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ABSTRACT

Clan control is often essential in complex multi-stakeholder projects for project success. Furthermore, clan control is especially important during requirements analysis which occurs at project inception. How can controllers quickly institute clan control in complex IT projects? Through the case analysis of a large IT project, we observed that clan control can be accelerated by the purposeful application of formal controls to build social capital. Our findings corroborate the notion that, properly structured, clan control can emerge quickly in a multi-stakeholder project to improve the likelihood of IT implementation success.

Keywords

Behavioral control theory, project control, social capital

INTRODUCTION

In multi-stakeholder projects (e.g., organizational-wide ERP systems), users from various departments and business units must work hand-in-hand with internal IT professionals, and external vendors. Clan control is often essential in complex multi-stakeholder projects for project success (Kirsch, 2004; Kohli and Kettinger, 2004).

However, instituting clan control is challenging; there is insufficient time for clan control to emerge naturally. Thus, our research question is *how does a controller quickly institute clan control in complex IT projects*? Our analysis demonstrates clan control development can be accelerated by using formal controls to proactively build social capital as a strategic resource.

MANAGING LARGE IT PROJECTS

In behavioral control theory, a controller has goals to be accomplished by controllees. The controller exerts control to ensure controllees perform assigned tasks (Kirsch, 1996). Formal controls rely on organizational power, and comprise outcome and behavior control. Informal controls comprising clan, and self control are enacted with minimal reliance on organizational power.

Clan controls are especially relevant when outcomes are unclear, and behavior is hard to specify (Kirsch, 1996), for example, during requirements analysis. Clan control is most needed when disparate stakeholder groups must work together to come up with an acceptable common design (Kirsch, 2004). Clan controls are also critical in vendor-based projects, and projects involving numerous departments such as ERP implementations (Newell, et al., 2004).

Clan control often has insufficient time to emerge naturally, given the tight project schedule common to IT projects. Moreover, project team members often see little motivation to develop relationships as it is unlikely that they will ever work together again in the future.

CLAN CONTROL AND SOCIAL CAPITAL

But what precisely is clan control? Clan control is often defined as goal congruence (Kirsch, 1996). However, one interesting question is how goal congruence can be achieved. Research has generally identified mechanisms that encourage clan control such as gatherings, games, and norms. Research on concertive control has demonstrated that clan control can be successfully implemented (Kohli and Kettinger, 2004). However, what is lacking is good theory that generalizes from individual clan control mechanisms to a set of constructs for explaining how these mechanisms create concertive control to achieve goal congruence.

An examination of the mechanisms described in the literature suggests that many of them involve the use of social capital. Social capital is argued to be the resource associated with networks, and relationships between people (Nahapiet and

Ghoshal, 1998). Clan control must therefore be the deliberative act of using social capital to influence controllees to align their goals with the controller. Social capital is a resource while clan control is a purposeful act performed using social capital.

If clan control relies on social capital, then it must rely on the three dimensions of social capital (Nahapiet and Ghoshal, 1998):

- The *structural* dimension identifies who a controller or controllee knows, and how the network of social contacts is structured. These structures refer not only to existing ties and organizational links, but also physical structures that encourage or inhibit ties (Ko, et al., 2005).
- The *cognitive* dimension refers to commonalities between individuals, including shared codes, language, and experiences.
- The *relational* dimension refers to the "closeness" or affection between members of a network, as manifested in commitment, norms, obligations, and identification.

Existing literature in clan control and social capital is generally silent about how clan control or social capital can be generated swiftly. Indeed, some literature suggests that social capital cannot be generated swiftly but is an inherent property of the organization (Bolino, et al., 2002). We performed a longitudinal case study to respond to this research question.

CASE SITE

The logistics firm we observed had three principal business units (B.U.s), each dedicated to a particular transport role: (1) air, (2) land, and (3) sea. The project described here reflects the first two phases of a large, ongoing five-year enterprise system implementation at the company designed to replace the separate existing, aging logistics management systems in the three B.U.s, The primary goal of the project was to integrate the logistics processes across the three B.U.s., thereby increasing the transparency of B.U. operations to corporate management.

The two phases described are: (1) the requirements analysis phase, where the three B.U.s, with assistance from the vendor specified a logistics management system that would suit all their needs, and (2) the implementation of the system for the sea B.U., including the warranty period. In total, these two phases took 35 months and were considered successes.

A steering committee was formed with overall responsibility for the project chaired by corporate's head of operations who assumed the title of corporate project director. Day-to-day project management was performed by the deputy head of operations, with support from a senior IT manager from the corporate IT division. A primary vendor and an implementation subcontractor were to develop a set of cross-B.U. standard logistics process designs and implement the standardized logistics management system for the sea B.U. The B.U. representatives provided in-depth understanding of the business processes. The project was broken into three large tracks, engineering management, supply management, and finance. The "clan" for the project comprised management (controller), who were senior logistics and IT professionals from the parent company and team members (controllees) including about 50 vendor consultants, and about 50 representatives from each of the three B.U.s and the finance department.

We obtained access to written documentation such as contracts, minutes and slides of meetings, and project management charts. Interviews were obtained from four main sources: (1) project managers, (2) vendor consultants, (3) domain representatives (from the three business units and company headquarters), and (4) corporate IT representatives. Data was triangulated to ensure construct validity. Specifically, all findings were supported by either an interviewee and archival documents, or from interviews across separate stakeholder groups.

INITIAL PROJECT SITUATION

The project officially began in January 2003 and originally had little social capital and hence clan control. B.U. members traditionally operated within the context of their own B.U. This was the first time B.U. members were getting together to implement a joint IT project. The vendor had recruited consultants for this project from all over the world. These consultants had their own backgrounds and experiences. Consultants, thus did not share a single vendor culture.

The company initially implemented many outcome and behavior controls to manage both vendor and users, but not clan controls. For example, users were only allowed to modify the enterprise system by a small amount:

> *95% must be standard* [vendor product]. *All requirements must be doable through configuring* [vendor product], *there must be no software modification, but they can use a pre-existing add-on.* (corporate IT executive)

However, three months into the project, the company realized the project was in dire straits. The B.U.s were not aligning with the corporate goal of standardizing processes between the business units. The B.U.s, were more concerned about improving the efficiency and effectiveness of their own processes. Users had trouble agreeing with each other. The B.U.s could not reconcile conflicting business processes, and would "agree to disagree."

Furthermore, the project structure made developing clan control difficult. Members of separate tracks, the vendor, and corporate IT sat in their own rooms. Particular B.U.s furthermore dominated specific tracks. The air B.U. had to ensure aircraft met airworthiness requirements and thus focused on maintenance. The land B.U. had to ensure food, fuel, and other supplies were available for long road trips, and hence focused on supply.

> *We only had one hour integration meeting per week, restricted by track boundaries. It led to a low level of integration- 3 monolithic teams restricted by tracks created an unfocused, functional design…. If you satisfy any one* [B.U.]*'s requirements, there are problems with the other* [B.U.]*s.* (vendor project manager)

Users refused to negotiate to adapt their own processes to those of other stakeholder groups. Furthermore the organization was strongly hierarchical and users were used to reporting up the hierarchy within their B.U.s before committing to a decision. This meant long delays before a B.U. would commit to a particular process to be implemented in the system.

> *There's no empowerment. They have to check with the boss, and get back to the organization every time. They're passive.* (consultant)

The relationship between users and the primary vendor was also strained. Users felt consultants were unfamiliar with their business and could not adjust to their work culture.

> *There are about 50 consultants working on project now.* [Consultants] *were chosen* [for technical skills]*.* [Consultants] *did not necessarily have a* [logistics] *background, but it was a bonus. There are few such people available … 20-25% have a* [logistics] *background. We were aiming for 50%* (consultant)

Because vendor staff did not have domain experience, users did not trust vendors to make good decisions about the project.

> *The 3 business units had different requirements and the users asked the consultants to tell them what to do… When the users were told that this is their choice, they felt that the consultants were avoiding work. There was an underlying mistrust (*primary vendor consultant)

PROJECT SITUATION AFTER SWIFT CLAN

The original primary vendor project manager left after 3 months. His departure alerted corporate to the seriousness of project problems. The first few milestones (e.g., delivery of high level requirements analysis) were missed. Morale was low, as user team members wondered whether the project would fail. A new vendor project manager was recruited. In addition, the subcontractor, originally contracted only to shadow the vendor so as to more effectively implement the system, was asked to support the requirements analysis with its own team of consultants.

Given the fragmented goals, low trust, and poor communication among project team members, the project leaders (corporate project director, corporate project manager, corporate IT manager, new primary vendor project manager, and vendor subcontractor manager) recognized the urgency to build clan relationships and implemented a slew of quick measures which we will discuss in the next section. By the sixth month, these controls had taken hold, and the project turned around. Individuals began to work together more efficiently.

These measures developed social capital. Users from the separate B.U.s began to cooperate, and B.U. and vendor personnel began to work together.

> *For the 1ˢᵗ time, some people started working late, they started working together. For the 1ˢᵗ time, there's the smell of success* (primary vendor project manager)

Furthermore, the social capital was used to align the stakeholders with the goal of process standardization. B.U.'s acquiesced to each others' processes after the new controls were introduced. The original target was that 60% of all processes would be standardized. By the end of the requirements phase, between 80-90% of all processes were standardized.

> *A long time ago, I didn't want to over-sell standardization. The minimum was 60%, the figure in the contract; but I had hoped for 80% plus. We have gone through all processes in great detail and have delivered more than 90%!* (corporate project manager)

Similarly, the vendor and subcontractors had stayed through the project, and did "more than they were supposed to do." For example, the vendor subcontractor unilaterally chose to remain on the site, unpaid, to support the maintenance team for an additional three months until November, even though the warranty clause had ended in August.

> *We're happy they (vendor subcontractor) stayed around to close issues even after being paid. And we all knew they did their job well. They have stayed around to help our maintenance team ramp up.*

The goal of process standardization also became something of a mantra in the project. By the middle of the land B.U. implementation, there was 100% turnover of the senior corporate and B.U. management team. At that time, the project had been ongoing for three years. In addition, the project had taken two years to justify. Many senior managers had been near retirement during the project justification stage and retired at this point. Others were poached by vendors, because they had gained a reputation for turning projects around. Because of the turnover, the land and air B.U. were the principal drivers behind their own implementations. Nevertheless, both B.U.s have kept their focus on standardization. Requests for new features in the enterprise system are generally only introduced when multiple B.U.s are impacted.

INSTITUTING SWIFT CLAN

But how did the project management team institute clan control within the short span of time? Our observation was that management implemented a slew of measures that developed the structural, cognitive, and relational dimensions of social capital.

Developing Structural Ties. The project management team spent much effort and resources to re-architect the worksite and work processes so that members of separate stakeholder groups could see each other and work together.

Creating structures across B.U.s. Initially, the three tracks of the project and corporate IT were housed in separate rooms isolated from each other. The lack of interaction across tracks contributed to inconsistencies in the analysis and design of processes. For example, while outcome controls specified what should be done at each milestone, a consistent level of detail across all tracks was not achieved at the first few milestones because of the lack of interaction and sharing of information.

The project leaders combined business processes from the tracks into scenarios, each scenario detailing a situation from its inception to completion. These scenarios were overlaid on the existing track structure. An example scenario might involve a vehicle breakdown. The processes, from reporting the breakdown to the repair of the vehicle would be detailed in the scenario. Project members observed that scenarios helped them appreciate one another better:

> *The scenario approach has helped resolve cross-track issues, since scenarios go across tracks. Scenarios can be used to break barriers between tracks and the gaps/ black boxes in the processes* (B.U. team leader)

They also renovated the rooms to make them larger, thereby allowing people from separate groups to sit with each other.

Joint User-Vendor Accountability for Group Goals. To foster shared goals, the corporate project director made one user, corporate IT member, and vendor consultant jointly accountable for each scenario. Each scenario was to be standardized by a particular time. How this goal was to be achieved was irrelevant. The pairing of the user and vendor partly addressed the need for users to check with their superiors outside the project before committing to a decision. If a scenario failed to complete, the user responsible for the scenario would be held responsible (along with the consultant and corporate IT representative). To protect users from negative feedback from their superiors in the B.U.s, any query or unresolved problems would fall jointly on a corporate IT manager, B.U. user, and vendor consultant.

> *The user and corporate IT sit with the consultant to make sure that if the scenario doesn't go through, then all are to be blamed* (vendor subcontractor manager)

Developing Shared Cognition. The project management team also tried to foster a shared language between stakeholder groups.

Enhancing Vendor Compatibility. One complaint users had was that the vendor did not understand the user business and the local country culture. Vendors came from overseas, and while many had worked with enterprise systems, few had worked in a logistics domain. Controllers did two things to remedy this. First, they carefully selected a new vendor project manager. Second, they revised the subcontractor contract.

The vendor and company agreed to co-interview the new vendor project manager. Corporate management selected this person based on the likelihood that he would be able to socialize well with the project team.

> *I'm confident about* [new primary vendor project manager]. *He has experience, plus strong local ties. He's married to a local and has been here for 15 years* (corporate project director)

Corporate management also persuaded the vendor to bring on board subcontractor consultants to replace its own underperforming consultants. Eventually subcontractor consultants accounted for about half of the vendor personnel. Furthermore, subcontractor consultants eventually secured leadership positions in all three tracks.

> [Subcontractor] *people are more experienced. I gave them a bigger role. It was the only way to solve the resource problem* (Primary vendor project manager)

The subcontractor vendor had previously worked with the company and had expertise in logistics. These consultants had experience with other local companies and were better able to relate to users because of their familiarity with the local context. Unlike the primary vendor consultants, the subcontractor consultants had a culture of working late. In contrast, users tended to leave when the official workday was over. The primary vendor consultants had not developed a shared organizational culture yet, having been recruited from separate parts of the world. During the first three months of the project, they adopted the user culture of leaving at the end of the official workday.

However, when the entire project team was co-located and physical partitions were knocked down, primary vendor consultants could observe their subcontractor counterparts working late. This observation, combined with the knowledge that subcontractors were replacing vendor consultants, encouraged the primary vendor consultants to work late. The users saw that all consultants were working late, and so they too began to work late. The subcontractor's work norms (e.g., working long hours, problem-oriented value of "getting job done") eventually spread and helped the project to complete on time.

Peer Voting System in Resolution. A system was also put in place to provide B.U.s with a language for compromise. This system required that B.U.s vote for desired functionalities in each proposed process. A process that received support from at least two B.U.s was coded "blue," which meant corporate would pay for its implementation. A process that received only one vote would be coded "pink," and the cost of implementation would be borne by the B.U. The voting system encouraged B.U.s to develop reciprocal agreements. One B.U. would support another's process in exchange for the other B.U.'s support on theirs. Prior to the voting system, a B.U. would refuse to accept a process that did not benefit them.

> *They knew that at the transaction level, there would be differences… people were unwilling to change their processes to benefit another* [B.U.]. *In such situations,* [corporate] *asked them to choose. If 2* [B.U.s] *agree, then it's a blue box and the other* [B.U.] *will be a pink box.* (B.U. member)

Single Process Modeling Notation. One especial point of dispute across the B.U.s was which process modeling notation they should use. Initially, the land B.U. insisted on their process modeling notation which was optimized for their supply-centric work. The other B.U.s preferred another process modeling notation, as their work in engineering and finance was already done using that modeling tool. This disagreement led to frustration as processes done in the supply track could not be integrated with the other two tracks.

> *I know both and know they can't be used together, but* [land B.U.] *wanted to use (their)* [process modeling notation] *for supply, while the other* [B.U.s] *could use (the other)* [process modeling notation]... *There's no integration between supply and the rest* (corporate member)

The new vendor project manager insisted on a single process modeling notation. Furthermore, the notation was one that no one in the project had ever used. By mandating the adoption of a new process modeling notation, instead of their individual preferred one, management signaled that standardization and collaboration was more important than each B.U.'s particular differences. This sent a clear signal that agreement between stakeholders was more important than the elegance of the individual technical solution.

Promoting Relational Engagement. Finally, the project management team attempted to strengthen relationships between the various stakeholder groups.

Transparent and Open Communication. To address mistrust, the vendor subcontractor manager chaired grievance airing workshops. Stakeholders from the various groups could come to these workshops to express their concerns. Management took concerns seriously and demonstrated they were doing things to fix them. Workshop issues were put on paper and mounted on the wall. As the issues were rectified, the status of issues would be updated on the paper. The subcontractor project manager furthermore met team members over lunch to hear their concerns privately. Concerns were acted upon.

> *We had team workshops for all levels, including management, team leads,* [B.U. personnel]. *It was very open. It showed all feelings. Some were very apprehensive before and became more hopeful later. I also had team*

lunches with every team to thrash out issues. There was user distrust. I had to mediate between them to increase the level of trust (Subcontractor project manager)

Informal functions including shared meal sessions at expensive restaurants, soccer games, and karaoke sessions were also organized to establish ties at a personal level.

Signaling the Importance of Group. The importance of collaboration was repeatedly signaled by corporate and vendor senior management in various ways. First, they would frequently meet to work together. Their close cooperation served as a model for the lower level project team members. Project managers/leaders spent their expensive time negotiating with people, sitting in workshops, and going to karaoke sessions. Both the corporate project director and corporate project manager were at the project site full-time, despite being in charge of logistics operations. They delegated day-to-day responsibilities of running their division to others to jumpstart clan control in the project.

Senior project management also used group punishments to emphasize that everyone was responsible for the project. For example, all project members were affected by a formal ban on long vacation leave (e.g., leave for the Christmas holidays). Such leave would only be allowed when the project was on schedule.

> *Because of the tight schedule, no one is to take long leave until the end of* [requirements phase] *except for compassionate reasons or urgent matters* (minutes of meeting, 12 August 2003).

The ban on long leave helped establish a sense of perceived equity among the project members. Everyone was to suffer together, and no one was to take leave at the expense of others.

Finally, non-cooperative team members or consultants were replaced. In the spirit of unity, the vendor project manager supported the removal of its own consultants. Such dismissals occurred because some vendors were unable to work with others.

> *Some consultants left because we asked for it. Some left because of their [uncooperative] attitude. For example, the phrase "this is your process" was regularly used by a consultant. Our people saw it as a team effort. (corporate member)*

By removing non-cooperative consultants, corporate emphasized that cooperation was more important than the disruption caused by a vendor's departure. Corporate considered cooperation so important that consultants were replaced if they were not cooperative, despite their existing project knowledge.

DISCUSSION

This case illustrates how clan control was enacted within the span of months and helped the project succeed. Clan control was required for project success, as cooperation across stakeholder groups was necessary to develop standardized processes. The swift clan control was achieved (1) by proactively building social capital as a strategic resource, i.e., by facilitating structural ties, developing shared cognition, and enhancing relational engagement; and (2) by leveraging on the efficacy of formal controls to develop, deploy, and sustain social capital. Figure 1 illustrates how this works.
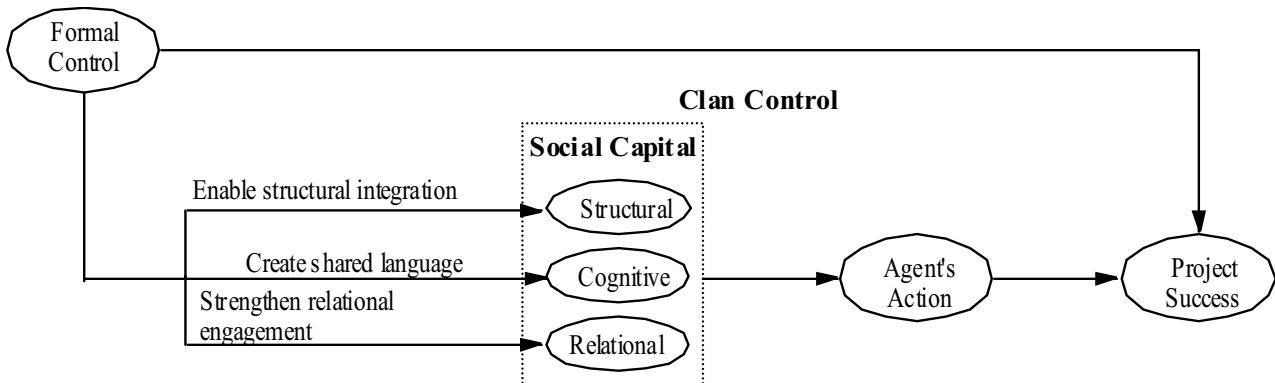
Figure 1: Formal Control Influences Swift Clan Control

Proactive Building of Social Capital as a Strategic Resource

Our observations suggest that the quick emergence of clan control requires targeted efforts to address the structural, cognitive, and relational dimensions of social capital. Formal controls can be deployed to: (1) enable structural integration, (2) create a shared language, and (3) strengthen relational engagement.

Enabling Structural Integration. The project began with structural impediments to the development of social capital. The building architecture, for example, discouraged cross-track communication and users were closer to their own B.U. leadership than to project leaders. Many controls were implemented to remove these impediments. For example, walls were torn down, and users were forced to work one on one with corporate IT and a vendor to complete scenarios.

Creating Shared Language. At the beginning of the project, members had little basis for communicating with each other. Project leaders created a shared language between project members both overtly and tacitly. Overtly, project leaders brought in a large number of consultants that had a shared language and a vendor project manager conversant in the local culture. Tacitly, project leaders put pressure on everyone to quickly develop common ground. When evidence of differences arose, project leaders penalized project members for those differences, e.g., by mandating a new modeling notation no one was familiar with.

Strengthen Relational Engagement. Finally, many of the formal controls ensured that project members would bear the cost of their own unwillingness to cooperate. Uncooperative consultants were removed. B.U. members who refused to cooperate foot the bill for their requirements. Missed milestones resulted in shared punishments such as denial of long leave.

Leveraging on Efficacious Formal Controls to Develop, Deploy, and Sustain Social Capital

An especial interesting insight was that most of the controls used to develop and leveraging on social capital for clan control were formal controls. The project management team used authority to order people to sit together, and paid for the renovations. The project management team also mandated that everyone use a new modeling toolset, removed problem consultants, and told users that they would pay for processes no one else would support. We observed that formal controls served as catalysts to build, deploy and sustain social capital. They also made it easier for corporate to leverage on existing social capital to accelerate the emergence of clan control.

We found that formal controls encourage clan control when they do the following:

- *Signal the importance of "We" rather than "I."* Group activities, group punishments, and making people from disparate stakeholder groups accountable did much to break users' links to their own B.U.s and redirect their energies towards benefiting the project as a whole.
- *Enable the flow of information and communication.* Tearing down walls and standardizing the modeling notation greatly assisted in cross-track communication.
- *Remove impediments to clan control.* Uncooperative consultants were removed from the project despite their technical competence.

Although much prior research suggests that formal control is the antithesis of clan control (Sundaramurthy and Lewis, 2003), our study challenges the generalizability of this position. Appropriately deployed, formal controls may enhance the development, deployment, and sustenance of clan controls. In this project, formal controls successfully increased clan control within just over two months. The level of team enthusiasm, commitment, and optimism was in stark contrast to the initial state of chaos, conflict, and confusion.

That formal controls can encourage clan control may explain why little evidence of clan control has been observed in other projects. Most research assumes (1) controls only directly impact project success, and (2) clan control exists independently of formal control. Under these assumptions, any clan control created or fostered by formal control would be identified as a formal control. In effect, the view of clan control as the "other" control reduces the likelihood of someone observing clan control. If clan control is viewed as being a product of social capital, however, its existence becomes more apparent. Thus, a greater understanding of the application of formal controls may be necessary. Effective use of formal control to promote clan control requires an appreciation of context. Impediments to clan control in one context may not apply in others. The recognition that formal controls can influence clan controls is an important first step to designing effective clan control for IT projects.

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