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Making Sense of IT Vendor and Client Relationships: a Technological Frames Perspective

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ABSTRACT

This paper discusses the interactions between an ICT vendor and a client organization in the commissioning and execution of an ERP requirements determination project. The focus is on the early stages of the project involving the joint selection and adoption of process modeling technology, methods and techniques. Based on case study material, including email transcripts of interactions among participants, the paper uses the concept of technological frames to highlight how process modeling was used to enhance discourse and communication and enable goal congruence between the client and the ICT vendor. Findings indicate that a technological framing approach can be used to illustrate the degree of goal incongruence between clients and IT vendors and help provide more sustainable strategies to reconcile complex business relationships.

Keywords

Requirements Determination, IT Project Management, IT Vendor Selection, Technological Frames, Process Modeling

INTRODUCTION

This paper aims to explore IT vendor and client organization relationships. These relationships can often be volatile, strained and change over the duration of a project lifetime. Successful IT acquisition, design, development and maintenance are dependent on the building of good relationships between all stakeholders, including technologists and users on both sides of the client and vendor relationship. Relationships must be effectively managed, but sometimes can break down or drift for many complex political, social, business and technical reasons.

The ideal IT vendor and commercial client relationship is not often seen in practice. Relationships can break down due to misunderstandings, unrealistic expectations, poor professional practice, and a lack of methodological knowledge and poor communication of requirements. On the other hand, relationships can be stronger if services are provided by smaller IT (SME) vendors due to less bureaucracy, faster personal response, consistent dealing with sales, development and support staff and more contextual knowledge of the company and its culture. This paper charts the dynamics of an IT vendor and client relationship as it developed in the very early stages of a requirements elicitation project, prior to tendering for a new or upgraded ERP solution (Wagner and Newell 2006).

The first section of the paper briefly reviews current research with respect to Commercial off the Shelf Software (COTS) selection and sociotechnical approaches to requirements elicitation (Kunda 2003). A brief background to the use of technological frames in Information Systems (IS) research is provided (Davidson, 2006; Lin and Silva 2005; Orlikowski and Gash 1994). The second section provides more detail about the qualitative research techniques and methods used for primary data collection, participant observation and analysis (Oates 2006). The third section describes and discusses the findings related to the dynamics of the process and data modeling exercise to produce a 'gap' analysis prior to bidding for a new purchasing and supplies COTS package. The paper evaluates the merit of undertaking an analysis based on technological frames to create more meaningful insights into the dialogue and rhetoric that occurs dynamically between an IT vendor and a client organization. The conclusions indicate that the dynamics of IT vendor and client relationships can be understood and made more sustainable by taking a more informed view of stakeholder perspectives related to the nature of technology, technology strategy and technology in use. Technologists can add value to their professional practice by using process modeling technologies and methods enabling them to capture and embed important process information into their applications for business users. This then acts as a new medium of discourse to enhance the IT vendor and client relationship and guide all parties through the COTS selection process.

COTS SELECTION – DEVELOPING CLIENT VENDOR RELATIONSHIPS

Maintaining existing or developing new IT Vendor relationships is a difficult and often overlooked aspect within the COTS selection process. Research in the field has shown that there are many factors important in the development of the relationship between the two parties, above and beyond the technical capabilities (Kunda and Brooks 2001). Successful selection of COTS software to fit requirements is still problematic for a number of reasons. These include the lack of a well-defined process (Kontio, 1996), the “black box” nature of COTS components (Vigder et al, 1996), rapid changes in the market place (Carney & Wallnau, 1998), and the misuse of data consolidation methods (Morisio & Tsoukiàs, 1997).

However, the major problem with COTS software evaluation appears to be the neglect of non-technical issues in the evaluation criteria as well as poor requirements determination practices, lack of appropriate tools and methods. Evaluators tend to focus on technical capabilities at the expense of the non-technical or “soft” factors, such as the human and business issues (Powell et al, 1997). Soft factors also include the building of trust and good working relations including enhanced forms of dialogue and communications between clients and their preferred IT Suppliers/Vendors. These may be achieved by adopting more sociotechnical informed approaches to user engagement, participation and software selection such as STACE (Kunda & Brooks 2000) and ETHICS (Mumford and Weir, 1979; Mumford, 1990; Mumford, 1996). These approaches can be combined with the adoption of process modeling technologies, tools and techniques (Waring and Wainwright, 2002) to enable better communications and a more common business language between technologists and business end users.

TECHNOLOGICAL FRAMES

Given the desire to adopt a more participative ethos within the requirements elicitation process, informed by sociotechnical principles, there is a need to gain a better understanding of perspectives of the stakeholders involved. In this case the stakeholders are made up of the key actors involved in determining project requirements, strategic and operational goals, developing the business case and making informed judgements and decisions concerning potential solutions. This can involve business end users at all organizational levels and within different functional areas together with IT technologists. The technologists can be a combination of internal organizational IT staff, working with either one or multiple IT vendor organizations. A structured means of gathering and understanding these diverse and multiple perspectives can be beneficial to maintaining and developing relationships between the stakeholders within the requirements determination exercise. Orlikowski and Gash (1994) recognised the seriousness of this problem in their study of the adoption of groupware technologies in organizations. Based on a review of the literature they developed a socio-cognitive approach that led to the development of a conceptual framework for examining the interpretations that people develop around technology. Two primary groups were identified as having significantly different technological frames; technologists and users. These differences of perspectives could lead to incongruences where different mental models affect the outcomes of technology adoption and use. Orlikowski and Gash (1994, p.178.) develop new approaches to examining the social construction of technology (Bijker, 1987) and define the term technological frame “to identify that subset of members’ organizational frames that concern the assumptions, expectations, and knowledge they use to understand technology in organizations. This includes not only the nature and role of technology itself, but the specific conditions, applications and consequences of that technology in particular contexts”. Furthermore, Orlikowski and Gash (1994, p.183.) advocate using the concept of technological frames to detect levels of congruence within organizations across three distinct domains:

- (i) *Nature of Technology* – refers to people’s images of the technology and their understanding of its capabilities and functionality.
- (ii) *Technology Strategy* – refers to people’s views of why their organization acquired and implemented the technology. It includes their understanding of the motivation or vision behind the adoption decision and its likely value to the organization.
- (iii) *Technology in use* – refers to people’s understanding of how the technology will be used on a day to day basis and the likely or actual conditions and consequences associated with such use.

Other researchers have used the concept of technological frames to investigate the differences in meanings that users, managers and technologists apply to IT projects. This ranges from: studies of the requirements determination process and the role of interpretive power (Davidson, 2002); analysing the important technological and social factors that lead to effective groupware adoption (Bjorn et al, 2006); identifying key social and political factors that can change over time and be altered by context in the adoption of email systems (Lin and Silva, 2004); the examination of how technological framing can influence work redesign, development of new roles and practices within professional communities (Davis and Hufnagel,

2007); and how social representation perspectives may complement the technological frames approach (Gal and Berente, 2006).

It can be seen that the technological frames concept and approach can provide a level of interpretive analysis that may enable a better understanding of how to manage complex client and IT vendor relationships (Davidson 2006). This approach is not without its critics both in terms of theoretical development and influence on practice. Davidson (2006) argues for more emphasis on technological frames of reference (TFR) theory development focusing analysis on frame structure and framing as a dynamic interpretive process. McLoughlin et al (2000) argue for more emphasis to be placed on political processes that involve configurational activities focused on the material, technical, systemic and structural features of a socio-technical system especially involving the micro-political aspects of change management and intervention. Prell (2009) also argues for more emphasis to be placed on structural influences finding that the heterogeneity of technological frames can cloak the more obvious and potentially most influential forces at work in technology design. These include control over key resources such as knowledge, infrastructure and money. These structural factors are particularly sensitive during the requirements elicitation process for COTS selection where high value investment decisions are being made with many political, technical and social pressures. These pressures are evident from both sides of the client and IT vendor 'fence'. This research study adopts the technological frames approach, from Orlikowski and Gash (1994), to make sense of the sometimes incongruent and conflicting perspectives influencing the conduct and outcome of an ERP selection project.

RESEARCH APPROACH

An inductive and social constructionist approach was adopted to develop theoretical insights from data gained from privileged access, insight and context within a field study involving a large Defense industry manufacturing organization (a global company) and a small local IT vendor (40 employees). The data collection method involved attending and facilitating project meetings, recording minutes, writing company briefings, access to both client and ICT vendor internal documents, full chronological recording of email communication between all parties and finally (in the latter stages of the project) semi-structured interviews with key informants. The emphasis on contextualism led to an emphasis on recording the action of actors within the project setting and also gaining their perspectives and insights into particular behaviors and their consequences over the course of the project. The theme of requirements gathering and analyst-client conversations is amenable to both in-depth participant observation studies and also interpretive (thematic) case study and analysis. (Urquhart 1997; Nandhakumar and Avison, 1999).

The text of conversations collected from the participant observation phase of the research was analyzed using the technological frames structure (Orlikowski and Gash, 1994). This was an exploratory approach aiming to combat the problems of interpretation in case study research (Walsham, 1995). Technologists and users were examined in terms of their actions and interactions over the course of the requirements and process modeling exercise. This was further broken down into categories comprising: 'nature of technology', 'technology strategy' and 'technology in-use'.

CASE STUDY: THE COTS SELECTION PROJECT

The particular modules of the ERP system concerned related to the upgrade of a Purchasing and Supplies (P&S) system. The client organization, wished to assess the capability, performance and potential for a new level of business partnership with the ICT vendor by providing them with a low risk project linked to the upgrading and replacement of their outdated legacy purchasing system. In this case, as is not uncommon in many organizations, the P&S system had been developed and maintained by the ICT vendor themselves, a small local company (SME), who now hoped to win the contract for any replacement modules and hopefully for a full scale ERP system. This would be built on a new client server architecture and new GUI based standard ('vanilla') ERP software package.

The Requirements Elicitation Project

This particular project episode occurred over a six month period. The client organization was concerned with the lack of professionalism, rigor and control of current IS procurement and development within the company; in particular the upgrading and/or replacement of an ageing ERP Production and Purchasing System. The Company was concerned that no adequate documentation for the existing P&S system existed and that the current ICT vendor had weak professional working practices in terms of the adoption of any standard systems development methodology or approach. The client company, Large Defense Engineering Company (LDECo), wanted to force the small ICT vendor (ERPCo) to adopt a methodological and more professional approach to their existing and proposed work – maintaining their existing P&S system and tendering for the replacement one. If they did not comply or demonstrate competence in this project (competence as benchmarked

against much larger global ICT suppliers of ERP software such as SAP), there would be little chance of placing any successful bid for either a replacement P&S module or for the eventual full COTS ERP suite.

For over a decade ERPCo had developed and maintained the Production and Purchasing System, a mission critical application for management and control of production operations which includes sales orders, purchasing and accounting functions. To date this system had not been updated to incorporate current functionality provided by the 'best of breed' Enterprise Resource Planning (ERP) packages such as SAP. In addition, the systems were green screen menu based and not based on object and Graphical User Interface (GUI) concepts. To date the business relationship had effectively been a combination of 'selective outsourcing' and consultative participation. ERPCo had designed, developed and maintained (enhanced) the legacy software, tailoring it specifically for LDECo. ERPCo provided effective full time contracting support on-site.

PRE-MEETING, DISCUSSION OF THE PROJECT LAUNCH

At the pre-meeting of the project launch the project sponsor emphasized that the Purchasing department wanted a project/system that would stand on its own merits while recognizing the potential and impact for integration within the wider Production systems and LDECo environment. This theme was central to the debate and illustrated three viewpoints with associated goals and issues:

1. *Purchasing Department (Business Users)*: wanted a rapid solution to their increasingly high maintenance and dated system- a concern was the impact of any new significant order and the increase in volumes/complexity of procurement. Political issues were evident due to several new management positions (some senior and with prior SAP experience) having just been filled. Personnel from the department were not very proactive as regards participation in the design/development of a new purchasing system. Their preferred option would be SAP outsourced to a large ICT supplier.
2. *The IT department (Internal Technologists)*: perhaps perceived a wider (ERP) view of the Production system modules, taking into account not only the need for business process change but also for more state of the art open technology systems – operating systems, database management systems, object based code and Windows GUI. Also the need to integrate systems across LDECo, building upon the core notions of workflow, e-documents and intranet technology. IT also wanted more knowledge of the production system to be contained and disseminated in-house; with control of software changes driven through the LDECo internal QA processes. The preferred option was to maintain control by working with the existing supplier – but to encourage them to adopt more up to date and informed software development and support practices, as offered by larger IT suppliers.
3. *ERPCo as ICT vendor (External Technologists)*: original developer of the Production and Purchasing systems, and also providers of enhancements, maintenance and selectively sourced systems management from a contractor based on the LDECo site. Their view was twofold – firstly to provide an effective service based on a fixed contract and secondly to win the order for a second generation Enterprise Resource Planning (ERP) system to replace the dated legacy system. This created a conundrum as there was no currently documented high or detailed architecture for the business process or data models. If they produced these models, they could then be utilized by LDECo for submission to other potential large company ERP vendors. ERPCo would then perform a low or no-cost analysis and another vendor might win the new contract. There was an understandable reluctance therefore to model the entire system –although one could argue that these models (documentation) should exist in any case. The issue was who actually owned the models and the design, development knowledge?

Each of the three viewpoints led to different, and conflicting, goals for the requirements determination project. The researcher (at the time acting as an academic advisor/consultant) was brought into LDECo to facilitate and advise on the selection of appropriate business process modeling software as a means of facilitating better systems documentation of the existing ERP system together with modeling the future system. This resulted in a series of demonstrations from potential Process Modeling tool vendors. The researcher compiled a report with recommendations and presented this to the LDECo IT manager. IT was seen to have a dominant interest in owning the software and then providing it to business users internally.

The selection process for the process modeling tool was a politically charged exercise with pressure exerted from potential vendors through internal business LDECo contacts. The IT manager wished to resist this pressure, make a rational choice of tool, make the choice quickly and then adopt this to exert control over ERPCo within the gap analysis project. ERPCo had no representation within this decision, the main influences coming from the IT divisional manager, the IT project manager, the BPR project manager and the academic consultant/researcher.

The ERP P&S project launch at ERPCo was a fairly formal process involving an overview of the project and the new product. Many key personnel from LEDCo Procurement were in attendance including the project sponsor (a senior business manager), and the IT managers. Several concerns and issues were apparent: it was not clear that LEDCo users were conversant with the full scale and scope of the project; the meeting mainly centered around the demonstration of the new GUI based ERP system and its advanced features and functionality as opposed to discussing business requirements for Purchasing; the demonstration was very technically orientated with much use of IT technical jargon; social and implementation issues were not discussed and no mention was made of the adoption and use of the new participative process modeling approach and software tool.

After the project launch, an early project planning meeting was initiated to formalize/discuss the project plan, agree specific aims/objectives, define the chosen modeling methodology and agree the principles for day to day working between ERPCo and LEDCo. However, many issues and problems were causing concern. These included: ERPCo were very poor at project planning and had to be tutored by the IT project manager at LEDCo; ERPCo were very reactive and had to be 'pushed' constantly by the project manager from LEDCo to deliver results, provide imaginative input into the process modeling exercise and adopt the process modeling software; ERPCo had little concept of what constituted 'good practice' in terms of business end-user participation in the analysis process; no thought had been given to gaining and sustaining top management commitment from both LEDCo and ERPCo for the project – i.e by interviewing the LEDCo senior managers first and verifying project goals, measures, scope and departmental participants; fierce resistance was encountered in terms of the ERPCo analysts working on-site and being co-located at LEDCo - a compromise eventually being reached that the business analyst would work on site when needed for interviews and the technical analyst would be based back at ERPCo; finally it was seen that a consultative and not a representative or consensus participative model was being operated by ERPCo, despite a briefing to the contrary advocating a more open information gathering, modeling and dissemination approach.

TECHNOLOGICAL FRAMES: COMPETING VIEWS OF TECHNOLOGISTS (VENDOR AND CLIENT) AND USERS

The Strategic Imperatives for the Project

The COTS requirements elicitation project was strategically essential for all three main parties. LEDCo were required to demonstrate high levels of quality assurance within systems for strategic supply chain management in order to win critical new business – an ERP type system was seen as essential in this respect. LEDCo were ERPCo's main business client and an essential reference site for any new development of its new ERP products. The LEDCo IT department needed to justify IT expenditure and demonstrate better levels of service to the core business while being seen as the 'guardians' of good process modeling practice; their relationship with ICT vendors and control of costs and service levels was critical in this respect. ERPCo however, were very focused on the *purchasing* department as opposed to the wider question of ERP and also pitching their business at the purchasing department management as opposed to the LEDCo IT manager and staff. This shifted decision making power away from the IT manager and towards the LEDCo Purchasing Director. This emphasis is clearly stated in the project proposal document: *"The prime driver for this project is to give LEDCo purchasing access to the latest and best tools available to enhance considerably their ability to perform quickly, accurately and effectively"*. (ERPCo project proposal).

Internally within LEDCo top management commitment was being made for strategic change within the business moving to a *project* as opposed to a formal departmental structure. It also firmly sets an agenda (set by the BPR director for the company) for any requirements determination project and associated process modeling exercise to be owned and controlled by the 'Business' functions as opposed to IT: *"The BPR Director outlined the current LEDCo emphasis on multi/cross functional teams and how this was a key driver of the ERP evaluation project and process mapping exercise – impacting upon the entire business.."* (Minutes from Process Modeling planning meeting between BPR director, an external BPR consultant and the academic researcher/consultant).

The Nature of the Technologies – the ERP System and Process Modeling Tools

ERPCo were the original designer and developer of the LEDCo production, accounts and purchasing systems. The relationship stretched back for over a decade, they were a local supplier with a long term on-site presence. The LEDCo IT manager and the ERPCo Commercial Director were good friends – both were native to the area and had strong loyalty to developing local industry in the region – both managers had a paternalistic managerial style. It could be seen however that the IT manager was rapidly developing a higher 'business strategic' profile with an emphasis on adopting industry and academic best practice in the field of IT. This was progressing more rapidly than ERPCo's ability to respond in terms of new working practices. ERPCo used this existing relationship very heavily and offered their services as a 'loss leader' to win the

new business and regain their position with senior business managers – knowing that the relationship with the IT department would not be sufficient on its own: “...although it is estimated that the gap analysis will take around 10 man weeks, our proposal to do this work is costed on only 4 man weeks at £600 per day. ERPCo are prepared to fund the remaining costs as a gesture of goodwill towards one of our more longstanding business partners” (ERPCo business proposal)

This statement shows the extremely heavy emphasis on the past relationship as a factor in winning the new contract. The words *goodwill*, *partners* and *longstanding* are particularly powerful in this respect and color the proposal very heavily. It is also apparent that the stakeholders in the requirements determination project had competing and incongruent perspectives of the strategic aims of the project. The internal IT manager and staff were seizing an opportunity to refocus ERPCo in terms of delivering a more professional software service with increasing levels of quality, documentation and participative engagement through adoption of process modeling technology and methods. ERPCo were highly focused on winning new business and maintaining the status quo through cementing their relationships directly with the business Directors (Purchasing and also BPR) – at times bypassing IT as they knew that the capital expenditure budget would come from the user departments. The ERPCo technologists could manipulate and impress the LEDCo business users more easily as opposed to dealing with the technologists who were resident in the IT department. The selection, adoption and use of a process modeling technology was seen as a means of exercising power by the LEDCo IT manager. The IT department had the requisite expertise to drive these new working practices – both internally within the business and also externally with the IT vendors. This therefore became a strategic issue due to the nature of the technology– as the process modeling technology became synonymous with the development of a new working relationship where the balance of power would shift to the LEDCo IT department. This was a case of the company driving their requirements as opposed to having the ERP ‘vanilla’ technology pushed into the business due to poor requirements determination and a lack of understanding of the consequences by business end users.

Technology in Use

Uncertainty existed within LEDCo concerning who should lead, resource and control business process modeling exercises within the company. A senior business director had been given responsibility for BPR across both engineering and production within the company. Little evidence of significant progress with BPR had been seen prior to the ERP COTS project however and the IT department felt that they could make faster progress if they owned their own projects. The IT manager adopted the process modeling project but did not have the legitimate business resources – these were retained by the BPR project director. This legacy affected progress in terms of the COTS project – any modeling software comes out of the IT departmental budget therefore limiting the numbers of users who might use it across the wider business. The battleground for ownership of the ERP selection and process modeling projects became more intense as illustrated by the following email communication: “...regarding the meeting to discuss process modeling...the agenda should really be issued latest tomorrow and I (IT manager) need to agree it!...” “Regardless of the agenda, you (researcher) should be in friendly interrogator mode....J (BPR Project Director) is expecting this..” (email from IT Manager to academic consultant).

This email was from the IT manager to the academic consultant, referring to an email just sent from the BPR consultant, setting up a meeting with the BPR project director and the researcher to determine the way forward for adopting a process modeling methodology. This indicates a realization that the *agenda* is moving out of his control and shows a sense of urgency in recovering the situation. The exclamation mark is also significant representing a raised voice and registering concern. The statement using the words *interrogator mode* is also significant – providing instruction to the researcher to represent the IT managers interests as he could not attend and to report back on interests and stakes within the project.

The academic consultant worked closely with the IT manager and had an overt goal of developing more participatory practices within LEDCo to enable more effective communication within IT projects. This emphasizes the agenda to change internal IT and external IT vendor working practices and develop these through the joint development of a process modeling methodology based around the new software tool. The academic consultant was therefore acting in a brokering or mediating capacity and attempted to reconcile the growing incongruence in relationships between LEDCo and ERPCo by drafting an impartial report for both parties. The views of the IT project manager can be seen in the following email extract: “Concerning the relationship paper (an internal working document commissioned by LEDCo, written by the academic, assessing the working relationship with ERPCo) ..this is an excellent start to tracking the evolution of the changing relationship and method of project working...we should present it to J (ERPCo commercial director) and he can legitimately use it within his own organization as a beating stick, as he obviously has an uphill struggle against the likes of K and H (technical analysts and software designers at ERPCo) ...” (Email from LEDCo IT project manager to IT manager).

This statement illustrates the intensity of the *struggle* that was occurring between the IT project manager and ERPCo to jointly develop and adopt new working practices with the new process modeling methodology. A problem was to get 'evidence' to *legitimately* change the behavior (use as a *'beating stick'*) of ERPCo technical staff; the commissioning of a confidential report of the working relationship was an important step towards this goal.

CONCLUSIONS

This research paper illustrates the complex nature of the early stages of any requirements determination and COTS selection project. In-depth field studies can provide rich insights into the preliminary stages of requirements elicitation projects, focusing on the web of human and organizational interaction between clients and ICT vendors. The role of one author/researcher, as an academic consultant with a long-term relationship with the client organization, was also critical. There was an overt research agenda, which shaped the consultancy exercise and vice versa. This participant observation study has provided unusual access and insight into a project and the research approach has attempted to take these factors into account. The traditional thematic interpretive case analysis has been enhanced through the use of technological frames as a method of analysis. It is argued that this responds to the call for the use of more ethno-methodological (Walsham, 1995) techniques and methods, within IS research to uncover deeper meanings from text and cases.

In terms of making sense of the IT vendor and client relationship it is clear that there are multiple agendas and perspectives in play. These are intensely political in nature and can only be understood if the project is seen from both the technologists and business users' perspectives. The technological framework approach (Orlikowski and Gash, 1994) highlights the incongruences that can occur between business users in different departments (Procurement, Production, and BPR/Quality), between IT technologists and business users (BPR and IT department, Procurement and IT Department) and between technologists themselves (Internal IT department and external IT Vendor, Internal IT Department and external IT consultants working for another business department). In this case a formal requirements determination project was being initiated and conducted, but an informal 'struggle' was occurring in terms of introducing changed working practices into both the client and ICT vendor organizations through the medium of a new process modeling software tool.

Human and social dimensions are often ignored as opposed to focusing on the technical requirements and issues. Technologists have a different strategic goal set than business users and tend to want to retain their own technological language and practices in-house. In this case the IT vendor wanted to perform all technical work off-site at their own premises but the client organization IT department pushed to get the vendor to work on site within the IT department itself. The process modeling tool was a 'Trojan Horse', aimed at changing the working practices of the IT vendor. The adoption of a more professional and participative approach within the project was an attempt to create more 'open' conditions for communication and new working practices to improve the client and ICT vendor relationship. There was limited success with respect to these aims; the ICT vendor did change their working practices with a 'struggle' and helped jointly to develop a new process modeling methodology with the client. The ICT vendor subsequently adopted both the tool and the methodology, immediately incorporating this in their promotional literature

The use of technological frames has been beneficial to making sense of this particular IT vendor and client relationship. Many political maneuvers and important social interactions have been surfaced by the analysis. This approach can be used in the future to inform the management and sustainability of client and vendor relations in IT projects. Future research can extend the conceptual model to incorporate more subtle distinctions between technologists and users perhaps through the use of stakeholder and role analysis. Similarly the three domains of technology strategy, nature of technology and technology in-use may also be examined more closely for fit with different research and project contexts. Davidson (2006) advocates greater theoretic development focusing on frame structure identifying 6 initial frame domains: IT features or attributes, potential organizational applications of IT, incorporation of IT into work practices, development of IT applications in organizations, unidimensional social frames and other frame categories. These are broken down into more detailed sub-categories. Framing may be seen as a dynamic interpretive process that can be used to develop a more general interpretive theory of IT and organizational change. This supports other similar research findings that focus more on the political and sociotechnical aspects of change management (McLoughlin et al, 2000; McGovern and Hicks, 2004). In a pragmatic sense the use of action research may facilitate more 'real time' dynamic management of IT projects where framing can enable early identification of goal incongruence and the potential for greater consensus to be achieved by the relevant social groups involved. In our study, this would have identified the political nature of the COTs selection process and the potential power offered by control (whether it be internal IT staff, external IT vendors or internal departmental users) over the choice and use of IT artefacts such as process modeling software and resources (Prell, 2009) to define requirements. McLoughlin et al (2000) refer to this as 'cognitive jail breaking' where dominant stakeholders are encouraged to break out of their 'psychic prisons' or dominant modes of sense making. In this case the IT manager within LEDCo could be seen as a 'configurational

intrapreneur' who intervened in the organizational, political and cultural systems (outside of his legitimate agenda) to establish a new legitimacy of alternative technological frames based on achieving greater partnership consensus between internal IT and the external IT vendors.

Greater understanding and more detailed definition of these domains, structural characteristics and their categories may lead to more interesting theoretical findings and to more effective practical management of more sustainable client vendor relationships. This will be the subject of future research.

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