team members will then be willing to take risks because they are assured their colleagues will trust their actions and intuition. In fact, trust appears to be the core of social capital phenomena (van Schaik, 2002; Kale, Singh, & Perlmutter, 2000).

Within project environments, the relationships and interactions among team members enable them to tap into others' human capital resources and thus increase the efficiency and depth of knowledge exchange among group members, eventually leading to the attainment of project goals (Weber & Weber, 2010). Collectively, the shared norms and values, as well as the confidence and reciprocity that are elements of the trust developed among members of an organization, can enhance the relationships among actors in project environments, which result in project success.

The last element of social capital to investigate is organizational culture. It has been suggested that the manner

in which people relate to each other, the mechanisms in place for stakeholder engagement, and the culture around joint responsibility and accountability significantly impact project success (Williams, 2016). Thus, we investigate how the prevalent culture among project team members interacts with top management commitment to impact project success.

To summarize, we have argued that top management commitment is important for project management success (Saade & Nijher, 2016; Young & Poon, 2013; Boonstra, 2013). The question of interest is whether top management commitment enhances the components of social capital, such as trust, relationships, culture, and norms and values, and thereby leads to the adherence to collective goals of the project. These questions are important because, as noted by several researchers (Young & Poon, 2013; Boonstra, 2013; Shao et al., 2012; Tansley & Newell, 2007), the mechanisms by which top management commitment impacts project success are not fully understood and require more research investigation. This use of social capital theory is built on social capital's ability to explain the behavior of individuals (and organizations) during technology implementation (Matthews & Marzec, 2012; Bolino et al., 2002).

Methodology

Case Study Approach

We used a case study approach to help understand the factors that contributed to the "successful" implementation of an enterprise-wide information technology system in a company. A case study is a useful approach for examining "why and "how" questions related to a phenomenon of interest (Yin, 1994; Meredith, 1998; McCutcheon & Meredith, 1993). In other words, why was the implementation successful and how did it happen? The case study approach allows researchers to delve deeper into the phenomena of interest, especially if unexpected results

are obtained initially from the study. Although this was an information technology project, we believe that our managerial findings can apply more broadly to other large, complex projects also. Examples of the use of the case study approach are common in the literature on technology implementation projects (e.g., Saade & Nijher, 2016; McLeod, Carpenter, & Clark, 2008; Lu, Huang, & Heng, 2006; Sarker & Lee, 2003). As an example, Saade and Nijher (2016) provide a comprehensive review of 37 case studies on ERP implementation across multiple countries, organizations, and industries to identify and categorize the different critical success factors for ERP implementation. The case study approach allowed researchers to capture the practical experiences of managers during the implementation of the technology.

Case studies also allow researchers to examine questions of interest within real settings. The case study design used here falls within Yin's (1994) typology as a single-case design with embedded analysis. Our goal is to examine how top management commitment manifested itself during a technology implementation project and contributed to the successful execution of the project. Consistent with the guidelines for performing case studies, we not only provide rich descriptive analysis of the implementation process, but we also use causal maps to illustrate how elements of top management commitment interact with the social capital present in the project environment and contribute to project success. For managers, the causal maps could serve as a tool for organizational readiness assessments prior to commencing projects. Last, we also provide some propositions for future research and thereby contribute to the building of theory on project management.

Data Collection

The company that was the basis for this study will be referred to as 'Green Skies' and the corresponding technology

Item	Green Skies
Industry Type	Energy
Size	Over 5,000 employees
Regional spread	Eight states in the United States
Revenues (2013)	Over US\$4 billion

Table 1: Company profile.

implemented as BRC. The unit of analysis for this study is the organization that was created to implement a specific three-year technology project at Green Skies. This study is aimed at an attempt to understand how the changes driven by top management commitment affected project execution and outcomes. As noted later in this article, data were collected mostly through interviews with senior-level employees. The analysis therefore is based on the aggregate perspectives (experiences) of the interviewees who, as shown later, are deemed to be very qualified informants. Confidentiality agreements with the organization do not permit the use of the actual company name or revealing other information that could jeopardize the company's operations. Green Skies is a natural gas energy company in the United States, with about

5,000 employees, and serves many millions of customers spread out over eight states. Table 1 provides a summary of the company profile.

The company began the implementation of an enterprise-wide technology with a planned horizon from October 2010 to April 2013 and an anticipated project completion duration of about 30 months. A copy of the project timeline provided to the researchers is shown in Figure 1. The diagram also shows that the project methodology used followed the traditional systems development life cycle approach. BRC was essentially an SAP-based platform technology with four major components: customer information system, scheduling, customer self-service, and business intelligence. The specific business processes to be performed within the system following the completion of the implementation included customer interactions, billing and rate configuration, payments and collections, marketing reports, financial reports, a general ledger, and taxes.

The system went live in April 2013, but some components were intentionally delayed until September 2013. One of the first structural aspects of the project was the setting up of a "Process Council" headed by the Vice President

of Customer Service (a business unit) and the Chief Information Officer (and Senior Vice President of Information Technology). The two individuals jointly led the entire project and, together with a "Steering Committee" provided oversight for the project.

This report is based on a series of interviews of senior members of the organization and project team members, which was carried out by the researchers using face-to-face and follow-up telephone interviews, and the examination of internal documents provided to the researchers. The researchers became aware of the opportunity to conduct research at Green Skies through discussions with the senior vice president for information technology at the company. As detailed later, the organization had been plagued with past project failures and the senior vice president was interested in knowing, what if any, was different with the current project and what lessons could be drawn from the project. The face-to-face interviews were conducted over a two-day period in February 2014. As noted above, project completion occurred in September 2013, so the occurrence of the interviews in February 2014 verifies that the experiences of the participants were still fresh

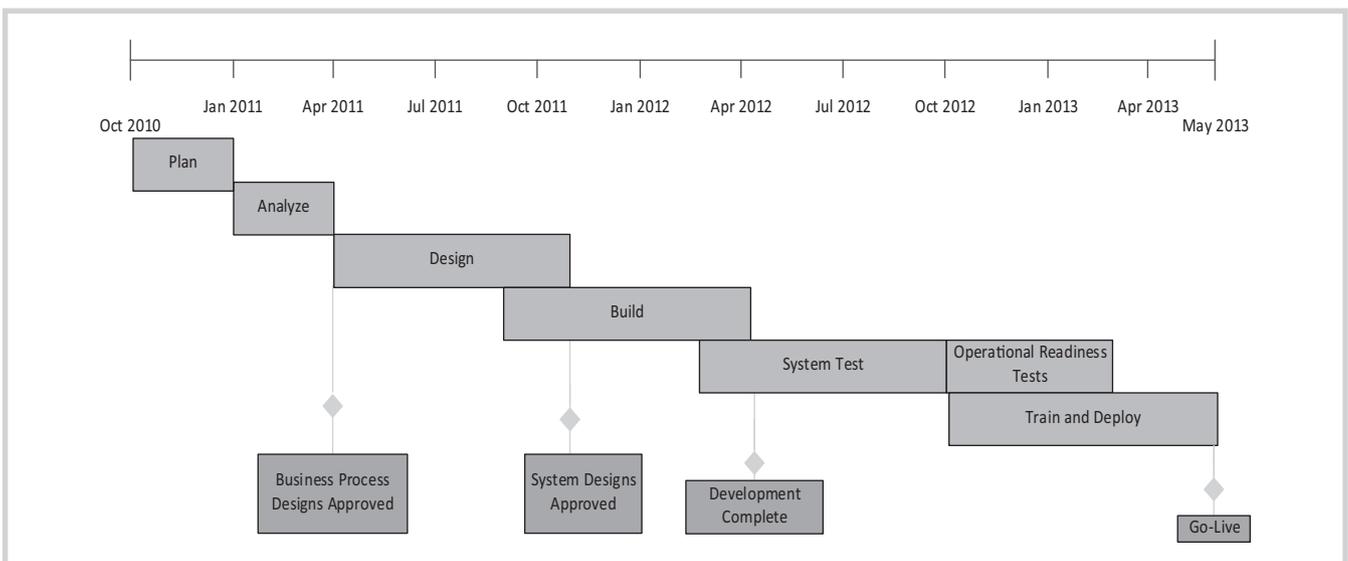


Figure 1: Project timeline.

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in their minds. The interviews were done primarily by one of the researchers at the company's corporate offices with a second researcher participating by telephone. Given the high executive level of most of the interviewees and the need for discrete handling of personal executive and staff comments, a recorder was dispensed with during the interviews and all responses were noted by hand by the two researchers. All interviewing was conducted in one dedicated empty office in order to minimize distractions, which might have occurred if the interviewees had stayed in their offices. Each interview lasted about one hour. The interviewing questions were open-ended, evolving as the interview progressed, although an initial set of questions was shared with the interviewees. Some of the interviewees came to the interview with additional project documents.

Coding of Data

In all, 11 individuals were interviewed. As noted above, the company was not comfortable with the interviews being audio-recorded, so handwritten notes of the interviews were used to reconstruct the interactions that occurred during the project. We stopped adding interviewees when "saturation" had been reached with the answers that were being provided by the earlier respondents. We used several steps in coding the data obtained from the interviews as well as the data from company documents. All the interview notes were transcribed first into a Word document, which was then loaded into an NVivo 11 software program. The first step was descriptive coding, which involved coding demographic and other information on the interviewees, including gender, number of years with the company, functional roles, and project roles (Richards, 2009). Additional aspects of the coding are discussed in later sections.

The selected interviewees came from two main groups within the organization: the Information Technology group and the Business Services unit. The functional roles of the interviewees

are listed in Table 2. The roles played on the BRC project by the interview participants included serving as team leaders, membership on a steering committee, membership on the Process Council, project lead, application development, and supervisor.

The next coding step was identification of the 75 words most frequently used during the interviews. The frequency of each word and the source of the word were captured from the coding process. A word tree diagram produced by NVivo is shown in Figure 2 and provides an overview of the different words and frequency of use (as shown by the size) in the interview data.

We used the software to create nodes of keywords, such as management, culture, and change. Queries were then run on the nodes to construct tree diagrams of the nodes. The tree diagrams provided the source of the word, the context in which the word was used, and the outcomes or effects. An example of a tree diagram constructed for "culture" is shown in Figure 3. For example, culture was a result of the five principles at Green Skies and it influenced how people treated each other, how they communicated, and how they worked together as a team. The outputs from the coding process were then used as inputs to the construction of the causal maps described later in this article.

Results and Discussion

Justification and Business Case for the Project

Two broad goals were established by Green Skies for the BRC project: customer benefit and company benefit. The customer benefit included consistent, efficient, convenient, and responsive customer service. Consistent and efficient customer service meant that customer experience processes were to be standardized across all divisions, a centralized service dispatching process implemented, with centralized exception processing and account adjustments, and actionable measures of performance. The convenient and

- Director of IT Common Services
- Director of Customer Revenue Management
- Vice President of Customer Service
- Director of Enterprise Architecture
- Chief Information Officer
- Director Customer Service System
- Manager of Dispatch Systems
- Supervisor of Customer Operations
- Dispatch Systems Analyst
- Vice President and Controller
- Director of Business Process and Change Management
- Director of Corporate IT Systems

Table 2: Functional roles of interviewees.

responsive customer service implied shortened appointment windows for customers, short hold times in contact centers, robust self-service options for customers (including enhanced mobile applications), and the timely resolution of customer requests and issues.

In terms of the customer benefits, the system was expected to help reduce, eliminate, and automate work in the back office. The improved customer service was ultimately expected to bring in more customers and improve earnings per share. Last, the company expected to gain flexibilities with regard to operations and efficient scheduling of service appointments, while driving customers toward self-service for simple transactions.

All interviewees were of the opinion that the project was a success. This assertion was supported with internal documents, which showed the attainment of goals consistent with that assertion. Among the performance indicators was the service level at the call centers, which however, as expected, declined when the system first went live, quickly rebounded within a month, and continued to rise throughout the time of the study. Energy regulators were also very "pleased" with the customer service levels that were being attained. Billing accuracy had improved and this helped avoid potential customer problems. The percentage change in weekly

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Importance of project not adequately recognized
Technology implementations were deemed to belong to the IT department
Not much direct engagement between the IT staff and the operational staff; people involvement was frequently lacking
Rushed implementations
Units allowed to operate their own legacy systems
Pre- and post-implementation training decentralized; no collective sharing of knowledge

Table 3: Previous technology implementation characteristics.

call volume at the contact centers had been on a steady decline since “go-live,” implying that customers were indeed using the self-help systems. The result of this was cost efficiencies from the ramping down of personnel in the customer service organization.

It was not possible to assess the impact on earnings per share and other market and financial performance measures this early after implementation, but the company appeared to be satisfied with the attainment of revenue management targets as at the time of the study. Thus, collectively the project success dimensions described above and those to be discussed later highlight the multi-dimensionality of project outcomes. The project outcomes capture both project management success and the success of the project output, thereby providing evidence of “project success” (Williams, 2016; Thomas & Fernández, 2008).

History of Implementations

As a backdrop to understanding the successful implementation of BRC, we first discuss the history of previous implementations at Green Skies so as to allow the proper juxtaposition of the BRC implementation. The average tenure at the company of the interviewees was over 13 years, with a range of 3 to 34 years; most had been participants of previous implementations at Green Skies. The most recent implementation (prior to BRC) was a legacy customer information system, which was characterized as “bad” by several interviewees. One of the reasons for that

implementation being referred to as “bad” was that some units in the company preferred to use earlier systems, which had been in place prior to the implementation of the legacy computer information system. Another reason was that a subcontractor “who did not want to let things go” was used, creating problems with ownership and responsibility. Table 3 captures some of their characterizations of previous technology implementations as stated in the interviews.

The “history” of those implementations resided in the memory of employees as well as the organization’s board members. Some of the language used to characterize that memory were phrases and questions, such as: “We remember when IT did implementations.” “Can senior management be trusted?” “Will this be the same as others?” “Are we going to relive the ‘pains from old projects’?”

The Verdict on the BRC Project

As mentioned earlier the perspective of everyone interviewed was that the project was “successful.” Most of the performance goals were being achieved and those not achieved were because they had been purposely delayed. The project completion time was intentionally extended by top management so as not to coincide with the peak season for energy demand from customers and the willingness of Green Skies to set aside a large sum of money to adjust for any revenue losses from billing delays. The basis for the “successful” verdict includes the general acceptance of the system, workers pleased with

the system, and the enhanced operational ability of the Call Center. Other factors contributing to success include the external confirmation by other companies who wanted to know how Green Skies achieved its success, and referrals by consultants at other companies involved in similar implementations to Green Skies. Last, there was a commitment to institutionalize the processes used for this project such that all future projects would follow the same processes and procedures.

The success of the project thus included both the traditional and mostly short-term focus on on-time completion and adherence to the budget as well as the long-term strategic perspectives of project success, such as learning and development, enhanced culture, and stakeholder satisfaction (Basten & Pankratz, 2015). We expound further on the project success evidence by relating it to the business case made for the project in the following discussion.

Traditional Perspective on Why the Project was Successful

The examination of internal project documents as well as conversations with the interviewees point to the items listed in Table 4 as contributory factors to successful implementation. The items listed in Table 4 are not much different from the traditional project implementation success factors that abound in the literature and were discussed earlier in this article (Saade & Nijher, 2016). And, in fact, this is the traditional perspective of explaining successful project implementation; however, as the interviews progressed it became more and more evident that the factors listed in Table 4 had also been present in previous implementations, yet those implementations had been described as unsuccessful. For this project, though, there were consistent references to words and phrases, including “project leadership,” “trust,” “our values,” “our culture;” “friendships,” “reciprocity,” “partnerships,” and so on, which intrigued the researchers.

- Top management support
- Clearly defined vision and identification of specific business outcomes
- Strong business case with support from the operations unit
- Careful selection of enterprise-wide software and systems integrator
- Deliberate focus on top-level processes coupled with minimization of process changes
- A healthy cultural environment
- Very tight scope control
- A focus on operating the business after go-live
- Effective use of change management in the forms of training, communication, stakeholder engagement, and testing
- Use of a standardized process for project management
- Long, iterative test cycle

Table 4: Key success factors.

It became obvious that the underlying themes uniting all the success factors was top management commitment and enhanced social capital. Thus, our goal here is to provide an enriched explanation on how and why these factors contributed to the success of the project using top management commitment and its interactions with the social capital in the environment as a lens to understanding project success.

Alternate Explanation of Success Based on Top Management Commitment and Social Capital

Although there are several studies on technology implementation projects and their success factors, the complexity associated with achieving successful implementation, and even the fact that it is not always clear as to what constitutes success, imply that additional studies are important because of the need to explain contradictory findings on technology implementation (Ko, 2014; Thomas & Fernández, 2008). Further, there is the need to consider alternative theoretical foundations when trying to understand the critical success factors associated with technology implementation projects (Shao et al., 2012; Ackermann & Alexander, 2016).

The questions that we are seeking to address are: What accounts for a successful implementation within an organization that essentially uses the same workers and the same leadership after a series of unsuccessful

implementations? And, more importantly: What is the mechanism by which top management commitment influences project success? It is important to note that this study is not about enterprise technology, nor is about all the critical success factors for enterprise technology implementation. It is about recognizing the importance of “soft” factors, such as top management visibility and support, trust, culture, relationships, and social issues in achieving technology implementation success (Ackermann & Alexander, 2016).

We propose that social capital provides an insightful framework for understanding how top management commitment contributes to project success (Williams, 2016). Several different types of social capital are discussed in the literature; however, in order not to lose the intent of our focus, we move away from a discussion based on categorization of social capital and rather examine the impact of the individual elements of social capital, regardless of how they might be categorized in the literature. Our focus is thus on the social capital elements of relationships, trust, norms and shared values, culture, and their impact on project success.

Causal Mapping

Our exposition of the interactions between top management commitment and social capital is based on the use of the causal mapping approach to identify the root causes of project success

factors and to help clarify, illustrate, and visualize the interplay between top management decisions and actions and these various social capital elements. Causal maps are directed graphs in which the nodes of the graph capture statements of situations, and the branches of the graph represent causal links or relationships. They allow researchers to capture, explore, and provide explanations of qualitative data in project environments (Ackerman & Alexander, 2016).

Williams (2016) describes causal maps as plots of “what caused what, and how these causal chains and combinations led to project success” (p. 98). Although causal maps have been discussed in other studies on project management (e.g., Ackerman & Alexander, 2016; Edkins, Kurul, Maytorena-Sanchez, & Rintala, 2007), we borrow liberally from the implementation of causal maps presented in Williams (2016).

Causal maps allow us to illustrate the interactions between success factors and also show their impact on multiple project management success dimensions. They facilitate the visualization of complex issues within project environments and provide simplified graphical information to interested parties (Edkins et al., 2007), thus enabling the construction of mental models that help enhance the understanding of intangible factors that foster project management success (Ackerman & Alexander, 2016).

We use causal maps based on the coding of the data collected from interviews of project leaders, project team members, and company executives in a retrospective manner to explain how project success occurred within the organization (Ackermann & Alexander, 2016). For clarity, however, we refrain from illustrating all the details from the relationships in our causal maps so as not to make the maps overly cluttered and confusing.

Top Management Commitment and Social Capital

The importance of top management support and commitment in project

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environments is well documented (Saade & Nijher, 2016; Young & Poon, 2013; Nixon, Harrington, & Parker, 2012; Young & Jordan, 2008). However, what is not fully understood are the mechanisms by which commitment is to be “demonstrated” within the project environment (Williams, 2016; Young & Poon, 2013; Boonstra, 2013; Shao et al., 2012; Sarker & Lee, 2003). Top management commitment and support are always important in project environments, because top management controls the resources and will often be called upon to make tough decisions on budgets, deadlines, and scope/performance when things do not go as planned.

Top management commitment is much more than a chief executive officer (CEO) giving his or her “blessing” to a particular project or stating that

“my door is always open.” Commitment also implies that they are willing to spend significant amounts of time serving on steering or executive committees overseeing the implementation team and be visible in the project environment. Consistent with past literature (Saade & Nijher, 2016; Young & Poon, 2013; Young & Jordan 2008), we suggest that top management commitment is the central point of influence of the many factors that affect project success and therefore we use top management commitment as the driver in our causal maps.

Figure 4 shows the causal relationships suggested from the analysis of the data gathered for this study. The impact of top management commitment for the project was demonstrated at the company hierarchy starting with the CEO who, along with the Executive

Committee, declared that the project was not only going to be different from the failed implementations of the past but was also going to “erase the memory of failed implementations,” as illustrated in the top left-hand side of Figure 4. They also set expectations on ownership by making it known that the company, not the information technology department, “owned the project,” as seen in the top right-hand of Figure 4.

Also, it was emphasized that this was a “business transformation project,” not “a systems project.” Past projects at Green Skies had usually been considered “information technology” projects. While this implied that business units ceded ownership for the project to the IT department, the IT personnel often felt that they were going to be blamed for any subsequent failures associated with the project. Thus, the

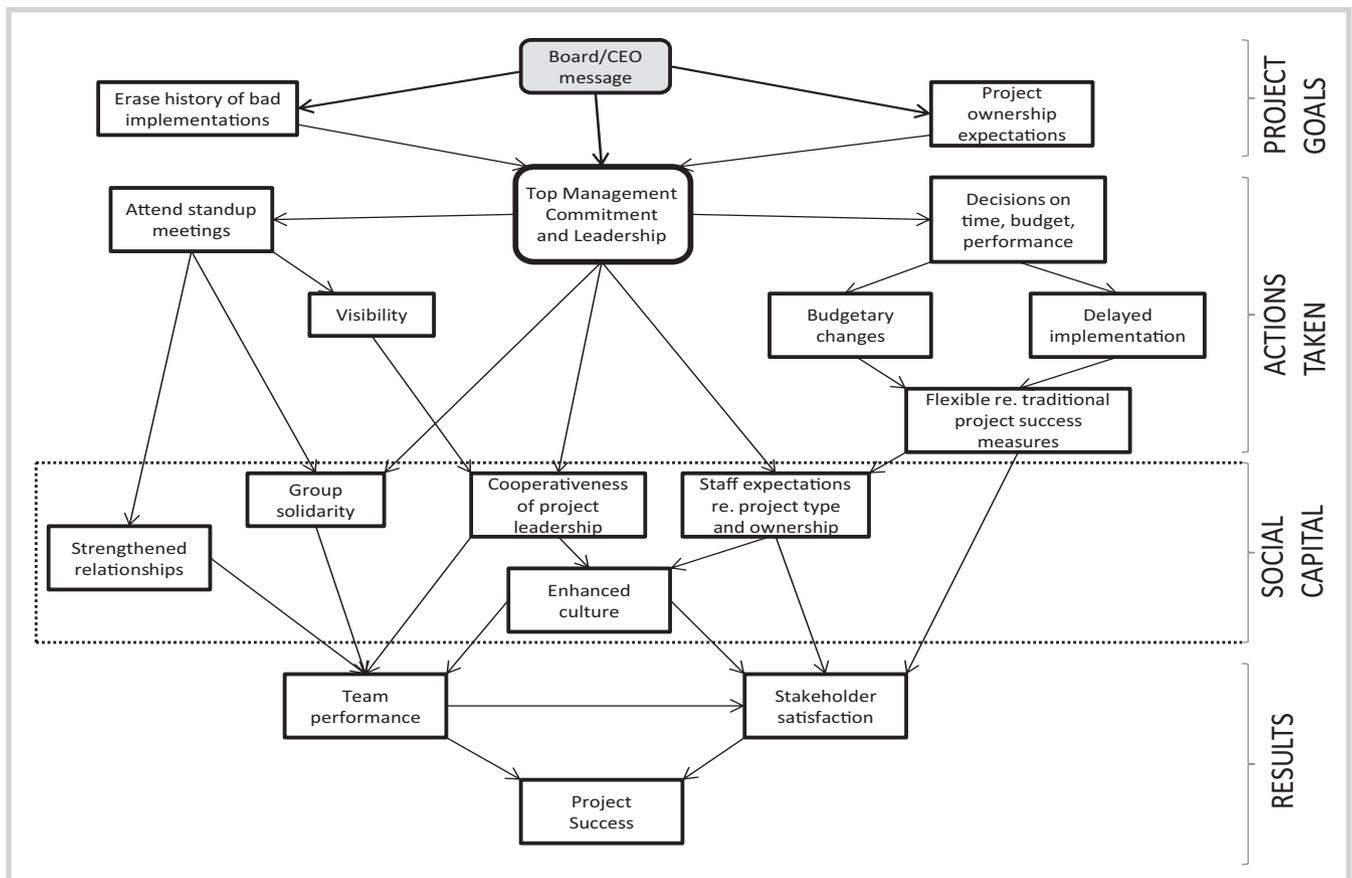


Figure 4: Top management commitment causal map.

open declaration that this was a “business transformation” project implied an attempt to build group solidarity, enhance the quality of the relationships among project participants, and develop a sense of ownership, as illustrated in Figure 4 by the arrows between the Top Management Commitment box and the Staff Expectations box to the lower right. One respondent referred to this as “our partnership was 50/50 from start to finish.” Another respondent noted: “I feel pretty confident that every single employee was well aware of this project and how important it was to the success of the company.” Thus, top management commitment contributed to the new expectations about this project.

At Green Skies, it became evident that top management was fully behind the project when budgetary changes were approved ahead of time (“Decisions” box to the right and “Budgetary” box below it on the left in Figure 4), and delayed implementation (“Delayed” box below right) of some components were approved even though those delays could potentially lead to cost escalation (“Flexible regarding Traditional” box further below). For example, there was a deliberate decision to delay implementation of some software components such as billing, which meant delinquent bill collection would be delayed but that provided a benefit to the community, since utility bills were usually very high in the summer and some consumers found it hard to keep up. This significantly increased the stakeholders’ satisfaction (“Stakeholder” box bottom right). In fact, it is worthy to note that even with this delay, the billing blackout period was substantially less than with other previous technology implementations.

Moving to the left of the map, the presence of top management at “stand-up” weekly project meetings (“Attend” box) was evidence of their commitment to spending significant amounts of time speaking to the teams and reiterating the significance of the success of the

project to the overall success of the company. Many large-scale technology implementation projects require at least a two-year process and hence many changes occur along the way with many new employees entering the project team during that period. Thus, top management commitment cannot be confined to the initial justification or limited to the conception of the project but should be ongoing and unwavering, enhancing team performance and project success. This led to greater “visibility,” “group solidarity,” and “strengthened relationships,” which in turn enhanced “cooperativeness” and “social capital.”

One additional example beyond the high visibility of the CEO and other top managers was the clear partnership and cross-support between the chief information officer (CIO) and the VP (“cooperativeness” box), who jointly led the entire project. These two individuals ensured a consistent message was always communicated within the organization about the project. The level of cooperation among the two senior leaders was evident throughout the organization. They “respected” each other, “trusted” each other, and “spoke with the same voice.” The consistency of the messages that came out was very important. This visible level of cooperation and shared commitment trickled down throughout the entire project organization structure and led to a winning attitude and strengthening commitments among project participants. It also strengthened the relationships among other levels of the project organization, enhanced the culture (“enhanced” box) and “social capital,” and further contributed to “team performance,” “stakeholder satisfaction,” and overall project management success. The findings illuminated here are consistent with studies that suggest that lower level team members (or employees) are likely to be more truthful when they attribute high quality to the information received from superiors, and also when they think management is

being truthful with them (Keil, Smith, Iacovou, & Thompson, 2014).

Expanding on the Social Capital Elements

Figure 5 further illustrates the social capital elements, which emerged from the top management commitment and leadership outcomes depicted in Figure 4. That is, Figure 5 provides additional details on the role of social capital in the top management commitment—project success phenomenon. The top management commitment and the acceptance that this was a joint business transformation project (as opposed to an IT project) brought groups of individuals together, which resulted in the formation of both formal and informal networks of relationships, and interactions among and between different levels of employees at Greens Skies, contributing to enhanced social capital in the project environment. This is illustrated in Figure 5, with the arrows connecting boxes representing those three items to the social capital box. Social capital represents the opportunity to gain access to resources as a result of the network of relationships between individuals and groups of people or organizations. Four elements of social capital were at play in the project environment: trust, norms, shared values, and culture.

As noted earlier, trust is the expectation that team members will act with integrity and do so in a reliable manner. Trust facilitates inter-unit resource exchange, leading to enhanced organizational performance in the form of project management success. The absence of trust will endanger the accuracy of any knowledge exchanged and exploited among project team members. For example, top management pronouncements about “why a project is needed,” “why now,” “why the high cost,” and “why the high buy” would have been lost without the existence of trust within the environment, especially given the history of implementation failures. Team members’ beliefs about the truthfulness of top management helps build and strengthen the

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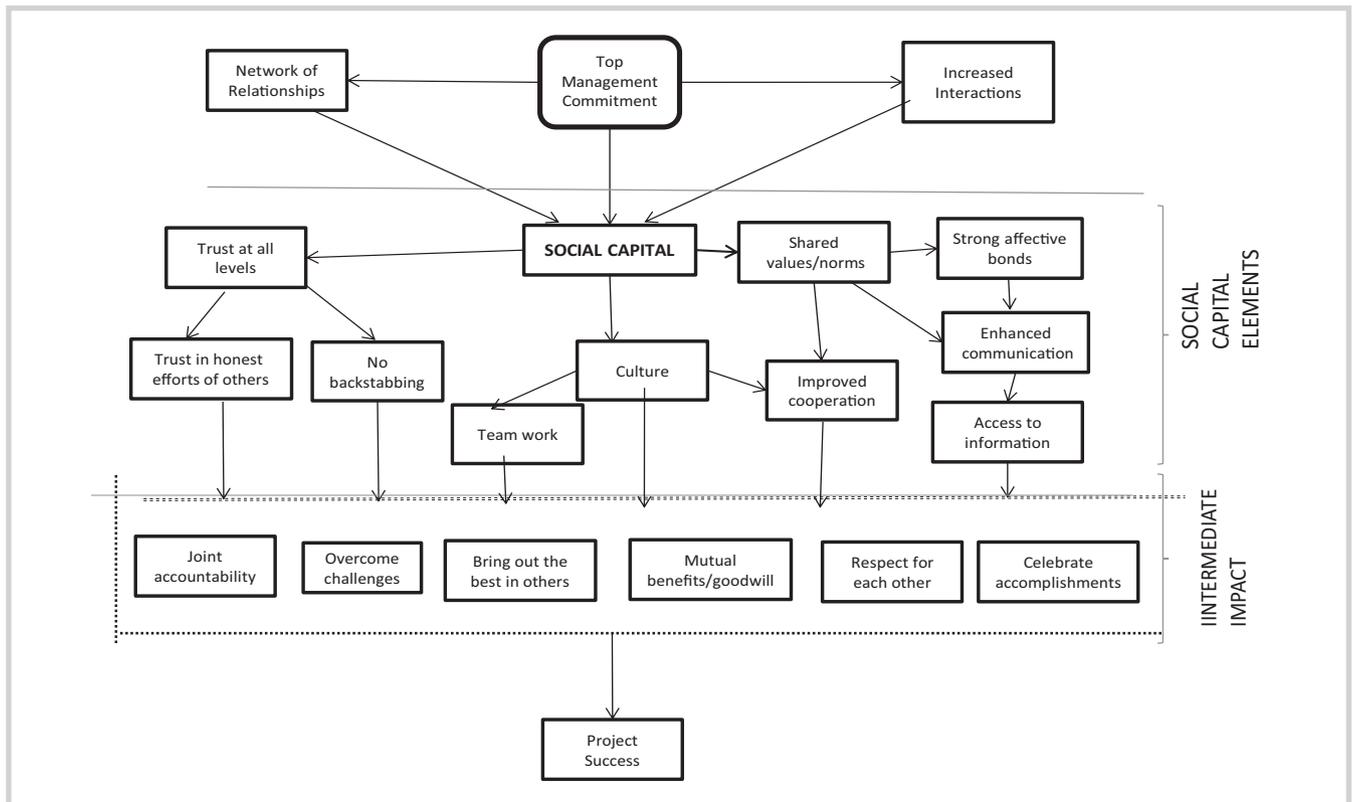


Figure 5: Causal map of social capital elements.

social capital in the project environment. Also, the willingness to develop new “friendships” and strengthen existing ones led to the development of trusting relationships, which were evident when interviewees used phrases such as “people was a success factor,” we had “dedicated people,” and “great dedicated and committed IT folks.” The enhanced trust also removed negative behaviors, as evident from interviewees’ frequent reference to “no backstabbing.” It also led to positive attitudes such as “belief in the honest efforts of others,” “be at my best,” and “bring out the best in others,” which contributed to project success. These relationships are depicted on the left-hand side of Figure 5.

On the right-hand side of Figure 5 we indicate the contribution of shared values and norms. The strong values and norms of behaviors shared among team members facilitated the cooperation among groups and the further

strengthening of relationships as described previously. Shared norms and values improve communication and collective actions and cooperation among project participants. At Green Skies, the shared values about the project and the buy-in to the collective norms provided opportunities for the groups to access information, knowledge, and resources extant in their social networks (Fukuyama, 1995; Maurer & Ebers, 2006). These informal values were demonstrated and actionable in many of the characteristics described by the interviewees. The overarching principles that were defined as the shared values and norms for the company included a focus on individual excellence, team support, attainment of mutual benefits, and a focus on the success of the project.

We depict the interactions between the other social elements of the project culture in the middle section of Figure 5. Project culture is part of social capital

because it reflects the belief systems, shared values, and norms that shape the patterns of behavior within project teams (Kummer & Schmiedel, 2016; Shao et al., 2012). There existed a culture of respect, cooperation, goodwill, and support within the project environment. One of the comments made was: “we care about each other and want the best for the company.” More than one interviewee noted that “culture really matters when things get difficult—falling behind, missing deadlines,” and so forth. In those situations, there was the willingness to “stop the project, get people out of offices, celebrate the successes so far, and identify/discuss how to move forward.” The cultural principles guided the actions, efforts, and support for the project. This concept of enhanced culture was demonstrated by most of the interviewees in the way they described “the Green Skies culture.” Interviewees consistently used

phrases such as “Green Skies culture,” “Green Skies spirit,” and “healthy culture” to describe the prevalence of affective bonds and shared emotions and “honest and open” communication exhibited in the project environment. “We know our culture” was a common theme mentioned by the interviewees.

Thus, it was evident that team member behaviors on the project and their suggestions, questions, and contributions were not perceived negatively in a manner that suggested trying to “one-up” other team members. The presence of “goodwill” was evident to all project participants and other constituents. These interactions among the different elements of social capital and their contributions to project success are captured in the bottom half of Figure 5. The insights evident from Figure 5 are consistent with the findings of others in the literature regarding the interactive effects of top management commitment, organizational culture, and social capital on project success. For example, Shao et al. (2012) suggested that top management commitment, which might manifest itself in the form of leadership behaviors has an indirect impact on project success through the mediating effects of organizational culture and knowledge sharing. Similarly, Tansley and Newell (2007) observed that the presence of and enhancement of social capital in the form of trust building behaviors (left side of Figure 5) strengthen the impact of top management commitment on project success (Tansley & Newell, 2007). And Keil et al. (2014) recommend increased interactions between project leaders and other senior-level employees in order to reduce any tendency for inaccurate reporting of project status information situations when a project sponsor is also made the executive overseer of the project.

As stated earlier, the primary goal of this study was to identify how the mechanisms of top management commitment influence project success in terms of the *type*, *when*, and *how* this commitment was exercised. We thus

offer the following propositions based on the above discussion.

Proposition 1: The type of top management commitment that leads to project success is active engagement with the project (e.g., participation on steering committees, visibility in the project environment), rather than passive engagement (budget increases, deadline extensions).

Proposition 2: The major occasions when top management commitment is most effective is when project decisions are urgently needed, when setting clear expectations on project ownership, and during critical project team meetings.

Proposition 3: Top management commitment influences project success through the enhancement of social capital in the forms of shared values and norms, respect, trust, consistent communication, joint accountability, cooperation, and general goodwill.

Conclusions

Researchers have suggested knowledge management and governance as parts of the mechanisms by which top management leadership influences project success (Shao et al., 2012). Our findings from this case study allow us to suggest that social capital should also be recognized as a significant mechanism by which top management commitment influences project success. The visible demonstration of support and importance of an initiative to the business must be sustained over an extended period of time by the highest level of executives, in order to sustain the high levels of effort required in technology implementation projects. What is important is how the demonstration of top management commitment facilitates the building of social capital in the forms of trust, respect, culture, norms, values, and friendships within the project environment (Van Schaik, 2002). As expected from social capital theory, high levels of trust between organizational leaders and members will permit the transfer of sensitive information, which is unavailable to those beyond the boundaries

of those relationships. In this study, we found that the presence of social capital and its facilitation through top management commitment enabled the project team members to enhance their capabilities within the project environment while simultaneously allowing them to hold on to the core Green Skies cultural values (Kale et al., 2000).

This investigation also lends credible evidence of the critical dimension of social capital that cannot be achieved by a project team alone. A long history of relationships existed among many of the project participants at Green Skies, as exemplified by their average tenure of ten-plus years. The depth of the relationships is key here. It does not appear, however, that, by themselves, these relationships contributed to project success as noted by the history of implementation failures in the organization with many of the same participants. The perceived value attributed to the project and the message that is delivered by top management is very important. Without the “collective goals and business future understanding” there is little imperative to work as a team on an interrelated project in an environment characterized by significant challenges and substantial additional work.

An important point here is that the reverse is perhaps not possible. The components required for successful strategy and implementation cannot bubble up from the project team. Shared vision, norms, and values as well as trust among participants must be initiated, built up, and emphasized at the highest levels of the organization; they will not flow easily from project groups to top management. In other words, while top management commitment is expected to have a significant impact on social capital and project team culture, social capital and team culture cannot be expected to flow uphill and influence top management commitment. This is a significant contribution of this study. Managers engage in leadership and development activities in order to build up their own (individual) human capital, but those development

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activities rarely include a focus on social capital. Thus, consistent with the arguments of McCallum and O'Connell (2009), we suggest that skills that focus on the enhancement of social capital within organizations should be part of the training for leadership development.

These findings go beyond previous studies to evaluate the different aspects of social capital and its importance during technology implementation. A healthy culture, embedded within the social capital, drives the right behaviors, does not assign blame, and helps to overcome challenges prevalent in project environments. These, combined with the demonstrated commitment of top management, contribute to project success in the forms of business value and stakeholder satisfaction.

Many articles have indicated that top management commitment is required for project success. The findings presented here go far beyond that by identifying specific and direct activities, the mechanisms leading to successful project implementation. Simply stating that top management commitment is important without the details of specific activities that exhibit top management commitment is insufficient to assist organizations in putting together a winning strategy for project success. The importance of top management support and commitment was exemplified by their visible declaration of the need for the project, the provision of resources, the addressing of conflicts, and the careful management of change (Saade & Nijher, 2016). However, our study is among the few that have used social capital theory to explain how the top management role influences project success. We have demonstrated that top management commitment is important because it strengthens relationships, contributes to trust, and facilitates the adherence to shared norms and values and project culture (Keil et al., 2014; Shao et al., 2012; Tansley & Newell, 2007). We also suggest that these social capital elements enhance the probability of achieving project success.

Technology implementation projects occur in environments of uncertainty. Moreover, the loss of knowledge associated with legacy systems that are being replaced by new technology increases the resistance to change. In such environments, we suggest managers can tap into the interactions inherent within the social capital present in the project environment and the affective bonds between project team members as a way of reducing the anxieties associated with this uncertainty, thus reducing the resistance to change (Krackhardt, 1992). The development of a set of beliefs within the organization that a particular project matters to the future of the company (through a common set of goals) and the reinforcement of such beliefs through frequent and consistent communication throughout the organization are important in achieving project success (Tansley & Newell, 2007).

This article also makes additional contributions through the use of causal maps to illustrate the inter-connectedness of different project success factors and how they contribute to multiple aspects of project success. The richness of the data collected here enabled us to construct causal maps and describe the interactions between top management commitment and social capital and their impact on project success. We have suggested propositions, which can be examined in-depth in future research endeavors to enhance our understanding of how top management commitment and social capital act together to influence project success. The causal maps allow us to capture relationships beyond those provided by purely textual material. Managers involved in technology implementation projects can see how improvements in the root causes can enhance what sometimes appear to be conflicting project goals.

There are some limitations in this study. Although most of the issues and complexities discussed here are applicable to other project environments, the fact that this study was limited to one organization and an information

technology project might affect the overall generalizability of the findings, and additional studies should be encouraged. We also did not test any of the propositions presented in our study and this should be done in the future to strengthen our understanding of project success factors. This was also a cross-sectional study, and future studies should adopt a longitudinal approach that will permit the examination of the persistence of project success factors over time.

At the same time, this study makes significant contributions to theory on project management by suggesting that top management commitment's impact on project success is facilitated through the strengthening of the social capital present in the project environment. Top management commitment facilitates the allocation of resources as well as the prioritization of resources for project work. We suggest that, for senior managers, investments in actions and decisions that build the social capital in project environments will increase the likelihood of attaining project success.

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