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ENACTING CLAN CONTROL IN COMPLEX IT PROJECTS: A SOCIAL CAPITAL PERSPECTIVE¹

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The information technology project control literature has documented that clan control is often essential in complex multistakeholder projects for project success. However, instituting clan control in such conditions is challenging as people come to a project with diverse skills and backgrounds. There is often insufficient time for clan control to develop naturally. This paper investigates the question, "How can clan control be enacted in complex IT projects?" Recognizing social capital as a resource, we conceptualize a clan as a group with strong social capital (i.e., where its members have developed their structural, cognitive, and relational ties to the point that they share common values and beliefs and are committed to a set of peer norms). We theorize that the enactment of clan control is a dual process of (1) building the clan by developing its social capital dimensions (structural, cognitive, and relational ties) or reappropriating social capital from elsewhere and (2) leveraging the clan by reinforcing project-facilitating shared values, beliefs, and norms, and inhibiting those that impede the achievement of project goals. We explore how clan control was enacted in a large IT project at a major logistics organization in which clan control was quickly instituted to avoid an impending project failure. Our research contributes to theory in three ways: (1) we reconcile the two differing views of clan control into a single framework, (2) we explain the role of controllers in enacting clan control, and (3) we clarify how formal control can be employed to develop clan control.

Keywords: Behavioral control theory, clan control, formal control, project management, project control, IT projects, social capital, enterprise systems

Introduction

In complex multistakeholder projects such as organization-wide ERP implementations, representatives from various

departments and business units must work hand-in-hand with internal IT professionals and external vendors. In such projects, stakeholders often do not have prior working relationships and must quickly work toward a common goal: the delivery of systems that meet functional requirements, on time, within budget, and at acceptable quality. A portfolio of controls comprising formal and informal controls is needed to

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align the efforts of stakeholders. While prior research observes that formal control (e.g., project milestones, project budgets, and systems development methodologies) dominates the portfolio, particularly when a vendor is involved (Choudhury and Sabherwal 2003), the literature also documents the need for informal clan control (Kirsch 2004; Kohli and Kettinger 2004; Perrow 1986). Unlike behavior and outcome control which rely on the direct application of formal power or organizational authority to control, clan control draws on interactions among members of a clan to direct, influence, or regulate others to achieve project goals. These interactions are realized in the form of norms, peer sanctions, rituals, and ceremonies.

As controllers, project managers often have to get controllees from diverse groups, such as users, consultants, and IT personnel, to work together to deliver the project. Newell et al. (2004), for example, note that knowledge for complex IT projects is often dispersed. Collective knowledge must be generated through interaction, negotiation, and learning to achieve shared understanding of organizational processes. Stakeholders do better work if they share overall group objectives and adhere to group values and norms. However, stakeholders often come from distinct occupational communities steeped in their individual craft and culture (Van Maanen and Barley 1984). Project team members may be working together for the first time, and are usually not a clan at the start of the project.

The absence of a clan makes clan control unlikely at project initiation. When project individuals have distinct agendas, and lack common interests, clan control is difficult to enact (Ouchi 1979; Wilkins and Ouchi 1983). Also, given tight project schedules, there is often insufficient time for a clan to develop *in situ* through socialization (Wilkins and Ouchi 1983). Hence, instituting clan control is a challenge. The issue is further complicated by the need to exercise clan control at project initiation as it is most needed during requirements analysis, when disparate stakeholder groups must work jointly to arrive at a common design (Kirsch 2004). Moreover, the uncertainty of complex projects makes it difficult to precisely define outcomes and desired behaviors for the effective exertion of formal control; prior studies note the importance of clan control in driving complex projects (Drummond 1996; Kirsch 2004; Kohli and Kettinger 2004; McFarlan and Dailey 1999). Despite the widespread recognition of the criticality of clan control (Cardinal et al. 2004; Kirsch 1997), the project control literature has noted many IT projects with insufficient levels of clan control (Choudhury and Sabherwal 2003; Kirsch 1997).

The inherently vague concept of clan control is also a problem. Clan control is often “the other control,” deployed when

outcomes are unclear and behavior hard to specify (Kirsch 1996). Prior research recognizes the importance of clan control, but has not found it consistently in all projects (Choudhury and Sabherwal 2003; Kirsch 1997; Wilkins and Ouchi 1983). Moreover, it is unclear how clan control relates to other control modes in a balanced portfolio (Kirsch 1997). Control is defined as being between a controller and a controllee (Kirsch 1997). However, while the controller of formal control is clearly higher in the organizational hierarchy, the controller in clan control is often portrayed as a peer (Jaworski 1988; Jaworski et al. 1993; Kirsch 1996; Kohli and Kettinger 2004). This creates tension, as the formal controller may have goals separate from the clan. Some suggest this tension requires a trade-off (Cardinal et al. 2004; Gittell 2000; Sundaramurthy and Lewis 2003), where formal control is reduced to foster clan control. Others suggest having more clan *and* formal control increases the likelihood of project success (Henderson and Lee 1992; Long et al. 2002).

Thus, besides elaborating on the concept of clan control, this paper seeks to ascertain how it can be enacted in complex IT projects to increase the likelihood of project success. We use social capital as the lens for theorizing about clan control. Through this theoretical lens, we clarify and enrich the conceptualization of clan control, and identify how it can be enacted in complex projects. We also explore the role of controllers in facilitating the enactment of clan control.

The next sections provide an overview of clan control research before introducing the social capital lens and elaborating on the new insights it brings. Later sections outline our research methodology, case findings, analysis and discussion, and our conclusion.

Clan Control in IT Projects

Consistent with other modes of control in the IT project control literature (Eisenhardt 1985, 1988, 1989a; Govindarajan and Fisher 1990; Kirsch 1996, 1997; Tiwana and Keil 2007), clan control aims to direct, influence, or regulate others to achieve project goals. A clan is a culturally homogeneous group where members share common values, beliefs, and norms (Ouchi and Price 1978). Unlike behavioral and outcome controls which rely on formal power or organizational authority, clan control draws on peer monitoring and sanctions to promulgate shared values, beliefs, and norms. Clan control is especially relevant when outcomes are unclear and behavior is hard to specify (Kirsch 1996, 2004).

While there is strong consensus on the importance of clan control, its conceptualization has remained ambiguous in the

literature with “overlaps and inconsistencies across the various conceptualizations” (Kirsch 2004, p. 375). One research stream sees clan control as drawing on shared values, beliefs, and norms to align behaviors and project goals. This presupposes the existence of an effective clan. For example, clan controls can be seen as actions against deviations from social norms (Jaworski 1988, Jaworski et al. 1993). Kohli and Kettinger (2004) suggest clan control arises from adherence to deep-rooted “common agreement.” Clan control thus leverages on the informal power of an *existing* clan to align behaviors and project goals. But how such a clan comes into existence is generally not discussed.

Others conceptualize clan control as developing and building a clan through socialization mechanisms. Rowe and Wright's (1997) mechanisms of clan control (e.g., training, socialization) are intended to reduce dissimilarities across individuals to facilitate clan development. Similarly, Choudhury and Sabherwal (2003) highlight the need to “promulgate” common values, beliefs, and philosophy to build the clan. Successful deployment of clan control in this conceptualization achieves an effective clan, typically manifested by the emergence of norms that facilitate success in a project or organizational endeavor (Kirsch 1996, 1997; Ouchi 1980).

The two conceptualizations of clan control, as leveraging an existing clan and building a new clan, need to be reconciled. They also raise questions about how clan control can be enacted in complex IT projects. Leveraging an existing clan is difficult as the project team, comprising members from the vendor and diverse user groups, is usually not a clan. Conversely, building a clan is a slow and emergent process (Wilkins and Ouchi 1983). A complex project requires the team to become a clan in a short period of time. Hence, both conceptualizations of clan control pose challenges to the quick enactment of clan control in complex projects.

We address this problem by applying a social capital lens to the concept of clan control. Such a lens is appropriate as both clan control and social capital focus on social relationships and deploying socialization mechanisms. Social capital is linked to clan control as it is often deployed purposefully with a hint of control orientation. Social capital provides a basis for facilitating coordinated actions (Putnam 1993) and makes “possible the achievement of certain ends that would not be attainable in its absence” (Coleman 1990, p. 202). Recent studies have drawn strong parallels between clan control and social capital (Kirsch et al. 2010).

This paper views clans as groups with high social capital. This perspective provides a clearer conceptualization of clan control that reconciles the apparently inconsistent views of

clan control as actions facilitating the creation of a new clan and as actions drawing on the norms of an existing clan to achieve goals. It also provides guidance on the important practical issue of how to facilitate the enactment of clan control in managing complex projects.

Social Capital as a Lens for Clan Control

Social capital² is the resource associated with networks, and relationships between people that facilitate cooperation and collective action (Bourdieu 1983; Coleman 1988; Putnam 1993). Unlike other forms of capital embodied in machines, objects, or humans, social capital inheres in the relations among actors (Kankanhalli et al. 2005; Newell et al. 2004; Wasko and Faraj 2005). Members of religious organizations or recreational clubs, for example, often have strong social capital (Green and Brock 2005; Putnam 1993). Members within such groups are more willing to exchange favors and help facilitate collective action (Nahapiet and Ghoshal 1998). The rich interaction created by social networks also fosters strong cooperation among group members. Indeed, some researchers treat groups with strong social capital and clans almost interchangeably (Adler and Kwon 2002; Sturges 2000). This paper is aligned with such research. We define a clan as a group with strong social capital (i.e., where members develop social ties to the point they share common beliefs, values, and norms).

A social capital lens suggests that the enactment of clan control requires the building of social capital among members. Like physical or financial capital, building social capital requires time and effort. The recognition that social capital has structural, cognitive, and relational dimensions (Nahapiet and Ghoshal 1998) suggests that building strong social capital involves concerted efforts to develop and enhance structural, cognitive, and relational ties among members, which in turn leads to shared norms, beliefs, and values.

Structural ties provide channels for interaction, allowing behaviors, beliefs, or values to be transmitted to others and perpetuated. Cognitive ties provide a common language and perspective to communicate and interpret norms, beliefs, and

²More specifically, our conceptualization of social capital is internal, “bonding” at the project group level, unlike Adler and Kwon's (2002) concept of external social capital that refers to members' relational connectedness outside the group, “bridging.” Many complex IT project teams are cross-functional in nature. Teams are assembled with members who are experts or potential brokers to needed expertise, knowledge, or resources. The focus of our paper is on the challenge of bringing together these people from diverse backgrounds.

values. Relational ties strengthen trust which promotes commitment to group norms, values, and beliefs. The structural, cognitive, and relational dimensions of social capital are highly interrelated and mutually reinforcing (Nahapiet and Ghoshal 1998); developing one dimension strengthens others. The network of structural, cognitive, and relational ties not only leads to the emergence of clan norms, values, and beliefs, but also enables these to be enforced through peer monitoring and rewards/sanctions (Barron and Gjerde 1997; Erez et al. 2002; Feller et al. 2008; Horne 2009; Kandel and Lazear 1992; Lave and Wenger 1991; Sewell 1998; Williamson 1983, 1985).

The successful building of a clan and the corresponding emergence of shared beliefs, values, and norms does not imply clan control. Like human capital possessed by the clan, the clan's social capital may lie idle, be underutilized, or even be misused (Bicchieri 2006; Powell and Smith-Doerr 1994). For example, a clan could evolve a norm of leaving a workplace early, or a norm where problems are suppressed. The controller must "guide" and channel social capital in the clan so shared beliefs, values, and norms helpful to a project are retained and reinforced, while norms that impede the project are inhibited.

Viewing clans as groups with high social capital helps reconcile the two views of clan control. Enacting clan control consists of two distinct but interdependent processes of building the clan and leveraging the clan. Each process is insufficient for effective clan control. Viewing the enactment of clan control only as the building of a clan is not sufficient as shared values, beliefs, and norms that emerge may not contribute to project goals. Viewing the enactment of clan control as leveraging the clan is similarly incomplete as it presupposes the existence of a clan to ensure the effective peer enforcement of shared norms. Such a clan cannot be assumed in many large, newly formed project teams.³

The conceptualization of clan control as a dual process is furthermore supported by process theories of team building (Kozlowski and Ilgen 2006). Tuckman (1965) proposes that all teams go through four phases of development: forming, storming, norming, and performing. Drexler et al. (1988)

argue that high performing teams go through the phases of orientation, trust building, goal clarification, commitment, and implementation. Finally, Jones (2008) argues that teams involved in enterprise systems must be built, equalized, structured, and then tweaked.

In all three team building models, social capital within the team is first developed, before the team is "guided" to perform its task. Tuckman's model begins with individualistic team members at the forming stage who engage in conflict resolution in the storming stage. It is only in the norming stage that team members begin adjusting to each others' behavior, and in the performing stage that the team can be trusted to achieve project goals. Similarly, in Drexler et al.'s model, social capital must be built by establishing meaning via trust building through orientation and relationships. It is only then that one can clarify goals and commit the team to implementation. Finally, in Jones' model, social capital must be built, and power differences between members must be equalized, before social capital can be used.

Enacting Clan Control: Building the Clan

Social capital is conceptualized as comprising three highly related dimensions (Nahapiet and Ghoshal 1998):

- *Structural:* The structural dimension relates to overall patterns of connections among actors within a social network (i.e., who someone knows) and how the network of contacts is arranged. When networks are dense with a large proportion of strong and direct ties between members, social capital is high. The structural dimension refers not only to existing ties (Granovetter 1973) and linkage configurations, but also includes physical structures that encourage or inhibit ties (Perrow 1986). For example, locations of congregational areas often influence who one has ties with (Ko et al. 2005) and may affect the development of social capital.
- *Cognitive:* The cognitive dimension refers to commonalities among individuals that provide shared representations, interpretations, and systems of meaning (e.g., common language or narratives) (Nahapiet and Ghoshal 1998). For example, IT workers adopt words with particular meanings like "bug," and RTFM. These provide a common vocabulary to discuss IT issues, and separate IT workers from other professionals.
- *Relational:* The relational dimension refers to the "closeness" between members of a group. It goes beyond traditional team bonding activities like dinners, and

³The conceptualization of clan control as the dual process of building social capital and leveraging norms applies equally to an experienced project team that is already a clan. First, like all other sources of capital, one must continuously invest in social capital for it to be productive. As much as one must maintain a machine, one must continually build structures, shared language, and relationships. Second, projects are by their nature, unique. The entire set of norms beneficial for one project is unlikely to be wholly applicable to another. The controller must guide and adapt the clan to a new project environment.

soccer games. Coleman (1988) argues for the importance of “multiplex” linkages—relationships where individuals share more than one context, for example, where project members are simultaneously friends or neighbors.

The social capital perspective thus recognizes that beyond informal socialization mechanisms, structural and cognitive dimensions must be instituted to build the clan. For example, the structural dimension of social capital may be developed through thoughtful design of project reporting structures and work groups, as well as through the collocation of team members (Coleman 1988). In NIBCO’s enterprise system implementation, the work area was specifically designed to have no closed doors or private offices (Brown and Vessey 2001) to facilitate the building of structural ties. Cognitive ties may be developed through training that leads team members to view a project through a common methodological framework that emphasizes project deliverables (Rowe and Wright 1997).

Moreover, one can accelerate the building of clan by reappropriating social capital from another context. Like other capital, social capital may be developed as an investment for the future. In the same way, social capital required today need not be built from scratch. Bourdieu (1983) notes that social capital is “convertible.” Coleman (1988), similarly, discusses the “appropriable” social organization. Structural, cognitive, and relational ties may be reappropriated from one social setting to another (Arregle et al. 2007; Bolino et al. 2002; Huntoon 2001). Such reappropriation of social capital is seen, for example, when a recruited executive brings a trusted management team from an old to a new organization.

Enacting Clan Control: Leveraging the Clan

Like any capital, embedded social capital is only rendered productive when applied to specific problem domains, for example, to reduce individuals’ capacity for agency behavior (Fowler and Etchegary 2008; Nooteboom 2007; Oh et al. 2006; Tansley and Newell 2007) or to facilitate coordination and knowledge sharing (Fowler and Etchegary 2008; Wasko and Faraj 2005).

However, the literature has generally been silent about how a clan can be leveraged for specific outcomes. In the main, there is an implicit assumption that a clan’s shared beliefs, values, and norms will automatically be aligned toward project goals. Extending the logic of leveraging, we suggest two ways a clan can be steered more proactively: (1) by reinforcing project-facilitating shared beliefs, values, and norms, and (2) by inhibiting beliefs, values, and norms that impede the achievement of project goals.

In clans, values, beliefs, and norms are enforced through peer monitoring and peer sanction/reward (Arnott and Stiglitz 1991; Barron and Gjerde 1997; Kandel and Lazear 1992; Kirsch 1997; Lave and Wenger 1991; Sewell 1998; Towry 2003). A clan can be proactively leveraged to focus on project outcomes by influencing clan norms, values, and beliefs and interfering with the clan’s monitoring and reward/sanction mechanisms.

Project-facilitating shared beliefs, values, or norms in the clan may be *reinforced* in several ways. A controller could reframe or rearticulate the goals and vision of a project to appeal to existing beliefs or values built up in the clan (Kotter 1996; Kotter and Cohen 2002), and demonstrate that the clan’s shared goals would be fulfilled by striving toward project goals. Such alignment helps group members internalize project goals quickly and act consistently to achieve project outcomes. These actions are often reflected in strategic statements embracing such goals (e.g., memorandums of understanding, carefully crafted project vision and mission). Project-facilitating shared beliefs, values, and norms can be further reinforced by making them visible to the clan. Peer monitoring serves a dual purpose of monitoring for enforcement, and monitoring for learning (Arnott and Stiglitz 1991; Barron and Gjerde 1997; Bicchieri 2006; Lave and Wenger 1991; Wenger 1998). Norms, values, and beliefs can be propagated via peers who mimic the individuals they monitor (Bicchieri 2006; Whiten et al. 2007). For example, a controller can reinforce project-facilitating beliefs, values, and norms by appointing respected or central individuals in the clan (e.g., opinion leaders) who support these beliefs, values, and norms to formal project team positions (Lave and Wenger 1991; Wenger 1998).

Leveraging the clan also involves *inhibiting* shared beliefs, values, or norms that impede project goals. Individuals manifesting or propagating such beliefs, values, or norms can be isolated, reducing their access to project members and, hence, their influence in the clan (Feller et al. 2008; Lave and Wenger 1991). Punitive actions such as moving individual members to the periphery and public depreciating or shaming can suppress or discourage project-restraining beliefs, values, or norms (Jaworski 1988; Jaworski et al. 1993).

The lens of social capital is thus useful in revealing conceptual insights on the enactment of clan control as a dual process of building and leveraging the clan. Unlike our traditional understanding of clan control that narrowly emphasizes informal socialization to develop clan and expects clans to emerge slowly, organically, and often unpredictably over time (Ouchi 1979; Wilkins and Ouchi 1983), the social capital lens injects pragmatism. It suggests the possibility of active facili-

tation in shaping and developing the structural, cognitive, and relational ties in social relationships and does not preclude the use of more expedient formal mechanisms to do so. Indeed, some (e.g., Evans 1996) argue formal authority or hierarchy can enable the building of social capital by providing “integrity” to the socialization process. Others suggest that formal authority is necessary for building social capital (Boss 2000). The use of formal mechanisms gives assurance that expected norms and reciprocity will be enforced and free riding will be kept in check. Extending the social capital perspective to the concept of clan control suggests that controllers may influence the enactment of clan control toward project goals.

The following sections empirically examine these concepts. We explore a longitudinal case, a complex IT project which began with little clan control and was clearly foundering before steps were taken to increase clan control and bring the project back on track.

Research Methodology

Our research question of how clan control can be enacted in IT projects led to an exploratory longitudinal case study, a methodology considered appropriate for how, why, and what questions (Dubé and Paré 2003; Paré 2004). The longitudinal case study approach provided two key advantages. First, it allowed us to acquire a deep contextual understanding of the project that methodologies such as surveys do not provide (Yin 2003). Second, it allowed us to observe developments as project events unfolded, instead of relying on retrospective accounts (Dubé and Paré 2003). These advantages provided rich details about, and surfaced insights on the enactment of, clan control (Dyer and Wilkins 1991).

Case Selection

Our case sampling strategy involved intensity sampling (Paré 2004), the selection of a case exemplifying the phenomenon being studied (clan control) (Dubé and Paré 2003). The case had several characteristics that fitted our research question.

First, there was a clear need for clan control. This was particularly true of the analysis and design phase where the task was more unstructured and novel, and outcome and behavioral controls alone would not have been adequate. This research examined the 14-months-long analysis and design phase of an enterprise package implementation across three highly autonomous business units (BUs) of a logistics company. The project team designed a set of standardized pro-

cesses to be implemented in a single enterprise package for the three BUs.

The organization had never undertaken such an initiative before. The required knowledge and skills were distributed across BU representatives and vendor consultants. Clan control was needed to facilitate cooperation and knowledge exchange.

Second, there was low social capital among team members at project initiation. The BUs had traditionally been autonomous. The initial vendor consultants also had not worked with the organization previously. In addition, because the vendor was building up its manpower in the region, many consultants were new. Third, we had comprehensive access to project participants and documentation from project inception, which enabled us to observe how clan control was enacted.

Site Description

The company focuses on logistics (moving cargo across locations) and has three principal BUs, each dedicated to a particular transport mode: (1) air, (2) land, and (3) sea. The air BU operates a large fleet that includes jet, propeller, and rotor aircraft, and maintains facilities around the world to support them. The land BU specializes in off-road transport and supply, but also operates vehicles for passenger and cargo transport on traditional roadways. The sea BU maintains vessels capable of navigation in both coastal and deep waters.

The new system was to replace aging logistics management systems in the BUs, as well as integrate their logistics processes. Previously, each BU operated its own individual logistics management system. The company wanted to more closely integrate its logistics processes, comprising engineering and maintenance, supply management, and logistics-related finance, both across and within the BUs.

The project had three principal stakeholder groups.

- Corporate management, whose representatives—the corporate vice president (VP), assistant vice president (AVP) of logistics, and the corporate IT director—were the controllers responsible for ensuring that the project met organizational objectives. Positioning the three senior-most project representatives, who had the highest project authority, as controllers is consistent with the prior IT literature (Henderson and Lee 1992; Kirsch 2004; Mahaney and Lederer 2003; Mähring 2002; Nidumolu and Subramani 2003/2004). Controllers were

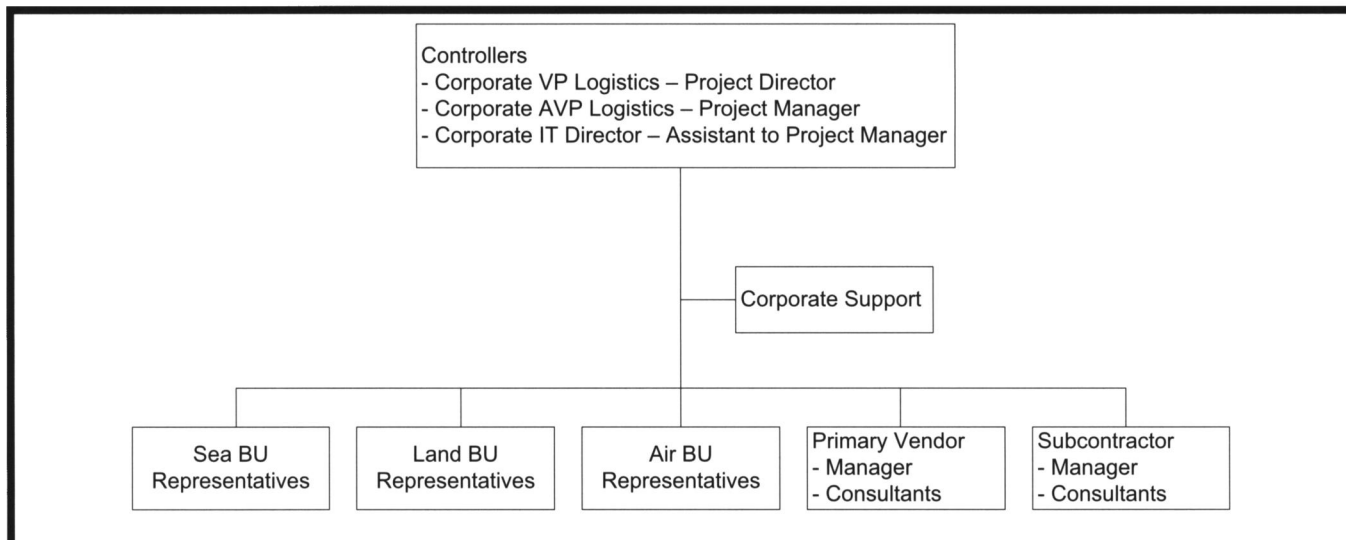


Figure 1. Project Organizational Chart

supported by staff from the corporate office and IT division that facilitated meetings, liaised with vendors and BU representatives, created project management documents, took minutes, and performed other support functions.

- The vendors (comprising managers and consultants from the primary vendor and subcontractor) were responsible for the design and implementation of the enterprise system. The vendors had about 50 employees on site.
- BU representatives (from the three BUs), who were subject matter experts, provided input to the requirements and design, and accepted the resultant standardized design. The BUs had about 50 employees on site.

Figure 1 presents an organizational chart depicting the various stakeholders and their formal relationships as controllers (corporate management) and controllees (i.e., user representatives and vendor consultants).

Data Collection

We were invited by the corporate IT division to observe the project and develop case reports for the internal training of project managers. Consistent with case study best practices, we obtained data from multiple sources (Eisenhardt 1989b; Paré 2004; Yin 2003) such as written project documentation including contracts, milestone review presentations and minutes of meetings, and interviews with project participants.

We visited the site every six weeks, from project inception in January 2003 to the end of the analysis and design phase in April 2004. We continued to visit the site regularly to April 2005, when the system was successfully implemented in the first BU.

We developed an interview protocol and adapted it to reflect changes in issues as the project progressed. Prior to the interview, we reviewed the most recent project documentation and prior interviews, and discussed issues we needed to raise with interviewees. Interview questions focused on issues of project management. In the initial interviews, interviewees were asked about their role in the project, the tasks in which they were involved, and the deliverables for which they were responsible. We asked interviewees to recount their specific experiences in the project, focusing on problems, issues, how they or others interacted, and steps taken to resolve problems. We then asked for interviewees' perceptions of project success and project control. We closed interviews by asking for recommendations for additional interview subjects. Such snowball sampling is typical in exploratory research (Kuzel 1992).

We conducted 79 interviews. Table 1 summarizes the breakdown of interviews.

Most interviews were at least an hour long. During interviews, at least two, and more commonly three, researchers were on hand to take notes. Interviewers adopted a specialized role strategy (Dubé and Paré 2003; Eisenhardt 1989b). One interviewer was the primary interviewer, who asked the majority of questions, took fewer notes, and focused on main-

Table 1. Breakdown of Interviews

Stakeholder	# of Interviews	# of Distinct Interviewees
Corporate Management	18*	3
VP Logistics	4	1
AVP Logistics	7	1
Corporate IT Director	11	1
Corporate Support Staff	18	10
Logistics	12	7
IT	6	3
Sea BU Representatives	7	4
Land BU Representatives	2	2
Air BU Representatives	5	3
Primary vendor	16	13
Manager	4	2
Consultants	12	11
Subcontractor	13	6
Manager	6	1
Consultants	7	5
Total	79	41

*The number of interviews with each controller adds up to more than 18 because some interviews were conducted with two or more controllers.

taining eye contact with interviewees. The other two interviewers attempted to take verbatim notes. A tape recorder was not used, as interviewees were more comfortable without one. To ensure interview quality was not compromised by fatigue, no more than three interviews were conducted per day. Interview notes from all researchers were consolidated and typed within 24 hours by a researcher present at the interview. Field notes were also taken to record observations (e.g., physical office arrangement, informal notices pasted along hallway) (Paré 2004).

Analysis

We first sought to build an overall understanding of the case. We created a sequential time line of major activities, issues, and actions taken by corporate managers, consultants, and BU representatives, and the project performance at each phase of the project.

The time line was structured in the form of the challenge, tactics, and resolution phases suggested by Paré (2004). The challenge phase occurred during the first five months, where problems quickly surfaced, the project foundered, and the primary vendor's senior manager abruptly left. Tactics to address challenges, mainly by enacting clan control, occurred

principally over the next three months. It was evident during the last six months (resolution) that the problems were being resolved, as improvements to performance were clearly observable.

These project phases, key events and actions, and performance, were validated through a detailed, 70-page case submitted to the organization. Multiple individuals provided detailed comments which we incorporated into findings (Dubé and Paré 2003; Mason 1996).

We were initially interested in identifying the control portfolio in this complex project and how it evolved over time. We therefore sought to code control mechanisms used, and classify them by control modes based on previous classifications in the literature. We regularly discussed and refined coding, paying special attention to how evidence fitted into the overall project context (Miles and Huberman 1994). The three members involved in fieldwork drew on our understanding of the project in discussing coding, while the fourth team member provided an independent perspective to challenge possible coding biases (Adler and Adler 1988).

Our initial findings revealed that a number of controls were added in the "tactics" phase. This led us to characterize the set of controls that were implemented at the start of the

project as the initial portfolio of controls, and the set that included the additional controls as the revamped portfolio of controls. We also discovered that the revamped portfolio of controls employed substantially more clan control. We found this significant, and began to explore in greater detail how clan control was developed in the complex project.

At this point, we shared our preliminary findings at a research workshop, where participants noted that social capital theory might be useful for exploring clan control. We found that, indeed, the structural, cognitive, and relational dimensions of social capital were helpful in interpreting data. Furthermore, when we combined social capital theory with our understanding of the two research streams on clan control (building the clan and leveraging the clan), we realized that mechanisms that developed structural, cognitive, and relational ties among project team members contributed to building the clan, while mechanisms that relied on the existence of norms, values, and beliefs of the group were leveraging the clan.

We developed coding guidelines for building social capital based on definitions of structural, cognitive, and relational dimensions in the social capital literature (see Table 2), and recoded data. Actions that build structural ties facilitate team members knowing each other. For example, the vendor proposed the expansion of communal workspace and having consultants and BU representatives sit together. We also considered whom interview subjects knew, the underlying structure that made them meet, interact, and communicate with one another (e.g., accountability structure, task grouping, and physical layout). For cognitive ties, we considered the extent various stakeholders (corporate management, BUs, and vendor consultants) were different or similar in terms of their profiles and perspectives. We checked whether stakeholders had prior related or common experiences (e.g., consultants who previously worked in the logistics industry, BU representatives who previously worked on process standardization projects). Actions that build cognitive ties improve commonality in experiences and world view. For example, controllers wanted all team members to use a common process modeling approach and access a common project database. Actions to build relational ties increase the breadth and depth of interaction. We looked for evidence of informal socialization and bonding activities outside the work context. For example, the AVP Logistics held karaoke sessions after work.

The dimensions of social capital are not orthogonal (Nahapiet and Ghoshal 1998). An action that builds structural ties may also support the building of cognitive and relational ties. In presenting actions for building social capital, we only highlight the mechanisms most directly related to a specific dimension for ease of explication.

We theorized that controllers leveraged the clan by reinforcing or inhibiting shared norms, values, and beliefs and reflected this in our coding guidelines. This required us to identify clan norms and values that emerged as social capital was developed. As they were more difficult to identify (being omnipresent and largely invisible), we looked for changes in group behaviors aligned with the achievement of project outcomes, before and after actions by controllers to build the clan. One example is the change in behavior away from the BU-centric perspective toward an enterprise perspective. Our interviews during the challenge phase and site observations surfaced comments about BU-centric behaviors. Interviews and observations during the resolution phase showed project team members were changing behavior, as noted in their greater willingness to accommodate each other. For example, BU representatives were now more concerned about meeting project requirements than focusing only on the requirements of their BU (e.g., *"nobody defends his own users"*). We identified a number of controller actions that reinforced this new clan norm (see Table 4).

Project performance throughout the three phases was also assessed. Concrete evidence was gathered in the form of interim and final deliverables, achieved deadlines and objectives, actual and budgeted figures, and interviewees' perceptions of the quality of the analysis and design. For example, evidence of poor interim project performance was noted as interviewees talked about missing interim deliverables and their perception of problems (e.g., lack of communication between certain parties, inability to come to agreement on processes).

Results

This section details the case using the challenge, tactic, and resolution structure suggested by Paré (2004). In challenge, we highlight problems associated with the project team and poor project performance. In tactics, we analyze steps taken to create structural, cognitive, and relational ties among team members that facilitated the building of the clan in the project. We then describe how the clan's emergent shared beliefs, values, and norms were leveraged to achieve project goals. In resolution, we describe how the project was completed successfully.

Challenge: Poor Project Performance

Initially, management relied on a portfolio of controls heavily weighted toward formal control. Behavior control mecha-

Table 2. Coding of Constructs

Coded Construct	Observation	Illustrative Quote
Build structural ties	Action by controller which helps people across stakeholder groups to see, interact or develop a shared context with each other	<i>Collocate Users and Consultants: "[Users] have been seconded to [vendor] to handle [confidential] items and after implementation, to do the Application Maintenance"</i> (vendor consultant in commenting on controller's action).
Build cognitive ties	Action by controller which creates common representations, interpretations, and systems of shared meaning across stakeholder groups	<i>Build Core "Backbone" Scenarios: "Users have quite similar ideas on what backbone scenarios are"</i> (corporate support).
Build relational ties	Action by controller which creates bonds across stakeholder groups	<i>Build Relationship: "Management of relationships with all parties, especially with complex projects like this where scope management is important"</i> (vendor consultant in stressing what the controller had done right).
Reappropriating existing social capital	Action by controller to reappropriate social capital from another context	<i>Bring in Subcontractor Consultants: "[Subcontractor] has done more than you were supposed to do for this [project]. You guys were only supposed to shadow the [requirements phase], but you took on project leads, scenario leads....Without this bunch of people, the project would not have turned around and come to this stage"</i> (minutes of meeting where VP publicly thanked contractors).
Reinforcing norms	Action by controller to encourage specific group behaviors (traceable to shared norms, beliefs, or values) which help project to succeed	<i>Joint Accountability: "There's 120 scenarios, each with 2 owners, 1 user, 1 consultant...if something's not working, we tell both to get it done"</i> (primary vendor manager).
Inhibiting norms	Action by controller to discourage group behaviors (traceable to shared norms, beliefs, or values) which are hindering project	<i>Strict Enforcement of Scenario Delivery Deadlines: "Two points to emphasize...2) management of completion of local design deliverables and preparation for smooth sign-off"</i> (minutes of meeting emphasizing that corporate management wanted users to sign off by deadline and not dispute the design).
Emergent Clan Norms, Values and Beliefs	Observed by the change in the behaviors of project group members that show the development of shared norms, beliefs, or values, that are aligned with the achievement of project outcomes.	<i>Being "One Team": "There's ownership... also the people on the ground are working together has helped things too."</i> (corporate IT director)
Project Performance	Indications that the project is successful in terms of deliverables, budget, time line, and expected business outcomes	<i>Process Standardization Target: "in [process modeling database], 90% is the same, but adding the out of scope scenarios will mean a lower figure"</i> (subcontractor manager).

nanisms included a standard development methodology, documentation procedures, and quality assurance audits; outcome control mechanisms included specification of project deliverables, budget, time line, and a 60 percent target level of standardization. Few clan control mechanisms were observed during the challenge phase. One was an informal memorandum of understanding signed between the logistics organization and the primary vendor. This document was noncontract-

tual; its intent was to promote a strategic partnership between the two organizations. Another was the project kick-off ceremony attended by senior representatives from all stakeholder groups, where the CEO of the company made a speech emphasizing the importance of the project to the company's long-term competitiveness. As we explain in the discussion section, these initiatives in leveraging the clan were premature, as they incorrectly presumed the existence of a clan.

There was little social capital. Structurally and relationally, representatives from the three BUs did not know each other. The consultants from the primary vendor also had not worked with the organization before. The physical layout of the project site was such that each stakeholder group had its own room, and there was little interaction except in formal forums such as requirements meetings. Cognitively, the three BUs operated autonomously and evolved distinctive norms and identities. This was reinforced by the norm of each BU having uniforms of a different color. They also dealt with different types of logistics equipment, and used separate logistics terms. Air BU personnel were better educated and more concerned about aircraft reliability. The land BU was more concerned about supply, and having simpler, robust processes given their larger number of personnel and high turnover. There was also little shared cognition with vendor consultants. The vendor, while well-established internationally, had just set up its Asian consulting arm, which recruited new consultants globally for the project. Consultants were conversant with the technology, but some were unfamiliar with the Asian context, the business practices in the logistics industry, or the client organization's culture and work practices. A consultant noted that

There were language problems. The consultants are from around the world, so we have different writing styles and focus. This made synchronization difficult. Some follow the work norms in their home countries. They take time to adjust their pace of work here.

There were differences in norms, values, and beliefs across stakeholders. For example, BU members and consultants held different norms and beliefs about each other's roles, and the level of collaboration expected in the project. BU members stated that it was the consultants' job to come up with the design, and this was displayed by their behavior: they drew boundaries between what they perceived was their work and what they felt was consultants' work. Consultants expected BU members to be more proactive in providing inputs to the design.

There were also differences in the values and beliefs regarding the goals of the project. Corporate management and consultants saw standardization of BU processes and data as a key project objective. BU representatives were generally skeptical about this goal, as they looked at the project more from the perspective of their respective BUs.

Instead of simple harmonization, they [corporate] want to do standardization. I see this as overkill! We only need to do so if the benefits exist.

This difference in beliefs about what the key goal of the project should be was reflected in BU representatives' behaviors. The BUs often could not reconcile their conflicting business processes, and would "agree to disagree." Consultants complained about this conflict among representatives from different BUs:

If you satisfy any one [BU's] requirements, there are problems with the other [BUs].

Hence, despite the many formal control mechanisms, the project quickly foundered. The team struggled with incompatible requirements. BU representatives had trouble agreeing with each other, and the relationship between BU representatives and the primary vendor was strained. Vendor consultants were frustrated as BU representatives could not arrive at a single set of requirements, while BU representatives castigated vendor consultants for being unable to provide best practices. Thirteen vendor consultants left after the initial months. The first few milestones were missed. Deliverables were poor and inconsistent. A senior cross-functional team, formed to audit the interim deliverables, found other problems such as poor integration in the design across functional areas.

In the midst of these problems, the original primary vendor manager abruptly left, alerting controllers to the severity of problems and the need to take drastic action to develop tighter cohesion among BU representatives and vendor consultants. Over the next three months, a slew of management actions were introduced, leading to the quick enactment of clan control, and the project began to turn around.

Tactic: Building the Clan

Table 3 summarizes various actions taken to build the clan by developing its social capital dimensions (structural, cognitive, and relational ties) and reappropriating existing social capital.

Building Structural Ties

Work organization reoriented around scenarios instead of tracks: Initially, team members were focused on one of three tracks—financial control, engineering management, and supply management—and "there was no forum to discuss cross-track issues" (corporate support). In addition, each BU favored a track. The air BU was most invested in engineering management, because aircraft components like engines required extensive engineering maintenance. The land BU closely watched supply management, because land vehicles are supplied irregularly at multiple sites such as gas stations.

Table 3. Actions Taken in Building the Clan

Building the Clan	Actions Taken
Building Structural Ties	<ul style="list-style-type: none"> • Work organization reoriented around scenarios instead of tracks • Seating structure changed • Communal eating facilities introduced
Building Cognitive Ties	<ul style="list-style-type: none"> • New vendor project manager who appreciated and understood local context recruited • Common modeling language introduced
Building Relational Ties	<ul style="list-style-type: none"> • New vendor project manager carpooled with corporate project manager (i.e., AVP Logistics) • Issue airing workshops introduced • Socialization functions such as soccer games, karaoke, and dinners introduced • Management demonstrated solidarity by banning own long vacation leave
Reappropriating Social Capital	<ul style="list-style-type: none"> • Import of social capital through a bigger team of subcontractor consultants

Airplanes and ships, on the other hand, are provided supplies at fixed ports on a prearranged basis. The track structure encouraged BU representatives to affiliate with their own BU. The separation of tracks into individual rooms also inhibited cross-track interaction and information sharing.

Taking a suggestion from the new primary vendor manager, the AVP Logistics reconfigured the project work structure. Business processes from the tracks were combined into scenarios such that each scenario detailed a situation from inception to completion. Scenarios were overlaid on the existing track structure. An example scenario might involve a vehicle breakdown. To correctly model the repair process end-to-end, the team would have to learn the processes for supply management (for parts to replace defects), financial control (for money to obtain parts), and engineering management (to perform the replacement). The scenario structure brought members from different tracks together. Because user representatives had to gather requirements for the scenario, which crossed functional tracks and BUs, they had to interact with other stakeholders and understand their issues. Engineering management, for example, could not just resolve issues specific to the track and ignore problems in other tracks.

The scenario approach helped to resolve cross-track issues, since scenarios go across tracks. Scenarios can be used to break barriers between tracks and fill in the gaps/black boxes in the processes. (User Representative)

Seating structure changed: Initially, each track was housed in a different room. The primary vendor manager felt tracks should sit together. The subcontractor agreed, and arranged for the AVP Logistics to visit one of the subcontractor's other

sites with a collocated large project team to show how collocation helped projects move forward. The AVP Logistics then authorized extensive renovations to the office environment. Rooms were refurbished and, more importantly, walls separating various rooms were knocked down; stakeholders from different groups were required to work together in the same open office.

I recommended all tracks to be in one big room. I wanted to change peoples' thinking that they belong to just one track and soften team boundaries. Actually I would like to see everyone as one big resource pool. (Primary Vendor Manager)

Furthermore, seating in the refurbished office was reassigned. The BU representatives and vendor consultants responsible for each scenario were assigned seats next to each other. As scenarios were cross-track, this meant BU representatives from the different BUs were dispersed, rather than aggregating in different sections of a single room.

Communal eating facilities introduced: The project workplace was a remote building in a difficult-to-access location. Initial structural design focused on creating office space to house different stakeholder groups. There was no conscious design of communal or congregational space. For example, there were no food outlets. Workers either packed food from home or left the facility to eat. This meant workers tended to eat with preestablished cliques. The AVP Logistics made proactive arrangements to create congregational spaces centered around food. For example, a mobile food van was invited in at lunchtime. Arrangements were also made for a nearby office to open its cafeteria to project team members. The provision of accessible communal food areas increased interaction and recognition among individuals across tracks.

As a result, BU representatives and vendor consultants across tracks began seeing more of each other and got to know more team members. A user representative noted that knowing more people “*really helped with the dialogues and discussions.*”

Building Cognitive Ties

New vendor project manager who appreciated and understood local context recruited: The sudden resignation of the primary vendor manager provided an opportunity for corporate management to realign social dynamics within the project team. Learning from its earlier experience, corporate management realized the importance of a vendor manager who appreciated the company’s organizational, industry, and country contexts. Unlike the earlier appointment, this screening and interview process was conducted by both the vendor and corporate management, who emphasized “ability to fit” in the hiring interview.

I interviewed [new primary vendor project manager] for two or three hours to make sure that he is the right fit. I’m confident. He has relevant experience, plus strong local ties. He’s married to a local and has been living here for 15 years. (AVP Logistics)

Common modeling language introduced: One source of dispute across BUs was the choice of process modeling notation they should use. Initially, the supply management track (dominated by the land BU) insisted on a process modeling notation optimized for supply chain management. The other tracks wanted a more generic notation. Work on the supply management track was initiated in the specialized notation, while work in the other tracks was done in the more generic one. This inconsistent use of modeling notation led to frustration as processes done in the supply management track could not be readily integrated with the other two tracks.

I know both notations and know they can’t be used together, but [land B.U.] insisted on using the [specialized notation] on supply, while the other [BUs] went ahead to use the [generic notation]. [Old primary vendor project manager] didn’t object. He gave in to the [BUs]. It led to subsequent problems. There’s no integration between supply and the rest. (Corporate Support)

On the advice of the new primary vendor manager, corporate management mandated the adoption of a new single process modeling notation that project members were not familiar

with. The choice of this new, unfamiliar notation and tool was made despite the presence of viable alternatives. For example, corporate management could have insisted that supply management adopt the tool and notation employed by the other two tracks. Adoption was initially painful as everyone had to be trained on the new tool. However, a single process modeling tool provided a common language through which project team members would interact henceforth. Team members attended training sessions hosted by the tool vendor, and learned to use the tool vendor’s process terms at those sessions. Furthermore, everyone could refer to a common modeling database to see how each process would relate to processes in other tracks. People could check the progress of scenarios across the project in a consistent manner as the project took shape. The new tool also put everyone on equal footing, as most project team members (including consultants) had no experience with the tool.

Building Relational Ties

New vendor project manager carpooled with AVP Logistics: The new vendor project manager happened to reside in the same neighborhood as the AVP Logistics. The AVP Logistics took the opportunity to “multiplex” their relationship as colleagues and neighbors by offering to carpool. The two men came to work together in the AVP Logistics’ car every morning. Such informal communication channels enabled them to know each other better, and encouraged an open and friendly discussion of various issues that arose in the project.

The 30-minute or so drive was good. We talked, we chatted, and before we reached the project site, we would often strategize and decide what were the key things we needed to resolve today. (AVP Logistics)

Issue airing workshops introduced: Relational barriers, for example, perceived inequity among members (Wilkins and Ouchi 1983), were also removed. To address initial mistrust, the subcontractor, with the agreement of the AVP Logistics and the primary vendor, organized “grievance airing” workshops. Stakeholders from various groups could come to these workshops to express concerns. Corporate management supported workshops by their active participation, and by signaling that concerns would be taken seriously and addressed. Issues from workshops were put on paper and mounted on the wall. As solutions were identified, they were put on paper next to the issues. Rectified issues were marked. Once all issues on the displayed paper were rectified, the paper was removed.

We had team workshops for all levels, including management, team leads, [BU personnel]. It was very open. It showed all feelings. Some people were very apprehensive before but they became more positive later. I also had team lunches with every team to thrash out issues. There was user resistance. I had to mediate between them to increase the level of trust. (Subcontractor Manager)

Socialization functions such as soccer games, karaoke, and dinners introduced: To foster team relationships, the energetic and sociable AVP Logistics began encouraging participation in group activities. He got people to socialize not just in a formal work context but also in informal “play” settings. Recreational functions he organized included dinner sessions at posh restaurants to celebrate milestones achieved, soccer games, and karaoke sessions.

We learnt to karaoke. We'd meet several times a day, orchestrate, and after 5 p.m. go for drinks. I play soccer with them and remind them to keep fit, because the project is a long journey and people are maxed out. (AVP Logistics)

Management demonstrated solidarity by banning own long vacation leave: Corporate management also banned long vacation leave. Long leave would only be allowed when the project was on schedule. However, corporate management did not exempt themselves from the ban and did not take long leave while the project was in trouble. Thus, corporate management projected an image of solidarity. Everyone in the project team was to suffer together, and no one (including the controllers) was to take leave at the expense of others.

Reappropriating Social Capital

Import of social capital through a bigger team of subcontractor consultants: Given the tight project schedule, corporate management sought to bring in a bigger team of subcontractor consultants who were more familiar with the local context. Thus, social capital was also imported into the project team. These new consultants were stamped with the subcontractor's work norms (e.g., professionalism, strong task orientation); recall that the vendor's consultants were new to the vendor organization and the country and did not have a common work culture. In addition, some subcontractor consultants had worked either with the organization or other local companies previously. They were better able to relate to BU representatives because of their familiarity with the logistics industry and local context. The strategy here was to bring in a critical mass of subcontractor consultants so that their social capital could be used for the project.

[Subcontractor] was subcontracted for the build phase, but the contract required them to put some people in the [design] phase....[Corporate] wants people who have done similar work for respectable [logistics companies], some degree of cultural sensitivity, because [corporate] knows that some of its people aren't easy to work with. (Vendor Consultant)

Corporate management wanted more subcontractor consultants despite some concerns with their technical skills. Some subcontractor consultants were new to enterprise systems configuration.

[Subcontractor, there's] some concerns about their skill set. It is seen as part of the learning curve. Some are very green, and new to [enterprise systems], some were doing [enterprise systems] configuration for the first time. (Corporate IT Director)

The intentional replacement strategy led to subcontractor consultants eventually accounting for about half the vendor personnel.

It's more [subcontractor], less [primary vendor now]. The team leads are all [subcontractor]. (Corporate IT Director)

The infusion of these consultants not only brought a higher degree of shared cognition with BU representatives, but also facilitated the growth of productive consulting work norms.

Tactic: Leveraging the Clan

The above actions built the clan through the building of social capital among team members. As social capital was built, the project team began to develop new beliefs, values, and norms. We observed controllers employing a distinct set of actions to translate these relatively high-level and undirected shared values, beliefs, and norms into the specific project context. Relevant values or norms useful to project outcomes were reinforced while undesirable ones were inhibited. Table 4 lists leveraging actions taken by controllers.

From leaving on time to working late: During the initial project phases, the project norm was that controllees would leave the project site at the end of the official work day. Working late was not a part of the logistics organization's corporate culture. Most of the primary vendor consultants had been recently recruited from all over the world for this

Table 4. Actions Taken to Leverage the Clan

Clan Values and Norms	Controller Action to Influence Clan Values and Norms	Clan Monitoring and Enforcement
Staying late at work to meet deadlines	<ul style="list-style-type: none"> • Appoint subcontractor consultants as track leads, increasing visibility of their behaviors (reinforce) • Delay server backup to remove impediment to emerging norm (reinforce) 	Primary vendor consultants and BU members observe and emulate subcontractor consultants' "work late" behavior. Social capital increases visibility of "work late" behavior, and sense of mutual support.
Having an enterprise perspective	• Institute peer voting system (reinforce)	BU team members now have a mechanism by which they could negotiate with each other, and make trade-offs. Social capital facilitates effective reciprocation amongst team members.
	• Designate joint user-consultant accountability for scenario (reinforce)	BU team members are accountable for the assigned scenario across all BUs, and spend more time on understanding other BU's requirements to design a common solution. They also see consultants as partners. Social capital increases ability to interact effectively with other BU team members and consultants.
	• Strict enforcement of scenario delivery deadlines (inhibit)	Clear accountability empowers team members. This, together with tight deadlines, weakens the previous practice of frequently seeking approval from BU management. Social capital increases commitment to the project.
Being "one team"	• Controller and vendor project manager use informal chat sessions to strategize and to speak with one voice (reinforce)	The client-vendor distinction is less emphasized. Social capital facilitates BU team members and consultants give-and-take.
	• Removing uncooperative consultants (inhibit)	Corporate management, through active engagement with project team members, can identify and remove uncooperative consultants.

project, and the vendor did not have time to socialize them to its organizational culture. When brought into the work site, they imitated the culture of the BU and corporate members.

When the VP Logistics brought in the subcontractor team (importing social capital into the project), the subcontractor team brought with them their norm of working late to meet deadlines. When primary vendor track leads were replaced with subcontractor track leads, the "work late" norm became highly visible to primary vendor consultants and BU members.

Primary vendor consultants knew the subcontractor had increased in favor, and that subcontractor team members were moving into positions of prominence. Primary vendor consultants began emulating subcontractor consultants and stayed

late. BU and corporate members could see the consultants work late, and also emulated their behavior.

For the first time, some people started working late, they started working together. For the first time, there's the smell of success. (Primary Vendor Manager)

One impediment to the late work was the server backup time. When the project norms were to leave at the end of the official work day, the server backup was timed to initiate at the end of the work day. This tended to cause computers to freeze. Corporate management arranged for a later backup, thus removing an impediment to the promulgation of the "work late" norm.

People are working 'til 8 or 9 p.m.! I asked for the server backup to be delayed to midnight. (AVP Logistics)

From BU-centric to enterprise perspective: Initially, BU members were highly BU centric. The affiliation to corporate management was not strong. Reinforcing the initial BU-centric focus was the practice of BU project members referring back to their senior executives at the BU when changes were required during analysis and design.

There was no empowerment. They have to check with the boss, and get back to the [project] every time. (Vendor Consultant)

Several clan building actions, such as grouping team members by scenarios that cut across tracks and BUs, and having all team members learn and use a common process modeling language and tool, helped BU team members understand the processes and requirements of other BUs and to appreciate the bigger, enterprise-wide picture.

Many people are only understanding now why the project is important; it's not only about transactional efficiency, but the project has strategic value....It began with the [BUs] wanting to change because their system was old...now it's all changed. Someone said that if they truly have the system, they'll be able to know how much it costs to run a [fleet] of aircraft...how much it costs to support [various aircraft-related activities] including non-visible costs....It's the power of information! (Corporate Support)

This emergent enterprise-wide perspective was further encouraged when corporate management introduced a peer voting system. Process design variations from the different scenarios were identified, and BU representatives would review and vote on them. A process that received support from at least two BUs was coded as “blue,” which meant corporate management would pay for its implementation. A process that received only one vote would be coded as “pink,” which meant the cost of implementing the process would come from the BU’s budget.

The peer voting system encouraged a shared enterprise orientation. It reinforced peer rewards and sanctions by establishing formal outcomes with direct business consequences. Because prior cross-BU contact was minimal, and BU members were mainly rewarded for within-BU contributions, BU members only had limited ability to socially sanction a deviating BU member. With voting, however, people per-

forming the voting would see each other on successive occasions to vote on new processes. Thus, BU A would be more willing to accommodate a noncritical process from BU B with the trust that BU B would reciprocate by agreeing on the design of a critical process of BU A that was not critical to BU B.

People were initially unwilling to change their processes to benefit another [BU]. In such situations, [corporate] asked them to choose. If two [BUs] agree, then it's a blue box and the other [BU] will be a pink box.... Now there's greater readiness to let go of their less critical requirements. (User Representative)

With the peer voting system, there was no need for arbitration by corporate management. BUs monitored and sanctioned each other. The system provided a formal platform to concretize peer sanctions, such that noncooperative behaviors were “punished,” thus reinforcing peer norms toward convergence. The peer voting process propelled the project forward by fostering consensus among the BUs that eventually saw greater than 80 percent standardization.

Corporate management also changed the project accountability structure. Previously, the vendor consultants, as track leads, were responsible for getting processes standardized and issues resolved. With the change toward the scenario approach, corporate management took the opportunity to make consultants and user representatives jointly responsible to deliver a scenario.

So now all three are involved, [corporate IT], [consultant], and user, have to sign off on all documents. (Corporate IT Director)

The BU member responsible for a scenario thus had to work closely with a consultant and a member of corporate IT. The BU member had to get requirements across the BUs, and thus spent less time interacting with his own BU.

Now with the scenarios approach, the users are being shared across tracks. (Primary Vendor Consultant)

Furthermore, each scenario was to be completed by a deadline. Thus, going back to the BU for approval was something that became a luxury.

At the beginning, everyone wanted their questions answered. Now, there are strict time lines and accountability. Scenario owners have a deadline for

decisions; if they can't make it, then it will escalate [to corporate]. (Corporate Support)

Joint accountability changed norms by disrupting and reforming peer monitoring networks. The BU member in charge of a scenario interacted more with other BU members, and less with his own BU. Because he was not solely responsible for signing off on a scenario, his individual accountability was lessened, reducing the possibility of BU-specific sanctions.

The user sits with the consultant to make sure that if the scenario doesn't go through, then both are to blame. (Vendor Subcontractor Manager)

The joint accountability converted the sense of camaraderie into real work efforts that accelerated project progress. Members cooperated and willingly tapped the appropriate user representative and/or consultant network to resolve a process or technical issue. The trust and respect developed between BU representatives and vendors translated into "give and take" in facilitating user representative sign-offs. The norms of cooperation and joint destiny were institutionalized, as BU representatives and vendors embraced each others' interests.

From identifying only with own stakeholder group to being one team: When the project first began, the BU members drew boundaries between what they perceived was their work and what they felt was consultants' work. For example, BU members frequently stated that it was the consultants' job to come up with the design. This led to a lack of pro-activeness and ownership by the BU members with regard to the design of the new system.

Users are very vocal, but they're not actual doers. (Consultant)

Several clan-building actions were helpful in realigning BU members and consultants from their respective groups to the project team. For example, the soccer games, karaoke sessions, and dinners helped both users and consultants interact in informal, nonwork settings. Subsequent steps were taken to increase the sense of shared destiny, joint responsibility for and commitment to project success.

The designation of joint user–consultant accountability for scenarios was one such measure. The AVP Logistics also cleverly used the relationships he developed with the vendor manager as both colleague and neighbor. The casual chats during the car rides were converted into informal strategizing sessions. These were proactive efforts to direct social capital

toward positive project outcomes; such casual chats could have steered clear of work-related matters. The consequence was the AVP Logistics and vendor manager spoke about project issues with a consistent voice, sending a clear signal from the top. While shared vision is generally important in projects, it was especially salient here, because of a strong norm of respect for authority in the organization and local culture. Once senior management articulated the vision of standardization with a joint and consistent voice, all groups worked toward a common objective. For example, users stopped blaming consultants for substandard documentation. Instead, as a user representative noted, "Users began amending the documents for the consultants."

The shared norms of being "one team" had to be carefully guarded and sustained. As the norm emerged, project team members became less tolerant of the handful of consultants perceived as being poor team players. BU members sanctioned such consultants by providing negative feedback about them to corporate management. Corporate management alerted vendor managers about these uncooperative consultants, and the vendor counseled and removed them when necessary. These stern actions upheld the norms of being cooperative, and one team.

Some consultants left because we asked them to. We wanted them to leave because of their attitude [toward teamwork]. For example, the phrase "this is your process" was regularly used by a consultant. His indifference was unacceptable. Our people saw the project as a team effort. (Corporate Support)

Resolution

Within three months, the project began to turn around. The BU representatives and vendors worked together in greater unison and were more willing to accommodate one another. The results were a higher degree of standardization, more integrated design, and speedier progress.

Momentum has improved. There's ownership...also the people on the ground working together has helped things too. (Corporate IT Director)

Although requirements analysis was completed two months late, the momentum created ensured the project rolled out its first implementation on schedule in April 2005. The original target of 60 percent standardization in logistics processes across the BUs was exceeded.

Earlier on, I didn't want to over-sell standardization. The minimum was 60 percent, the figure in the

contract. But I had hoped for 80-plus percent. In the end, after we had gone through all processes in great detail, we delivered more than 80% standardization! (AVP Logistics)

Team members began focusing on the success of the entire project instead of just ensuring their own respective jobs got done. For example, BU representatives helped during the system integration test, a task that was earlier regarded as being the sole responsibility of the vendor. The vendor and subcontractor consultants, similarly, did “*more than what they were supposed to do.*” When the warranty clause expired, the subcontractor volunteered to stay on the project for another three months without additional payment.

Discussion

This case examines how clan control was enacted in a complex IT project within a few months. The team cooperation, consensus, and commitment at project end were in stark contrast to the initial state of self-interest, conflict, and indifference. This section presents two critical findings from our research: (1) how clan control can be enacted in an IT project, and (2) the role of formal authority in enabling clan control.

Enactment of Clan Control

Our case analysis suggests that, with proactive action, it is possible to enact clan control within a few months, in large, complex IT projects. Such enactment requires a targeted focus on the dual process of building the clan—by developing its structural, cognitive, and relational dimensions or reappropriating existing social capital from elsewhere—and leveraging the clan—by reinforcing project-facilitating norms and inhibiting those that impede the achievement of project goals. Figure 2 presents the conceptual framework summarizing our findings.

Building the Clan

Our case reveals targeted efforts of the controller, in partnership with team members, to build the structural, cognitive, and relational dimensions of social capital.

In this case, enhancing the *structural dimension* means removing physical and organizational obstacles that impede interactions. New work orientations (e.g., scenarios overlaying the tracks), knocking down walls, and the creation of congregational space created a new working environment

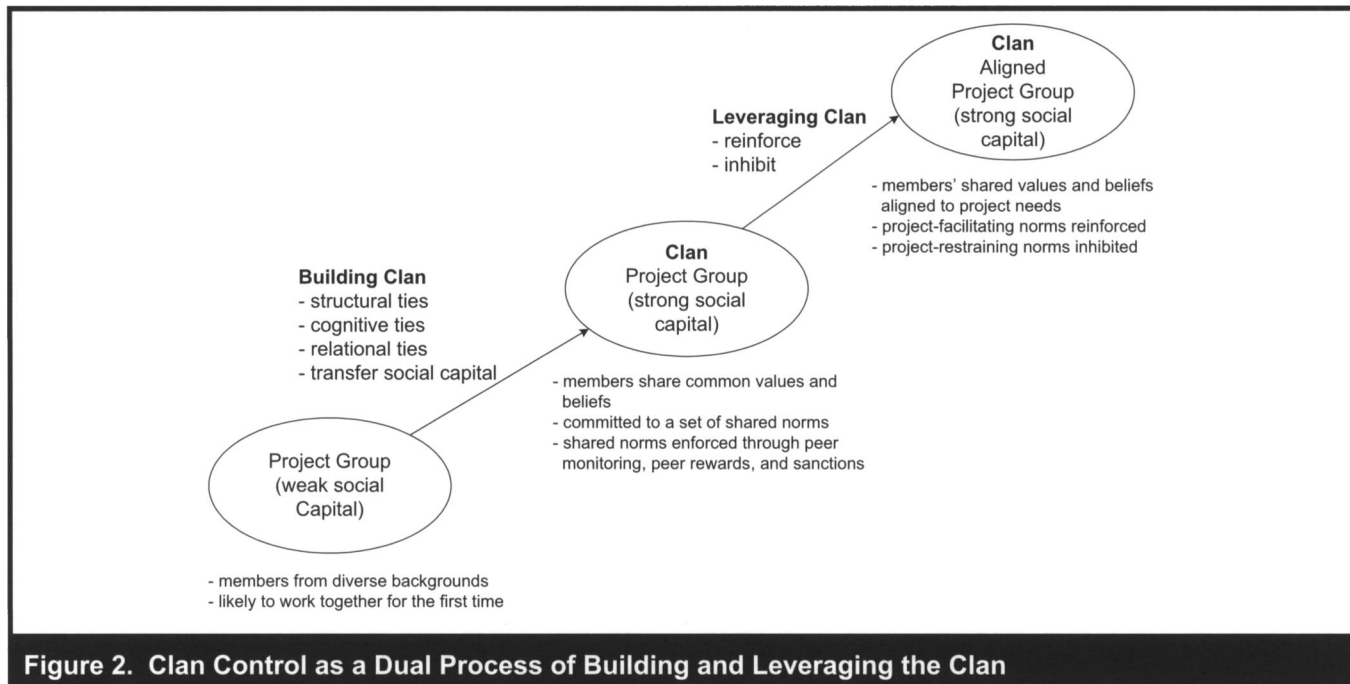
encouraging interaction. Building the *cognitive dimension* means providing a common language and consistent reference perspective for effective communication and coordination. The abandonment of separate process modeling notations in favor of a new common process modeling notation created words and meanings that helped stakeholders negotiate and reconcile differences. Developing the *relational dimension* means strengthening the relational bonds within the project team. It goes beyond cordial social activities like dinners and soccer games. In this project, much relationship building was associated with the projection of management sincerity and honesty. Corporate management led by example by subjecting itself to the same ban of long vacation leave as controllees. Corporate management also encouraged controllees to raise issues and took concrete steps to resolve difficulties. We also saw how corporate management quickly built the clan by *reappropriating social capital* from subcontractor consultants. The bulk import of consultants helped jump-start the work late norm. Our study thus demonstrates that social capital can be imported from outside a project.

Our case analysis further demonstrates that clan building efforts reinforce one another. For example, the effects of bringing in large numbers of subcontractor consultants (in reappropriating social capital) were clearly accentuated by the physical collocation of users and consultants (with the enhanced structural ties).

Leveraging the Clan

We saw proactive actions by corporate management in leveraging the clan as they sought to influence the promulgation of project members' shared beliefs, values, and norms to encourage project success. Corporate management wanted to leverage the emergent work late, one team, and one enterprise norms to drive project outcomes. *Reinforcing* actions employed by corporate management included the formal appointment of subcontractor consultants as track leads, establishment of joint corporate-user-consultant responsibility, and institution of a peer voting system. *Inhibiting* actions took the form of suppressing values and norms that might harm the project, such as in sanctioning and removing noncooperative consultants or discouraging BU-centric thinking. Corporate management was concerned that negative attitudes could potentially damage emerging values and norms that benefitted the project.

These actions to leverage norms required that social capital be already present. The underlying structural, cognitive, and relational ties enabled the quick propagation and enforcement of such norms by enhancing the visibility of peer behaviors.



In turn, visibility encouraged the imitation of peer behaviors. For example, consultants and users stayed late only after they observed subcontractor consultants doing so. Similarly, the identification of uncooperative members was typically not a top-down decision. Such consultants were identified through feedback from users.

In addition, without sufficient social capital, certain actions to leverage the clan such as the peer voting system and joint corporate–user–consultant accountability could have degenerated into finger-pointing, blame-shifting, and mutual sabotage. These actions required the presence of strong social capital so that users and vendors would cooperate and give-and-take. Finally, actions to leverage the clan were effective, because enough project members were manifesting expected norms. For example, enough consultants had to display a norm of cooperation so that removing uncooperative consultants did not overly compromise project staffing.

Perhaps the most striking example that leveraging the clan for control requires existing social capital is the failure of the initial clan controls. The memorandum of understanding did not create a norm of cooperation, because personnel in the logistics organization and vendor had few existing ties to each other then. The speech by the CEO failed to create a commitment to standardization, because users were skeptical of project goals and of each other. Thus, attempts to leverage the clan without strong social capital are likely to yield ineffective clan control.

The Role of Formal Authority

Contrary to prior research which suggests that formal authority is the antithesis of clan control (Cardinal et al. 2004; Gittell 2000), our analysis suggests that controllers as a formal authority play a critical role in enabling the enactment of clan control. Formal authority appears to contribute in two ways. First, it significantly accelerates the enactment of clan control by tapping its ready access to organizational power and resources.

- **Figure of Authority.** In enacting clan control, controllers exerted substantial organizational power. Where necessary, they employed power stemming directly from their position in the organizational hierarchy to define and monitor desired project outcomes. In facilitating the building and leveraging of the clan, for example, corporate management had the power to bring in a subcontractor team, to mandate use of the common modeling language, and to remove uncooperative project members.
- **Symbol.** Controllers' roles as symbols facilitated certain kinds of social capital building. For example, soccer games, karaoke sessions, and dinners were successful, in part, because corporate management personally invited people to attend. Controllees would have been less willing to attend had they been invited by another controllee, because participation might signal a desire to avoid work. That corporate management invited con-

trollees demonstrated that participation in functions was acceptable behavior.

- **Resourcing/Approval.** Finally, many social capital building mechanisms required organizational support and would not have worked without controller involvement. For example, the re-architecting of rooms and workshops were suggested by various consultants (i.e., it emerged from the clan). However, consultants did not have the resources or power to re-architect rooms or encourage user representatives to attend workshops, and needed corporate management's power to enact their proposals.

The second way formal authority contributes to the enactment of clan control relates to the public goods aspect of social capital. Coleman (1988) noted that

the kinds of social structures that make possible social norms and the sanctions that enforce them do not benefit primarily the persons whose efforts would be necessary to bring them about, but benefit all those who are part of such a structure (p. S116).

As benefits cannot be restricted to specific persons, there is a tendency to underinvest in building social capital. State intervention is often necessary to produce this "public good." This is especially true during early stages of social capital development where shared norms are not established. Formal authority serves as a guarantor, ensuring integrity in the socialization process. Formal authority can establish expectations of acceptable clan behaviors, reducing the need for lengthy relational exploration to build trust in the social system. Formal authority provides safeguards to ensure fairness and reciprocity in the socialization process before real trust in the social system develops. In our case, such acts as making user-vendor pairings accountable for a scenario and establishing a voting system for business processes helped establish rules for engagement between clan members.

Our observations are thus consistent with prior research by Adler and Borys (1996) who distinguish between *enabling* and *coercive* bureaucracies in organizations. Their work notes how formal structures and procedures can develop the fabric of informal cooperation. Likewise, Evans (1996) suggests that state involvement can buttress rather than undermine social capital in civil society. We find controllers play an instrumental role in enacting clan control. They have access to significant resources (including formal control) to build and leverage the clan. In our case, formal control was deployed to build shared structure, cognition, and relationships to facilitate the development of clan control or to reinforce/inhibit clan norms. For example, the imposition of a common modeling language was a formal (behavioral) control mechanism that facilitated the building of cognitive

ties among members. Similarly, the peer voting system was a formal (outcome) control mechanism that accentuated clan norms of enterprise orientation. Thus, mindfully employed, formal control can amplify clan control. When well-aligned with the shared norms, beliefs, and values of the clan, the simultaneous deployment of both formal and clan control need not be a zero-sum game.

Contributions to Behavioral Control Theory

Our research refines and enriches behavioral control theory in three ways. First, it reconciles the differing views on clan control. Prior literature on clan control has approached it from two perspectives, (1) that clan control leverages on an existing clan to control (Jaworski 1988; Jaworski et al. 1993; Kohli and Kettinger 2004), and (2) clan control concerns the building of the clan (Choudhury and Sabherwal 2003; Rowe and Wright 1997). Our study reconciles these two perspectives by demonstrating that clan control requires both the building and leveraging of the clan to succeed. In doing so, it also helps to explain why social capital is important to clan control, going beyond recent research that has already demonstrated a strong link between the two constructs (Kirsch et al. 2010). Social capital is necessary for building the clan, and without social capital in place, leveraging the clan is impossible.

Our second contribution is explaining the role of controllers in enacting clan control. Prior literature tends to emphasize the role of peer enforcement of norms in clan control. For example, Kirsch et al. (2002) noted that clan control is enforced by group members as each strives to be "a regular member of the project team" (p. 494). Choudhury and Sabherwal (2003), similarly, note that in clan control "each member effectively functions as both controller and controllee" (p. 292). They do not explain how controllers employ peer monitoring and sanctions to control. Our study highlights that controllers play an instrumental role in employing significant resources and authority to influence the building and leveraging of the clan. The social capital perspective in clan control helps make a stronger distinction between controllers and controllees. Our conceptualization recognizes not only the peer aspect (e.g., peer sanctions, rewards, norm creation), but also the controller aspect of clan control (i.e., by building social capital and leveraging norms, values, and beliefs developed by peers). Recognizing the role of controllers aligns the enactment of clan control more consistently with the underlying principal-agency perspective of behavioral control theory (Eisenhardt 1985, 1989a).

Our third contribution lies in clarifying the relationship between formal and clan control (Choudhury and Sabherwal 2003; Kirsch 1997). Prior research suggests these controls

may be complementary, but has not revealed how and why (Grabski and Leech 2007; Grabski et al. 2002). Our research reveals that controllers have access to substantial resources (including control resources such as formal controls), and such controls can be used not only to drive controllees toward project outcomes, but also to develop other controls. Mindfully employed, formal controls can build shared structure, cognition, and relationships to facilitate the development of clan control or to reinforce/inhibit clan norms. Our research thus partly clarifies how clan and formal control can work together in a portfolio; one strategy is to employ one form of control to build the other.

Conclusion and Future Research

This research sets out to explore how clan control can be enacted in IT projects. To answer this question, this research had to simultaneously answer the question “what is clan control?” Through a longitudinal study of a large enterprise system project, we discover that clan control requires strong social capital. Social capital in its structural, cognitive, and relational dimensions facilitates the emergence of norms. The controller’s role in clan control is to build and reappropriate social capital, and to reinforce norms that benefit a project, while inhibiting norms detrimental to it. Our study not only sharpens the conceptual clarity of clan control, it also bears strong implications for practice. It adds a strategic and interventionist orientation to accelerate the enactment of clan control by suggesting specific ways to build and leverage the clan. The need for proactive intervention is becoming increasingly important as businesses initiate larger and more complex IT projects for which enactments of clan control will be crucial.

Several limitations of our study should be addressed by future research. Our study focuses on how clan control can be enabled within a short time frame. We elaborate how it is enacted through the dual processes of clan building and leveraging using the social capital perspective. Non-clan control related factors associated with project success could influence the efficacy of clan control in IT projects. This is especially salient given our case contains factors identified by the project turnaround literature as common in turnarounds. For example, our case saw the introduction of key people during the turnaround period (Iacovou and Dexter 2004). Similarly, the turnaround occurred in a short span of time (Engwall and Westling 2004).

While these are important considerations, including them in our paper would not only significantly expand its scope and complexity, but also dilute our focus of explicating clan control processes. Furthermore, other research has established

the causal relationship between clan control and project success (Henderson and Lee 1992). We argue that suspending non-clan control related factors during our analysis maintains the simplicity of our conceptual framework without sacrificing its ability to make sense of clan control processes. Future studies could examine how non-clan control related factors regulate project turnaround processes.

The Asian context of this study must also be considered in assessing the generalizability of findings. While we believe our model of clan control enactment is applicable to all contexts, the specific actions in building or leveraging the clan are likely to vary. For example, whereas relational ties were built through various social activities, including karaoke, in Sweden, such clan building practices are likely to revolve around *fika*, or the coffee break.

We also acknowledge that in large, complex projects, there are likely to be multiple control dyads (Soh et al. 2011). We focus this paper on the highest level control dyad within the project, between the corporate project management team, and all other team members, as our primary objective was to examine how the main project controllers facilitated the enactment of clan control across the project team as a whole. Future studies should examine the interactions across multiple control dyads within large, multistakeholder projects.

Finally, our study focuses on the successful deployment of clan control alongside formal control. However, other studies have documented organizations that willingly cede clan control to obtain formal control. The factors that encourage tradeoffs versus complementarity between both kinds of controls need to be further explored.

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