How do top managers support strategic information system projects and why do they sometimes withhold this support? ☆

Albert Boonstra *

University of Groningen, Faculty of Economics and Business, The Netherlands

Abstract

Top management support is an important determinant of information system project success. This is especially the case in complex and large-scale IS projects. Surprisingly, however, there is only limited reliable knowledge about the types of behavior that underlie top management support. Further, despite the concept's crucial importance, little insight has been gained into the reasons why the level of this support is sometimes low. This research aims to address this gap by focusing on three questions: 1) What behavioral types are associated with top management support for strategic IS projects? 2) How can these behaviors be placed in a coherent framework? and 3) Why do managers sometimes withhold these types of support? To address these questions, we analyzed top management support during a number of strategic IS implementations. To this end, we used an integrationist model as our theoretical lens. An in-depth analysis of five cases revealed that top management support is a multidimensional phenomenon that tends to change over time. In this research study, we have identified various support profiles and placed them in a framework of behavioral types and aims of top management support. This framework can be used to plan, execute, and evaluate top management support in strategic IS projects.
© 2012 Elsevier Ltd. APM and IPMA. All rights reserved.

1. Introduction

A common and valuable recommendation often made for the successful completion of large-scale strategic information system (IS) projects is to ensure top management support (Bardi et al., 1994; Ragu-Nathan et al., 2004; Bruqué-Cámara et al., 2004; Chae and Poole, 2005; Igbaria et al., 1997; Lin, 2010; Purvis et al., 2001; Sharma and Yetton, 2003). The reason being is that this is believed to enhance the understanding of an organizational project among its users, which in turn stimulates better outcomes (Dong, 2008; Ifinedo, 2008; Kearns, 2006). Surprisingly, however, only limited

research has been conducted on the essence of the top management support concept (Dong et al., 2009; Staehr, 2010). We simply do not know a great deal about what top management support means in practice, or which types of behavior and behavioral patterns are associated with it. Although the concept is a well-known success factor, we know little about why top managers sometimes choose not to support, only partially support, reduce support, or provide only low levels of support. The advice given to managers generally does not go beyond the obvious, such as promoting communication, expressing enthusiasm, and demonstrating a true interest in the project (Young and Jordan, 2008). In this vein, top management support is sometimes presented as a single construct that is then related to project success and as something which can be offered or withheld. Viewing it as a single construct does not, however, reflect the complexity and the multidimensionality of the top management support concept (Ragu-Nathan et al., 2004; Yetton et al., 1999). Although some authors do conceptualize top management support as a set of desirable attitudes and behaviors

---

  * Corresponding author at: University of Groningen, Faculty of Economics and Business, PO Box 800, 9700 AV Groningen, The Netherlands. Tel.: +31 50 363 7289; fax: +31 50 363 2275.
  E-mail address: albert.boonstra@rug.nl.

(e.g. McComb et al., 2008; Naranjo-Gil, 2009), their studies fail to relate these behaviors to each other and do not address the reasons for low or non-support.

This paper has therefore focused on improving the understanding of the concept of top management support. It aims to re-conceptualize the top management support construct and identify possible dimensions and patterns of support. This conceptualization at the same time sheds more light on the potential reasons for partial, low, or non-support. Initially, we formulated the following main research questions: 1) What behavioral types are associated with top management support for strategic IS projects? 2) How can these behaviors be placed in a coherent framework? and 3) Why do managers sometimes withhold these types of support? These questions were addressed in an explorative study of top management support during the implementation of strategic IS projects in five different organizations. By the term top management we refer to the highest management level of the organization: the CEO and their immediate subordinates responsible for corporate policy (Green, 1995, p. 223). Here, we use the term 'top management' and 'executive board' interchangeably.

The contribution of this study to the existing body of knowledge lies in its conceptualization of top management support as a multidimensional and multipurpose construct. Based on this conceptualization, we developed and empirically evaluated a framework of dimensions of support and their objectives. Our purpose has been to increase insight into the different patterns and dynamics of supportive behaviors. Apart from enhancing our understanding of the concept, using this approach enabled us to build on existing knowledge (e.g. Beath, 1991; Ragu-Nathan et al., 2004; Doll, 1985; Dong, 2008; Dong et al., 2009; Young and Jordan, 2008) and propose, as an advance on the well-known lists of supportive attitudes, a coherent and refined framework of top management behaviors. Further, this research has addressed the topic from a problematic perspective by including in the framework the possibility of various intensities of support, such as low or only partial support. As such, the framework can be used to identify possible research gaps with respect to the relationship between types and combinations of top management support and project success.

This research has a practical relevance in that it provides top managers and their advisors with a framework that can be used to establish adequate policies with respect to the provision of top management support throughout a project. The framework perceives top management support as a scarce and valuable resource whose availability depends on diverse aspects. By doing so, it helps practitioners recognize the multidimensionality and the dynamics of top management support, which will hopefully lead to more differentiated and focused decisions with respect to top management support based on an assessment of the specific context and the information system proposed.

We have specifically concentrated on strategic IS projects because top management support is especially critical here (Dong et al., 2009). By strategic IS projects we mean system projects that affect an enterprise's strategic interests, such as the integration of departments, the performance of core business processes, and the relationships with suppliers and customers (Sharma and Yetton, 2003). Generally, strategic IS projects also affect the interests of many stakeholders, including parties outside the organization. Further, these projects usually involve large investments since they are organizationally and technically complex and their duration is normally more than a year, and on occasions more than four (Boonstra, 2003). All the five projects selected for this study meet these criteria and covered the following applications: ERP, e-commerce, CRM, e-government, and electronic patient records.

The remainder of this paper is organized as follows. In the next section, we present the current theory on the concept of top management support, in particular in relation to IS projects. Then we present the integrationist model that underpins this study. Following this, we discuss the research design, describe the case studies, illustrate the framework with examples from the cases, and conduct a cross-case analysis. Finally, in the discussion section, we relate the top management support framework to existing theory and consider the practical implications and possible directions for future research.

2. Conceptual background

Top managers have a crucial role in creating and providing the conditions needed for project success (Staehr, 2010), which is also referred to using terms such as 'meta-structuring' or 'technology-use-mediation' (Orlikowski et al., 1995). Generally the top management plays an important role in both the definition of a project and the composition of the project team. Further, they are in a position to structure the organizational context of the IS project and facilitate resource provision. This is why the project management and change management theories make a strong case for recognizing the importance of top management support (McComb et al., 2008; Rodgers et al., 1993). Green (1995), for example, investigated this support in 213 R&D projects. He found that projects with this kind of support were less likely to be terminated. The IS literature (e.g. Bingi et al., 1999; Doll, 1985; Ehie and Madsen, 2005; Jarvenpaa and Ives, 1991; Kazanchi and Reigh, 2008; Young and Jordan, 2008) supports these findings in relation to large-scale IS projects. Here, top management support is especially associated with issues such as a clear IS vision (Liang et al. (2007), strategic performance (Naranjo-Gil, 2009), team effectiveness (McComb et al., 2008), effective application (Bardi et al., 1994), perceived usefulness (Bruqué-Cámara et al., 2004), system use (Guimareas and Igbaria, 1997), assimilation (Liang et al., 2007), project completion (Kazanchi and Reigh, 2008), and middle manager buy-in (Dong et al., 2009).

In studying top management support for IT projects, several researchers have explored the various aspects associated with the concept. Guimareas and Igbaria (1997), for example, suggest that top management understanding, interest, and encouragement are important determinants. Gottschal (1999) measures top management support in terms of 'enthusiasm and IT vision'. In a survey, Ragu-Nathan et al. (2004) measured top management support on the basis of the following attitudinal statements: 1) top management is strongly committed to IS, 2) top management is interested in the IS function, 3) top management understands the importance of IS, 4) top management supports

the IS function, 5) top management considers IS as a strategic resource, and 6) top management understands IS opportunities. This approach is in line with the emphasis seen elsewhere on the creation of a supportive climate for IT projects being top management's main task. Others suggest that, in order to promote successful IT implementations, top managers should position themselves as project champions (McComb et al., 2008; Naranjo-Gil, 2009). Project championing is considered to refer to very clearly communicating the crucial importance of the project, resolving conflicts, and unequivocally supporting the project team (Beath, 1991; Morton, 1983). Another widely acknowledged supportive aspect from top management is resource provision (Bruqué-Cámara et al., 2004; Igbaria et al., 1997), and Sharma and Yetton (2003) argue that shaping the institutional context in such a way that it becomes receptive to the new IT is another important example of top management support. Kazanchi and Reigh (2008) emphasize the importance of measurement and control activities by top managers during IT projects, while Dong et al. (2009) include resource provision, change management, and vision sharing as distinct types of top management support. In their study they present an overview of research on top management support (pp. 56–60) which provides overwhelming evidence of a positive causal relationship between top management support and project success.

Orlikowski et al. (1995) argue that two sets of actions characterize technology assimilation in organizations: individual structuring actions and meta-structuring actions. They state that influential individuals, such as top managers, engage in meta-structuring actions to shape the institutional context and that, in doing so, they promote project success. Meta-structuring 'involves the shaping of other users' activities of use' (Orlikowski et al., 1995, p. 425). Sharma and Yetton (2003) argue that 'top managers are critical in undertaking these meta-structuring actions during IS implementation'. Various researchers (Dong et al., 2009; Sharma and Yetton, 2003) have used the concept of meta-structuring to suggest specific supportive top management actions such as:

· shaping the organization to make it more adaptive to the technology by introducing workflow patterns, work procedures, routines, reward systems, and control and coordination mechanisms;
· manipulating the prevailing power division to influence stakeholders: to mandate, negotiate, persuade, and motivate powerful parties to cooperate;
· supporting the project implementation by selling the project with visible enthusiasm and championship, while focusing on staff and resource availability.

These meta-structuring behaviors by top managers are directed at creating a receptive environment for the new system, and changing the organization and the system to create a good 'fit'.

This overview demonstrates that the critical relationship between top management support and project success has already been investigated quite extensively. Some studies hypothesize a simple main effect (e.g. Yetton et al., 1999),

while others propose various types of support (e.g. Dong et al., 2009), mediating factors (Sharma and Yetton, 2003), or meta-structuration activities (Orlikowski et al., 1995). This evidence has been used as a basis for identifying indicators related to the concept of top management support. The current literature has interpreted these indicators by converting them into 'lists' of supportive actions that are expected to lead to better project outcomes. To the best of our knowledge, however, no coherent framework has been developed that can be used to map types and patterns of potentially supportive behavior by top management. Such a framework could be useful for managers and their advisors in planning, executing, and evaluating supportive behaviors. As such, apart from developing a more coherent view of the several types of behavior associated with top management support throughout strategic IS projects, we have also developed and validated a framework which has practical uses.

3. Theoretical model

The theoretical model developed here for the analysis of several types of top management behavior has been informed by processual (Pettigrew, 1988), interpretive (McLoughlin, 1999; Walsham, 1993, 1995, 2006), and integrationist (Orlikowski et al., 1995) models of change. These models are based on the notion that the various groups of people in an organization may have different interpretations of the information systems, and that all these views shape these groups' actions and so influence the implementation and evolution of the system (Boonstra and Van Offenbeek, 2010; Walsham, 2006). Based on these ideas, we draw on these models to reflect the questions being studied in this research as shown in Fig. 1. This figure depicts the implementation process (1), the organizational context (2), the technology (3), and the stakeholders (4) who all interact during the implementation process through the interplay between the individual stakeholders. This study focuses on top managers who are considered to be the particular group of stakeholders that is in the ideal position of being able to provide support throughout the entire trajectory by meta-structuring actions (Orlikowski et al., 1995). This support is aimed at:

1) Accommodating the implementation process. Top management can sell the project with visible enthusiasm and championship, provide the necessary human and material resources to the project, and exhibit political power to support the project (Young and Jordan, 2008).
2) Shaping the organizational context. Top management can make the organization more adaptive to the information system, such as by providing resources to change the organization, introducing new workflow patterns, and by using formal power to enforce new structures (Orlikowski et al., 1995; Sharma and Yetton, 2003).
3) Facilitating the adaptation of the technology to the characteristics of the organization. Top management can actively help developers and implementers to make changes to the technology in a way that promotes the new system's use. Top management can provide resources to adapt the
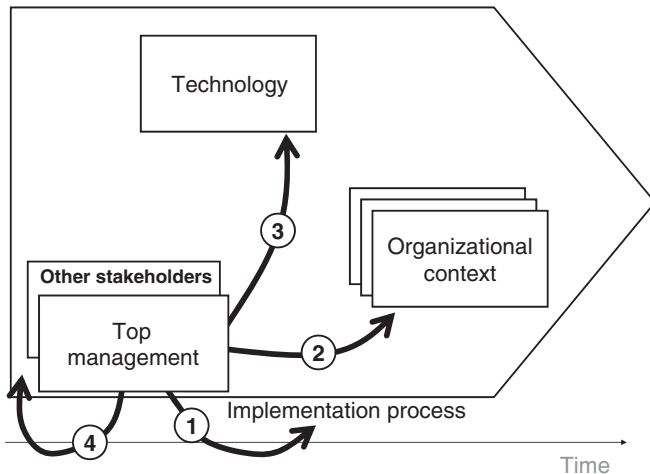
Fig. 1. Research model.

technology (Markus and Tanis, 2000; Orlikowski et al., 1995) and to establish the necessary organizational structures.

4) Dealing with stakeholders. Top management can actively influence stakeholders through negotiations, persuasion, resource provision, and by motivating powerful parties to cooperate with the implementers (Boonstra, 2006).

Using these theoretical perspectives, we formulated the following three research questions: 1) What behavioral types are associated with top management support for strategic IS projects? 2) How can these behaviors be placed in a coherent framework? and 3) Why do managers sometimes withhold these types of support?

4. Research design

To identify and categorize potentially supportive types of behavior by top managers we used a multiple case study design following a replication logic (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2011). This approach resulted in a descriptive and analytical study aimed at both mapping and analyzing several top management support behaviors. Note that this study does not attempt to make assertions regarding the causal relationships between these behaviors and their effects on the success of the project. Our research is by its descriptive nature exploratory, which means that the focus is on the identification and categorization of potential top management behaviors. The theory has been used to frame real-life events rather than to confirm its validity. To obtain sufficient information richness and so be able to identify any possible covariation (Gerring, 2004), we conducted five strategic IS implementation case studies in different organizations.

Since our focus was on the top management, we selected organizations with multiple levels of management including a top management responsible for corporate policy, strategy, and the strategic use of IS. For an IS project to be appropriate for our study, it had to be company-wide, strategic in nature, and in its

roll-out phase, since our study was focused on the implementation, or roll-out trajectories (Markus and Tanis, 2000). It also had to be a complex IS project in terms of duration, budget, prospective users, and external links. Further, the choice of organizations and industries was deliberately kept diverse to minimize contextual bias. Starting from an extensive initial list of twenty possible organizations, we selected seven projects based on their variety in terms of industry and strategic IS involved. The contact people from these organizations were then asked to facilitate interviews with three to five of the projects' key players. One of these seven organizations was unwilling to cooperate, and another was used in a pilot study to develop the case study protocol, resulting in the five organizations discussed in this paper. This protocol, resulting from the pilot study, included the research questions, the roles of the investigators, the preparations before the site visits, the data collection procedures, the interview questions, and an outline of the various case study reports.

Based on the strategies recommended for grounded theory development (Eisenhardt, 1989; Miles and Huberman, 1994), we conducted a qualitative investigation of the organizations' top managements' support to the projects by addressing multiple sources of data. Robustness was maintained by interviewing participants with different roles in the project (top managers, project managers, project members, and business managers). First, we interviewed the project manager and the top manager(s) who were the most involved in the project. At the end of these meetings we asked them if they had any suggestions for other participants, which led to additional interviews with some project members and business managers. Interview questions were based on the research model and the available theory on the topic. The interviewees reviewed both the interview reports and parts of the case descriptions, which occasionally resulted in additional information and further insights. Sometimes there was the opportunity to conduct follow-up meetings if a clarification was required or to gain updates on new developments.

To ensure internal validity, other data sources (observations, internal documents, and artifacts) were also used (Eisenhardt, 1989). These sources were helpful in preparing the interviews and developing multiple perspectives on the issues at hand. Sample topics include the degree of alignment of the system with the strategy (as derived from strategy documents), the presence of the top management in meetings (as derived from the minutes of those meetings), and fluctuations in top management support throughout the project (changes in participation over time). Table 1 shows the characteristics of the companies and the projects.

We conducted the data analysis by following a four-step iterative process.

The first step involved a within-case analysis based on developing a chronological view of the case data, as recommended by Eisenhardt (1989, p, 54).

During the second step, we closely examined the interview transcripts and other data sources, and coded quotations and citations relating to top managements' supportive behavior, any changes in the degree of support, and the motives for the support or non-support (see Appendix A). We classified the instances of top management

Table 1
Characteristics of the participating companies.

Type of IS project	Manufacturer ERP+ e-commerce	Financial services CRM	Dairy food ERP	City council e-government	Hospital electronic patient file
Project					
Duration (months)	10	62	12	38	18
Budget (×1 mln euro)	4, 1	65	3, 4	8, 1	3, 4
Number of management levels	3	5	4	4	2
Customers or suppliers involved?	yes	yes	no	yes	yes
Number of project group members	16	45	23	9	12
# users	200	920	1129	354	210
Data collection					
Respondents					
Top management	1	2	1	2	1
Project management	1	1	1	1	1
Project group member	-	1	1	-	1
Business management	2	2	3	2	2
Total # of respondents	4	6	6	5	5
Total # of interviews	6	8	9	8	6

support against the background of the chronological description and the organizational context as developed during step 1.

During the third step we identified initial categories of behavior in top management support (data abstraction). These initial categories were informed by the literature, see Table 2.

The initial categories were 1) financial support, 2) mental support, 3) support by human resources, 4) support by establishing project structures, 5) support by communicating the project to the organization, 6) support by regular communication with the project group, 7) support by expressing a true interest and being sufficiently knowledgeable, 8) support by dealing with unsupportive stakeholders. Some categories were redefined and combined (1, 2, and 3 to form 'resources'; 5 and 6 into 'communication'; 7 into either 3 or 4) during iterative series of data analyses. We ended up defining the following behavioral categories:

1 Resources: top management secures financial, material, and human resources to support the strategic IS-project and promote the effective implementation and use of the system.
2 Structural arrangements: top management establishes and enforces a project structure, and an adapted organizational structure that is receptive to the new system.
3 Communication: top management supports the project by communicating about it with visible enthusiasm and by expressing the possibility of needing to adapt the organization, the system, and the relationships among stakeholders.
4 Expertise: top management has a sufficient understanding of the project management of the strategic IS project as well as the content, context and implications of the proposed system.
5 Power: top management has the power, and is willing and able to use it, to advance the project by resolving conflicts and protecting the project team.

We used these categories to classify the supportive behaviors identified in the chronological overview undertaken during step 1. Table 3 shows the framework for top management support and provides definitions of the various types of top management support.

During the fourth step, the five cases were subjected to a cross-case analysis aimed at discerning possible contrasting patterns of top management support. In the next section, we will describe the top management support during the implementation of the information systems and provide examples of the various types of support identified. These examples are summaries of single or combined narratives.

5. Case descriptions

This section briefly describes the projects and characterizes the types and profiles of the overall top management support.

5.1. An ERP project of a manufacturer

The ERP implementation by a manufacturer of high-tech safety equipment involved the introduction of a range of SAP modules, including functions for e-commerce and supply chain integration. The main goal of implementing these modules was to improve the structure and quality of the management information and to align the systems' infrastructure with the business strategy. This was a major operation covering all fourteen business units of the company. The organization had a long tradition of using complex information systems and was used to managing large projects. Its top management hired a high-profile consultancy firm to determine which resources in terms of finance and people were needed for a project of this nature and size. Based on the consultants' suggestions, an adequate budget was made available, together with an experienced project team facilitated by the consultancy firm. After selecting the desired modules, eight working groups were established and coordinated by a project team. The respondents we questioned agreed on the high level of support provided by the top management for both the implementation of the system and the project group itself. This organization's top management seemed highly convinced of the importance of the implementation of the system for the company.

Table 2
Literature based initial categories of top management support.

Initial category	Literature
Financial support	Igbaria et al., 1997; Bruqué-Cámara et al., 2004; Dong et al. (2009)
Mental support	Gottschal, 1999; McComb et al., 2008; Naranjo-Gil, 2009
Support by human resources	Igbaria et al., 1997; Bruqué-Cámara et al., 2004
Support by establishing project structures	McComb et al., 2008; Dong et al. (2009); Kazanchi and Reigh (2008)
Support by communicating the project to the organization	Liang et al., 2007; Ragu-Nathan et al., 2004; Dong et al. (2009)
Support by regular communication with the project group	McComb et al., 2008; Naranjo-Gil, 2009
Support by expressing a true interest and being sufficiently knowledgeable	Guimareas and Igbaria, 1997
Support by dealing with unsupportive stakeholders	Dong et al., 2009; McComb et al., 2008; Naranjo-Gil, 2009

In this manufacturer case, we identified and analyzed 26 distinct examples of top management supportive behavior during the ERP project. The organization's top management invested heavily in the ERP system and put a great deal of effort into its progress and its effective implementation. New technology was only adapted if this was necessary. In addition, the organizational structures and processes were unchanged wherever possible. The top management mainly concentrated on supporting the project team, with fewer resources invested in the relationships with business unit representatives.

This company's top management support could be characterized as intensive throughout the entire project and aimed specifically at accommodating the IT implementation process. Critical voices, however, expressed concerns about what they called 'over-support'. Some participants experienced the constant presence of top management as intimidating. Others argued that the support was in fact limited because the top management seemed hardly interested in communicating informally with the staff, while also not paying any attention to the organizational change aspects associated with the new system. Table 4 illustrates the strong support for achieving an effective implementation. Other types of support identified

were only weak (resource provision and structural arrangements to adapt the technology), while support in the form of the 'use of power to deal with stakeholders' did not occur.

5.2. A CRM project of a financial services organization

The implementation of a CRM system at a large financial service provider was a major project directed at improving relations with target customers. The users who had to work with this system were account managers and other staff members at the more than 100 local branches of the organization. The project's duration was more than five years, with a budget exceeding 65 million euros, a figure which was not perceived as overgenerous given the scope of the project. The project structure was complex, including a steering group, project groups, and working groups. The groups included business unit managers, IT developers, and implementers. Apart from the involvement of a consultant with experience in CRM implementations, the project management was kept in-house.

This organization's top management was highly involved in the various phases of the project. The CRM project clearly had a long-term priority and was considered part of a new strategic plan, focused on customers rather than products. All the

Table 3
Top management (TM) support framework and definitions of support types.

Supportive behavior aimed at	Provision of financial, material and human resources	Structural arrangements	Communication	Expertise	Power
Accommodating the implementation project	TM provides the implementation project and the team with adequate financial, material and human resources.	TM establishes and enforces adequate project structures.	TM communicates in a frequent manner with project team and sells the project to the rest of the organization	TM has relevant expertise and experience in project management.	TM uses its power to support the project and protect the project members.
Reshaping organizational context	TM provides adequate financial, material and human resources for instituting organizational changes to facilitate effective system implementation.	TM adapts the organization to the system by establishing adapted structures, processes and control systems.	TM communicates and explains the organizational implications and organizational changes associated with the implementation.	TM understands the organizational implications and changes related to the system implementation.	TM uses its power for instituting organizational changes in relation to system implementation.
Adapting the information system to the organization	TM provides financial, material and human resources for system adaptations.	TM establishes adequate structures for system adaptation.	TM communicates and discusses possible system changes with those involved.	TM understands the necessary system adaptations.	TM uses power to facilitate and enforce necessary system changes.
Dealing with stakeholders	TM provides financial, material and human resources to promote a supportive stakeholder environment.	TM adapts the organization to strengthen stakeholder support.	TM communicates and discusses the project's implications with various stakeholder groups.	TM understands the power and interests of stakeholders around the project.	TM uses power to influence roles and positions of stakeholders.

Table 4
Number of identified supportive top management behaviors at the five case organizations.

Case organization	Manufacturing					Financial services					Dairy food					City council					Hospital				
Supportive behavior aimed at:	R	S	C	E	P	R	S	C	E	P	R	S	C	E	P	R	S	C	E	P	R	S	C	E	P
Accommodating the implementation project	2	4	2	3	2	3		3	1	3	1	1	1	4				3	1					5	1
Reshaping the organizational context		3				2	1	2	3	2				1	1										
Adapting the technology	4	3				2	3				1		1	4		1		4			1	2		1	1
Dealing with stakeholders					3		4	3							3	1		2			1	1			1

R = provision of financial, material and human resources.
S = structural arrangements.
C = communication.
E = expertise.
P = power.

interviewees agreed that the top management was supportive in many areas, such as resource provision, open communication with the project leader, interest, and expertise. The resistance from some branch managers was addressed by a member of the top management team. The business managers whom we spoke to emphasized that there was room for discussion on how to proceed with the project and how to deal with local circumstances.

We identified a broad range of 32 supportive behaviors displayed by the top management of this financial services organization, which were relatively equally divided over the behavioral categories of top management support (see Table 4). The respondents indicated that the overall top management support provided throughout the project was high and appropriate.

5.3. An ERP project of a dairy food company

Aiming to optimize the integration of the organization's IT systems, the executive board of a dairy food company decided to initiate an ERP implementation project. The executive board, which felt that system integration was crucial for the organization, gave one of its members, who had ERP expertise, a major role in the project. In the previous employment he had been responsible for an effective ERP implementation and had been surprised that the dairy company's IT systems were not fully integrated. He therefore convinced the other executive board members of the advantages of ERP. Having initiated the project, he relied on the project manager to realize the implementation. This delegation was based on a strong relationship and mutual trust. The project was adequately funded, and the time schedule appeared realistic.

The project group consisted of representatives of the three business units together with a project leader, a senior manager who had initiated the project, and an external consultant. In each of the three business units, a subgroup was responsible for implementing the system. All the interviewees emphasized that the top management had been really involved in the project and had supported it in many ways. Especially the expertise of the top manager involved was perceived as impressive, as well as the way in which he used his communication skills and influence to win support for the project. Further, the consultancy firm's work was considered to be of high quality. It had chosen to adapt the technology to the specifics of the company, a decision which

was appreciated by most of the business managers. However, around half way along the project's trajectory, the crucial top manager left the organization and there was no-one available to replace him. This situation led to disagreement among some of the business units. One unit was very keen to press on with the project, whereas other divisions adopted a more cautious attitude. Overall, the top management support reduced in many respects after the departure of the top manager. At the end of the project, the system had only been implemented in one business unit (albeit the largest), while the other units were looking for other solutions.

We identified and analyzed 18 distinct examples of top management supportive behavior during this project. During the early phases of the project, the top management support was considered as high (see Table 4). It was particularly focused on accommodating the implementation of the project through providing resources, project structures, frequent communications, and expertise. To a lesser extent other forms of supportive behaviors were identified. After the departure of the crucial top manager, only weak forms of project support were observed.

5.4. An e-government project of a city council

The e-government project at a city council studied started out as a departmental initiative to digitalize and streamline requests for licenses, permits, and passports. Since the resources to develop and realize this initiative were limited, the initiators tried to modify and adapt e-government formats used by other municipalities. The project was started by a small project group of volunteering and enthusiastic civil servants. A few months later, the minister of internal affairs responsible for regional governance announced that city councils had to modernize their services and provide 80% of them online through web 2.0 interactive websites.

A council administrator became formally responsible for a number of projects to realize this aim. However, local politicians complained that the city council was lagging in its e-government implementation activities. In response to this criticism, the council approved an extensive project plan but, after some time, the interest in the initiative faded and the e-government activities slowed. However, one year later, a large increase in public attention forced the focus back on to the e-government project. During the project, the communications

between the project leaders and the council administrator responsible were irregular. Moreover, at the same time as being pressurized by the councilors and other politicians to realize the e-government plans, the administrator retained responsibility for many other activities and duties.

As a result, at the city council organization, we only identified and analyzed 12 instances of distinct supportive behaviors. These instances mainly related to communicative actions within the process and technological adaptations. Resource provision was limited, and no structural arrangements were identified. Here, the degree of top management support was perceived as low, and mainly focused on communication. Budgets and other resources were hardly available, and the respondents also failed to mention any structural arrangements being initiated by the top management, see Table 4.

5.5. An electronic health record project of a healthcare organization

The IT department of a medium-sized hospital was maintaining 24 different electronic patient record systems. These various systems were used by different medical specializations, as well as by the pharmacy unit and some nursing departments. Since they were incompatible, and difficult to operate and maintain in a responsible manner, the head of the IT department proposed integrating these systems based on a hospital-wide patient record. This proposal was in line with a national initiative to link the health records of all healthcare providers.

To this end, a project group was set up, chaired by the head of the IT department. The various participating departments were each represented in the project group by a delegate, sometimes a young doctor or a staff member with some IT affinity. The executive board member responsible for IT was also a member of the project group. Most of the time, however, he did not attend the project group meetings, which were generally held on an ad-hoc basis. Meetings were so arranged because it appeared difficult to organize them at a time when everyone would be available. Necessary face-to-face communications very often took place in small groups or on a bilateral basis. Sending e-mails through news groups and newsletters were used to exchange and publish project information on a wider scale. Additionally, the IT director and the executive board member discussed the progress of the project in biweekly meetings. Although the new system was intended to replace the old systems of a considerable number of medical departments, the lack of effort by top management to keep the medical staff on board impeded the development trajectory of the new system.

We identified and analyzed 14 distinct instances of supportive behavior by the top management of this hospital. These examples were often communicative in nature and directed at accommodating the implementation process. Resource provision was very limited, and we did not identify any attempts to reshape the organizational context to facilitate the implementation of the electronic health records. We did, however, find some examples of technology adaptation through resource provision, structural arrangements, and expertise, see Table 4. With hindsight, the project manager, a project group member, and two department

heads agreed that top management support had been insufficient in all respects. The project manager argued: 'to implement systems like these, you need a powerful and visionary figurehead. This was exactly what we were missing.'

Table 4 displays the number of instances of supportive behaviors by top management that we identified during this study. This is not a quantitative measure of top management support but an indication of the spread of supportive behaviors over the various categories as well as of the overall degree of top management support.

6. Examples of top management support within the proposed framework

In order to determine the validity of the top management support framework, this section provides one short example of each of the supportive behaviors derived from the five case studies.

6.1. Top management support by accommodating the implementation process

6.1.1. Example 1 (Manufacturer): accommodating the implementation process through the provision of financial, material, and human resources.
The top management accepted the budget calculations made by the independent external consultancy firm and made adequate resources available for staffing the project team. At a later stage, additional funds were allocated to address the specific needs of a particular business unit. The project manager said: 'top management made sure that team members were available and that the consultancy firm hired was the best in the market.'

6.1.2. Example 2 (Manufacturer): accommodating the implementation process through structural arrangements.
The top management insisted on a formal project structure, including a steering group, a project group, and a number of working groups. The steering group included two top management members, one of whom chaired the project group. The project structure was supported by the secretarial staff of the executive board. A business unit manager said: 'as is common in this company, the project had a clear structure, while the relationships with the line organization were well defined. We have a strong tradition in managing projects and making things happen.'

6.1.3. Example 3 (Manufacturer): accommodating the implementation process through communication.
The project started with a kick-off meeting which was videotaped and made available on the company's Intranet. Two of the three top managers were present during this meeting. The top manager responsible communicated the strategic importance of the project using the Intranet and electronic newsletters. The cooperation of all organizational members was explicitly demanded. The first sentences of the speech by the top manager at the kick-off meeting were: 'today we launch a project which is of critical importance for this company's future. The cooperation and support of all employees is necessary.'

6.1.4. Example 4 (dairy food): accommodating the implementation process through expertise.

An executive board member's expertise and experience in ERP projects was very helpful and increased the project team's confidence in the project, despite its size. The project manager commented: 'the executive board member responsible was very keen to get the ERP implemented. He was experienced and enthusiastic about its benefits'.

6.1.5. Example 5 (Manufacturer): accommodating the implementation process through use of power.

The project manager was backed and supported by the top manager and other executive board members. There were no open conflicts and those business managers who were critical of the system did not feel that they had room to express their reservations. A business unit manager commented: 'this topic was not open for discussion, it was too crucial for the executive board.'

6.2. Examples of top management support through reshaping the organizational context

6.2.1. Example 6 (Financial services): reshaping the organizational context through provision of financial, material, and human resources.

Substantial resources in terms of budget and project management were used to change the structures and business processes at the local branches. A top manager stated: 'the cultural and process changes at the local branches were the main issue in getting the CRM system to work. The executive board made substantial resources available to make this change happen, such as the means to develop tailor-made videos and courses for the branch managers and account managers about the new customer-focused philosophy.' A branch manager said: 'we had to restructure our organization to facilitate the customer focus. The executive board promoted this change by hiring consultants and providing information and other necessary resources.'

6.2.2. Example 7 (Financial services): reshaping the organizational context through structural arrangements.

The majority of the respondents indicated that the issue requiring the most effort appeared to be adapting to the organizational changes associated with the CRM implementation. A local branch manager stated: 'we had to set up customer-focused units. All sales people were trained in the new CRM philosophy of the company.' A business manager said: 'top management insisted on adapting the structure of the local branches to the new relation-management philosophy.'

6.2.3. Example 8 (Financial services): reshaping the organizational context through communication.

Frequent messages from top management using various channels (Intranet, face-to-face meetings, and in-company magazines) were used to explain why and how the structure, processes, and culture of the organization had to change. A branch manager said: 'the executive board consistently communicated the message that an orchestrated, systematic, and consistent focus on the target customers was the key issue, and that the organization should be shaped in that direction'. Another branch manager remarked: 'Consultants from headquarters visited the local branches to assess the progress of the change toward the realization of a new customer-focused organization.' These consultants were sent by the executive board and clearly acted on its behalf.

6.2.4. Example 9 (dairy food): reshaping the organizational context through expertise.

An executive board member said: 'I know that it is essential to change our business processes, tasks, and responsibilities in order to reap the benefits of ERP. Process redesign based on best practices offers many advantages'. A business manager added: 'Initially I assumed that this was mainly a software implementation project, but the executive board member stressed that the key issue was not so much the facilitation of new software, but the realization of a process change on an organizational level. From earlier experiences, he knew that ERP without process change would not be very effective.'

6.2.5. Example 10 (dairy food): reshaping the organizational context through use of power.

An executive board member observed: 'Two of the three business units were not very keen to participate. They argued that another unit should first try out the system to see what the advantages were. We really had to press them to adapt their processes to the new system. In my opinion it is not acceptable to have diverging approaches toward process design and system support.' A business manager of one of the reluctant business units said about this episode: 'I found it frustrating that we were forced to change some of our business processes because of a company-wide system implementation which was aimed at satisfying the needs of top management rather than providing us with some benefits.'

6.3. Examples of top management support by facilitating the adaptation of the technology

6.3.1. Example 11 (Financial services): adapting the technology through the provision of financial, material, and human resources.

The organization's top management was well aware that the company-wide CRM system would have to be customized to the specific needs of some local branches. The project manager said: 'top management chose to adapt the organization but also the technology to reap the benefits of this change. They were aware of the costs involved in system adaptation.' The ongoing adaptation absorbed more than 35% of the project's budget. In addition, there were the budgets to facilitate the local branches in adapting their systems within the generic guidelines.

6.3.2. Example 12 (Financial services): adapting the technology through structural arrangements.

The task of making the overall and local system adaptations was assigned to a consultancy firm specializing in CRM implementations. To this end, an extensive implementation project was initiated, facilitated by the company's top management. This trajectory also involved the establishment of a testing structure in which a number of local branches functioned as test sites. In addition, sufficient communication means were made available. The

project manager said: 'top management was prepared to establish the structures needed to realize the adaptation of the technology in the organization as a whole.'

6.3.3. Example 13 (city council): adapting the technology through communication.
At the start of the project, the council administrator communicated with the departmental heads about the importance of e-government activities, and the technology required to make progress in this area. The Association of Municipalities advised the top management about the necessary technological changes. This information was then forwarded and discussed with the project team. The council administrator said: 'we had to modify established modules to the needs and characteristics of our activities Some IT staff proposed rebuilding almost from scratch and I had to convince them that limited modification was the most we should do.'

6.3.4. Example 14 (dairy food): adapting the technology through expertise.
A top manager remarked: 'I think that is was important that I was so close to the project. As an engineer, I am interested in this technology and I think that this interest was helpful in developing speed and focus. Given this background, I was a well-informed interlocutor for the consultancy.'

6.3.5. Example 15 (hospital): adapting technology through use of power.
While the various medical specializations argued that specific adaptations would be necessary, the IT department wanted to stick to the standard settings established for the patient records. The executive board member responsible for medical affairs put pressure on the IT department, especially its programmers, to meet the specific needs of the medical staff and to adapt the system accordingly. The responsible top manager remarked: 'the IT unit should adopt a more service-focused attitude and help the doctors do their work.'

6.4. Examples of top management support by dealing with stakeholders

6.4.1. Example 16 (Hospital): dealing with stakeholders through the provision of financial, material, and human resources.
The top manager responsible for IT designed a financial incentive for the doctors who had to work with the new system. The top management felt that this was necessary to create a cooperative climate and compensate the doctors for the extra time they would have to spend on using the health records. The responsible top manager argued: 'the new system required more time for data entry. A financial incentive might make it easier for the medical units to transfer to a new system.' However, a unit manager added 'this incentive is too small to make a difference. It's only a symbol.'

6.4.2. Example 17 (Hospital): dealing with stakeholders through structural arrangements.
The executive board decided to reorganize part of the IT department by allocating twelve of its staff members to the various medical departments. This measure increased the medical staff's confidence in the project. The project manager was, however, ambivalent about

this change: 'this weakened the power of the IT department but medical departments felt more confidence because they now had access to their own expertise.'

6.4.3. Example 18 (city council): dealing with stakeholders through communication.
The e-government theme and its effects and consequences were regularly discussed both within the top management team, chaired by the council administrator, and with other units. In particular, the publication of policy documents about e-government generated discussions among the various departments and led to a growing awareness of this concept. The project manager explained: 'e-government is a big change for all the units and many employees experience it as a threat to their job security. This is the reason to communicate with stakeholders throughout the project that e-government is mainly a complementary channel and also a chance to improve our existing services and to develop new ones.'

6.4.4. Example 19 (Hospital): dealing with stakeholders through expertise.
The executive board member responsible for medical affairs was a doctor. He closely monitored the perceptions of the various medical specialists regarding the new system. His information contributed to finding an answer to the question of how the medical staff could be convinced to start using the system. An effective approach in this context appeared to be a mix of system adaptations, financial incentives, extra secretarial staff, and adequate IT support. A doctor said: 'it helped a lot that the top management understood our problems and the barriers we faced in getting the system to work.'

6.4.5. Example 20 (dairy food): dealing with stakeholders through use of power.
A business unit manager commented: 'top management forced us to cooperate with this project, but I didn't see many benefits for my business unit.' The top manager responsible argued: 'this system forms part of the corporate philosophy. Opting out is not an option.' A project group member observed: ´initially, top management used their formal power to force through implementation. At a later stage, resistance became more visible.

7. Cross-case analysis

The analyses of the chronological descriptions of each of the cases revealed fluctuations in the overall support throughout the projects. The manufacturing and the finance projects saw a relatively high degree of consistent supportive behavior by the top management. In contrast, the top management support for the health record project was generally perceived as consistently low. Further, the e-government project can be characterized as a 'fire fighter' model: during particular incidents some forms of top management support skyrocketed, whereas in other periods it fell back again. In the case of the dairy food project, the overall support declined over its duration due to shifting views and personnel changes within the top management.

We examined the perceived adequacy of the overall degree of top management support that was provided during the

various stages of the project. The cross-case analysis indicated a dynamic area where the perceived support was viewed as adequate. Support is perceived as adequate if the overall amount given by the top management matches the perceived amount needed. This need can be relatively high at some stages of a project, such as when the system goes live, and relatively low during other stages, such as while programmers are making system adaptations. The top management support needed consists of combinations of the support types presented in the framework. In the financial services and the dairy food cases, the respondents generally agreed that the support was adequate. In the city council case, the support was seen as fluctuating. In the Hospital case, it was generally perceived that the overall level of support was too low: high levels were needed but only low levels were available. In the Manufacturer case, the opposite could be observed: because the organization was so experienced in large IT projects, the various respondents were confident that a more moderate level of top management support would have been sufficient. Here, the top management had been over-supportive, which was experienced by some as intimidating and ineffective.

We also used the developed top management support framework to address the third research question: What are the reasons for withholding support? We found that the reasons for a perceived lack of support were often related to the support dimensions of the framework. Managers struggle due to limited support capabilities being available: support cannot be offered in unlimited ways. They generally balance their assessments of the demand for support against the degree of support that they want to offer and are able to provide. The outcome depends on competing projects, project risks, and business priorities. Sometimes an attempt is made to compensate for the lack of certain types of support by substituting other kinds of assistance.

The most obvious reason for non- or low support is the limited availability of appropriate support. Expertise, as well as human, financial, and power resources are often scarce. Top managers do not always have the capability or the time to communicate effectively with relevant stakeholders. The five types of supportive behavior discussed earlier can be perceived as economic, organizational, social, cognitive, and political capitals (Bourdieu and Loïc, 1992). These forms of capital are usually scarce and sometimes absent and, as their availability fluctuates, they can be offered or withdrawn. Given their scarcity, the various actors within a firm may have to compete for them. The cross-case analysis demonstrated that the availability of these forms of capital is organization and industry dependent. In the Hospital case, the power and professional autonomy of physicians reduced the availability of political capital (power) on the top management level. At the city council, the availability of financial resources to implement e-government was very limited.

A second explanation for a low or decreasing level of project support relates to changing goals or contexts. Over the course of time, the perceived desirability of a project may fall, causing top management support for an initiative to decline. In the case of the dairy food ERP project, changes in the composition of the top management led to changes in attitudes toward the

initial plans. As a result, the project became the subject of a dispute among various divisions. In the case of the city council's e-government project, the level of top management support was to a certain extent determined by dynamic factors such as elections, press coverage, and public attention. As a result, the top management support was sometimes perceived as stable and at other times as unstable. Here, with each new set of circumstances, the top management would adapt their assessment of the need for top management support and the types of support that it was able and willing to offer.

A third possible explanation for insufficient support could be a disagreement within the executive board about the appropriate support types and the required intensities (Naranjo-Gil, 2009). During the dairy food company's ERP project, there was a discussion on the degree of control and centralization by headquarters. When some powerful division managers complained about the implications of the project, some of the executive board members withdrew their initial support. This situation led to the departure of the top manager responsible for the project, who was replaced by someone with a more critical and distant position towards it and, as a result, the support profile changed. Developments such as these affect the top management's policies in deploying the various types of capital required for a project to succeed.

8. Discussion

This section discusses the main categories of supportive top management behavior identified during the within-case and cross-case analyses to address the research question: Which types of behavior underlie top management support during strategic IS projects? The behavioral categories considered were: 1) resource provision, 2) structural arrangements, 3) communication, 4) expertise, and 5) power. In order to determine the objectives of the supportive behavior (and so address the research questions), these categories were grouped around the aims of top management support (see Fig. 1) which are: a) accommodating the implementation process, b) reshaping the organizational context, c) adapting the technology, and d) dealing with the stakeholders.

8.1. Provision of financial, material, and human resources

Most participants in the five projects agreed that sufficient financial, technical, and human resources are critical for a successful strategic IS project. The respondents also emphasized that securing these resources is a key responsibility of senior managers. Theory concurs that resource provision is an essential form of top management support (Bruqué-Cámara et al., 2004; Dong et al., 2009; Igbaria et al., 1997; Purvis et al., 2001). An adequate supply of financial resources enables appropriate technical equipment and the necessary external expertise to be acquired. Having sufficient resources available also functions as a form of moral support for the project team managers. It demonstrates to all the members of the organization that the top management has given the project a high priority among its business objectives. It also tells us something about the potential effect of non-support with IS projects competing for priority and hence resources.

8.2. Structural arrangements

According to the respondents, another indication of top management support is the establishment of a clear and well communicated project framework coupled to new organizational structures. This finding is in line with the work on meta-structuring by Orlikowski et al. (1995), and elaborated by Sharma and Yetton (2003). In the projects covered by our study, this framework consisted of steering and project groups. To gain the maximum benefit from the technology, the organizations also sometimes had to be restructured. The extent to which the structural arrangements for the projects were realized could be measured both by the way these changes were communicated to the rest of the organization and by the actual functioning of these structures.

8.3. Communications

Many respondents commented that frequent formal and informal communication between the top management, the project team, and the rest of the organization is important. This view is also advocated by Guimareas and Igbaria (1997), McComb et al., 2008; Naranjo-Gil, 2009, and Dong et al., 2009. During the ERP project at the manufacturing firm, weekly team meetings chaired by a top manager were held. These sessions were perceived as a very strong form of top management support. Additionally, frequent e-mails, phone calls, and face-to-face meetings addressed the communication needs of the project members.

8.4. Developing and deploying expertise

The respondents believed that an adequate degree of knowledge of, and interest in, the project by the top managers was an important form of support. Adequate knowledge included a sufficient understanding of both the content and the implications of the system proposed. In this line, developing and demonstrating expertise as a form of top management support has also been suggested by Jarvenpaa and Ives (1991), Ifinedo (2008), and Ragu-Nathan et al. (2004).

8.5. Using power

Another important example of supportive top management behavior was the use of formal power in the execution of the projects. Resolving conflicts and protecting the project team during political battles was viewed as a role of top management. The use of political capital as a form of top management support has also been suggested by Pettigrew (1973), Boonstra and Van Offenbeek (2010), and Staehr (2010).

The application of the developed framework (see Table 3) has enabled the identification of different 'top management support profiles'. In this study, the profiles found in the various cases were as follows:

Manufacturer intensive support aimed at accommodating the project.
Financial service provider an intensive and broad range of supportive behaviors.

Dairy food company a decreasing level of support aimed at accommodating the project and adapting the technology through the use of expertise and power.
City council a low degree of support with a focus on communication.
Hospital a low degree of support with a focus on the implementation process and the technology.

These profiles were, in some cases, a deliberate choice by the executive board, but in others a consequence of scarce resources or a lack of awareness of the potential possibilities to provide top management support.

The case analysis has indicated that an effective combination of several types of activities can create a functional mix of top management support. The e-government project demonstrated that a one-sided reliance on communicative activities without other types of support, such as adequate resource provision, is an ineffective approach with little impact. This type of support may be easily experienced as ritualistic rather than as genuine support. Conversely, the manufacturing project showed that top management support can also be too extensive (Keil, 1995). In such cases it may be perceived as intimidating. People may come to feel that the project is undermining other essential business activities. This extreme form of top management support could lead to resistance and even to hostility toward the project. These findings lead us to conclude that top management support is a context-dependent balancing act involving several types of support, with various intensities, aimed at a range of goals which may change over time. Given this context dependency, top management may best follow the Goldilocks Principle[1]: seeking out a level of support which is just right, not too low, and not too high, and which is continuously adapted to maintain the optimum balance.

8.6. Implications for theory

In this study, we have deliberately concentrated on the content of supportive behavior by top management rather than on the effects of this support on project outcomes. Prior studies have mainly focused on the effects of top management support on project success, while treating the support concept as a single construct. Our study has primarily addressed the content of top management support, arguing that it consists of a set of inter-related behavioral categories exhibited during a project. Although these categories have partially been identified in other studies, until now they have not been depicted as a potentially coherent and fine-grained set of interrelated behaviors that can be identified and tracked throughout an implementation process.

This study has also shed some light on the reasons for either providing or withholding top management support. Here, we

---

[1] http://en.wikipedia.org/wiki/Goldilocks_Principle.

emphasize that support is a scarce resource in terms of finance, people, communication, attention, expertise, and time; arguing that it has to be rationed when distributing it among all the topics potentially relevant to a firm. In other words, while top management support for an IS project potentially requires a highly demanding and intensive set of behavioral categories, top managers are often pressurized into choosing between current organizational activities and new initiatives. Another explanation for low support concerns the inherent risks of IS projects: failure may damage the reputation and credibility of top management if they are seen as closely involved.

8.7. Implications for practice

This research has offered practitioners a more complete and fine-grained framework for determining the provision of top management support in terms of specific behaviors. This framework is focused on a functional combination of intertwined supportive behaviors. Our study has also demonstrated the dynamic character of top management support. For the implementation trajectory of a new system to remain effective, managers have to be flexible, which means that they must be willing to adjust their supportive behaviors if circumstances so require. The framework can be used in discussing, planning, adjusting, and evaluating top management support in various contexts. Its use can stimulate top managers to tune their specific supportive behaviors to both the available and the required means based on the context and the characteristics of the system. The research has conceptualized top management support as a scarce and valuable resource, drawing attention to the potential reasons for both non-support and the provision of excessive or inappropriate types of support.

8.8. Further research

This explorative research has also left a number of questions unanswered. For example, the categorization of top management support suggested in this study raises the question of how effective these profiles are, and how they are related to project outcomes. Further research could therefore examine to what extent supportive behaviors are inter-related, substitutable, or complementary; and whether different project phases require different types of support. Research could also usefully examine how institutional and technological contexts explain, shape, or inhibit the various top management support behaviors. This study gives some support to the idea that top management support in government or healthcare contexts needs to be different from that in manufacturing or financial services. Different types of complex information systems may also require different supportive behaviors from top management. Especially when the intensive cooperation of different business units or external partners is required, special types of top management support might be needed. We have also argued that top management support is a scarce resource which should therefore be employed with care, implying that the level of support should neither be too low nor too high. More research is needed to analyze the appropriate degree of support for the various types to better guide managers in providing appropriate assistance (Jarvenpaa and Ives, 1991).

8.9. Limitations

The theory based research model that we used in this study proved to be instrumental in mapping supportive behaviors of top management. However, we acknowledge that more fine grained categorizations and alternative approaches are possible and may shed other lights on supportive actions of top management. We collected our data from only five organizations, all of which were implementing different types of strategic information systems. Therefore, we cannot claim that our findings have provided a complete overview of the issues surrounding top management support in the various types of IS projects. It might, for example, be possible that certain of the identified behavioral support types are associated with specific types of information systems. Although we, to some extent, used multiple methods to triangulate our findings, we did rely heavily on data from our interviews with top managers, project managers, and business managers. Interviews with other members of top management as well as with a larger number of users, IS staff members, and external consultants might have resulted in more, and richer, perspectives on our research topic. Nevertheless, we think that our results show sufficient promise to hopefully inspire top managers, project managers, and others to rethink the concept of top management support and to organize it as effectively as possible given the characteristics of the project and the constraints of its context. We also hope that this explorative study will encourage additional qualitative and quantitative studies into the role of leadership in IS projects.

9. Conclusions

Despite the general agreement on the importance of top management support for strategic IS projects, a comprehensive view of the behavioral spectrum that makes up this concept has been lacking. Many authors have studied the relationship between top management support and project success, while often treating top management support as a single construct. Others have proposed various supportive actions and behavioral dimensions to top management support. This study adds to the earlier contributions by developing a framework, empirically exploring the applicability of its dimensions, and then, using an integrative lens, evaluating behavioral dimensions and the aims of top management. The contribution of the framework is that it provides a richer and more coherent description of the supportive behaviors of top managers than was previously possible. We would encourage further theorizing on the completeness, effectiveness, and inter-relatedness of the identified behaviors. Finally, and perhaps most valuably, the framework leads to some practical suggestions on how to more accurately monitor and more effectively manage top management support.

Appendix A. Coding scheme

Provisional start list of master codes derived from conceptual framework:

AIP	accommodating the implementation process
SOC	shaping the organizational context
AT	adaptation of technology
DS	dealing with stakeholders.

Chronology:

IP	initiation phase
DP	design phase
IMP	implementation phase.

Inductive and revised codes, developed during data analysis:

RP	resource provision
SA	structural arrangements
C	communication
E	expertise
P	power.

To characterize top management support we used the following codes:

I	Intentions
B	Behaviors, acts
IA	Interactions among actors
ST	Strategies and tactics
P	Participation
E	Events.

		IP					DP					IMP				
		RP	SA	C	E	P	RP	SA	C	E	P	RP	SA	C	E	P
Manu-facturer	AIP															
	SOC															
	AT															
	DS															
Financial service provider	AIP															
	SOC															
	AT															
	DS															
Dairy food	AIP															
	SOC															
	AT															
	DS															
City council	AIP															
	SOC															
	AT															
	DS															
Hospital	AIP															
	SOC															
	AT															
	DS															

References

Bardi, E., Raghunathan, T.S., Bagchi, P.K., 1994. Logistics information systems: the strategic role of top management. Journal of Business Logistics 15 (1), 71–85.

Beath, C.M., 1991. Supporting the information technology champion. MIS Quarterly 15 (3), 355–372.

Bingi, P., Sharma, M.K., Godla, J.K., 1999. Critical issues affecting an ERP implementation. Information Systems Management 16 (3), 7–14.

Boonstra, A., 2003. Structure and analysis of IS decision making process. European Journal of Information Systems 12 (3), 195–209.

Boonstra, A., 2006. Interpreting an ERP-implementation project from a stakeholder perspective. International Journal of Project Management 24 (1), 38–52.

Boonstra, A., 2011. How and why do top managers support or not support strategic IS projects? In: Cruz-Cunha, Varajao, Powell, Martinho (Eds.), Enterprise Information Systems — Aligning technology, organizations and people. CCIS series. Springer Verlag, pp. 369–379.

Boonstra, A., Van Offenbeek, M.A.G., 2010. Towards consistent modes for e-health implementation, Analysis of a telecare programme's limited success. Information Systems Journal 20 (6), 537–561.

Bourdieu, P., Loïc, J.D.W., 1992. An Invitation to Reflexive Sociology. Chicago and University of Chicago Press, London.

Bruqué-Cámara, S., Vargas-Sánchez, A., Hernández-Ortiz, M.J., 2004. Organizational determinants of IT adoption in the pharmaceutical distribution sector. European Journal of Information Systems 13 (2), 133–146.

Chae, B., Poole, M.S., 2005. Mandates and technology acceptance: a tale of two enterprise technologies. The Journal of Strategic Information Systems 14 (2), 147–166.

Doll, W.J., 1985. Avenues for top management involvement in successful MIS development. MIS Quarterly 9 (1), 17–35.

Dong, L., 2008. Exploring the impact of top management support of enterprise systems implementations outcomes. Two cases. Business Process Management Journal 14 (2), 204–218.

Dong, F., Neufeld, D., Higgins, C., 2009. Top management support of enterprise systems implementations. Journal of Information Technology 24 (1), 555–580.

Ehie, I., Madsen, M., 2005. Identifying critical issues in enteprise resource planning (ERP) implementation. Computers in Industry 56 (6), 545–557.

Eisenhardt, K.M., 1989. Building theories from case studies research. Academy of Management Review 14 (4), 532–550.

Eisenhardt, K.M., Graebner, M.E., 2007. Theory building form cases: opportunities and challenges. Academy of Management Journal 50 (1), 25–32.

Gerring, J., 2004. What is a case study and what is it good for? American Political Science Review 98 (2), 341–354.

Gottschal, P., 1999. Strategic information systems planning: the IT strategy implementation matrix. European Journal of Information Systems 8 (2), 107–118.

Green, S.G., 1995. Top management support of R&D projects: a strategic leadership perspective. IEEE Transactions on Engineering Management 43 (3), 223–232.

Guimareas, T., Igbaria, M., 1997. Client/Server System Success: exploring the human side. Decision Sciences 28 (4), 851–876.

Ifinedo, P., 2008. Impacts of business vision, top management support, and external expertise on ERP success. Business Process Management Journal 14 (4), 551–568.

Igbaria, M., Zinatelli, N., Cragg, P., Cavaye, A.L.M., 1997. Personal computing acceptance factors in small firms: a structural equations model. MIS Quarterly 21 (3), 279–305.

Jarvenpaa, S.L., Ives, B., 1991. Executive involvement and participation in the management of information technology. MIS Quarterly 15 (2), 205–227.

Kazanchi, D., Reigh, B.H., 2008. Achieving IT project success through control, measurement, management experience and top management support. International Journal of Project Management 26 (7), 699.

Kearns, G.S., 2006. The effect of top management support of SISP on strategic IS management: insights from the US electric power industry. Omega 34 (3), 236–253.

Keil, M., 1995. Pulling the plug: software project management and the problem of project escalation. MIS Quarterly 19 (4), 421–447.

Liang, H., Saraf, N., Hu, Q., Xue, Y., 2007. Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management. MIS Quarterly 31 (1), 1–29.

Lin, H.F., 2010. An investigation into the effects of IS quality and top management support on ERP system usage. Total Quality Management and Business Excellence 21 (3), 335–349.

Markus, L.M., Tanis, C., 2000. Multisite ERP implementations. Communications of the ACM 43 (4), 42–47.

McComb, S.A., Kennedy, D.M., Green, S.G., Compton, W.D., McComb, S.A., 2008. Project team effectiveness: the case for sufficient setup and top management involvement. Production Planning and Control 19 (4), 301–311.

McLoughlin, I., 1999. Creative Technological Change. Routledge, London.

Miles, M.B., Huberman, M., 1994. Qualitative data analysis. Sage, Thousand Oaks.

Morton, G.H.A., 1983. Become a project champion. International Journal of Project Management 1 (4), 197–203.

Naranjo-Gil, D., 2009. Management information systems and strategic performances: the role of top team composition. International Journal of Information Management 29 (2), 104–110.

Orlikowski, W.J., Yates, J., Okamura, K., Fujimoto, M., 1995. Shaping electronic communication: the metastructuring of technology in the context of use. Organization Science 6 (4), 423–444.

Pettigrew, A.M., 1973. The Politics of Organizational Decision-Making. Tavistock Publications, London.

Pettigrew, A.M., 1988. The Management of Strategic Change. Basil Blackwell, Oxford, London.

Purvis, R.L., Sambamurthy, V., Zmud, R.W., 2001. The assimilation of knowledge platforms in organizations: an empirical investigation. Organization Science 12 (2), 117–135.

Ragu-Nathan, B.S., Apigian, C.H., Ragu-Nathan, T.S., Tu, Q., 2004. A path analytic study of the effect of top management support for information systems performance. Omega 32 (6), 459–472.

Rodgers, R., Hunter, J.E., Rogers, D.L., 1993. Influence of top management commitment on management program success. Journal of Applied Psychology 78 (1), 151–155.

Sharma, R., Yetton, P., 2003. The contingent effects of management support and task interdependence on successful information systems implementation. MIS Quarterly 27 (4), 533–555.

Staehr, L., 2010. Understanding the role of managerial agency in achieving business benefits from ERP systems. Information Systems Journal 20 (3), 213–238.

Walsham, G., 1993. Interpreting Information Systems in Organizations. Wiley, Chichester.

Walsham, G., 1995. Interpretive case studies in IS research: nature and method. European Journal of Information Systems 4 (2), 74–81.

Walsham, G., 2006. Doing interpretive research. European Journal of Information Systems 15 (3), 320–330.

Yetton, P., Sharma, R., Southon, G., 1999. Successful IS innovation. The contingent contributions of innovation characteristics and implementation process. Journal of Information Technology 12 (1), 53–68.

Yin, R.K., 2011. Case study research: design and methods. Sage, Thousand Oaks.

Young, R., Jordan, E., 2008. Top management support: mantra or necessity? International Journal of Project Management 26 (7), 713–725.