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Exploring Leadership Styles in Software Development Projects

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EXPLORING LEADERSHIP STYLES IN SOFTWARE DEVELOPMENT PROJECTS

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Abstract

Successful software development projects depend, among other things, on their project manager's leadership capabilities. This paper analyzes how specific leadership styles of IT project managers contributed to the success of a large IT project realized by an IT service provider in India. We conducted an interpretive case study following the principles of the Grounded Theory Methodology to explore whether there are special leadership characteristics in a software development project in a typical offshore context in India, and their potential contribution to IT project success. The core concept of leadership as a key management issue emerged from the interpretive approach of our study, with 'collaborative leadership' and 'directive leadership' as the two most relevant characteristics of the IT project managers. We show how the use and the right balance of these two leadership styles help in overcoming the problems induced by different quality expectations between client and vendor. We also show why IT expertise is important to execute these two primary leadership styles, and how IT leadership contributes to the successful management of large software development projects.

Keywords: Software Development, IT Project Management, Leadership, Management Techniques.

1 MOTIVATION

Managing projects in the information systems domain remains challenging, since various global trends contribute to rising complexities. As an example, outsourcing of information systems development (ISD) projects to offshore destinations (e.g., India) has gained momentum in recent years. Market research companies predict a worldwide IS outsourcing market of about 377 billion USD by 2010 (Hackett 2008). Software development projects account for a large portion of the overall IT outsourcing market. In addition to high failure rates of information technology (IT) projects in general, the international dimension of global IT outsourcing adds additional risks to such endeavors (Gupta and Raval 1999; Nelson 2007). Prior IS research has provided a list of possible reasons why IT offshore outsourcing projects fail to meet the initial goals and expectations of both client and vendor (Dibbern et al. 2008). However, while there is a substantial body of knowledge on offshore outsourcing, research is still limited dealing with leadership and management of IS projects from the provider's perspective (Lee 2008; Mao et al. 2008).

One of the most important issues within project management is leadership (Carson et al. 2007). However, research about the crucial leadership styles in an ISD context is still limited, especially focusing on IT projects carried out in India. This paper aims to contribute to fill this gap in the literature, since leadership styles emerged as the core themes to successfully manage a large IT project in our case study. Scholars call for research on leadership with a grounded theory-building approach (Parry 1998), while meanwhile this research method is well established in the information systems domain (Markus 1997). The literature presents a variety of factors that promote the use of grounded theory-building in leadership research (Parry 1998). Among those is the lack of an enduring and integrated theory of leadership, resulting out of the dominant position of quantitative studies. Also, the social influence processes upon which leadership is built remain vaguely defined in the literature. The wide variety of influencing variables on these social influence processes call for a method to generate, rather than test theory out of rich qualitative data (Conger 1998). Building theory inductively from qualitative data is well suited to meet these demands.

Therefore, we conducted a qualitative single-case study using data analysis techniques offered by the grounded theory method. We adopted an interpretive epistemological position to address the following research question:

How can specific leadership styles contribute to the successful management of software development projects?

The paper is structured as follows: in the subsequent literature review, different theories on leadership will be discussed. In the methodology section, we explain the selection and use of the grounded theory method and provide a short case description. Next, the case analysis is presented followed by the main contribution, a model of leadership in IT projects, and contributions to practice and theory.

2 LITERATURE REVIEW

In general, leadership has been defined in many ways. The essential difference to management is that the concept of leadership is closely associated with change (Parry 1998). In an extensive literature review, Yukl summarized the definitions of leadership: "Most definitions of leadership reflect the assumption that it involves a social influence process whereby intentional influence is exerted by one person over other people to structure the activities and relationships in a group or organization" (Yukl 1994).

2.1 Leadership Theories

Fiedler's contingency model as the seminal work on leadership style and behavior (Fiedler 1967) is one of the most prominent examples of leadership research. This theory for explaining leadership

effectiveness consists of two basic components: first, the least preferred co-worker (LPC) scale to measure an individual's leadership style (which can either be task-motivated or relationship-motivated or anything in between) and second, the situational favorableness for a specific leadership style, in later works called the situational control (Fiedler 1981). A central aspect of this theory is the notion of situational conditions, or contingencies, which may influence the effectiveness of different leadership styles. Fiedler argues that the productivity of a group (e.g., a project team) depends on the goodness of the match between the character of the leader (i.e., whether this person is task or relationship motivated) and the specific leadership situation (Jago 1982).

Another central theory on leadership is the Path-Goal theory (House and Mitchell 1974), also reflecting the situational embedding of targeted leadership styles and behaviors. Its central premise is that subordinates will be willing to work if the disposed job can be accomplished (expectancy), the rewards are appropriate (instrumentality), and the rewards are also meaningful to the employee (valence) (House 1971). This theory has later been revised and the concepts of leader engagement to complement the subordinates' strengths and compensate their weaknesses have been added (House 1996).

More recent research has intensively studied other forms of leadership styles. For instance, empowering leadership – attributed with power sharing and giving more responsibility to the followers – has been shown to have a strong impact on team performance, indirectly affecting organizational performance (Srivastava et al. 2006). The behavioral complexity in leadership (BCL) theory states, similar to the notion of situational control in the contingency theory, that leadership is effective when a leader is able to perform different roles or functions, e.g., as a monitor, coordinator, mentor, or facilitator (hereby adding more forms of leadership styles to the body of knowledge), when a specific situation calls for a specific role (Denison et al. 1995). These roles which can be represented by a leader show similarities with the leadership styles that a leader can exhibit.

In summary, there are several theories on leadership, which served as sensitizing devices for our case analysis. However, as will be seen in the case analysis section, these theories did not fully explain the phenomena which were observed here. Therefore, and according to our chosen research approach, we developed our insights *inductively* from the data.

2.2 Leadership in IT Projects

IT projects experience high failure rates since many years. The Standish Group repeatedly reported about significant time and cost overruns, complemented by not fully meeting quality expectations of the project sponsors. Only 16.2% percent of all projects were ultimately considered successful by their executives, concerning IS projects in the U.S. in the 1990ies (Xia and Lee 2004). Reasons for failure are manifold. The primary ones, however, are not technological, but rather managerial issues (Scott and Vessey 2002). To successfully implement technical projects, strong project leaders with superior leadership skills are essential, but it is still not well described in the literature what these skills are (Sumner et al. 2005). We contribute to this literature stream by shedding light on the specific leadership skills and the resulting leadership styles we identified in our case study. This specific leadership behavior offers the potential to contribute to IT project success in an offshore software development context, as will be shown in the case analysis section.

Substantial research has proved the importance of leadership behavior for team effectiveness, and hence, for project performance (Durham et al. 1997). Lack of leadership or ineffective leadership is among the top hindering factors for IT project success (Sumner 2000). The literature suggests that IT leaders often lack interpersonal leadership skills, because technical employees get promoted to become project leaders due to their technical knowledge, not for their people management capabilities (Rosenbaum 1991), although these have shown to be overly important factors (Bloom 1996).

The before mentioned theories and literature on leadership do not show *how* different roles of a leader, or styles of leadership, materialize in effective leadership and contribute to project performance in the ISD domain – this is where we make our contribution.

3 RESEARCH METHODOLOGY

Adopting an interpretive perspective (Walsham 1993; Walsham 1995), we started this exploratory research project in 2007 with the goal of identifying success factors of IT offshore outsourcing projects. As part of this larger research program, in November 2008, we carried out a phase of qualitative field research in India at one of the major Indian CMMI-certified IT service providers. We followed grounded theory building standards introduced by Glaser and Strauss (Glaser and Strauss 1967) to inductively develop new theoretical insights and constructs in a qualitative data analysis approach, because this scientific method is well suited to study emerging phenomena (Urquhart 2001) from rich case study data (Yin 2003).

The Grounded Theory Method has evolved into two subtly distinct courses in recent years (Glaser 1992; Strauss and Corbin 1990). We adopted the Glaserian perspective, since we found this is more closely linked to the original formulation of GTM (Glaser and Strauss 1967). Other than the Straussian camp, Glaser places more emphasis on the *emergent* nature of the theory, neglecting any preconceived ideas from the extant literature of a specific area (Glaser and Holton 2004). Therefore, we started our research without predefined hypothesis and no clear research question at hand.

We were invited to investigate a large offshoring project of a bank (the client) and its management practices. The purpose of this study was to explore how management in this kind of IT projects and with a particular focus on the offshore dimension is conducted. However, the above stated research question and overall orientation of this paper, focusing on leadership styles in particular, only emerged after the first pieces of data were collected and analyzed. Initially, the in-depth investigation of the leadership styles and their impact on project management was not specified as the primary research objective. This procedure – i.e., letting the researchers being guided by the phenomena that occur during the course of the investigation – is in line with the foremost principle of GTM: 'the research problem and its delimitation are *discovered'* (Glaser and Holton 2004). According to numerous scholars in the field of theory building and interpretive approaches, the investigator has no preconceived ideas to prove or disprove in this kind of research (Glaser 1978; Morse 2001). Rather, issues that seem important to the investigators emerge from what is being told by interview partners about an area of interest (Mills et al. 2006). Thus, not until the data collection and analysis phase from November 2008 to May 2009, the research question for this paper materialized:

How can specific leadership styles contribute to the successful management of software development projects in an offshore context?

Two core categories emerged from our theory-building research: 'collaborative leadership' and 'directive leadership'. Guided by data analysis techniques (i.e., constant comparison) proposed by the grounded theory method (Glaser 1978; Glaser 1998), we inductively constructed a model of IT leadership and its influence on ISD projects. We fill a gap in an area of interest where research is scarce, grounding this study in empirical observations of data (Martin and Turner 1986).

We compared the findings in the comprehensive literature on leadership with our data and developed our theoretical model at the end, iteratively comparing data with newer data and the existing literature. In the following, we present a short case description and details on our data collection and analysis efforts.

3.1 Data Collection and Analysis

The field research carried out for this paper was done in India in November 2008. Data collection efforts included 15 semi-structured interviews with team members (5), project leaders (7), and senior managers (3), which were tape-recorded and transcribed. The semi-structured interviews with open questions at the beginning of the data collection phase were conducted by two researchers. These qualitative interviews were complemented by secondary data (e.g., project documentations), field observations, informal discussions, and conversations with our informants. To keep track of the latter, 'slices of data', extensive notes were taken directly at the field site to allow for analytic comparisons

between the different sources of data. After the first set of interviews, more focused questions were asked related to the identified core concepts from the first interviews. Any bias of the researchers was kept at a minimum by constantly comparing interpretations of different researchers (three researchers participated in total in this research project) and insights from different data sources. The case study also exhibited ethnographic elements, since the two interviewing researchers spent more than one week directly at the large software development center of the company, where the main parts of the IS project were engineered. Close contact to the project members was established by interviewing them, having lunch with them, and socializing with them at different occasions.

During the stay at the field site in one of India's IT hubs, the researchers took notes directly after each interview session and constantly improved and adapted their questionnaire to get a deeper understanding of the evolving key concepts. Following the 'constant comparative method' (Eisenhardt 1989; Glaser and Strauss 1967), different slices of data were iteratively compared with each other, including primary data, secondary data, field notes, as well as extant theory on leadership and project management. All collected data was then imported into the qualitative data analysis software Atlas.ti and carefully coded line by line. Over time, the main categories emerged from the data that were mentioned above. Analytic induction grounds the emerging theory in the participants' experiences. This allowed identifying patterns in the data, which eventually led to the development of an empirically valid theoretical model (Charmaz 2001).

The role of theory in this context was to theoretically integrate the findings from our interpretive field research and work out the contribution to the IT project management and leadership domains.

3.2 Case Description

We analyzed a software development project in India with more than 40 people involved that was part of a larger IT offshore outsourcing project initiated by a European client. The overall program took about four years and had a budget of several million Euros. The complex software system that the client had ordered was eventually delivered and implemented successfully at the customer from the financial service industry. The overall program, led by an experienced program manager, was split into several sub-projects, each managed by its own project manager. In the end, the program was considered as a success by both the client and the vendor company, since the developed software fully met the demands of the end users. There have been some cost and time overruns, but these were considered minor by both parties. Nevertheless, at the beginning of the program, client and vendor had different quality expectations, which threatened to have a negative impact on project success. Quality issues, i.e., a discrepancy between the client's and the vendor's quality expectations, had several facets. First, the software itself did initially not meet all of the client's requirements concerning the functionalities. Second, it was felt by the customer that the service provider did not perform the testing approach for this technically challenging, high demanding software, thoroughly enough. Third, the documentations of the software components initially did not meet the expectations of the client.

The vendor company is a large Indian IT service provider with CMMI-5 certification. Over the last decade, the company added several thousand new employees to its workforce per year, most of them young graduates from technical universities.

In the findings section, we will show how IT leadership contributed to reduce the negative effects of differing quality expectations on project success.

4 FINDINGS

The major categories that emerged from data analysis, our ethnographic field studies, and constant comparison with literature and existing theoretical concepts, were two distinct leadership styles: 'collaborative leadership' and 'directive leadership'. We found that the style of leading subordinates, which was executed by the program manager and several sub-project managers, had a significant impact on the success of the project. Those leadership styles were identified as the core elements

contributing to the successful completion of this offshore IT project. In the following case analysis, we will discuss how IT expertise facilitated the two different leadership styles, how the leaders balanced the two, and how IT leadership can have an impact on the success of an ISD project.

4.1 Collaborative Leadership

According to our interview partners, one of the leadership behaviors of the vendor's overall program manager, overseeing different sub-projects, and of the sub-project managers as well, can be best described as 'collaborative', in the sense that they involved themselves physically and mentally in the project team. We define 'collaborative' as a behavior of a leader that emphasizes approachability and willingness to help in respect of the subordinates.

The team leaders' offices were located in the middle of the group of programmers, system architects, testing personnel, and all the remaining people who made up the project staff. Being highly embedded in her team of subordinates, the key account manager for this banking client, overseeing this and other programs (while the case described here was by far the most important project with this client), had the advantage always to be 'up to date' concerning the evolution of the project. She could directly and immediately recognize technical problems, possible delays, and the 'spirit' within the team, and any kind of issues the project could face. She explained her leadership and management style in the following manner:

Style is that, I used to sit along with the team. My workplace will be one place within the big ODC. We call it Offshore Development Center. Even though I would not participate in every technical discussion and at every subproject level, most of the discussion is happening across the table. I would get to know about status, […]. Sitting with the team is very critical, when the team needs some help. That approachability is important.

Always being approachable without having to fear any negative consequences for the project members, and the ability to speak up, contributed to establish trust between the leader and the subordinates. This also helped in bridging the gap between offshore programmers and client staff in Europe, with whom most of the Indian offshore project workers never had any direct contact. In case of any doubts or misunderstandings, project members did not hesitate to approach their boss. She continued:

People used to have interactions at their levels. But they would always be ready to come and explain what the challenges are, and how we need to address them. There is some lack of understanding here and issue there. What will we do about it? We would sit and analyze it, discuss with onsite counterparts, these are the places where we need help. […] Working along with the team, you get the feel as to how the team works here, how the team comes along, where it moves. Support is required from that perspective. So it is more participative. That interaction is very important. That way the team will also get the confidence that there is somebody there to look at the matter.

This management behavior contributed to establish transparency and confidence, leading to trust within the relationship of leaders and subordinates. Project members would feel that they are not left alone when facing any problems and that there would always be someone to take care of them when it comes to any kind of issues in the project.

The program manager herself had a strong technical background, such as any other project or sub-project leader in the company. It is a general policy of the IT service provider to promote employees from (lower) technical levels, which are the entry levels when university graduates start their career at the firm, to become project leaders at later stages. The company considers this important, because this way it can be ensured that project managers have the necessary IT know-how to be able to help when technical problems come up.

Summing up, the collaborative leadership style is characterized by three main attributes:

- First, approachability by the project leaders for their subordinates, as described above.

- Second, the willingness of the project leaders to help and contribute by getting involved in (technical and organizational) problem solving.
- Third, expertise in the IT field, because all of the project managers we interviewed started their careers as technical employees, e.g., as programmers.

To reflect this self-assessment of the manager – it has also been reported by other project leaders in a similar way – with experiences from project members, i.e. subordinates, one interviewee from a working level stated:

No [I don't feel any hierarchy issues]. He [the project manager] will come and sit with us and he will ask what the problem is, how we can solve this, he will also interact with us like a team member, come to our level and help us in solving, coding... And he will ask what is [happening] on the technical side, he will help us. From all levels, there is no much hierarchy difference, except the designation [of the people]. There is no hierarchy level here. […] Any of the managers [in the project], we used to call them by their name. Normally in India, the seniors, you are used to call them as "Sir", as in college. Here at [company name], we call everybody by their names.

This particular collaborative management style of the vendor's project leaders – always being part of the project team on a working level and staying highly approachable for everybody and at any time – had positive implications on the outcome of the project, because the project managers and the program leader could act as intermediaries between the client and the project teams. Initial differences in quality expectations between customer and vendor, which compromised project success at early stages, could be overcome with the influential role the project leaders had. They would help to clarify mutual expectations concerning time and quality of the deliverables, contributing to transparency in the further development of the project.

Collaborative leadership was also helpful for realizing the interdependencies between sub-projects by directly being involved in project activities at the team level. The project leaders had greater overview over the overall program and its inner links to other projects. They could communicate these technical or organizational links to other projects within the program. Since every leader was part of the team, he/she could always directly point at these interdependencies when communicating with project personnel, raising the awareness for potential conflicts. For the vendor's key account manager, being part of her team significantly helped for identifying inter-dependencies between different sub-projects constituting the overall program. She commented on this:

So if we work along with the team, we get to know what the issues at the ground level are. That to a large extent helped. If you are around, and a particular test has failed, you can just walk across and find out what the problem is. We have executed the entire cycle together; have been verifying the result together. […] So I would sit and understand with them where the problems are. Of course there are sub-project level managers. But any issues, I would always remain open with them; [having] that 'just let's sit and resolve it' [attitude].

Collaborative leadership was possible, because the leaders had the necessary IT expertise to contribute, which helped to build up trust within the team, as shown above. Trust in turn played a major role for the effectiveness of the leadership efforts exerted by the project leaders, since management activities could focus more on task-related work, rather than fixing interpersonal problems. Trustworthy communication between project members and across hierarchy levels was therefore a central element to collaborate effectively and to keep away interpersonal mediation work from the leaders. Instead, they could concentrate on more important steps toward achieving project success.

This leadership style was not only reported by the project managers themselves, but also by the project members on lower hierarchy levels. They reported how the leadership behavior of their superiors led to a faithful working atmosphere and established trust among the project teams, because people believed that the successful delivery of the project is indeed achievable. Project leaders were always approachable for their team members, as this remark clarifies:

The thing is, if any of the [human] resources is facing any problem, he [the project leader] will always lend a helping hand. He was not like, he's the leader and he should not do the coding part, nothing like that. He also used to help us in coding, so on the whole he was a good leader. […] He was very cooperative.

This explains how collaborative leadership – based on trust and cooperation – contributed to the success of the project, since program and project leaders could concentrate on really important, technical issues and care for interdependencies between sub-projects, or – in general terms – do whatever is necessary to make an IT project successful, without having to care for minor, non-critical issues that don't exist when there is trust between leaders and subordinates. This way, the project leaders in their role as intermediaries between client and vendor personnel, could contribute to narrow the gap between the initially divergent quality expectations of the software.

It was essential for the leaders to be reliable and capable, having the skills and aptitude to lead a project technically and functionally. Providing the project team with the feeling to be led by a competent person contributed to trust and respect, making the leadership efforts more effective. Another project manager explained:

I would understand the functionality. And explain the project teams what exactly needs to be done, and bring them up to the level of confidence and understanding what need to be done for that particular subproject. And I identify the issues and come back with the right suggestions and analysis outputs to highlight any issues and risks, [like] risks in terms of implementation. And [I would] also discuss the approach for the project, how we should do it.

These statements show the positive influence of a leadership style characterized by participation with technical expertise and know-how, being a good guide for what and how to do, on project success in terms of meeting the client's quality expectations, as an example.

4.2 Directive Leadership

The second major category of leadership in this project has been identified as 'directive' in style. Respect, shown by project members towards their leaders, can partly be explained with the hierarchical distance and power differences between subordinate and superior. By 'directive', we mean that instructions were given to the project members and milestones, timelines, and deliverables were defined and communicated to the subordinates without reflection and discussion with the subordinates. This leadership behavior, which is based on power and respect as an instrument of efficiency also contributed to the success of the project. Respecting hierarchical differences made it easier for leaders to demand certain tasks to be executed by project personnel, because the status of superiors simply asks for compliance. The project leaders made use of this especially for overcoming discrepancies in quality expectations between client and vendor. As an example, they acted as intermediaries and communicated issues which were brought up by the customer to the subordinates directly. Their status, which is based on power and respect, helped for translating reported problems to problem solving initiatives directly and efficiently. Therefore, project leaders took advantage of obedience to hierarchy, when the situation called for results with clear and straightforward objectives. Respect, besides being respected due to superior technical IT expertise, was also earned by the superiors through maintaining a certain level of distance towards subordinates. One project manager explained:

Normally, once I am in the office, I will not go to chat or do some small talk and all that, I would be doing my business. If anybody is having any issues and they want my input, then I will be providing that. But I would not put my nose into other's affairs.

This kind of leadership refers to a signaling effect towards respecting the traditional roles of superiors, resulting in respect more based on status and reputation. This reputation, in turn, can be earned by having great expertise in the technical, IT related knowledge areas. In other words, IT expertise helps for applying respect and reputation based directive leadership behavior, because IT project members will have confidence, that the technical problem solving capability of the project leader will be valid and helpful. The same project manager continued:

And the other thing is, they [the subordinates] should also feel confident that whatever my information or knowledge I am providing, is relevant and useful to them. If I myself am not clear on what I am saying, and they feel that this person is not knowledgeable and he's just giving something out of his head, then they will not respect you. But if you give them the confidence that he's experienced and whatever inputs he gives are relevant and useful, than they will obviously give that respect.

Respect and recognition was also reached by defining clear expectations towards individuals working for the program. The key account manager commented on this:

The expectations were very clear. That expectation setting is very important. And then if there are certain deviations then we should be open, and say yes, our expectation was this, but we had these challenges, so if you want to meet the expectations, we need to address these challenges. At the ground level, when the challenges were sorted out, we went back to our original expectations. I think setting the expectations right, and if something is not going as per expectation, then having the openness and transparency to discuss with them, that would help us.

This approach implied the setting of clear directions and clarified expectations. This element of leadership is essential, since it shows the subordinates how to pursue a goal and depicts a roadmap for finishing the project tasks on time and on quality. The directive element in leadership cannot be neglected. Another project manager commented on his leadership style:

Definitely this formal tracking, rigorous tracking and control are important for keeping the cost and schedule in mind.

Since the researchers did not only interview project members during the case study, but were also accompanying various people working for that project, opportunities were taken to obtain opinions during lunch breaks, after work team sports, and weekend activities, for collecting even more data on the case in an ethnographic tradition. During one of these occasions, a senior person who was working for the company for a long time explained to us that … *associates are not encouraged to question their seniors too much, even though interaction is getting encouraged across levels.*

He continued, concerning the working atmosphere within the project and the relationships between leaders and subordinates: … *for lunch and tea, we go with them [the project members] only. All together we go. In our team, we try to avoid hierarchy. We are like friends. There is no issue like he is team leader or he is project leader. But coming to work, we need to maintain that [hierarchical distance]. But outside work, we are informal.*

These examples show that it was also important for the project leaders to get and maintain the respect for their role in order to accomplish project work. This respect and power based leadership style contributed to the success of the program, too, since it made project tasks, e.g. programming activities to enhance the quality of the deliverables, more effective and efficient.

5 DISCUSSION AND CONCLUSION

In this research project, our goal was to show how specific leadership styles can contribute to the success of software development projects in a typical offshore context. We identified different facets of leadership, with collaborative leadership and directive leadership as the most influential ones. At the beginning of the project underlying our case study, there was a significant discrepancy between the client's and the vendor's quality expectations concerning the deliverables, as described above. This endangered the successful completion of the project by possibly having negative consequences on the delivery on time, in budget, and within the expected quality. The specific leadership behavior employed was found to have a positive moderating effect on the negative relation between the discrepancy in quality expectations and IT project success. Figure 1 illustrates the theoretical model that emerged from our data.

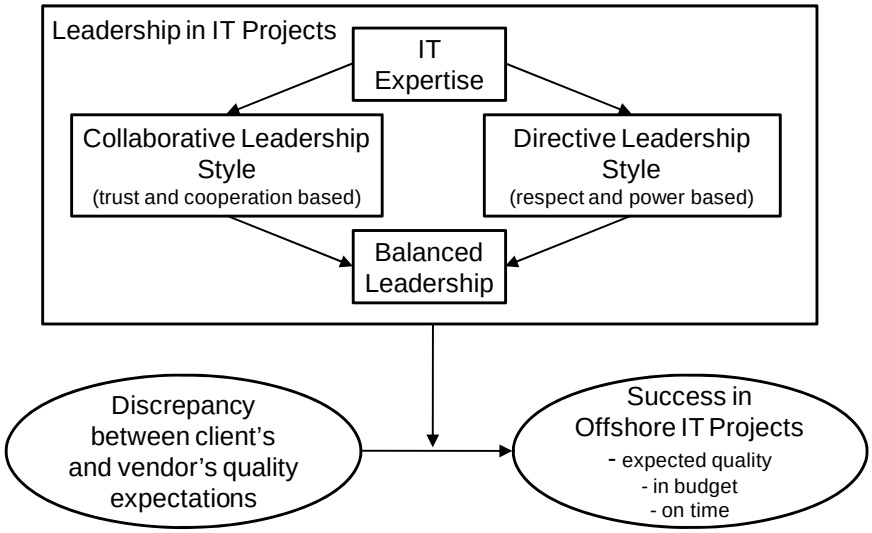

Figure 1. A model of leadership in IT projects

The project leaders showed both collaborative and directive leadership behavior. At first sight, combining these two leadership styles seems contradictory. The reason for this is that collaborative leadership is based upon the notion of overcoming hierarchy distance between superiors and subordinates and, from the viewpoint of the IT leaders, actively involving themselves in work at the team level and fostering trust and cooperation. On the other hand, directive leadership is based on respect and power, something that is achieved by maintaining a certain level of distance to team members. Interestingly, IT leaders in our case laid special emphasis on combining both leadership styles which proved to be highly effective, but also demanded the capability to adjust flexibly to current circumstances and use the right leadership style in the appropriate context. In particular, the challenge for them was to find the right balance between the two leadership styles. Following Cardinal et al.'s definition of 'balance' in the context of organizational control (Cardinal et al. 2004), we define balance in the leadership context as a harmonious combination of leadership styles which depends on situational and contextual factors. The optimal balance changes according to these situational and contextual factors. Hence, IT leaders need to adapt constantly and be skilled in combining trust-based mechanisms (i.e. collaborative style) with power-based mechanisms (i.e. directive style).

Besides the balanced use of two leadership styles that at first sight seem contradictory rather than complementary, another counterintuitive finding from the case analysis is the role of technical IT expertise and background for effective leadership. As described in the literature review section, prior research findings demonstrated that IT leaders with a technical background often lack interpersonal, 'soft' leadership skills. In our case, however, the application of both described leadership styles was strongly supported by having deep technical knowledge and sophisticated IT expertise. In the analysis presented above, we have shown how IT expertise allowed for the collaborative leadership style of IT project managers. IT expertise is even a prerequisite for this specific leadership behavior. We have also shown that IT expertise is beneficial for the directive leadership style, since respect for the leaders is also generated through deep technical knowledge of the superiors.

In summary, the model developed in this paper and presented in Figure 1 is a substantive theoretical contribution to the IT leadership and project management literature and, as discussed above, contains two novel and interesting findings concerning the role of technical IT expertise and the balanced use of different leadership styles. Prior research on IT project management frequently adopted a project control perspective (Choudhury and Sabherwal 2003; Kirsch 1997), or escalation of commitment perspective (Keil et al. 2000), among others. However, research on the role of leadership in IT project management is little. As this emerged as the core theme from the inductive case analysis, it was placed at the heart of analytical attention. As we still lack substantive theories in the area of IT project management and project leadership, this study may be seen as a first step in the direction of building new theory in this area.

A limitation of our research is that we have shown how IT expertise and the balanced use of collaborative and directive leadership benefits certain kinds of IT projects. Since we have conducted our case study in an Indian offshore context only, we still cannot generalize from this setting to others. The optimal balance between different kinds of leadership might differ in other cultural contexts other than India. Future research might benefit from adopting a similar exploratory and theory building approach and by building upon our research findings.

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