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Exploring Control Modes in Globally Distributed IT Work Management

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Abstract

Organizational control is a process through which management influences the behavior of its employees to meet project and task expectations. Researchers have identified two modes of control, namely formal control and informal control. Outcome and behavior controls are considered formal control mechanisms and clan control is classified as an informal control mechanism. This paper explores how these controls play out in distributed IT work where team members are composed of subgroups that are distributed across countries and cultures. This paper is based on qualitative data gathered from a three-years longitudinal study of an IS organization with globally distributed solution centers in the US, Ireland and India. The paper concludes with seven findings for globally-distributed IT work: (1) In distributed IT work, formal controls are complemented with informal controls; (2) When both formal and informal control modes are used, informal controls have additive powers that improve the effectiveness of formal controls; (3) Formal controls aid organizational culture diffusion; (4) Personal relationship building can increase clan control; (5) Social face-to-face meetings can increase clan control; (6) Pop culture training can increase clan control; (7) Social brokers can increase clan control.

Key words: formal control, informal control, socialization, global virtual teams, global software development, trust, social network

Introduction

The advances in information and communications technologies and the current trend towards a more global economy, as manifested by trade liberation and distribution of work across geography and time zones, is giving rise to a new organizational work environment. In this new workplace people collaborate on a daily basis with team members whom they may never meet face-to face, who live in places they have never visited, and whose lifestyles and societies they know little about. This means that today's managers are increasingly called to manage diverse global teams where opportunities for face-to-face encounters among the team members are few and far between. In the software development arena, Choudhury & Sabherwal (2003) found that despite the advances in development tools, development methodologies, project management processes and communications technologies, managing offshore software development remains a tough problem.

Henderson & Lee (1992) showed that managerial process control and group member outcome control are effective control structures for internal collocated software design teams. Laura Kirsh (2004) studied the dynamics of controls that were used in motivating a diverse set of individuals who were engaged in building information systems that were targeted to be deployed globally. She found that control choices changed from one project phase to another depending upon the project, stakeholders, and global contexts. Choudhary & Sabherwal (2003) examined the controls over the duration of outsourced information systems development projects and observed the evolution of portfolio of controls, starting with outcome controls moving to behavior controls including clan controls after experiencing performance problems.

Thus, prior research on control of information systems development projects has examined the specific control modes (Henderson & Lee, 1992, Kirsh 1996, 1997) and explored the dynamics of control modes (Choudhary & Sabherwal 2003; Kirsh 2004) in various settings associated with globalization of IT products and IT work. This paper explores the managerial control structures in globally distributed IT work teams that belong to the same firm. In this environment, IT workers are located in several clusters based on geographic boundaries. Team members in the same clusters see each other face-to-face regularly and team members at different sites rarely see each other but collaborate virtually on a regular basis. Therefore the primary challenge in this type of globally distributed work environment is minimizing the perceived social distance among the subgroups so that team members at distributed sites who might never meet one another can work together in a collaborative way. David et. al. (2007), drawing from the World Systems Theory core/ periphery model, showed the structural impediments to developing collaborative relationships among the distributed sites. Despite these structural impediments, our longitudinal study came across successful projects. This paper presents an analysis of the control mechanisms in information systems development projects that were executed by teams whose members were distributed in the US, Ireland and India.

The rest of the paper is organized as follows. The next section presents the background literature that forms the theoretical foundations for the paper. This is followed with a discussion of the research methodology. The fourth part presents the analysis and the propositions that this analysis yielded, and the last section summarizes the implications of these propositions and findings.

Literature review of control modes in IS projects

Formal and Informal Controls

Control, a tool for managing projects, is a set of mechanisms that is used by management to motivate team members to behave in a manner that is consistent with organizational norms and project requirements[MSOffice1] (Choudhary & Sabherwal 2003). There are two modes of organizational control: formal control and informal control. Formal control is a set of documented rules and procedures exercised with managerial financial incentives and punishments to reduce goal difference between the controller and the controllee. Informal control is a set of unwritten social or people strategies utilized to develop a common set of values and norms. In his seminal work on control, Ouchi (1979, 1980) conceptualized three types of controls, namely outcome, behavior and clan. Most researchers study how these three control types are exercised in practice (Kirsch, 2004).

Formal control relies on mechanisms that influence the controllee's behavior through performance evaluation and rewards (Choudhury & Sabherwal, 2003). Formal control includes activities such as defining and documenting the work to be done, establishing performance guidelines through task feedback, comparing actual performance to performance standards and initiating corrective actions as necessary (Henderson & Lee, 1992). Since outcome control is exercised when the controller monitors and evaluates how well the controllees meet pre-specified targets or goals, outcome control is classified as formal control. Similarly when behavior control is exercised in an environment where behaviors are prescribed, controllees engage in prescribed behaviors to achieve project and organizational goals and rewards are based on how well those prescribed behaviors are followed, then behavior control is classified as formal control (Kirsh, 2004).

Formal controls provide the means to monitor progress, surface problems and provide information to take preventive or corrective actions. Formal controls are exercised through defined targets or goals that are linked to reward and punishments systems based on controlee's performance. Formal control assumes that the controllee is a rational actor and reacts to punishment and incentives exercised by the controller. The belief behind this approach is that people are willing to submit to formal controls because of their need to make a living, or the conventional wisdom that formal controls provide guidance and structure to accomplish work efficiently, or the maxim that "an honest day's work for an honest day's pay." According to Ouchi (1979), in exchange for pay, employees give up autonomy in certain areas to their organizational superiors and permit them to direct their work activities and to monitor their performance. This type of view has come to dominate thinking regarding effective management practices. Ghoshal (2005) provides a

critical examination of this orientation, questioning the extent to which a rational choice approach to management can be effective in promoting "positive" behaviors and limiting "negative" behaviors. However, this is not always the case, and it takes more than formal controls to create the type of culture that an organization would like to promote.

Informal controls are means of aligning controllees' values so that their behaviors are synchronized to desired norms. Unlike formal controls where controllee behavior is pre-specified and individual behavior is assessed, informal controls have no written or prescribed behaviors and they are exercised through socialization processes such as ad hoc meetings, social influence and mutual trust. Since clan control is exercised by socializing individuals to a common set of norms and values, it is an informal control mechanism. Clan control operates when all members of the work group embrace the same values, adopt similar problem solving approaches, and commit to achieving group goals. Thus, individual efforts become difficult to identify and evaluate as members collaborate on the task at hand. Consequently, rewards and sanctions are based on whether individual members act in accordance with group values, norms and objectives. (Kirsch, et. al., 2002).

Self control is another mode of informal control. It occurs when individuals set their own goals, self-monitor their goal achievements, and reward or sanction themselves accordingly. The controllers can encourage controllees to exercise self-control by appropriately structuring the work environment. For example, the controller can define standards and train the controllee in techniques that ensure tasks are clearly defined within discernable boundaries. Controller can also institute performance evaluation schemes that reward autonomy and self-management (Kirsch et al., 2002). Self control is also referred to as controllee control. It is the extent to which an individual can exercise freedom or autonomy to determine both what activities to do and how to execute those activities. It occurs when individual team members exercise control over how they accomplish their tasks (Henderson et al., 1992). The concepts of self control and clan control are not independent. Clan control depends on members of the clan to exercise self-control. Similarly, self control can be impacted by clan control because when a controllee is a member of a clan and s/he is more willing to exercise self-control.

Prior studies have investigated the choice between different modes of control mechanisms. Eisenhardt (1985) reports that the mode of control selected depends on the cost of using that mode of control. For example, clan control is implemented when it is not possible to implement formal modes of control (Kirsch et al., 2002; Ouchi, 1979). Organization theory suggests that under different degrees of task programmability and outcome measurability, different modes of control can be used (Eisenhardt, 1985). Behavior control and outcome control are performance evaluation strategies. If behaviors can be explicitly defined and readily measured, control can be accomplished by performance evaluation of behavior. If behaviors are difficult to use as the basis for control then outcomes are used as a formal control mechanism. When goals are clearly stated and outcomes can be measured, performance evaluation is based on outcomes. If both process control and outcome control are difficult to be exercised, then the strategy of minimizing divergence of preferences becomes appropriate and clan control becomes the choice (Eisenhardt, 1985).

Formal and Informal Controls in IS Projects

IS scholars have applied and developed control theory in the context of IS project management. Henderson & Lee (1992) report that outcome and procedure controls can be combined with self-control, and an application of both formal control and self control resulted in significant positive effect on I/S design performance. While exploring the dynamics of control, Kirsch (2004) discovered that different types of control are used on the same project at different time periods. Choudhury & Sabherwal (2004) exploring controls in outsourced software development projects found that a portfolio of controls is employed.

The need for combining formal and informal controls occurs because high degree of formal control is necessary for efficient administration of an organization. Yet, at the same time, a high degree of team self control is needed for identification, motivation, and loyalty. Since informal control exercises a high degree of mutual influence within teams as the basis for effective coordination of organizational activity, combining informal control with formal controls leads to effective performance (Henderson et al., 1992).

In the context of offshore outsourcing of software development, Choudhury & Sabherwal (2003) found that because the behaviors of the offshore workers are not visible to the onshore project manager, outcome control is dominant. However, when the project gets into difficulty, clan control is exercised. They identified two types of clan controls. One is structuring the relationship between the client and vendor so that it is strategic for both parties, and the other is socializing of project leadership with workers at other sites through regular joint meetings.

Using the four elements of control, namely measurement, evaluation, rewards and sanctions, and roles and relationships, Kirsch (2004) found that the controls exercised during the requirements, development and implementation phases of IS projects varied. One implication of Kirsch's study is that managers of large IS development projects should structure control strategies for the different phases instead of for the whole project as a whole. Kirsch's study also suggests that for novel projects, managers should exercise informal controls before using existing or new formal controls.

Thus, these prior studies have shown that different control modes are used on the same project. However, these studies do not address the question: when informal control mechanisms are used together with formal control mechanisms, do they make formal controls more effective than when formal controls are used alone? That is, are there positive interaction effects between formal and informal controls?

When management exercises formal procedure control, they define specific tasks outputs or prescribe specific behaviors, evaluate controllee's performance according to tasks outputs or prescribed behaviors, and use financial and administrative incentives and punishments to propel the controllees to achieve the project goals. However, the sensitivity of the response of the employees to such formal control measures depends on the controllees. If the controllees are willing to cooperate and they are responsive to these measures, then these measures will be more effective. If the controllees are resistant to these measures and are unwilling to cooperate, they can sabotage the control or they can follow the face value of the control and ignore the spirits of the controls. Especially in software development, it is hard to assess the mental effort that has been put in, and it is up to the controllees to do their best to meet or exceed expected thresholds. If informal control influences people's willingness to do their best, then complementing formal controls with informal controls will enhance the effectiveness of formal controls. This paper will explore the impact of informal control on formal control and identify ways of increasing clan control in distributed IT work.

Research Methodology

Data and Research Setting

This paper is derived from a longitudinal study of an IS organization of a large firm referred to here as GLOBALIS. GLOBALIS' headquarters is in Boston, MA with multiple solution centers in the New England region. Almost 15 years ago GLOBALIS established solution centers in Texas and Utah, and it has been operating two wholly-owned solution centers in Ireland for the last 10 years. Three years ago it launched its first solution center in Gurgaon, India and a year and a half ago began a full-service solution center in Bangalore. Although GLOBALIS has considerable experience in establishing geographically distributed solution centers and is well aware of industry's best practices for dealing with issues and problems of geographic dispersion, e.g., distance and time zone differences, cultural differences, loss of communication richness, etc., it is facing difficulty in forming a cohesive community among these distributed sites.

The data used in this paper was collected over a span of three years through an ethnographic study of IT solution centers in the US (Boston, MA, Smithfield, RI, Merrimack, NH, Dallas, TX, Salt Lake City, UT), Ireland (Dublin and Galway), and India (Bangalore and Gurgaon). A multi-layered data collection process has been employed by the research team to develop a multi-dimensional view of the projects and the subjects of the study. To provide GLOBALIS management an understanding of how its global workforce collaborate, three years ago our team began observing the development of the GLOBALIS' global delivery process. For a period of twelve months (July 2005-June 2006) our research team tracked four IT projects using a workplace studies paradigm (Luff, et al., 2000). This included interviews, site visits, observations of video conference and conference calls, and frequent discussions with and presentations to GLOBALIS personnel regarding the team's findings. Thus, the project was carried out in a quasi-Participatory Action Research (Whyte 1990) framework in that it was hoped that the findings of the project would be beneficial to workers, management, and the organizations in terms of developing better relationships among distributed personnel resulting in higher quality work and a better global strategy.

Interviews were conducted with forty employees of GLOBALIS that included six senior management personnel, six project managers and twenty-eight workers associated with the four projects. These interviews occurred in both individual and group format and most of the interviews happened in person. Each interview lasted approximately one hour in length. These interviews were semi-structured and conversational in nature, and they covered a range of topics related to GLOBALIS, such as:
- How project success is viewed and defined,
- A comparison of planned use versus actual use of standardized software development and project management processes,
- How communication and information technologies are used,

- What are the knowledge transfer and knowledge sharing processes?
- What are the key challenges and how are those challenges addressed?
- What, if any, are the processes to encourage the formation of social and personal relationships?

In order to get a more fully developed sense of the worksites, researchers made repeated visits to the onshore and offshore sites associated with the project. During these visits, the nature of the work associated with the project was observed, especially meetings and other situations where people from the various sites interact with one another. The Ireland sites were visited in 2003 for one week, and again in 2006 for another week. The India sites were visited over ten days in 2006. During the course of the project, the sites in the New England area were visited intermittently in order to attend meetings, conduct interviews, and deliver reports. No other sites in the US were visited.

One of the projects tracked was GLOBALIS' highly successful BOA project. It was a nine months long development effort that delivered a product on time and within budget to an external customer. Based on the errors found in the extended warranty period (3 months instead of the normal 1 and ½ months) this product exceeded the quality standards of GLOBALIS. The application was a Human Resource Payroll system.

Project Context

Historically, GLOBALIS provides services as a developer to BankA. Recently, BankA was acquired by BankB, who had its own preferred vendor. Despite having this arrangement with another developer, BankB decided to evaluate GLOBALIS' capabilities through this project, which involved integrating BankA's human resources and payroll system with BankB systems. Because GLOBALIS had worked on the HR Payroll application of BankA, it possessed the application domain knowledge and understood the business issues well. The application execution environment consisted of Unix servers and Oracle databases, and the BankA team was experienced in these technologies.

The project deadline of nine months was set in stone. Since GLOBALIS had not attempted such a large project (180,000 BankB employees as compared to 40,000 BankA employees) before, system performance was an important design issue. The project team consisted of twelve workers plus a project manager. Four of the twelve workers were systems analysts who were located in Merrimak, NH. Six developers worked at GLOBALIS' Galway site in Ireland, and six new developers were recruited to work out of the Bangalore site for this project. The project management task was assigned to a manager of the Galway team. The teams members in the US and Ireland had worked together on many projects together in the past. Four of the six Irish team members had worked on-site in the US with the US team teams over a prolonged period. Thus, personal relationships among the US and Irish workers on this team existed. The six developers in Bangalore were new. Therefore, the project manager was very careful in recruiting the developers in Bangalore for this project. The process involved conducting an extensive conference call interview of candidates in Bangalore with solid Java knowledge and prior experience with PL SQL on Oracle databases. The interview focused on the interpersonal skills and the ability to communicate effectively in English. This was a very important element to the Irish managers because they knew much of the team work would require technologically-mediated communication. Therefore, it became important not only to evaluate potential team members in terms of their technological proficiency, but also their communication competence.

Once the developers in India were recruited, two developers from the Galway team flew to Bangalore to explain the system architecture and train the team in the software development methodology that required regular design reviews and weekly oversight meeting where issues were tracked, assigned and closed. The project started with a kick-off meeting through a conference call where everyone had to introduce themselves by telling something they had a passion for and something that is funny about them. Prior to this kick-off meeting everyone posted their pictures on the project site. The project manager established a buddy system where one Irish worker was teamed up with one Indian worker for support. The buddy was rotated every two weeks. The project manager encouraged the Irish team members to touch base with their Indian counterparts and the US workers once a day even when they did not have any work-related need.

Findings

Through our field study, we find that formal control modes and informal control modes are both called for in global software development. Informal control modes not only have additional power, but also make formal control models more effective. We have also identified effective methods to increase informal control. The following are our findings.

Findings 1: In Managing Distributed IT Projects, Formal Controls Must be Complemented with Informal Control

GLOBALIS is a matured software development firm with software engineering capabilities at CMM-level3. To facilitate distributed development it has invested heavily in up-to-date distributed project management tools and communication technologies. In the BankB project, the project manager executed a weekly issues tracking process where all team members were required to participate in a Sametime conference call. Here, workers presented the status of the issues assigned to them and also new issues were identified and assigned. When members of the Indian team were interviewed, they reported that the project was very well managed and they received excellent feedback on every piece of work they did. Thus, based on the fact that the organization has a highly matured development process, the evidence from the issue tracking process that the project manager used the firm's matured processes, and the perception of the Indian developers that the project was managed well, one can infer that formal controls that guide the behavior of the workers and progress of the project were in place in the BankB project. Since the BankB team members were situated at three different solution centers, the manager of the BankB project engaged in following socialization activities. First, two Irish developers from Galway were sent to Bangalore to train the six Indian developers. Two days after the Irish team members arrived in Bangalore, the Indian counterparts took them out to dinner and the conversation moved from work-related topics to sports. The two Irish developers told us that soon the Indians were teaching them cricket and they explained Irish hurling to their Indian counterparts. The stories that these Irish team members reported about their informal chit-chat and social interactions suggests that the two Irish developers made a strong personal relationship with the Indian team members. On their return they shared these stories with their team members and thus were able to transfer their positive experience to their fellow developers in Galway. Second, the manager in Galway held a virtual kickoff meeting over a video conference. All BankB team members in the US, Ireland and India were asked to post their photos on a project Web site, and during the video conference they engaged in personal information sharing, jokes and chit-chat. Third, the project manager initiated a buddy system where one developer in India was linked with one developer in Ireland or US as a buddy for a week and the buddy was changed every week.

In this project, there is clear evidence of exercising both formal control and informal control mechanisms. The question is whether the manager needed to exercise both modes of control? Our analysis of the social dynamics of GLOBALIS' solution centers revealed that an "Us/Them" attitude pervaded at GLOBALIS (David et. al., 2007). In exploring trust among the workers at different solution centers, a significant distrust among the solution centers was discovered at all levels (Newell et. al., 2007). In this environment of distrust and Us/Them attitude among the sites, it is difficult to build cohesion among the team members. The socialization process outlined above and exercised by the project manager at the Galway site moved the team members from the sites' "Us/Them" attitude to a "You/I" orientation among the team members.

In the context of offshore outsourcing of software development, Choudhury & Sabherwal (2003) found that because the behaviors of the offshore workers are not visible to the onshore project manager, outcome control is needed but when the project gets into difficulty, clan control is exercised. In the offshoring environment of GLOBALIS, the inherent distrust among the sites required the project manager to exercise clan control simultaneously in order to create a cohesive team leading to our first proposition that in a distributed workplace, management needs to complement formal controls with informal controls.

Findings 2: When Formal and Informal Control Modes Are Used Together, Informal Controls Can Improve the Effectiveness of Formal Controls

At GLOBALIS, meeting project schedules and deadlines are paramont for success. The organization will add resources and let the cost overrun its budget but it cannot accept late delivery. The following example demonstrates this point. A team of US and Irish developers were working on a critical project. Late in the project life cycle new team members from India were added to the project as additional resources to keep the project on schedule. The project manager in the US told us that the new team members from India were not as responsive and prompt as the original team members, and because in the cross-cultural training on India this manager had learned that time in Indian culture is elastic, he concluded that the informal control type, self control, that he expected from GLOBALIS workers could not be met by his Indian workers because the local culture is not sensitive to deadlines and schedules. This manager ended up micro-managing the Indian team members by checking for status of their work twice every day, which frustrated the Indian workers and exacerbated the situation.

Later when the developers in India were interviewed, it was found that the original team members on this project in Ireland and the US had previously worked with each other on other projects and they tacitly possessed knowledge of who had the expertise and know-how to answer their question and thus rarely went through the prescribed processes to acquire the necessary information. However, the team members from India, being new to the project, followed organizational processes and prescribed procedures, which in turn meant it took longer to get the

needed information. Workers who were experienced in the organization were aware of what rules needed to be followed and when some rules could be short-circuited in order to meet deadlines. The Indian workers, many of whom had been with the organization less than a year and were generally in their late twenties, were uncertain of their ability to ad hoc organization processes and thus by following the rules were perceived to be delaying their work. In this case, the actions of the Indian team members were mistakenly identified as based on their cultural inability to relate to the importance of deadlines and schedules. This is ironic given that the Indian employees were in fact following the procedures that were given to them, a point they took great pride in. In the BankB project, the buddy system rectified the Indian team members lack of tacit knowledge of whom to contact, thereby making the formal controls of schedules and deadlines more effective.

Another way to see how informal controls improve the effectiveness of formal control is to look at conflicts and how conflicts are resolved. Distributed collaborative work is particularly vulnerable to inter-group conflict primarily for three reasons:

- ▪ Distributed teams are often grouped into different categories based on their location. For example, it is common practice to talk in terms of Boston/Dallas team, East Coast/West Coast team, US /Ireland team, US/ India team, etc.

- ▪ These distributed groups and their members do not have the same opportunity to interact socially face-to-face and build trust across group lines.

- ▪ There is the perception that social interactions are limited by technology and its use in the workplace, and may not lead to the development of rapport and the establishment of trust.

Thus, conflicts are inevitable in distributed workplace. In the BankB case, trust between the team members was built through the socialization activities and it led to a reduction in conflicts and quicker resolution of those conflicts. When there are fewer conflicts, formal controls are more likely to be effective. Thus, our case study is indicating that informal controls improve the effectiveness of formal controls. This proposition is more significant than the findings of Henderson & Lee (1992) that both formal control and self control resulted in significant positive effect on I/S design performance.

Findings 3: Formal Controls Aid in Organization Culture Diffusion

A variety of local contextual factors, including but not limited to the site's "national culture," the age of the workforce, their experience levels, the maturity of the site, and the type of work done at the site, will impact the values and behaviors manifested at the site. Given these variations across distributed sites, distance becomes a factor regardless of how far that distance is (Olson & Olson 2000). Companies thus depend on formal controls, in the shape of "organization culture" to create some continuity between sites. In our study of GLOBALIS, since the formal controls are often based on the organization culture, the organization culture has a stronger impact on the workforce values and behavior than the local site culture because reward and punishment systems force adherence.

Granting that workers at a particular site share certain values of the local culture, the important question that has major implications to managers is to understand to what extent the employees' workplace behaviors are influenced by those values (Borchers, 2003). To pursue this issue, the well-tested Hofstede's (1980) was used to assess the extent to which cultural perceptions involving time within the GLOBALIS workplace differed. The temporal dimensions assessed relate to schedules and deadlines, punctuality, time boundaries between work and home, and awareness of time use. Although cultural models have shown that the concept of time can differ significantly across regions and national cultures, our survey shows that the perception toward time of GLOBALIS employees in US, Ireland and India are statistically the same irrespective of where people work or were born (Chand et al. 2006).

This finding, although contrary to the prevailing belief, is not surprising, because the national cultural models neglect the contextual nature of time. Because time is contextually relevant, it is impossible to characterize any nationality as having any standard conception of time. For example, when speaking with Indian developers, they were asked if a social engagement was set to start at 8:00pm, what time would they arrive. Answers generally fell into the 9:00-9:30pm range. For a social event, being "on time" (i.e. at the time designated as the beginning) would constitute being "too early." In fact, it may be considered rude to arrive at the designated starting time. However, when asked about what time do they show up for a meeting at work that is set to begin at 1:00pm, the answer was 1:00pm. In fact, some of the Indian workers said that if a supervisor was going to be at the meeting, they would arrive at12:55pm! Similarly, people know that the trains generally run on a schedule, airplanes leave on a schedule, and that certain institutionally-set schedules, such as those experienced in the workplace, need to be followed more closely than social schedules. This finding should not be surprising. Even in the US the meaning of "on time" regarding a social event can be very different from a scheduled meeting at work with one's superiors. While it is common-sense to know that time is contextually-relevant, the stereotype persists that Indians have an "elastic" view of time and therefore are not capable

of meeting deadlines, thereby laying the blame for missing deadlines at the feet of "Indian culture" rather than other reasons that likely are more relevant.

The perceptions of US, Ireland and India workforce regarding GLOBALIS culture was checked using the organizational culture profile (Sarros, et. al. 2002) and found that irrespective of the home location, workers perceptions were statistically the same. This suggests that the deadline driven culture of GLOBALIS has been diffused and, as a consequence the values and behavior of the workforce regarding the attitude towards time and the use of time respectively is closer to the organization norms irrespective to any local differences involving time.

Hofstede (1980) noted that the formal controls that the organization creates and evolves are rooted in the organization culture and therefore they may not be appropriate or effective across national cultures. Our analysis shows that employees adhere to formal controls and this adherence process aids in diffusing the organization culture across globally distributed sites. This observation led us to our third proposition that formal controls aid in organizational culture diffusion.

Findings 4: Personal Relationship Building Can Increase Clan Control

The objective of personal relationship socialization is for people to orient to one another on the basis of individual identities ("You/I"). This is the first step in trust development. Furthermore, social psychological research has shown that problems can be avoided and trust more easily established with those whom we see as members of our own group ("We"). Finally we have the intergroup level of interaction, where the interlocutors are posited as "Us" and "Them," members of groups that are diametrically opposite and mutually exclusive. Philosopher Martin Buber, in his seminal work *I and Thou* (1970 [1966]), summed it up this way:

> Another perennial attitude is summed up in the words Us-Them. Here the world is divided in two: the children of light and the children of darkness, the sheep and the goats, the elect and the damned. Every social problem can be analyzed without much study: all one has to look for are the sheep and the goats…Should a goat have the presumption to address a sheep, the sheep often do not hear it, and they never hear it as another I. For the goat is one of Them, not one of Us (p.13)

Thus, our thesis is that by moving from the *inter-group*, to the *inter-personal*, to the *intra-group* level, potential problems can be reduced and trust developed, thereby making distributed work more possible. Research in the area of intergroup relations has well documented that when people see others in the framework of an antithetical group, the attributions they create regarding out-group behaviors becomes intensely negative. Likewise, if others are viewed as in-group members, their actions are typically viewed in a more favorable light (Deschamps, 1984; Jones & Nisbett 1972; Pettigrew, 1979; Tajfel & Turner, 1979; Taylor & Jaggi, 1974). As seen in the BankB project, the inter-personal socialization processes exercised by the BankB manager in Galway built trust among the team members and thus increased the total effectiveness of the team resulting in on-time, within budget delivery of a product that exceeded the quality expectations. Since the socialization processes exercised by the BankB manager is a form of clan control, our fourth proposition is that inter-personal socialization can increase clan control.

Rapport is an essential component in developing interpersonal relationships and thereby effective collaboration in the workplace. Jarvenpaa and Leidner (1999: 806) found that "Social exchanges appeared to facilitate trust early on in the team's existence." Regarding the formation of virtual communities, Rheingold (1993:5) defines them as "social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace." Thus, for Rheingold, as well as Jarvenpaa and Leidner, the ability to carry on a discussion is the precursor to building rapport and ultimately relationships. Ultimately, "good relations purge a knowledge-creation process of distrust, fear, and dissatisfaction" (von Krogh, 1998: 136). Taken together, it is the ability to engage in reciprocal interactions, based on whatever topics people care deeply enough about, that allow for the formation of a shared identity and community, within which collaborative work can take place. We know that personal face-to-face meetings offer opportunities for building rapport through small talk and finding common interests that go beyond work. But in a distributed workplace there is little opportunity to engage in face-to-face meetings. Most of the interaction and communications is through computer-mediated devices. This raises the issue: Whether rapport can be built virtually?

In our interviews of GLOBALIS workers, one example of how personal talk is embedded in work communication was uncovered. When workers in Gurgaon, India were asked if they knew anything personal about the people they were working with in the US. One young lady told us that she knew one of her co-workers "has a sick cat." When we asked how she learned this, she said that one time this co-worker sent an email to the group saying "Tomorrow I will be late because my cat is sick and I have to take her to a Vet." This example shows that personal talk is embedded in work talk. The personal piece of information tells us that this person is not just a co-worker but also a cat owner. While this might be seemingly irrelevant information to the task of doing their work, the category of "cat owner" opens up many opportunities for developing a rapport and relationship apart from the categories of "Indian

worker" and "American worker." Furthermore, by developing a sensitivity over having a sick cat, this can build closeness through reciprocity. In other words, if the Indian worker inquires further about the cat's health, sends well-wishes for the cat's speedy recovery, is able to talk about when s/he had a sick pet, etc., this continues the interactional sequence around what becomes a shared topic. In this instance, the Indian worker did not follow up in such a way because she did not think a cat warranted any degree of concern (thus potentially demonstrated a cultural difference). However, she did say she would inquire if the illness involved a co-worker's child. In any event, such category association allows people to find common ground and engage further in small talk. In a virtual setting, small talk generally occurs over multiple interactions. This example reveals that in a distributed work place where face-to-face meeting are rare, people trained to pick personal tidbits embedded in work communications can build rapport, develop trust and move along the pronoun progression path of personal relationship building, a key mechanism for clan control in global virtual teams.

Findings 5: Social Face-to-face Meetings Can Increase Clan Control

        In an example of how "relationship transfer" can be more important than "knowledge transfer", we have the following instance from GLOBALIS. In this situation, a team in Gurgaon, India was assigned to work with a team in Dublin, Ireland. For the team in Ireland, the project was another part of an on-going relationship with a customer; for the Indian team, this was their first exposure to this customer. Since the project was tightly constrained by time, the Irish team wanted to build a prototype based on their on-going knowledge and experience of working with the customer. They asked the Indian team to start coding from a very general set of requirements that the Irish team provided. The Indian team, however, was very uncomfortable with this request and did not want to start work until the requirements were formally specified. The Irish team felt that the Indians were being too process-oriented, whereas GLOBALIS is customer oriented. The Indian team felt that it was merely following the protocols laid out by the organization: namely do not start coding until the requirements have been formally specified.

        By chance, the team manager of the Indian team was to travel to the Ireland office for unrelated training. The manager of the Irish team found out by accident of this visit. He was further annoyed that this person did not tell him of this visit so that they could meet. The Irish manager arranged for the Indian visitor to stay for three extra days so he could meet with himself and the other members of the team in Ireland. This face-to-face meeting allowed the manager of the Indian team to be in their shoes for a few days and see that the project had uncertainties that needed to be resolved through prototyping before the system requirements could be thoroughly specified. By the third day, the person from India was making jokes about topics that could be shared between people from Ireland and India. The Indian manager took back this sense of humor and related it to the team in India. As a result, the team members in India and Ireland started sharing social conversation and jokes on email, leading to a major breakthrough in the relationship between the two sides. The building of the personal relationship among the team members, together with an increased understanding of the project context by the Indian team manager, resolved the conflict and work began on the project.

This story parallels the Bangalore visit by the two Irish developers in the BankB project presented earlier in the paper. The manner in which the Irish developers told us their story of their Bangalore visit suggested to us that until the third day when the Indian team and Irish developers came together for a social dinner and engaged in small talk, there was little personal relationship development. Furthermore, GLOBALIS workers in India told us they found it easier to work with US team members located in Salt Lake City, Utah than US workers in New England. The reason they provided was that GLOBALIS workers at the Salt Lake City site were like us in terms of inviting us to their homes on the weekend, showing pictures of their family, etc. In other words, the Salt Lake City workers engaged in more social activities when Indian workers came over to the US for systems training.

Thus, our data suggests that face-to-face meeting with social events builds personal relationships. More importantly is the concept of *relationship transfer*, where workers at separate sites develop relationships with one another through intermediaries (or "social brokers") who have traveled to the other sites. Thus, people do not have to meet face-to-face to form these relationships; relationships can be built through that have met face-to-face. Since personal relationship building can increase clan control, we arrive at our fifth proposition that social face-to-face meetings can increase clan control. This insight inspired GLOBALIS to use their Ireland sites as a bridge for training the Indian workers alongside their US counterparts. By moving the training from the US to Ireland, the Indian and US workers get the after work hours to socialize and get to know each other at a personal level.

Findings 6: Popular Culture Training Can Improve Clan Control

As part of the data collection, some members of the research project team attended the India cultural training designed for US GLOBALIS employees. The training was provided by a vendor organization that specializes in cross-cultural training, employing a variety of technological and written materials meant to ready people to deal with "different" cultures. While the trainers themselves tried to stress that it is impossible to characterize any national culture as being monolithic, the implicit and explicit sense created through the materials is that Indian culture is in fact relatively stable, predictable, and shared among the over 1 billion people in India. For instance, the following two assertions made in the cultural training manual bring out the tenor of the cultural training: (1) Indians don't take initiative and are not creative, and (2) Indian workers are meek and do not push back. These and other sentiments become the lenses through which the experiences of working with Indian counterparts are perceived. As a result of the framing of the experiences, the experiences then come to support the framing, thereby creating a self-fulfilling prophecy of stereotypical experiences where "national culture" becomes the determining factor in all interactions.

Regarding issues of "power distance", we were told that Indian workers do not behave as team members with equal status in their everyday interactions. We were told repeatedly that Indian workers are reluctant to say no and they rarely question their US counterparts. These everyday observations confirm to Hofstede's (1980) power distance ranking of Indian society. The power distance ranks Indian society as one that values loyalty to family and groups over individualism, and where children are taught both at home and at schools to show respect to elders by not pushing their own views and doing what is told. Furthermore, elements of the caste system, also learned at training, are introduced as another component that interferes with teamwork among Indian personnel. Taken together, US managers do not trust Indian managers and workers to take personal initiative, show innovation, and provide frank feedback because of Indian culture.

During a ten day visit to the GLOBALIS sites in India, members of the research team were able to investigate this issue directly. The average age of the GLOBALIS employees in India is in the mid-twenties and roughly 90% of the employees have less than two years of experience with the firm. These Indian workers have to interface with US employees who are 10 to 15 years older than them and who typically have over 10 years of experience with the systems, application and the firm. It is not unusual to find American GLOBALIS employees who have worked on the same project over the span of their career in the organization. This means that they have a special affinity and ownership over the products they produced. Some Indian workers likened it to seeing a parent with their progeny. This raises the question: Is age and experience differential the cause for the "meek" behavior of the Indian workers or is it the national trait based on a low value on Hofstede's Individualism and Collectivism dimension?

Another issue that was identified relates to whether the Indians see their American counterparts as "team members" or as "clients." It was the generally agreed upon by Indian employees that even though they worked for the same company, they viewed their American counterparts as their clients who had to be pleased. This was underlined by previous work experience of Indian employees, many of whom had worked for Indian-based third-party vendors. Since the vendor model dominates the Indian IT landscape, it is not surprising to see this perspective being adopted by Indian employees. The Indian workers were struggling to see themselves as team members, a struggle that was enhanced by the age and experience differential between Indian and US offices. This sense also was underscored by all project managers being stationed in the US. While some global teams are currently managed by personnel located in Ireland, India does not currently "own" any projects. Thus, the very organizational distribution of work, while speaking of integrated teams, nonetheless conveys the message of hierarchical stratification. This also was seen in the trainings received by Americans, who were being trained to manage relationships, and Indians, who were being trained to do work.

Finally, new employees in the US demonstrate similar levels of deference to authority. Deference also is contingent on the type of job and organization. Therefore, while one may say that Americans tend to be less deferent, this is of course not always the case. Furthermore, Indian workers in GLOBALIS who have more extensive work histories with their American counterparts adapt their roles to fit the American organizational expectations. These situations clearly show that national culture is not an absolute or a rule that determines behavior, but rather a demographic variable such as age, experience that has the potential to impact workplace behavior in certain situations.

Our view is that cultural trainings that focus on differences create differences in the minds of those who attend those trainings. This leads to an environment of sophisticated stereotyping, which when left unchecked could lead to ethnocentricity. So what is the alternative?

In the cafeteria of one of GLOBALIS's site in New England, members of the research team noticed that all the workers from India who were visiting the US for training were sitting at one lunch table far away from their US counterparts. When asked why they do not mix with their US team members at lunch, they replied that they had

nothing in common to talk to their US cohorts. Having the opportunity to sit at the Indian lunch table in Gurgaon and Bangalore, members of the research team discovered that Indian workers of GLOBALIS are very talkative. Cricket, Bollywood and politics are the common topics of small talk among Indian workers. American workers might share similar general topics, such as movies, sports, and current events. However, the way in which they talk about them can be different. Some Indian employees told us that when not talking about work, they would talk about religion and politics. These two topics generally are avoided in an American workplace. While Americans might talk about current events, they often are careful not to use any current event to pry into one's "personal" convictions. For example, we might find American workers talking about how horrific the shooting on the Virginia Tech campus was, but they are not likely to use this even to engage in a discussion about gun control, mental illness funding, or the need to stem immigration (all specific topics that could be generated from the general event). Thus, while general topics may be shared, the ways in which these topics are discussed needs to be paid close attention so that social distance is not increased.

Overall, the observation regarding the need for shared topics suggests that pop culture training would be more appropriate than culture training for increasing clan control. Knowledge of pop culture enables the parties to engage in small talk and chit-chat, which is the foundation for building personal relations. Furthermore, the trainings could provide an additional opportunity to bond by having employees who are passionate about certain topics to lead the "training". The idea is to facilitate the exposure and development of identities apart from those readily displayed at work.

Findings 7: Social Brokers Can Improve Clan Control.

The presence of information and communication technology only creates the opportunity for collaboration and knowledge sharing. It is ultimately up to the users whether and how this technology will be used. In one instance, we were told by one interviewee in Ireland how he needed to get information from a particular team member in the USA who would not answer his email, respond to his IMs or answer his phone calls. He was able to identify through an international designation showing on the caller ID. The Irish employee developed an inventive strategy to circumvent this obstacle. Rather than call the person he needed directly, he would contact another American in the same office that he knew well. He would then have this person route his call to the target individual so the team member he was attempting to get hold of would then not know that the phone call was coming from Ireland and would pick up!

Due to different background and lack of face-to-face communication, when software engineers interact with each other, some of them may not get along well. So the issue is how to foster better understanding and communication? In our example above, the Irish worker used his friend in the US to act as a broker to pass along information.

In distributed work, when a pair of employees at distinct sites have a negative personal relationship that impedes their work related communication, they need a third party to mediate and coordinate their communication. Since brokerage ties improve communication speed and quality and mitigate negative relationships, it makes sense to employ social brokers to formally address the issues of negative personal relationships. The social broker can either be company designated formal coordinators or emergent coordinators who are friends with a pair of onshore and offshore people who have negative relationships. These brokers act as glue that unite an organization and facilitate building trust and understanding between people of different cultures and background. Thus, social brokers can increase informal control.

Conclusion

In the context of global IT work, control is especially difficult, therefore it is important to integrate different types of controls and find new ways to increase informal controls. Like prior studies on controls in IS projects, this paper has shown that in globally distributed IT work both formal controls and informal controls are critical. A key finding of this paper is that in distributed IT work informal controls make formal controls more effective. We provide a series of propositions for increasing clan control that has the potential for uniting a geographically distributed, culturally diverse organization into a coherent firm.

Working together, whether collocated or distributed, is a social process. As workers interact with each other to accomplish their jobs they form social relationships (Wharton, 2002). Since working is not just a means of sustenance, but also a means of achieving career aspirations, emotional support and social belongings, management needs to move beyond task execution through formal outcome and process controls to the human and social side of work by exercising informal control. Through clan control, controllers and controllee and controllees themselves will come to share the

same goals and values. Through self-control, controllees are motivated to monitor and adjust their own actions, procedures, and output for the benefit of the organization.

Informal control is especially important in the globally distributed work environment, because the work processes are harder to observe and output harder to assess. When employees at all the sites share the same organizational goals and values they are more likely to do their best. Under such favorable circumstances, the formal control mechanisms are more likely to be effective. As shown in the paper socialization can be done virtually leading to increased clan control.

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