IT PROJECT GOVERNANCE:
A PROCESS-ORIENTED STUDY OF ORGANIZATIONAL CONTROL AND EXECUTIVE INVOLVEMENT

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Background Note

This paper briefly summarizes the Ph.D. thesis "IT Project Governance" by the same author. Some sections of the paper draw upon Mähring (1998), a research-in-progress paper reporting on the same research study.

Abstract

This paper addresses organizational control of IT projects, specifically how control forms and evolves over time and how executives engage in the control task.

Viewing executive involvement in its organizational context, the thesis builds on studies on executive involvement in IT (including top management support), IT project escalation and IS project control, while drawing upon theories on projects, commitment, organizational control and professions. An in-depth, interpretive case study of a large, multi-year IT project in a financial company forms the empirical basis of the study.

The study uncovers how characteristics of information systems development work tasks stack the deck against controllers, rendering output control and behavior control largely impracticable. Instead, control is constructed through selection of key people (input control), rituals resembling output and behavior control, reliance on evolving trust and other people's assessments, and through the construction and reconstruction of a project image, which summarizes scope and aims of the project.

In contrast to earlier studies, "strong top management support" is found to be an extraordinary measure for extraordinary circumstances, but problematic as prescription for regular organizational practice. Commitment is decoupled from resource allocation, refuting a central assumption of escalation theory.

Keywords: IS project control, IT project management, top management support, executive involvement in information technology, organizational control, case study, interpretive research.

1. Coping with Complex IT Projects—A Classic and Contemporary Problem

Picture yourself in a boat on a river,
With tangerine trees and marmalade skies...
(Lennon-McCartney, 1967)

While I would not go as far as saying that *this* is how executives perceive their involvement in IT projects, many executives *do* seem to perceive the realm of information technology (IT) as a strange and foreign landscape. In fact, executive involvement in IT projects can be seen as a case of a classic problem in organizational control theory: Managing sensibly what you do not quite understand (Perrow, 1986/1972). This problem is perhaps most visible in the context of managing professionals (ibid), as is indeed the case where IT projects are concerned (Beath and Orlikowski, 1994).

Coping with complex IT projects has been a central problem for the field of information systems and its practice for decades (Ackoff, 1967; Keider, 1984; Sauer, 1993a). Whereas information technology becomes an increasingly important, integral part of organizations, the failure rate of IT projects remains high (Cole, 1995; Johnson, 1995). Not only do IT projects frequently fail, they also take on dysfunctional development patterns, resulting in information systems which are not used or which do not achieve intended or desired effects in the organization (Ginzberg, 1981; Lyytinen, 1988; Markus and Keil, 1994).

The need for "top management support" has frequently been cited as necessary for IT project success as well as for other forms of IT deployment and use in organizations (Keen and Scott Morton, 1978; Jarvenpaa and Ives, 1991; Bardi et al, 1994). However, it can be argued that relatively little is known about what this support consists of and how it is provided (Sauer, 1993b). Perhaps consequently, top management support is often far from simple to obtain (Briner et al, 1996) or provide (ibid; Mähring, 1996). However, as will be discussed below, the very concept of top management support may lead to difficulties in capturing important aspects of the problem of managerial involvement in IT implementation.

In general, the literature on managerial involvement in IT sees managerial involvement as inherently good. It can, however, also be bad or outright ugly. This is sometimes the case for runaway IT projects, where escalation of commitment of senior managers is seen as an important factor behind the continuance of "doomed" IT projects (Keil, 1995b). These findings certainly add complexity to the problem in that "top management support" becomes not only difficult advice to follow, but also one which (at best) downplays the risks associated therewith. Whereas research on escalation of commitment to IT projects has added important aspects to the understanding of executives and IT projects, it has yet to offer a coherent view of how executives involve themselves in (the control of) IT projects and how the interrelation between executives and project (management) is constituted.

It is a common feature of much of the literature directly or indirectly addressing IT projects to be "project-centric", delimiting the discourse to the project as an entity. This is also evident in the project management literature, which frequently focuses on how a project (often any project) should be carried out and has a strong focus on the project manager's role (Thomsett, 1980; Lock, 1988). Similarly, theories on projects (or temporary organizations) often focus on the project as organization, and on its life and times (Goodman and Goodman, 1972; Lundin and Söderholm, 1995).

With this view, problems related to an IT project are apt to be seen as project management problems, to be solved by a project manager. A likely consequence is that the contextual influences (organizational/social and historical) on the project become obscure and under-emphasized. In studies specifically of IT projects, the term "top management support" can in itself be seen as project-centric: It defines managerial action in terms of what managers can or should do for a project.

In contrast to focusing on project management, there are interesting results from studies using organizational control theory to study how IT projects are controlled (Kirsch, 1996; 1997). These studies also point to a need for a better understanding of the process of executive involvement in IT projects. Consequently, this study focuses on the project as embedded in an organization and on the organizational control of the project. To distinguish the focus of this study from a narrower focus on project management (or project administration), the term *IT project governance* is used to denote organizational control of an IT project.

2. Research Objectives, Questions and Some Central Delimitations

Specifically, the purpose of this study is to contribute to the understanding of IT project governance, through investigating the following two questions:

1. How does organizational control of large intra-organizational IT projects form and evolve?
2. How do executives engage in the control of intra-organizational IT projects?

While the discussion in the first section outlines the study´s focus, the purpose also contains a delimitation to intra-organizational (not inter-organizational) IT projects. Additional delimitations include a focus on large, mission-critical information systems and the choice to exclude user-related organizational change from the primary focus of the study, where the latter helps facilitate the focus on governance processes.

3. Central Theory Areas for the Study

Three central theory areas help build the case for this study: executive involvement in IT (projects), IT project escalation and IS project control. It also summarizes employed concepts taken from project theory, organizational control theory and professions theory.

Executive involvement in IT in general (Rockart and Crescenzi, 1984; Jarvenpaa and Ives, 1991; Earl and Feeny, 2000) and in IT projects in particular (Lucas, 1975; 1981; Bardi et al, 1994) is a classic area of study within IS. This study classifies earlier studies in this area into three categories, based on their underlying assumptions of management, as expressed in the approaches and conclusions of the respective studies. Briefly, these perspectives, taken from research on management, focus on *functions* (Barnard, 1956/1939), *roles* (Mintzberg, 1973), and *leadership* (Kotter, 1982).

The functional view is predominant in studies on "top management support", in which managerial actions are often viewed as a set of functions to be delivered to facilitate the success of an IT project (Lucas, 1975; Sauer, 1993a) or indeed any project (Pinto and Slevin, 1987; Ford and Randolph, 1998). This view is often studied in factor studies (Markus and Robey, 1988), which have been helpful in providing evidence on the importance of senior management involvement, but have not provided in-depth knowledge about IT project governance processes. This research also tends to be project-centric: project success is the dependent variable, it assumed that IT projects should "always" be completed and organizational consequences are secondary.

In the role-based view (Rockart and DeLong, 1988; Benjamin and Levinson, 1993), individuals take on different roles, and several interrelating roles need to be performed sufficiently well for an IS development and implementation process to be successful. Studies employing this perspective often identify one or a combination of roles that facilitate successful IS implementation. Typically, these include an executive with formal authority ("executive sponsor"), an active executive acting as change agent ("operating sponsor") and a project manager (Rockart and DeLong, 1988; Lederer and Nath, 1991; Beath, 1991; McKenney, 1995). While role-based studies take into account individual roles bearers and include that roles are performed in organizational contexts, these studies often do not address dynamics of governance processes in terms of how roles (and role incumbents) change during the course of a project.

The third perspective focuses the leader as person and/or leadership as a process. In this perspective, one individual is often seen as driving and facilitating successful implementation of information technology through her/his personal characteristics and/or abilities to manage change processes (Walton, 1989). This view is infrequently used within IS and when used (ibid) indicates managerial behaviors very similar to those described in the general leadership literature (Kotter, 1982).

Escalation theory (Staw and Ross, 1978; 1987; Brockner, 1992) has during the last decade been put to interesting use in the IS field (Keil, 1995b; Newman and Sabherwal, 1996; Keil and Montealegre, 2000). The Staw and Ross (1987) framework (used e.g. by Keil, 1995b) states that escalation of commitment is promoted by project, psychological, social and organizational factors. In contrast to the top management literature, this research shows that executive involvement can be directly related to project failures. Is this theory, escalation of commitment is largely equated with escalation of an organizational course of action, where the latter is defined as continued allocation of resources in the face of negative feedback (Brockner, 1992). In fact, many of the studies use continued resource allocation as measure of commitment (ibid; Staw, 1976; also Keil, 1995b). However, when studying governance processes, what commitment really is becomes important.

Salancik (1977a; 1977b) suggests that commitment is a psychological state resulting from actions characterized by visibility, irrevocability and volition. These characteristics are a matter of perception and construction by the actor and by people in the social context (Salancik, 1977b; Brunsson, 1985). Being committed is being bound to a line of action: If ties are "strong", they persist through the effort of pursuing a line of action to a goal or result (Brunsson, 1985). Actions leading to commitment include promises to endorse and participate in an action and assuming responsibility for the concerned action. Consequently, responsibility can be avoided by non-participation, non-endorsement or opposition. This, however, comes with a risk should the proposed action take place and be perceived as successful (ibid). Expectation influences commitment: it is detrimental to associate with a prospective action unlikely to materialize. On the other hand, commitment increases the individual's motivation to see the line of action through, and the commitment of important parties influence expectations that the line of action will be carried out (ibid).

This view of commitment contrasts with escalation theory and indicates an area which can shed additional light on the dynamics of executive involvement. So also does earlier studies on IS project control (Kirsch, 1996; 1997). These studies employ organizational control theory (Ouchi, 1979; Eisenhardt, 1985; partly based on corporate governance theory, e.g. Jensen and Meckling, 1976) to study how controllers (executives) act in the control of controllees (project managers). Kirsch (1996; 1997) studied organizational control of project managers using modes of control including behavior, outcome, “clan” and self control. Kirsch (ibid) found that outcome control is related to perceived outcome measurability and that IS development methodologies are replete with behavior control mechanisms that put controllers without domain knowledge at a disadvantage. She also found that controller role expectations, controller competence and availability of pre-existing mechanisms are of importance in how control forms are chosen by managers. Reliance on self control by the controllee was a frequent fallback when other control forms failed.

Kirsch (ibid) provides details on what managers do when controlling IS projects, as well as (partial) explanations for managers' choices of certain control forms over others in different circumstances. She also points to the importance of looking at combinations of control forms and shows that control theory can provide a means for studying managerial involvement from a project governance perspective rather than from a project management perspective. As for a coherent process view of control (formation) processes, this is lacking but indicated by Kirsch (1997) as an important extension of existing work.

In addition to the control forms used in previous IS studies, this study also employs *input control* (Sjöstrand, 1987), which includes selection and replacement of people included in the project, such as project manager, user representatives and technical experts. Furthermore, this study uses concepts taken from theories on organizational control, projects and professions to help build understanding of how managerial control is carried out. These concepts include *dominant coalition* (Cyert and March, 1992/1963; Child, 1972; also Kling and Iacono, 1984) which concerns the formation of influential groups, *managing your boss* (Gabarro and Kotter, 1980) and *interpersonal trust* (Pennings and Woiceshyn, 1987) which concerns influences in and characteristics of control relationships, and *embeddedness* (Løwendahl, 1995), *bracketing* (Lundin and Söderholm, 1995) and *boundary-spanning* (Guinan et al, 1998) which all concern the relationship between a project and its environment. *Professional norms and values* help explain how professionals employed in non-professional organizations may have views and priorities at odds with their organization, and that a professional group can further their standing in an organization through furthering norms, values and practices of the profession, thereby claiming *jurisdiction* over organizational tasks (Abbott, 1988; Wallace, 1995).

4. Research Design and Work Process

The empirical basis of the study is an in-depth, retrospective, interpretive case study. Case studies are often advocated for intensive research where the in-depth understanding of a phenomenon in its context is desired (Benbasat et al, 1987; Walsham, 1993). This aim is in turn congruent with the study's underlying interpretive epistemology (Myers, 1997), and case studies have been suggested as a preferred research method for interpretive research (Walsham, 1993).

The process of finding and selecting a research site resulted in the choice of a large, complex IT project which had taken place in a mid-sized European bank. The six-year project concerned the replacement of the transaction-processing information system for both private and corporate deposits, and was of crucial importance for retail banking operations. Data collection methods used in the study are interviews (31 interviews); studies of documents, corporate records and external press coverage (together several thousand pages); and observation of the implemented information system in use (Yin, 1994).

Whereas reliance on retrospective data collection meant forsaking the richness of direct observation, it also enabled the study of post-implementation developments in the company. Potential biases in retrospective interviewing (see Glick et al, 1990; Golden, 1997) were compensated by triangulation within and between different data sources, the use of a time-line to arrange data and build a coherent story, source critique and formulation of alternative explanations (Yin, 1994; Golden, 1997; Mason et al, 1997).

Instead of a singular "unit of analysis" (Yin, 1994), the concept of multiple *levels of analysis* (Strauss and Corbin, 1990) was employed. The primary level of analysis (ibid) for the case was managerial influence and control of the IT project. Other levels of analysis included project management, the project work process, corporate IT management and the organization. Analysis levels were used as a basis for data coding. In conjunction with coding, the time-line was used to arrange data chronologically (Mason et al, 1997). On this basis, the case study narrative was constructed through an iterative work process of reading, arranging, structuring, analyzing and writing (Coffey and Atkinson, 1996; Mason et al, 1997).

The often-discussed issue of generalization from one case was managed with help of *analytical generalization* (Yin, 1994), where the basis for formulating general statements can be seen as relying upon the definition of a class of phenomena of which the studied case is an instance (or member).

The class, outside of which knowledge claims from this study are weaker,is defined in the following: The type of *organizational setting* can be characterized as information-intensive organizations where information technology is part of the core technology of the firm, while the primary organizational tasks are outside the jurisdiction of the IT profession. The type of *project* is large, complex, non-repetitive, multi-year, intra-organizational information systems development projects, employing technology new to the organization. The type of *information system* to be developed is "mission-critical", operative (i.e. transaction-processing) information systems, part of the core technology of the organization, aimed at replacing an existing legacy information system, and associated with little or no user-related organizational change. The type of *IS innovation* (cf. Swanson, 1994) is innovations of IS product and technological infrastructure of the business, with limited or no business product innovation.

To help distinguish how control evolves over time, project phases were constructed for the studied project process (see Figure 1). Criteria for delimiting phases included critical events and shifts in the character of project governance (e.g. the control relationship), project management and project work. This means that the study uses a modified version of the punctuated equilibrium model (Tushman and Romanelli, 1985; Gersick, 1991; Newman and Robey, 1992), where critical events are not assigned the centrality of "encounters" and where phases are partly overlapping, underscoring the gradual changes in the processes studied.

5. Highlights from the New Deposit System Project

For this paper, I have chosen to focus on a few specific episodes or highlights from the case, which in total covers thirty years of IT history in the studied organization, with specific focus on the years of the New Deposit System (NDS) project and its immediate pre- and post-history, 1985–1995. Highlights allow focusing on sequences of events that illustrate and support selected findings from the study.

The first highlight concerns the emergence of the NDS project. In the autumn of 1987 a preliminary feasibility study (or "pre-study") was initiated jointly by the Business Development (BD) and IT departments. The department managers were involved, as were other people in the departments responsible for deposit system and related system issues. The official reason was that the current deposit system was aging and needed replacement.

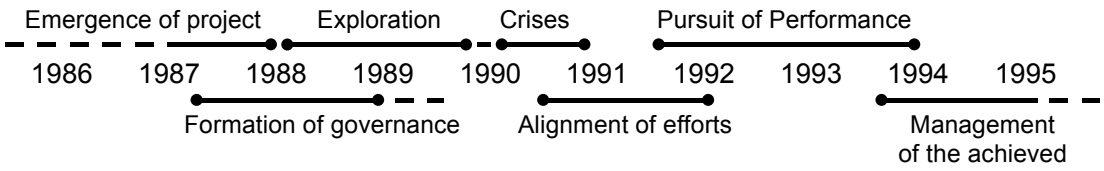

Figure 1: Phases in the NDS Project

But there is also a more complex story. For at least 6–7 years, the IT department had defended itself against user complaints about unresponsiveness by referring to the aging deposit system and its maintainability problems. The backlog itself, and the repeated references to the deposit system as culprit, increasingly built a case for replacing the old system. Furthermore, an effort had been made to develop a limited new deposit system for corporate accounts a few years earlier. This project was cancelled in 1985, partly due to project-internal problems. The cancellation was explained with a need for additional developers to finish a large hardware/systems software project and framed as a postponement, not a cancellation. This and the other developments constructed an increasingly persuasive "truth" about the need for imminent replacement of the deposit system. Discussions between involved people built on this view and as the pre-study got under way, a group of people who knew each other and had discussed the matter for some time were involved in making it happen. The project "happened" as a result of the developing consensus view: in retrospect, leading actors are of the opinion that it was "the other guy" that drove the process forward.

It was [the BD manager] who brought up the issue. I would probably have preferred to forget about it. Running large projects is terrible.

Erik Östergren, IT manager

... the main focus, what initially drove the project forward, was the IT department's issues.

Karin Martinson, head of Business Development

In contrast to much of the project literature, we can here see the importance of the project pre-history, how the project is embedded in the organization (Løwendahl, 1995) and temporally interconnected—earlier developments explain why and how the project happens. In contrast to the role-based literature on executive involvement (see above), we can also see the dynamics of a group of actors forming an opinion of the situation and a remedy, rather than individuals taking on clearly visible "roles" (see above). As the project is initiated, the idea that the project is "necessary and urgent" gains increased foothold and helps summon approval for the project by the corporate IT board and the CEO.

The second highlight concerns the formation of project governance, which was influenced by and included the same people involved in the discussions preceding the pre-study. An important addition to the controlling body was an executive vice president, whom the BD and IT managers had suggested to the CEO as chairman of the project steering committee and "commissioner" for the project.

We chose Frans based on his reputation and influence in the organization, and he said something like 'You want me to take responsibility for this project? That sure stinks, but OK, I'll do it'.

Erik Östergren, IT manager

Why I got into the project? Well... I was in it from the start. ... I saw my role mainly as making sure that [the project] didn't run away.

Frans Trenter, executive vice president

The executive vice president was "drafted" by the CEO and defined his role narrowly as concerning cost control. Although Trenter had no domain knowledge, regular project control procedures (developed by the IT department) were adopted without modification or discussion. In the first year of the project, there were repeated upwards cost and time revisions. Directives from the committee about keeping costs down (output control) were fruitless. Behavior control was exercised through IS development procedures rather than by the committee, but in either case

work procedures were not readily measurable or observable. Project reporting included behavior controls, but these were largely assessed and determined by the project manager, due to lack of controller domain knowledge and the received view of project management responsibilities.

Conflict soon arose in the committee with Trenter arguing for accountability from the IT manager and for cost control, while the IT manager and the IS development manager tried to explain about exploration and about IS development work; about "how we do things". Ultimately, Trenter resigned as commissioner but stayed on half-heartedly in the committee.

This episode supports Kirsch's (1997) findings concerning the importance of controller role expectations, controller competence and availability of pre-existing mechanisms for how control forms are chosen by managers. It also adds evidence on the influence of professional norms and values on what is considered acceptable or even preferable behavior, "how we do things". Further, it also shows an ineffectiveness of output and behavior controls due to task characteristics and controller domain knowledge.

The third highlight concerns the second part of the crisis in the project. After the early formation of project governance, conflicts had emerged and subsided in the steering committee in relation to recurrent negative reports at steering committee meetings. Confidence in the first project manager deteriorated and an external review contributed to replacement of the project manager, but problems with recurrent increases in estimated cost (the first estimate had been 5 million euros, the current was past 15 million euros) and time continued, ultimately leading to a crisis meeting for the steering committee in October 1990. This crisis was resolved by replacement of the second project manager and through re-commitment by the steering committee and its individual members to the continuance of the project.

The third project manager was highly regarded in the IT department and the project. His appointment was perhaps the single most effective control measure (input control) taken by the steering committee to this point. But upwards revisions of cost estimates continued (closing in on 25 million euros) and the IT manager found himself in an increasingly tight spot. His mandate from the CEO—in line with corporate culture—concerned control of IT costs. While he had continuously emphasized shared responsibility for the NDS project among steering committee members, prominent committee members from the user and general management communities saw the IT manager as ultimately responsible for the project and the CEO continued to emphasize the IT manager's accountability for IT cost control in the corporate IT board meetings.

At a January 1991 steering committee meeting, the IT manager proposes cancelling the NDS project. For many committee members, this comes as a surprise, and several people object, including the executive vice president, the union representative and the (new) business development manager, who see the IT manager as shunning responsibility for the project. The disparate opinions lead to the matter being brought to the CEO and then to the appointed CEO

successor, who initiates a hearing that is carried out by himself, the executive vice president for administration and the business development manager. The IT manager has now de facto reversed his commitment to the project, involuntarily being seen as committed to the opposite course: there had been no middle ground.

We here see that continued resource allocation in the face of negative feedback on project progress (the common definition of escalation of commitment, see above) had continued for several years while personal commitment to the project had been shuffled around in the steering committee and remained low. Only as actors moved into a situation where increased commitment could not be avoided was the project seriously questioned. This process directly contradicts a central finding in escalation studies (Staw and Ross, 1978; 1987) and IT project escalation studies (e.g. Keil, 1995b), namely the positive correlation between personal commitment and escalation. It also refutes the central assumption of escalation theory that escalation of commitment is directly mirrored in resource allocation decisions. In this case, the project budget had increased from 5 million euros to over 20 million euros before the pressure of increasing commitment became imminent for individual actors.

After 16 hearing meetings with people involved with the project the CEO-to-be decided on continuing the project, with a budget of 35 million euros, in the process also sanctioning a related project at 3.5 million euros. The corporate IT board is relegated to confirming these decisions. In personal conversation with the project manager the CEO-to-be set a confidential, definitive cost limit at 50 million euros. The IT manager turns to working on supporting the project, but from now on has limited influence over project governance. Project participants are relieved, project work is rejuvenated.

> *Then, it was full speed ahead and a lot of happy faces. ... You could say that [the CEO-to-be] taking hold of the issue, together with [the third project manager's] personal qualities and the crisis the project was in, led to a positive turn-around.*
>
> *Nils Høeg, head of user representatives*

In the hearing aftermath, some steering committee meetings were postponed and even when there were meetings, control was in effect carried out by the BD manager (also commissioner).After the CEO-to-be's decision, this was a highly sanctioned project:

> *The level of support [from the IT organization] was exceptional. It was almost too much at times. ... There was some excess force used on the environment. ... like when people [in the project] said 'you wouldn't want to risk NDS, would you?' when others were to do things that the project needed.*
>
> *Christian Englund, external consultant*

While this development initially may seem to support conventional wisdom and earlier studies on "strong top management support", it also illustrates a darker side of extensive direct CEO involvement. While uncertainty is effectively reduced in the project, contributing to increased efficiency and increased support from the project environment, the highlight also shows how CEO intervention is followed by incapacitation of regular procedures and arenas for IT governance (project steering committee, corporate IT board), how cost control is relaxed and how one IT project is prioritized over all others. (In this case, this priority e.g. included postponing improvements of other operative information systems for 18 straight months.) These organizational consequences of strong top management support are often not included in studies on top management support (e.g. Lucas, 1975; 1981; Pinto and Slevin, 1987; Sauer, 1993b; Bardi et al, 1994).

Furthermore, even if organizational consequences were deemed acceptable, this type of support is not readily repeatable: Another project cannot be given the same treatment during the course of the NDS project (which was completed more than three years after the project hearing) without undoing part of the setting created for NDS, creating conflict over which project is more sanctioned. Even if these actions were repeated over time, with one project at a time, the effects would still not be the same: part of the impact of CEO intervention lay in its being perceived as extraordinary and unique. If repeated, the meanings attributed to CEO intervention would shift, e.g. leading to a de facto centralization of part of the decision making for IT projects.

The final highlights from the case study concern phenomena that span the project governance process over time, specifically dynamics of the control relationship and evolution of the project image.

In the NDS project, the interaction between the controllers and the controllee over time built considerable interpersonal trust (Pennings and Woiceshyn, 1987), which manifested itself in increasing leeway for the project manager (increased reliance on self control) and increased project manager influence over the control agenda (managing upwards). The project manager also over time invited steering committee members to monthly project management meetings, increasing openness in the control hierarchy. Towards the end of the project, the steering committee perceived little opportunty or reason for influencing the project, instead supporting it, promoting it in the organization, cheering on and crossing their fingers: paradoxically, while their trust in and understanding of the project increased, their influence on the project decreased. The impact of evolving trust and of project path-dependency on the dynamics of organizational project control seem to not have been reported in earlier studies.

The project image changed several times related to developments in and around the project and renegotiations between involved actors. From "necessary and urgent" it evolved via "the project in the making" (which postponed criticism) and "the large project" to "the project in crisis" and

"the sanctioned project". As branch offices criticized (distributed) project costs, the project image evolved to "the heart-of-the-enterprise project" and "the competitive advantage project" (indicating project priority, pride in the bank's ability to carry out the project and promised benefits). As the project came to an end, it was framed as "the unique, successful project", an image that was maintained by people involved after implementation, over time turning into "the mythical project".

The concept of project image was developed in this study to account for how a rather crude view of a project both influences actors and is used by actors to influence developments. The image also restricts options for action, even after project completion and it needs to be altered to enable new projects that contradict truths about the completed project (such as investigating replacement of the new IS by an integrated standard application package). There is maintenance of a developed IS as well as of the project image.

6. Summary of Contributions

The study shows how central characteristics of ISD work tasks stack the deck against controllers. Specifically, abstractness, technological complexity, non-repetitiveness, and low degrees of observability and measurability render both output and behavior control largely impracticable. In addition, values and norms of the IT profession are enacted in the control relationship, contributing to the extensive influence of IT professionals over pre-existing control procedures and control forms, which in turn are likely to be accepted and adopted by controllers (cf. Kirsch, 1996; 1997). This acceptance also implies an acceptance of a jurisdictional claim made by IT professionals (Abbott, 1988; Wallace, 1995) over IS development procedures, including project governance mechanisms.

These findings support and extend Kirsch's (1996; 1997) findings, suggesting a more problematic situation for controllers, raising additional doubts concerning behavior and output control and adding professional norms and values to the picture. While Kirsch (ibid) observed many instances of behavior control, this study sees behavior and output control as reconstructed through rituals embedded in IS development methodologies and project reporting procedures. Procedures resembling behavior and output control can be observed, but what is reported is quite subjective, open to judgment and influence by the controllee and highly difficult for controllers to verify. The project manager (the controllee) is likely to have extensive influence over goal-setting even in early phases and over the control agenda also in later phases, if and as interpersonal trust develops (Pennings and Woiceshyn, 1987). Mutual influence and "upwards management" in the control relationship is not well covered in corporate governance literature (e.g. Jensen and Meckling, 1976), nor in IS studies (Kirsch, 1996; 1997) and it substantially alters the view of the control relationship and of how control evolves.

Controllers also exercise control through selection of key people (input control), through relying on trust and through extensive use of other people's assessments. These control vehicles emerge here as considerably more visible and important than either in the organizational control literature (Ouchi, 1979; Eisenhardt, 1985) or the IS literature (Kirsch, 1996; 1997). This also goes for control through construction and reconstruction of a project image, which incorporates a rationale for and an identity for the project. It is used by actors, including the project manager and members of the dominant coalition of controllers, to influence, negotiate and communicate the scope and aims of the project.

Refuting a central assumption of escalation theory (Staw and Ross, 1987; Brockner, 1992; also Keil, 1995b), the study also decouples commitment from resource allocation. It is thus found that sustained resource allocation in spite of negative feedback may co-exist with suspended personal and group commitment and that an increase in commitment may trigger reassessment of a project. In contrast to escalation theory, commitment in this study re-emerges as a psychological and social phenomenon interdependent upon personal risk and individual action (cf. Brunsson, 1985).

Contrasting a common view in project theory (Goodman and Goodman, 1972; Lundin and Söderholm, 1995) and project management literature (e.g. Lock, 1988), the study finds the governance of an IT project to be highly influenced by the organizational environment and its principles and practices of corporate IT management. Intra-organizational IT projects are thus characterized by embeddedness (Løwendahl, 1995), boundary-spanning (Guinan et al, 1998) and temporal interconnectedness, while bracketing (Lundin and Söderholm, 1995) is found to be subordinated to the mechanisms reconnecting the project to its organizational environment.

Findings indicate that controller involvement occurs in a dynamic network of actors with weaker and stronger ties, where the stronger ties at each point in time form a dominant coalition with decisive influence over IT project governance (cf. Cyert and March, 1992/1963; also Kling and Iacono, 1984). This helps depict control dynamics, specifically how controllers may float into and out of the governance process.

In contrast to many previous studies, this study finds the ideal of "strong top management support" to be problematic: it is an extraordinary measure which does not translate well into regular organizational practice. Some effects are directly related to the support being perceived as a unique event. Organizational consequences can be severe in terms of impacts on procedures for managing IT, costs and sacrifices that are external to the project but very real for the organization. These findings explain a paradox noted by Jarvenpaa and Ives (1991) on the discrepancy between prescription and practice of executive involvement. Given the above, it makes perfect sense that managers are reluctant to provide the extensive and “costly” support that much of the literature stipulates.

7. Some Implications for Research and Practice

The findings on "top management support" in this study suggest a need to reassess what studies on top management support tell us and what they do not. It seems that the path from success factors to research-based prescriptions is more complex than frequently assumed. This opens opportunities for future research and indicates a possible need to reassess the research agenda for executive IT involvement.

The study also points to a need for and a route to continued study of dynamics of organizational control of IT projects. While this study has provided building blocks, an integrated process theory of organizational IT project control, ideally accounting for varieties in structural control arrangements, remains to be formulated.

From a practitioner viewpoint, it seems useful to consider the risks and problems related to "strong top management support", including its extensive limitations as repeated organizational practice. This is also about understanding the considerable differences in perspectives between executives (potentially "providing support") and project managers and other actors (demanding attention and priority). The dynamic view of coalitions, commitments and trust emerging from this study suggests an organizational reality which is a long way from the popular advice that project managers should "secure support" or "find a sponsor".

Another implication for IT project management practice is the proposed view of management involvement as that of a dominant coalition of actors that changes over time, subject to many influences. This, combined with the idea of mutual influence and co-dependency in the control relationship suggests a need to place considerable emphasis on communication, relationship-building and influence in the in-use definition of the project management task. The project image concept can probably be helpful in finding action strategies for addressing these tasks.

References

Abbott, A. (1988). *The System of Professions—An Essay on the Division of Expert Labor,* The University of Chicago Press, Chicago, IL.

Ackoff, R. L. (1967). "Management Misinformation Systems", *Management Science,* Vol. 14, No. 4, pp. B147-B156.

Bardi, E. J., Raghunathan, T. S. and Bagchi, P. K. (1994). "Logistics Information Systems: The Strategic Role of Top Management", *Journal of Business Logistics,* Vol. 15, No. 1, pp. 71-85.

Barnard, C. L. (1956/first published 1939). *The Functions of the Executive,* Harvard University Press, Cambridge, MA.

Beath, C. M. (1991). "Supporting the Information Technology Champion", *MIS Quarterly,* Vol. 15, No. 3, pp. 355-372.

Beath, C. M. and Orlikowski, W. J. (1994). "The Contradictory Structure of Systems Development Methodologies: Deconstructing the IS-User Relationship in *Information Engineering*", *Information Systems Research,* Vol. 5, No. 4, pp. 350-377.

Benbasat, I., Goldstein, D. K and Mead, M. (1987). "The Case Research Strategy in Studies of Information Systems", *MIS Quarterly,* Vol. 11, No. 3, pp. 369-386.

Benjamin, R. I. and Levinson, E. (1993). "A Framework for Managing IT-Enabled Change", *Sloan Management Review,* Vol. 34, No. 4, pp. 23-33.

Briner, W., Hastings, C. and Geddes, M. (1996). *Project Leadership (second edition),* Gower, Aldershot.

Brockner, J. (1992). "The Escalation of Commitment to a Failing Course of Action: Toward Theoretical Progress", *Academy of Management Review,* Vol. 17, No. 1, pp. 39-61.

Brunsson, N. (1985). *The Irrational Organization: Irrationality as a Basis for Organizational Action and Change,* Wiley, Chichester.

Child, J. (1972). "Organization Structure, Environment and Performance: The Role of Strategic Choice", *Sociology,* Vol. 6, No. 1, pp. 1-22.

Coffey, A. and Atkinson, P. (1996). *Making Sense of Qualitative Data: Complementary Research Strategies,* Sage Publications, Thousand Oaks, CA.

Cole, A. (1995). "Runaway Projects—Cause and Effects", *Software World,* Vol. 26, No. 3, pp. 3-5.

Cyert, R. M. and March, J. G. (1992). *A Behavioral Theory of the Firm (Second Edition),* Blackwell, Cambridge, MA.

Earl, M. J. and Feeny, D. F. (2000). "Opinion: How to Be a CEO for the Information Age", *Sloan Management Review,* Vol. 41, No. 2, pp. 11-23.

Eisenhardt, K. M. (1985). "Control: Organizational and Economic Approaches", *Management Science,* Vol. 31, No. 2, pp. 134-149.

Ford, R. C. and Randolph, W. A. (1998). "Organizational Structure and Project Management", in: Pinto, J. K. (Ed.), *The Project Management Institute: Project Management Handbook,* Jossey-Bass, San Francisco, CA.

Gabarro, J. J. and Kotter, J. P. (1993/first published 1980). "Managing Your Boss", *Harvard Business Review,* Vol. 71, No. 3, pp. 150-157.

Gersick, C. J. G. (1991). "Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm", *Academy of Management Review,* Vol. 16, No. 1, pp. 10-36.

Ginzberg, M. J. (1981). "Early Diagnosis of MIS Implementation Failure: Promising Results and Unanswered Questions", *Management Science,* Vol. 27, No. 4, pp. 459-478.

Glick, W. H., Huber, G. P., Miller, C. C., Doty, D. H. and Sutcliffe, K. M. (1990). "Studying Changes in Organizational Design and Effectiveness: Retrospective Event Histories and Periodic Assessments", *Organization Science,* Vol. 1, No. 3, pp. 293-312.

Golden, B. R. (1997). "Further Remarks on Retrospective Accounts in Organizational and Strategic Management Research", *Academy of Management Journal,* Vol. 40, No. 5, pp. 1243-1252.

Goodman, L. P. and Goodman, R. A. (1972). "Theater as a Temporary System", *California Management Review,* Vol. 15, No. 2, pp. 103-108.

Guinan, P. J., Cooprider, J. G. and Faraj, S. (1998). "Enabling Software Development Team Performance During Requirements Definition: a Behavioral Versus Technical Approach", *Information Systems Research,* Vol. 9, No. 2, pp. 101-125.

Henderson, J. C. and Lee, S. (1992). "Managing I/S Design Teams: A Control Theories Perspective", *Management Science,* Vol. 38, No. 6, pp. 757-777.

Jarvenpaa, S. L. and Ives, B. (1991). "Executive Involvement and Participation in the Management of Information Technology", *MIS Quarterly,* Vol. 15, No. 2, pp. 205-225.

Jensen, M. C. and Meckling, W. H. (1976). "The Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure", *Journal of Financial Economics,* Vol. 3, No. 4, pp. 305-360.

Johnson, J. (1995). "Chaos: The Dollar Drain of IT Project Failures", *Application Development Trends,* Vol. 2, No. 1, pp. 41-47.

Keen, P. G. W. and Scott Morton, M. S. (1978). *Decision Support Systems - An Organizational Perspective,* Addison-Wesley, Reading, MA.

Keider, S. P. (1984). "Why Information Systems Development Projects Fail", *Journal of Information Systems Management,* Vol. 1, No. 3, pp. 33-38.

Keil, M. (1995b). "Pulling the Plug: Software Project Management and the Problem of Project Escalation", *MIS Quarterly,* Vol. 19, No. 5, pp. 421-447.

Keil, M. and Montealegre, R. (2000). "Cutting Your Losses: Extricating Your Organization When a Big Project Goes Awry", *Sloan Management Review,* Vol. 41, No. 3, pp. 55-68.

Kirsch, L. J. (1996). "The Management of Complex Tasks in Organizations: Controlling the Systems Development Process", *Organization Science,* Vol. 7, No. 1, pp. 1-21.

Kirsch, L. J. (1997). "Portfolios of Control Modes and IS Projects Management", *Information Systems Research,* Vol. 8, No. 3, pp. 215-239.

Kirsch, L. J. and Cummings, L. L. (1996). "Contextual Influences on Self-Control of IS Professionals Engaged in Systems Development", *Accounting, Management and Information Technologies,* Vol. 6, No. 3, pp. 191-219.

Kling, R. and Iacono, S. (1984). "The Control of Information Systems Developments After Implementation", *Communications of the ACM,* Vol. 27, No. 12, pp. 1218-1226.

Kotter, J. P. (1982). *The General Managers,* The Free Press, New York, NY.

Lederer, A. L. and Nath, R. (1991). "Managing Organizational Issues in Information Systems Development", *Journal of Systems Management,* Vol. 42, No. 11, pp. 23-27, 39.

Lock, D. (1988). *Project Management,* Gower, Hunts.

Løwendahl, B. R. (1995). "Organizing the Lillehammer Olympic Winter Games", *Scandinavian Journal of Management,* Vol. 11, No. 4, pp. 347-362.

Lucas, H. C. Jr. (1975). *Why Information Systems Fail,* Columbia University Press, New York, NY.

Lucas, H. C. Jr. (1981). *Implementation: The Key to Successful Information Systems,* Columbia University Press, New York, NY.

Lundin, R. and Söderholm, A. (1995). "A Theory of the Temporary Organization", *Scandinavian Journal of Management,* Vol. 11, No. 4, pp. 437-455.

Lyytinen, K. (1988). "Expectation Failure Concept and Systems Analyst's View of Information System Failures: Results of an Exploratory Study", *Information and Management,* Vol. 14, No. 1, pp. 45-56.

Lyytinen, K. and Hirschheim, R. (1987). "Information Systems Failures—A Survey and Classification of Current Literature", in: Zorkoczy, P. I. (Ed.), *Oxford Surveys in Information Technology, Vol. 4,* Oxford University Press, Oxford, pp. 257-309.

Mähring, M. (1996). "Företagsledare och stora IT-projekt", in: Lundeberg, M., Sundgren, B. (EDS.), *Att föra verksamheten framåt – Människor och informationssystem i samverkan,* Studentlitteratur, Lund. Also published in English as: "Executives and Large IT Projects", in: Lundeberg, M., Sundgren, B. (EDS.) (1996). *Advancing Your Business—People and Information Systems in Concert,* Economic Research Institute (EFI), Stockholm, pp. XI:1-XI:18. http://www.hhs.se/im/efi/mme.pdf.

Mähring, M. (1998). "Managerial Control over IT Projects: Control, Commitment and Dominant Coalitions", in: Hirschheim, R., Newman, M. and DeGross, J. I. (EDS.), *Proceedings of the Nineteenth International Conference on Information Systems,* Helsinki, December 13-16, pp. 336-340.

Mähring, M. (2002). *IT Project Governance,* Economic Research Institute, Stockholm School of Economics, Stockholm, Sweden.

Markus, M. L. and Keil, M. (1994)."If We Build It, They Will Come: Designing Information Systems That People Want To Use", *Sloan Management Review,* Vol. 35, No. 4, pp. 11-25.

Markus, M. L. and Robey, D. (1988). "Information Technology and Organizational Change: Causal Structure in Theory and Research", *Management Science,* Vol. 34, No. 5, pp. 583-598.

Martin, B. L., Batchelder, G., Newcomb, J., Rockart, J. F., Yetter, W. P. and Grossman, J. H. (1995). "The End of Delegation? Information Technology and the CEO", *Harvard Business Review,* Vol. 73, No. 5, pp. 161-172.

Mason, R. O., McKenney, J. L. and Copeland, D. G. (1997). "An Historical Method for MIS Research: Steps and Assumptions", *MIS Quarterly,* Vol. 21, No. 3, pp. 307-320.

McKenney, J. L. (with Mason, R. O. and Copeland, D. C.) (1995). *Waves of Change: Business Evolution through Information Technology,* Harvard Business School Press, Boston, MA.

Mintzberg, H. (1973). *The Nature of Managerial Work,* Harper & Row, New York, NY.

Myers, M. D. (1997) "Qualitative Research in Information Systems," *MIS Quarterly,* Vol. 21, No. 2, pp. 241-242. *MISQ Discovery,* archival version, June 1997, http://www.misq.org/misqd961/isworld/. *MISQ Discovery,* updated version, last modified: November 16, 2001 http://www.auckland.ac.nz/msis/isworld/.

Newman, M. and Robey, D. (1992). "A Social Process Model of User-Analyst Relationships", *MIS Quarterly,* Vol. 16, No. 2, pp. 249-266.

Newman, M. and Sabherwal, R. (1996). "Determinants of Commitment to Information Systems Development: A Longitudinal Investigation", *MIS Quarterly,* Vol. 20, No. 1, pp. 23-54.

Ouchi, W. G. (1979). "A Conceptual Framework for the Design of Organizational Control Mechanisms", *Management Science,* Vol. 25, No. 9, pp. 833-848.

Pennings, J. M. and Woiceshyn, J. (1987). "A Typology of Organizational Control and Its Metaphors", in: DiTomaso, N. and Bacharach, S. B., *Research in the Sociology of Organizations,* Vol. 5, pp. 73-104.

Perrow, C. (1986/first edition 1972). *Complex Organizations: A Critical Essay (Third Edition),* McGraw-Hill, New York, NY.

Pinto, J. K. and Slevin, D. P. (1987). "Critical Factors in Successful Project Implementation", *IEEE Transactions on Engineering Management,* Vol. 34, No. 1, pp. 22-27.

Rockart, J. F. (1988). "The Line Takes the Leadership: IS Management in a Wired Society", *Sloan Management Review,* Vol. 29, No. 4, pp. 57-64.

Rockart, J. F. and Crescenzi, A. D. (1984). "Engaging Top Management in Information Technology", *Sloan Management Review,* Vol. 25, No. 4, pp. 3-16.

Rockart, J. F. and De Long, D. W. (1988). *Executive Support Systems: The Emergence of Top Management Computer Use,* Dow Jones-Irwin, Homewood, IL.

Salancik, G. R. (1997a). "Commitment and the Control of Organizational Behavior and Belief", in: Staw, B. M. and Salancik, G. R. (Eds.), *New Directions in Organizational Behavior,* St. Clair Press, Chicago, IL.

Salancik, G. R. (1977b). "Commitment is Too Easy!", *Organizational Dynamics,* Vol. 6, No. 1, pp. 62-80.

Sauer, C: (1993a). *Why Information Systems Fail: A Case Study Approach,* Waller, Henley-on-Thames.

Sauer, C. (1993b). "Understanding Support - Lessons from a Case Study", *Australian Journal of Information Systems,* Vol. 1, No. 1, pp. 63-74.

Sjöstrand, S-E. (1987). *Organisationsteori {Organization Theory},* Studentlitteratur, Lund. [In Swedish, my translation of title.]

Staw, B. M. (1976). "Knee-Deep in the Big Muddy: A study of Escalating Commitment to a Chosen Course of Action", *Organizational Behavior and Performance,* Vol. 16, No. N/A, pp. 27-44.

Staw, B. M. and Ross, J. (1978). "Commitment to a Policy Decision: a Multi-Theoretical Perspective", *Administrative Science Quarterly,* Vol. 23, No. 1, pp. 40-64.

Staw, B. M. and Ross, J. (1987). "Behavior in Escalation Situations: Antecedents, Prototypes and Solutions", *Research in Organizational Behavior,* Vol. 9, pp. 39-78.

Strauss, A. and Corbin, J. (1990). *"Basics of Qualitative Research: Grounded Theory Procedures and Techniques",* Sage Publications, Newbury Park, CA.

Thomsett, R (1980). *People and Project Management,* Yourdon Press, New York, NY.

Tushman, M. L. and Romanelli, E. (1985). "Organizational Evolution: A Metamorphosis Model of Convergence and Reorientation", in: Staw, B. M. and Cummings, L. L. (Eds.), *Research in Organizational Behavior,* Vol. 7, pp. 171-222.

Walton, R. E. (1989). *Up and Running: Integrating Information Technology and the Organization,* Harvard Business School Press, Boston, MA.

Wallace, J. E. (1995). "Organizational and Professional Commitment in Professional and Nonprofessional Organizations", *Administrative Science Quarterly,* Vol. 40, No. 2, pp. 228-255.

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,* Vol. 4, No. 2, pp. 74-81.

Yin, R. K. (1994). *Case Study Research: Design and Methods, Second Edition,* Sage Publications, Thousand Oaks, CA.