A tale of two coalitions – marginalising the users while successfully implementing an enterprise resource planning system

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Abstract. Classic analyses of system implementations view user participation as a key element for successful implementation. However, under some conditions, avoiding user participation offers an alternative route to a successful implementation; this is advisable especially when the user network is weak and aligning user needs with the technological capabilities will take too much resource. To illustrate such situation, we analyse how a successful implementation outcome of an enterprise resource planning (ERP) system emerged in a recently established conglomeration of two previously independent universities. The ERP was used to replace several legacy student administration systems for both political and functional reasons. It was deemed successful by both project consultants and the new university’s management while the users were marginalised (‘black boxed’) and left to ‘pick up the pieces’ of an incomplete system using traditional methods such as shadow systems and work-a-rounds. Using a process approach and an actor–network theory ‘reading’ of related socio-technical events, we demonstrate how three networks of actors – management, the project team and the administrative users – collided and influenced the implementation outcome and how the management and project network established the ERP as a reliable ally while at the same time the users – while being enrolled in the network – were betrayed through marginalisation. Our analysis also suggests a useful way to conduct a ‘follow the network’ analysis explaining and accounting for the observed implementation outcome. We illustrate the benefits of using a socio-technical processual analysis and show how stable actor networks must be constructed during large-scale information technology change and how different actor groups perceive and influence differently the implementation outcome.

Keywords: socio-technical systems, social process, process models, information systems development (ISD), enterprise resource planning implementation, business process reengineering, success and failure, actor–network theory
INTRODUCTION

Integrated ultra-large information systems such as enterprise resource planning (ERP) systems or customer relation management systems promise dramatic organisational gains (Davenport, 1998; Fahy, 2001; Beard & Sumner, 2004) by reducing costs (Scott & Kaindl, 2000; Quattrone & Hopper, 2005), increasing responsiveness or by improving decision-making (Ross & Vitale, 2000; Grabski et al., 2011). Not surprisingly, over the last two decades, implementations of these ultra-large systems have become common place also covering public administration and non-profit organisations such as universities (Allen & Kern, 2001; Scott & Wagner, 2003; Pollock & Cornford, 2004; Wagner & Newell, 2004; Berente and Yoo 2011). Because of the complexity created by the scale and scope of these systems, most implementations have faced significant difficulties (Markus & Tanis, 2000; Sawyer, 2001; Berente et al., 2009; Shepherd et al., 2009; Grabski et al., 2011; Søndergaard & Henfridsson, 2012; Rosenberg, 2012; Kanaracus, 2013). In particular, implementations under decentralised control (Hardy, 1991; Scott & Wagner, 2003; Wagner & Newell, 2006; Berente and Yoo 2011) where organisational units operate as loosely coupled ‘fiefdoms’ (Names Removed, 1993; Heiskanen et al., 1998) and are reluctant to conform to the unified system logic of operational efficiency and ‘best practices’ (Allen & Kern, 2001) have turned out to be particularly problematic. Many of these implementations have reportedly fallen far short of expectations because of fierce user resistance, the lack of political consensus or being devoid of top management support (Allen & Kern, 2001; Scott & Wagner, 2003; Pollock & Cornford, 2004; Wagner & Newell, 2004).

Past researches explaining the success of ERP system implementations have examined primarily structural antecedents to successful implementation outcomes in the form of critical success factors, innovation factors or user-level acceptance factors (Allen & Kern, 2001; Scott & Wagner, 2003; Shepherd et al., 2009). Such factors capture static elements of the implementation context such as readiness for change, level of BPR and job redesign, user intentions or fit between the system functionality and the organisational context (Grabski et al., 2011). The challenge in these accounts is that they largely black box technology and ignore the role of process events in explaining the outcomes (Shepherd et al., 2009). To overcome these challenges, some research has adopted a processual perspective (Hirt and Swanson 1999; Shepherd et al., 2009) and analysed the dynamics of ERP-related decision-making or the nature of implementation strategies and their effects (Chae & Poole, 2005). Overall, such studies have detected the effect of learning and institutional change (Names Removed, 2009), the way in which organisational practices and system processes become ‘coupled’ (Berente et al., 2009), or renegotiations of social order as a necessary condition for reaching a favourable implementation outcome (Wagner & Newell, 2006). One valuable insight gained from these studies is the critical influence that stakeholder groups’ divergent actions will have on implementation process and outcomes. This calls for careful identification...
of stakeholder interests, positions and politics that shape implementation arena. While being insightful and revealing the social drama, politics and the impact of institutional scripts in shaping implementation processes, these studies typically ignore the role of technology in shaping the implementation outcome. Accordingly, another stream of research has sought to open the ‘black box’ of technology by renouncing the divide between the social and technical elements that influence the implementation outcome (Shepherd et al., 2009). To this end, some scholars have examined the quality of constructed requirements as a predictor for implementation outcomes (Pollock & Cornford, 2004; Williams & Pollock, 2008) or how such technologies shape user behaviours influencing implementation outcomes (Elbanna, 2007; Berente and Yoo 2011). Alas, many times, this research has not been well integrated with the process narratives of the implementation.

In this study, we seek to address the gap between processual and anti-essentialist socio-technical approaches to ERP implementation. In particular, we want to analyse how different stakeholder groups – users, management or technical and business experts participating in the implementation – become enrolled in the networks and how, by enrolling such networks that take specific positions towards ERP technologies, either it helps them pursue their interest or, ultimately, betray them. ERP systems are not neutral during such a process in the sense that they will exclude some groups from the final network as a condition of making the implementation successful – in our case by marginalising the users. We approach implementation processes as instances of institutional change par excellence that combine changes in technical, cognitive and normative elements of an organisation (Names Removed, 2009). On a higher level, these changes are driven by an organising vision – ‘a focal community idea for the application of information technology’ (Swanson & Ramiller, 1997 p. 36), which motivates and drives the implementation process by rendering the system legitimate, feasible and institutionally necessary. But this vision may also demand that some stakeholder groups’ needs and interest be excluded as a means to achieve or implement this vision. This happens, in particular, in situations where loose institutional coupling and decentralised structure reign. On the one hand, in such conditions, focal vision becomes highly critical: It must invite the interest of instrumental and independently powerful actors so that the actors will absorb and promote the vision by ‘materialising’ the system. This requires that key actors will participate in the implementation and enact a series of institutional and political manoeuvres that invite support from relevant actors and thereby mutate and revitalise the vision. On the other hand, the loose nature of the coupling enables that those neither sharing the vision nor having the power to resist it need to be marginalised and ‘black boxed’. In many cases, this happens by using the technology as a means to inscribe the interests of some actors over the interests of the other actors. Overall, we claim that processes of mutating and revitalising a vision and marginalising alternatives become necessary for a favourable outcome. Many times this happens by treating technology as an active participant for exclusion. This calls for a detailed investigation and analysis of processes whereby such goals are achieved and to what extent process events and those who participate in those events influence specific implementation outcomes (Names Removed, 2008a, 2008b, 2008c, 2008d). To our knowledge, no study so far has looked at the dynamics of such events and related shifts in actor coalitions that help ‘push’ the ERP system towards implementation.
Our goal in this paper is to examine such processes in situ by conducting an exploratory case study (Eisenhardt 1989) in a large European university called Cornfield. The study traces how coalitions between different stakeholder groups were forged and maintained during an ERP implementation and how the system itself acted as a faithful ally to one coalition by promoting a favourable direction of implementation that excluded the users. In particular, we examine how the coalition formations and their organising visions were aligned with the technical features of the ERP system as to influence the favourable implementation outcomes. The implementation was deemed a ‘success tale’ by one coalition centred around the university’s leadership – indeed, the system reached an organisation-wide use. However, the implementation was deemed a ‘failure tale’ by administrative users who through their professionalism kept the technology afloat. In this tale, the system functionality remained hopelessly inadequate, and the system could only be made to work through the heroic efforts by these marginalised users.

Our analysis of how the implementation events unfolded will draw upon a process framework – a punctuated socio-technical information change (PSIC) model (Names Removed, 2008a, 2008b, 2008c). We use this framework to make sense of the implementation process and related events. The model draws upon a punctuated theory of change (Gersick, 1991) and socio-technical change theory (Names Removed, 2008a, 2008b, 2008c) and helps delineate a configuration of events that resulted in the observed implementation outcome. While this analysis addresses the question of what events unfolded and how they resulted in the observed outcome, the model fails to account how the actual implementation networks emerged and what role the use of ERP technology to support some network’s position played in the implementation outcome. To account for these issues, we draw upon actor–network theory (ANT) (Latour, 1987a, 1987b; Van de Ven & Poole, 1995; Sarker et al., 2006) and use it as a sensitising device to delineate how the technology became aligned with powerful actors of a unified university. In particular, we seek to highlight how the implementation outcome emerged through the constant adjustments of actor coalitions and how they enrolled the technology in a specific way to the networks. We ask in particular why did one of these coalitions (top management/vendor) deem the outcomes ‘successful’ while users, who were marginalised, offered a contrarian view? By using ANT, we trace event sequences that reflect coalition behaviours and dynamics and that are emblematic of undertaking change in a politically charged environment such as Cornfield. In particular, the study illustrates how a powerful coalition shaped at critical junctures the trajectory of the implementation by adjusting the ERP technology to become their faithful ally: The manipulation of the technology and the loosely coupled nature of the user network (UN) rendered the system implementation to withstand the resistance of users and made it the only viable option going forward (Callon, 1986; Scott & Wagner, 2003). Marginalised and black boxed users (Elbanna, 2007) were left to ‘pick up the pieces’ of an inadequate system.

The remainder of the paper is organised as follows. We begin with a short summary of the implementation challenges related to large systems and the need for process theorising in explaining such outcomes. This is followed by a brief summary of the process analysis framework (PSIC) and how we use ANT as a sensitising device to account for coalition

1Not its real name. Anonymity was a prerequisite of gaining access and conducting the research.
formation and their behaviours. Next, we illustrate the research approach and describe the case. Results section reports what coalitions emerged during the system implementation and how their behaviours and uses of technology influenced the final outcome. We end with the conclusions and the implications for future research.

**SYSTEM IMPLEMENTATION AND SYSTEM CHANGE**

**Implementation process studies**

Implementing any large system such as ERP remains a high-risk proposition; fatal cases such as FoxMeyer, Dow Chemical (Davenport, 1998), Siemens or Bruno Magli (Robey et al., 2002) attest to this. The system’s ability to transform or even filtrate to organisations cannot be taken for granted but must be subjected to a rigorous process of investigation (Quattrone & Hopper, 2005). This calls for research into how a large and risky system implementation can be depicted as a process. Process models of some advantages; they focus on the dynamics of change in by analysing sequences of events that connect antecedent (historical) conditions with implementation outcomes (Names Removed, 1992; Robey, 1994; Boudreau & Robey, 1999; Pentland, 1999; Langley, 1999; Markus & Tanis, 2000).

**Punctuated model of system implementation**

Process models are commonly divided into incremental and punctuated models (Gersick, 1991; Names Removed, 2008a, 2008b, 2008c). The former include planned change models (Keen and Scott-Morton 1978) that pursue the idea that change involves incremental, diachronic shifts leading to a final ‘desired’ state. The latter, called punctuated or episodic models – like the PSIC model – link some change events diachronically with wide and disruptive ‘punctuations’ in the trajectory or outcome such as a failure in the organisation’s functioning following an ERP implementation. The latter models offer the benefit of distinguishing dramatic and global changes from those that are local and incremental (Gersick 2001; Names Removed, 2008a, 2008b, 2008c, 2008d). As ERP system implementations often involve expectations of dramatic change driven by broad visions but are often delayed or mired with unexpected, ‘random’ events leading to major transformation (Adam & O’Doherty, 2000; Besson & Rowe, 2001; Besson & Rowe, 2012), we adopt a punctuated view here.

We use a punctuated socio-technical model of information system change (PSIC) (Names Removed, 2008a, 2008b, 2008c, 2008d), which caters both for punctuated and incremental changes as a way to trace an ERP implementation process. The PSIC model offers a rich lexicon to describe the scope and nature of change associated with ERP implementation (Names Removed, 2008a, 2008b, 2008c, 2008d). The model draws upon the well-known Leavitt socio-technical model and identifies any organisation or its parts as a system of ‘routinised’ relationships among structures, actors, technology and tasks (Leavitt, 1964;
Names Removed, 2008a, 2008b, 2008c, 2008d; Names Removed, 2008b). People are any social groups or actors who must relate to the technology and/or task through some structure. Task represents either the organisational primary mission (work) or the mission of the project (change). Structure is the manner in which task accomplishment is organised. Technology in our case deals primarily with embedding an ERP system into an organisational context.

Socio-technical processes (change) are composed of events, and they generate gaps, i.e. misalignments between the four socio-technical components. Gaps can be removed by orchestrating interventions, e.g. by implementing new technological systems or by changing personnel, and so on. Because of environmental variations, if nothing is done, the system will at some point collapse (i.e. punctuate). Interventions may or may not lead to punctuations, which are pervasive changes in the system configuration changing its ‘fundamental rules’, e.g. it ‘collapses’ or ‘transforms’. We observe four possible outcomes for any intervention (Names Removed, 2008a, 2008b, 2008c, 2008d): (1) it can be successful, and the gap is removed while the system structure remains the same; (2) the intervention generates a punctuation whereby the system will behave fundamentally differently (e.g. it collapses or becomes a new type of system); (3) the intervention may fail, and the gap persists while the system remains the same; and (4) the intervention can create new gaps, which will deepen the ‘crisis’. A change process is further divided into two separate but interconnected socio-technical change processes: one associated with the design process (project or P process) and another associated with the work or legacy system (W process). Accordingly, a process study of a system implementation needs to build up two parallel process accounts – one for the P level and one for the W level. It needs to also show how they interact by identifying their interactions (events) till the end of the project (vertical arrows in Figure 1). Both levels are governed by incremental and punctuated changes. Finally, changes in the broader organisational and institutional context are crucial to understand the context of process as they reflect organisational antecedent conditions or environmental

![Figure 1. Parallel change processes amongst socio-technical systems (Names Removed 2008).](image-url)
events that influence these two change processes. For example, a financial crisis experienced by the organisation could result in curtailing resources available to the project or abandoning the project altogether (the latter considered to be a major punctuation at the P level).

**ANT**

Overall, the PSIC model invites us to chronicle a systematic account of the socio-technical change associated with the ERP implementation in the form of string of events at two levels: the project level and the work system level. But the question remains: why do things change the way they do during the implementation process? Or in more specific terms, how does the technology become connected to other elements of the system – especially the people and their networks during the process? To answer this question, we will deploy an additional theoretical ‘engine’ to account for why the observed outcomes represented in the PSIC model emerge. In other words, while the PSIC model structures and describes events in their sequence, we need to build a local theory of how and why the observed events resulted in the observed outcome. As our interest herein lies in the political manoeuvring and how the implementation outcome emerged through actor coalitions (which can be represented as connections between people and structure and technology), we will follow the formation of networks of people and technology associated with identified PSIC events and how they influenced the outcomes. In particular, we want to see how actors (the people quadrant in both processes) informed by the ‘organising vision’ (represented by the task quadrant at the process level) is connected to alternative technologies (as shown in the technology quadrant of organisational process) available during the implementation process and how these technologies align with the interests of present actor groups.

One promising theoretical engine is ANT (Latour, 1986, 1987a, 1987b, 1991, 1998, 2004, 2005; Law, 1992). ANT provides a rich vocabulary to narrate how and why punctuated change takes place in a socio-technical network. It focuses on actors (both social and technical), their roles and connections as shown in our PSIC model (Bloomfield et al., 1992; Bower et al., 1996; Hanseth and Monteiro, 1997; Sarker et al., 2006). ANT views change as a constant weaving of socio-technical networks: ‘There is nothing but networks’ (Latour, 1998). In the PSIC, parlance actor networks are built by the connections between and within components of the PSIC model. The building of these networks is about overcoming some actors’ ‘resistance’ by connecting them into networks resulting in structures with stability (Law, 1992) – or in our terms, with no or only small ‘gaps’. This happens when the interests of the people align with the inscriptions and related behaviours associated with the technology.

We will in the following discussion offer a short description of the key concepts of ANT. A more detailed account on how it can be used to analyse socio-technical change is beyond the scope of this paper (for detailed discussions, see, e.g. Latour, 2005; Sarker et al., 2006). The core of ANT analysis is to trace a process where actors align with the interests of others and connect to other components in the socio-technical system (Callon, 1986; Latour, 1987a, 1987b, 2005). With regard to PSIC, this means finding out why, how and where the elements of the PSIC become connected. This means that the focal actor (people or the technology in the PSIC model) renders itself indispensable by defining itself as an obligatory passage point...
(OPP) that other actors must pass through (Callon, 1986). OPP is thereby located in the focal actor’s direct path, whereby other actors (people or technology) have to overcome obstacles to pass through it (Callon, 1986; Sidorova & Sarker, 2000; Sarker et al., 2006). For example, university management can place an ERP system as the OPP for the administrators, students or faculty in its desire to create a centralised control system that aligns with its organising vision of a unified university. It must thereby execute several strategies such as building up coalitions with other actors (such as consultants and ERP systems) to have the other actors such as university administrators to participate in and yield to the network. To do so, it must use skilful rhetoric to convince other actors (such as administrators) to accept its definition of the OPP – i.e. that the new ERP is in the interest of all university groups and critical for the university’s future. If this is successful and other actors accept the interests defined by the focal actor and start to use or at least not resist the ERP, this results in an enrolment. Enrolment signals a degree of ‘acceptance’ of the assigned roles and influences how relationships amongst actors have become inscribed in work practices and (software) systems. When the enrolment is successful, the actor network becomes durable and can be thought of as a system with few gaps and appears to be reified, i.e. stable. Such networks can be used as modular, black boxed ‘packages’ (Latour, 1987a, 1987b; Law, 1992) exhibiting irreversibility (Callon 1991). However, at any moment, any actor may not fully accept their role and resist – this can be a technology not working or people not using the system – which calls for reinscription and reenrolment (Callon, 1986; Howcroft et al., 2004). Another important element of the failure of enrolment is the idea of betrayal, ‘where actors do not abide by the agreements arising from the enrolment (Sarker et al., 2006)’.

Overall, applying ANT to understand ERP implementation is to approach the process as constant breaking of existing networks by ‘punctuating’ the socio-technical order. Therefore, ERP implementations are subject to conflict, negotiation and political manoeuvring. In many such cases, ERP implementations must deploy ‘organisational othering’ and draw upon actors’ positional differences through ‘black boxing’ and marginalising some groups (Elbanna, 2007). In this process, technology enters as a powerful tool to include or exclude some groups from the network. Accordingly, we can view ERP implementation as a series of ‘otherings’ as the process forges new and hitherto non-existent technical and social ties while excluding others (Hanseth & Monteiro, 1996). This involves inscribing work processes that black box a ‘lock-in’ into ways of work carried ‘on’ by the ERP. Once the users are enrolled, the ERP system cannot be extracted without incurring large financial and political risks (Scott & Wagner, 2003). The critical questions that arise during ERP, implementation are thus: How are networks established and how do they influence the implementation process and outcomes? What is the specific role of different networks or groups and their participation in the networks? How do some groups become excluded or black boxed and how does this influence the implementation?

**EMPIRICAL STUDY OF AN ERP IMPLEMENTATION AT UNIVERSITY**

**Research approach and site**

To address the aforementioned questions, we engaged in an exploratory case study. The case study focused on how process events and coalition formation influenced implementation outcome...
(Yin, 2003). Particularly, we looked at moments where the trajectory of the implementation process would change and how some groups enrolled other groups and/or marginalised them, if they resisted the implementation. The research site was Cornfield University that was formed in 2004 from the merger of two local university institutions (which we name Vulcan and Umbra in the following analysis).

Although the new University was formed in 2004, its constituent parts had enjoyed long separate histories dating back over a hundred years. When formed, Cornfield had the largest number of full-time students in the country, with over 11,000 post-graduates and approximately 33,000 undergraduate students. During the merger, the new university president devised an ambitious strategic plan, seeking to make the university one of the top 25 universities in the world. At the same time, the role of the merger was to strengthen and change the university management role and identity whereby leadership and control was made more centralised inaugurating a new managerial model for a university leadership that could compete in the global market. One challenge and opportunity in this turnaround was to modernise its administrative IT infrastructure by making it unified and compatible and world class. Therefore, the university’s top management team with the help of consultants decided as part of the new strategic vision to overhaul all existing administrative systems in Vulcan and Umbra. A new and powerful software package supplied by PeopleSoft (modified by their implementation partner, CIBER) was selected and implemented under the project name, Neo. The aim was to codevelop and implement a ‘best of breed’ ERP system for a new unified university whereby the new strategic intent of the university management could be aligned with the operational functions and capabilities offered by the system. The main system was expected to handle the whole life cycle of a student and coordinate related information use across all university functions. It was implemented in sequence: admissions followed by student records. The project began in earnest in 2003 and was completed towards the end of 2007. In addition, Cornfield updated simultaneously two principal administrative information systems – the finances and human resource/payroll applications. These systems were instigated to improve and standardise key financial and human business processes as to create a single corporate system for each critical administrative area. All these implementations ran in parallel: The finance project began in August 2005 and was completed in June 2006; the HR/payroll project began in August 2005 and was completed in September 2006. All these implementations impacted most key business processes and staff across the university, though the student system impacted the university staff the most.

**DATA COLLECTION**

Our fieldwork took place between the summer months of May and July 2007 and more recently with a follow up in 2014 and concentrated on ways in which organisational stakeholders behaved during the ERP implementation. We used two main data collection methods: semistructured interviews and a review of project documentation. Available intranet information about the system implementation events was also consulted where appropriate.
Four key stakeholder groups each with a political stake in the system implementation were identified – users, IT experts, university top and middle management and the internal system developers.\(^3\) Overall, we conducted 17 interviews across these groups covering technical and business experts participating in the project, members of the finance office and other university functions who had direct involvement either with the system implementation or with its support or use\(^4\) (Table 1). During interviews, we asked each interviewee to focus on and describe critical events that occurred during the implementation and system use that reflected different stakeholder’s reactions and responses to the system implementation or use. Both current experiences and retrospective ones were encouraged. We used best practices during the interviews such as the use of ‘mirroring’ techniques to capture subjects’ stories in their own words (Names Removed, 2007). A sample list of questions/prompts is given in Appendix 1. Interviews were digitally recorded, and verbatim transcripts were produced prior to a more detailed coding. The transcripts were forwarded to the interviewees to vouch for their veracity and to obtain approval.

**ANALYSIS OF DATA**

An analysis of transcripts – the ‘stories’ – provided the baseline for coding. The coding used the PSIC model categories as to identify incidents (interventions, gaps, etc.) at three levels – the work systems, the project and the context. The analysis consisted of a six-step process (Names Removed, 2008a, 2008b, 2008c, 2008d) and was iterative, resulting in a careful coding of each implementation incident. The events were then subjected to a careful inductive and deductive analysis mediated by the PSIC framework resulting in the final process diagram of the ERP process implementation (Appendix 2).

We first focused on identifying critical events. Changes designated as critical events were those that were seen to generate gaps. For example, the demand for extensive customisation during the implementation impacted the project level system – notably with a demand for more resources (e.g. when the task changed it created a need for more people and a greater budget). The customisation needs arose because the PeopleSoft package had been developed for another market (US higher education) and did not support a European-based university enrolment and assessment structures. As a result, the business processes supported within the ERP package could not be adapted to the current ways of working. Consequently, a gap developed between the task and technology, and structure entities in the work system during implementation as the system was not adequate to perform localised tasks, and these tasks were not changed because the processes could not be changed within a federated structure and given the differences in the European university system.\(^5\) For example, the original system offered no provision for so-called ‘bench fees’, special fees paid by students enrolled on

\(^3\)A fifth group, the vendor, was not willing to participate despite the researchers’ repeated efforts.

\(^4\)The interviews lasted between 20 and 66 min with a mean time of 45 min. At the end of the interview period, we were experiencing interview ‘saturation’ and diminishing returns to reports from new interviewees (Glaser and Strauss, 1967; Rubin & Rubin, 1995).

\(^5\)Refer to P8/W8 in the diagram in Appendix 2.

laboratory-based courses but unheard of in the country that produced the original software package. Therefore, some way to enforce new process inscriptions and negotiate a successful translation had to be found across key stakeholders.

Next, critical events were sorted into work and project events. We also identified main interactions between the work system and building system processes as per Appendix 2. As a result, we could analyse the outcomes of critical events over time and characterise consecutive project and work system level changes. Some were observed as having long periods of stability, which were sometimes interrupted by short periods of ‘revolutionary change’. For example, W1/P1 in Appendix 2 represents the punctuation of the project organisation when the management established the Neo ERP project. W17/P17 is another punctuation: The legacy systems at Vulcan were switched off and the ERP system went live. We also analysed the organisational and environmental contexts to see how they interacted with the change. For example, the merger of Vulcan and Umbra and the acquisition of PeopleSoft by Oracle formed key contextual events. Finally, all these findings were used to draw a full PSIC diagram, which identifies major changes in the four socio-technical components and their relationships during the implementation process (Pentland, 1999; Langley, 1999) (See Appendix 2).

Finally, we applied an ANT ‘vocabulary’ to narrate the dynamics observed in the diagrams to find out how the coalitions were formed and how they related to technology and people events. In particular, we analysed how coalitions were formed to realise the university management vision and how these coalitions related to emerging or on-going technology use and associated gaps and whether related interventions were successful or unsuccessful in inscribing behaviours associated with the ERP system. By doing so, we could reveal how actors’ interests were reflected and realised in interventions, how successful they were and how and why the observed system implementation came to be.
CASE STUDY FINDINGS

Antecedent conditions

In March 2001, the registrar and secretary commissioned a review of the current student system for Vulcan University. This was later use as part of the business case for change:

The current system, while providing the functionality necessary to effect the basic functions of student administration, …and some external and internal statistical reporting, lacks integrated functionality to provide a ‘cradle to grave’ administration for all enquirers, applicants, students, graduates, alumni and life-long learners. [Student System Project – Business Case, Release 2.0 (October 2004)]

This organising vision for the ‘unified technological system’ became part of the overall management agenda to develop Cornfield as a ‘complex business’. The political drive to tender for a new system was also due to the influence of members of the much bigger Vulcan who ‘…exhibited a culture to have an expensive and very glossy system’ (Senior Technical Manager, Project Network). Thereafter, functionalities for improving the student system revolved around the organising vision of managing all the data related to a student’s life cycle from the ‘cradle to grave’. This generated a problematisation of how to invite the interests of key stakeholders.

The new university management framed the problem for the new system and defined the related identities and interests of themselves as creators of a future ‘top’ university. This was presented to the others at the university as an OPP in realising this vision. Going along with the system implied going for the better ‘top university’. In this university, the old systems would not provide world-class services and were not fit to embrace this institution’s future needs. In addition, the legacy systems were no longer technically fit for the Web-driven educational environment of the 21st century.

The history of system development at Cornfield (i.e. both Vulcan and Umbra) had been mainly positive – both universities had successfully implemented their legacy systems and maintained them as functionally adequate. But the implementation of this new system was different. It came with a mandate and opportunity to reengineer Cornfield’s principal student processes as part of the new vision to become a place of ‘world-class educational services’. In consequence, the expected benefits of the ERP solution and related business process changes were ambitious and deep as outlined in Table 2.

The ERP implementation

The best of breed system was acquired from PeopleSoft with the scope for adding custom modules. The development was to be conducted by the chosen implementation partner, CIBER. The system had to satisfy the following requirements: (1) correct functionality for all student services, (2) fully Web-enabled, (3) superior and flexible architecture, and (4) access to global best practices. The expected level of customisation, the presence of adequate functionality for localisation and tight timeframe were initial implementation concerns. Cost was only a tertiary factor as what deemed as a sufficient budget had already been agreed.
The project team consisted of approximately 60 people. Forty pre cent of the resources were pooled from different levels of the university while the remaining 60% were external appointments in the form of business analysts, consultants and project managers from PeopleSoft/CIBER. The entire programme was overseen by an IS Programme Board, chaired by the registrar. The integration team consisted of technical staff and analysts from the university, who were responsible for data migration and data mapping from the legacy systems to the new system.

Appendix 2 summarises the main events during the implementation process. Antecedent conditions refer to the historical features of the legacy systems and the development processes at Vulcan and Umbra. The project events (P1–P22) are the critical project events constituting the socio-technical changes in project composition, tasks and technologies. Work-level processes show changes in the work processes and related legacy system use at Vulcan and Umbra or the use of the new ERP systems (W1–W22). Organisational issues are the internal and external, contextual events (e.g. the merger of Vulcan and Umbra (internal) or the acquisition of PeopleSoft by Oracle (external)). In the diagrams, these events are presented in the chronological order from left to right. In the W thread, Vulcan’s socio-technical events are superimposed on Umbra’s.

The project began in October 2001 when the council at Vulcan approved recommendations to set up a new project (P1). One year later, initially for Vulcan, in October 2002, the initial investigation phase of the project was approved along with the project budget by an Executive Project Board (P2). Project Neo was formally ratified on 6 March 2003. During the summer of 2003, users (over 100 from both Vulcan and Umbra) were approached to gather requirements.

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<th>Table 2. Main goals of the new student system</th>
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<td>Strategic benefits</td>
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<td>Meeting the university vision for 2015</td>
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<td>Enhanced image to all users of the system</td>
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<td>Greater transparency in the provision of information</td>
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<td>Enhanced decision-making through centralised quality data</td>
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and input for the new system; while in September of the same year, an invitation to tender was approved (P3). In October 2003, the invitations to tender were sent out to the Official Journal of the European Communities (a formal tendering organisation), and by late January 2004, the tenders were received. By April 2004, PeopleSoft and CIBER were selected. The admissions’ legacy systems were also scheduled to be phased out. The admissions module for the new system went live in December 2005 (W6–W10). This meant that all data were to be entered into the new system. Yet, when the country-specific admissions module was delivered, it contained errors, and the feedback from the users was negative. The system lacked key functionalities, such as the ability to generate value-added letters, marketing and enquiry management, degree classifications and finance modules. As an example, as previously noted, bench fees were missing from the implemented system:

One of the main issues raised was that concerned with fees collection (bench fees). There was a genuine concern that the information that was previously inputted into the old system (OES) to do with bench fees for students would appear in Campus Solutions. This reassurance was not upheld and in fact such information was missing. Therefore some students have subsequently not been invoiced for bench fees totalling in the hundreds of thousands of [currency]!! (End User and Functional Trainers (*2), Project Network)

Training was given in a sequential fashion, i.e. when a new module was released. For the admissions software, this began a few weeks before go live. In August 2006 (W20), the students records system went live, and the entire legacy system that previously supported student’s records and administration was being phased out at Umbra. A post-implementation review was conducted in November 2006 (P22) to address the outstanding issues that users were still experiencing.

At the time of collecting the data, the project was in its final phase, although some data migration was still taking place. Yet, functionality and operational problems were at the forefront as users constantly discovered missing or erroneous functionality. This was commented as a negative outcome by the representative of the project team:

However, what seems to be developing now is that faculties like their autonomy around their intranet services and portals so there is a risk that they would try to use the data in Campus Solutions through integration to try and replicate functionality. Therefore there must be close monitoring and collaboration with faculties to ensure that this does not happen, but in some cases, this is very close to happening already!! (Programme Manager, Project Network)

The legacy system at Umbra was still in operation, mainly for functional, data migration and research purposes, with a view to phasing it out in September 2007. The project – despite initial slack in budgeting – had overrun its cost because of a heavy demand on consultants during extensive customisation – because several schools required customised services to fit their non-standard processes. Two users independently report on the inadequacy of the implemented system to cater for such needs:

7Note that this was duly completed.
Manual ‘paper-based’ systems and indeed spreadsheets have been used frequently as a supplement to the new system when doing certain procedures. This could be because of the steep learning curve of a brand new system and is probably a step backwards!
(HB – End User Post Grad 2, User Network)

Issues were brought up in meetings but astonishingly, they were not addressed prior to go-live. As a result when the system was operational, these issues (mainly to do with post graduates) started to appear on a regular basis and the users were subject to repeated logging and reporting of problems which were initially addressed but were never incorporated into the system. A series of meetings with the project management team and implementation team were arranged as a result to devise a solution to addressing the problem, post system rollout.
(End User and Functional Trainer (*2), Project Network)

Coalitions during ERP implementation

We next seek to narrate how and why the ERP implementation generated the ‘positive’ outcome it did. But we also show how it happened by marginalising some important stakeholders such as administrative staff, enabled by the very loosely coupled structure. To do so, we use a macrolevel aggregation of the event data into key turns in coalitions and actor networks as to find out how different sets of actors participated in the unfolding events and changed their positions in the networks. In particular, we focus on the turning points where major changes in the actor network configuration associated with system implementation took place or on conditions that enabled a specific trajectory (Appendix 3). Appendix 3 depicts the three major networks: the UN, the project network (PN) and the top management network (TMN). It also shows the technology (campus solutions) and the auditors who were brought in early in the process to rejustify the original strategy of the TMN after some changes to the personnel and subsequent questioning of the proposed solution.

Appendix 3 also depicts the two coalitions that formed early in the project and continued in a stable fashion until both Vulcan and Umbra had implemented campus solutions. The major coalition consisted of the TMN and the PN (including the implementation partners, CIBER) together with the technology. The second coalition was the loosely coupled administrative users who were dispersed amongst the different faculties and were responsible for managing the admissions processes and maintaining the student database for undergraduate and post-graduate records. Throughout the process, the TMN and PN kept tight control of the project and any changes to the original software. Although the users were originally polled for their system requirements, these efforts were largely ignored in the rush to implement campus solutions. Users were generally excluded from the design and implementation efforts, and consequently, they were marginalised.

One such condition was that the senior management remained the same and was consistent in its initiation, resourcing and leadership throughout the project (P1–P22). As a consequence, the project group embraced the consistent motives of senior management, because they could see benefits from such an association. However, these ties were threatened in a turning point
when the vendor/consultants (CIBER) failed to match the aspirations of top management (P13 in Appendix 2). However, throughout whole implementation (W8–W22), the users (administrators from junior to senior levels) saw things unfold differently as they became increasingly marginalised. They had to deal with the growing inadequacies of the system by attempting to bypass its inscriptions through constant improvisation or by constructing shadow systems (see the previous discussion for examples).

In summary, we could identify the emergence of three distinct but yet intersecting actor networks that influenced the implementation: university top management, which operated mainly at the environment and project levels; designers, consultants and implementers, which were located at the project level; and users, who operated the systems and were located at the work system. Each network was diachronically connected to the unfolding of the ERP implementation but in different ways. Next, we discuss the role and influence of each network in generating the successful outcomes.

The TMN

Before the merger, the IT governance at the universities had devolved into a tripartite structure where responsibilities were delegated from the centre to faculties and schools. Shortly after the merger (October 2004), there was a short and substantial drive towards further decentralisation. Subsequently, however, this strategy was soon reversed to create a centralised approach on the platform of the Neo project. In one sense, this was an attempt to be more inclusive: to create a shared model and allow the ownership of IT to stabilise as the university adapted to its new post-merger structure. More cynically, we can see this as top management taking greater control of all activities of the university by centralising decision-making whenever they had a chance. This was performed by enrolling the technology supplier (PeopleSoft and CIBER) into a coalition and inscribing the centralised new processes to run in each school with the help of the ERP system:

The underlying principle used throughout the project was of centralisation. There was one set of data, with access gained via the web, and the system which owns the data should be the most appropriate. For example, HR staff data, the master records are held in the HR system; student data, the master records are held in the students system. What was then heavily invested in was the integration between all of the systems going into Campus Solutions. Therefore if a faculty wanted access to student information, they requested it (centrally) from Campus Solutions, through a networked hub-and-spoke style of integration. (Programme Manager, Project Network)

Top management truly envisaged the ERP technology as an enabler in this power shift – they could now enrol more participants that could be aligned to their interests. Moreover, the opposition to this was weakened by the inherent decentralised structure of the university existing at the time and its multi-layered decision-making. In particular when the registrar/vice principal spoke of a need to quicken the pace of work, the importance of communication across departmental lines and the notion that Cornfield was a complex ‘business’. The idea of new alignment was clear:
PeopleSoft were involved already in the North American and Australasian higher education market, with products and services that had a good and well-proven track record. PeopleSoft kept abreast with changes in the computing environment, and also issues like student funding etcetera, and they had an idea of the sort of issues that might arise in years to come with regards and coupled with their deep knowledge in the area of higher education, they were the best choice. There was already an existing partnership with Oracle in place at the University of [Cornfield]. (Registrar/ Vice Principal, Top Management Network)

The registrar/vice principal indicates here the deep partnerships that universities must now make with vendors and where both parties must fully commit to each other if the system is to succeed. He also highlights that the university had a pre-existing relationship with Oracle Corporation, and there already was an established network involving shared interests and a strategic partnership. Therefore, the impending addition of PeopleSoft/CIBER as an actor and the new ERP system as a key OPP would effortlessly connect the university to the software vendor and which realised the centralization interests of the management. Indeed, this strategic vision spear-headed by management was powerful, as it created a relatively durable coalition where agendas of diverse actors could be accommodated through a single powerful story of Cornfield’s future. The ERP formed the OPP for anyone who wanted to join this great future. Consequently, in each management interview, the actors expressed the view that top management’s passion and determination remained the cornerstone of the ERP implementation. The registrar expressed this commitment as follows:

[Management] kept a close eye on everything that was key and linked, both directly and indirectly with Campus Solutions….YES! The president of Cornfield came from the right environment and had experience of the implementation of large I.T. systems. He was the Vice Chancellor of The University of [Elsewhere], where they implemented a similar system. Therefore, he was aware of all the issues, pitfalls and expectations, which he was able to share and disseminate throughout the business…. There was ample of support from the board of governors also. (Registrar/Vice Principal, Top Management Network)

Not surprisingly, the irreversibility of the network remained steadfast as the process unfolded.

The project team network

Many diverse actors came together during the implementation. Their role was to establish a durable network around the use of the ERP system. Therefore, the implementers had to create a team with a momentum and collective organising ‘vision’ of a positive and powerful ERP. This was, however, difficult to achieve and, in particular, was compounded by the size of the project and the new university management ethos that was alien to most actors affected by the change (Hardy, 1991; Names Removed, 1993; Heiskanen et al., 1998; Allen & Kern, 2001). The visibility of PeopleSoft/CIBER ERP experts within project teams expressed the commitment of the vendor in affirming their relationship with top management and devotion to the espoused university vision. This was expected to strengthen the bonding amongst other actors. These bonds, however, became increasingly strained as the project progressed and
new deficiencies arose around the system’s functionality. Consequently, relationships between the project team and top management became increasingly strained, as vividly put by a senior technical manager within the university:

The only real nightmare was the consultancy firm [CIBER] who were terrible. They lied on numerous occasions especially during the tendering process, made poor decisions and were extremely expensive. (Senior Technical Manager, Project Network)

The lack of trust shows growing misalignment between actors’ visions and the network-to-be-built. In a bid to ensure that the network was strong and powerful enough to last, in May 2004, the university used external auditors to audit the new system implementation to ensure that it followed ‘due process’:

A lot of managers changed jobs and job roles at the senior level. Some senior level appointments, such as President, Deans of Faculties etcetera were new, and they immediately questioned the decision to go out to tender for a new system. At this point, auditors were brought in to perform an independent audit, to ensure that the university have gone about things in a thorough and systematic way and highlighting risks etc. This was a very useful but ‘scary’ exercise! As a result, of this audit, the project suffered a setback by 3 months. (Deputy Head of IT, Project Network)

The involvement of external auditors in the network reinforced the stranglehold of the top management in promoting the shared vision and being its spokesperson. The audit could also be seen as mobilisation of bias in legitimising the actions already completed.

The UN

Users (mainly administrative staff) became a source of constant strife while at the same time they were tied to the new ERP system. The problems were highlighted during the system roll out, acceptance testing and post-implementation review. Users became increasingly important as a countercoalition of the visions of unified use as they started to constantly identify shortcomings in the system and could predict failures of the system to other actors (analysts and implementers). But these interactions also revealed growing misaligned interest between coalitions. Once the system went live, users were not positioned to use it effectively for their daily processes, because it had been inscribed mainly along the interests of PeopleSoft/CIBER, university management and the technical project team. Users consistently affirmed to us that they were not properly consulted, and the system did not reflect their needs and interests. But this coalition was weak as the users were scattered around different pockets of the previously separated universities and their concerns – because of differences in the practices and specific student management issues – were not easy to integrate and negotiate. This led to high levels of anger and anxiety (the previously mentioned bench fee fiasco would come in that category).

Severe problems popped up such as incorrect data within the new system. This led to erroneous output and useless reporting. The user interface was also poor. Many users complained that there were ‘so many screens’ to get to the desired information. In contrast,
the legacy system was well-liked and more ‘user-friendly’. For example, entering simple data such as group project marks was a challenge:

To input group marks, you have to go into 3 or 4 screens and then make sure that the weighting (credits) of the course are correct, so that when everything is totalled up, the final total is correct. Once final checks of the marks are made, they are then exported out to a spreadsheet. However the flaw with the system is that it only represents whole numbers and not decimals. So if a 3 students did 3 pieces of coursework all worth equal marks out of a total weighting of 100% (33.33% each), the system cannot represent this. It can only recognise whole numbers such as 25%, 25% and 50% etc. this means that marks generally cannot be broken down further in Campus Solutions. This means that a lot of the time, it is the final group marks that have to be put into the system as it cannot be broken down to show the individual students marks. In terms of examination marks, the system cannot represent what questions were answered. It will only accept the final mark of the exam. Therefore all of the work that goes into calculating the individual exam question marks has to be done using a spreadsheet. This is a very time consuming task! (Postgrad Administration, User Network)

Users attempted to leverage their own network and to make their voices heard and achieve concessions if they were obliged to go through the OPP. Expressing these concerns, however, remained a big challenge: The opposing coalition could enrol powerful actors consisting of the university management and the large technical team. In the end, the users had little choice but to acquiesce. This induced, however, constant friction in the use and adoption of the system as university management had to coerce users by cutting them off from other networks. For example, they physically closed down the legacy systems prematurely and made users tread the only path available: the new ERP system. In spite of these manoeuvres, administrators continued to find the system cumbersome and inefficient.

Users kept using the old legacy system (OES) until it got switched off, even though Campus Solutions was now in operation. This was because the users didn’t want to start getting acquainted with Campus Solutions. There was definite user resistance to adopting Campus Solutions. (HB – End User Post Grad 2, User Network)

Several shadow systems emerged that were ‘bolted-on’ to the wounded ERP system to ‘make life easier’ and to ensure that data was correct and output reports were accurate. This enabled users over time to build competing and concurrent coalitions while their coupling to the ERP system remained loose (Berente et al., 2008).

**DISCUSSION AND CONCLUSIONS**

We examined the process of building networks in the context of an ERP implementation in a major university and how these networks collided. In the end, an effective coalition between top management and the software supplier transformed the structures of the university. We can now seek to address the specific research questions in light of the study: How are networks
established and how do they influence the implementation process and outcomes? What is the specific role of different networks or groups and their participation in the networks? How do some groups become excluded or black boxed and how does this influence the implementation?

Overall, each coalition was located at a unique ‘position’ vis-a-vis the implementation and used its resources and authority to influence others through negotiation, resistance and manipulation. We identified three such networks: the university management (and suppliers), the project team and the users. Each was composed of its own unique set of actors (and technological artefacts) that together shaped the ERP implementation. At the end of the process, the top management-led coalition emerged victorious and fully in control - unsurprisingly. The advent of this new ERP filled the vision of new competitiveness and created a more centralised structure. Accordingly, the interests of the university management could be swiftly mapped onto the ERP solution and related organisational procedures. The management could also use the mechanisms of professional bureaucracy (Hardy, 1991) to translate their interests into the workings of the ERP and thereafter disseminate such inscriptions as an OPP by excluding alternatives such as other systems. The evidence from the case strongly suggests that top management could claim that the ERP system was successfully implemented for all main administrative systems. It transformed the university’s decision-making structure from a relatively autonomous, decentralised structure to a more direct and centralised command and control system based using the database of student records. The situation preimplimentation and postimplementation was described as follows by one of the users:

As a result there were hundreds of systems in operation all over the university so if you moved within the university, people did things differently everywhere. Now with Campus Solutions, there is a common system where everybody is working from. This is an improvement in terms of investing in staff knowledge to do with the system which can be transferred anywhere in the university and not just held within schools and faculties. (DP – End User 4, Project Network)

This reaffirmed the status of a long-established coalition with the standing available software supplier (through Oracle) and with the willing assistance and high cost of the consulting group, CIBER. But it was also achieved at a cost of marginalising the users and alienating the wider university community. Since the implementation, administrators have been coping with the shortcomings of the software by inventing work-a-rounds to ‘make life easier’, especially after the plug was pulled on their legacy systems. In short, users were left to pick up the pieces after a so-called ‘successful’ implementation.

Referring to Appendix 2, we can identify patterns that give us clues as to why the process unfolded as it did. For example, for events 2, 3, 5, 10, 16, 18 and 20, there are multiple gaps associated with both the P and W levels, while the gaps on the W level (the user coalition) dominate. For diagnostic purposes, the concentration of these gaps and their fixity signals the severity of challenges in creating or maintaining a durable coalition across all the actors. Further analysis reveals that these gaps originated mainly
from two sources: (1) interactions between P and W levels (for example, go live, event 15), i.e. where the project team network and the UN collided and created more gaps in W level, or (2) from new issues originating in the context (the emergence of Oracle and PeopleSoft as the preferred bidder), i.e. where the management network collided with the other actors that would offer support to implement the system. It is likely certain that all complex ERP implementations will experience similar gaps especially at the W level. However, the number and persistence of such gaps in our case suggests that there were endemic challenges in the process of user enrolment, while at the same time management and project level actors were not willing to intervene and reconfigure the network. The actors at the work process level could be marginalised, because their lack of enrolment was not seen to threaten the interests of the two other actor networks. At Cornfield, we saw a portfolio of such responses. The top management was willing to resolve the concerns about the poor management of the ERP project and strained relationships with the consultants (P3/W3) by bringing in the auditors. This was understandable, as not doing so would have undermined the role of the system as an OPP and their legitimacy as change agents. In contrast, top management was unconcerned about the problems experienced by the user coalition as evidenced by their failure to address their needs and to enrol them (e.g. W12 and W13). As a result, the users became marginalised and in the end black boxed – they were the target of othering (Elbanna, 2007):

Users were generally not consulted because of an attitude that exists within the faculty and in particular the implementers and some levels of management. This was a fundamental flaw because it is the users who use the system day-to-day and have the knowledge and skill of the various work processes, and they were simply not consulted!! (Senior User School of Computer Science, User Network)

In contrast, to enrol the users and obtain acquiescence, top management also sought to ‘wean’ them off their ‘alternatives’ by showing how to connect their shadow systems into the ERP. In addition, these management actors could orchestrate other critical events to progress this ‘project’ by changing personnel or releasing resources. For example, the project team carefully controlled the level of customisation:

As the system was very flexible, the danger was that the customer would request a lot of customisation. At one point there was a realisation that there was too much customisation going on and the process was halted and controlled. A change control board meets once on a fortnightly basis to review customisation changes therefore adding the element of control. (Deputy Head, IT, Project Network)

The specifics of these actions related normally to the personnel–technology gaps and their persistence (Names Removed, 1992).

Yet, in the end, the inscribed new order could only emerge in an incomplete and fragile manner. As the top management single-mindedly enrolled the experts and the vendors into a powerful coalition, it had to override the interests of users and by doing so black box them (Elbanna, 2007). However, the users may reassert their influence later when the networks
can be open boxed. For example, this may happen during major software upgrades or in
the course of other, broader contextual perturbations. And, there were signs that this was
already happening:

In practice, faculties do want to use that information and have been developing their own
intranets in a way which needs to be reviewed because there is a danger that they will
begin to build their own mini systems and become isolated from the central system
(Campus Solutions), in a bid to be more independent. This is a bit of a risk, therefore
a constant check and maintenance of dialogue with faculties needs to be in place
moving forward in order to align them with Campus Solutions and work closely with them
to ensure that efforts and functionality are not being duplicated. (Programme Manager,
Project Group)

The implications of our study for practice are multiple. First, it emphasises the impor-
tance of knowing the type of organisation one is dealing with during an ERP implemen-
tation. Put simply, universities are special places: Their decentralised decision-making
structure (Hardy, 1991; Names Removed, 1993; Heiskanen et al., 1998) has evolved over
centuries, and they defy traditional business logic. Yet, our study shows that more
centralised control can be exercised with the help of an ERP system when associated with
an organising vision of a new order that invites the major power holders – i.e. university
management and elite faculty – to reconstruct the university as a complex business. But
when one tries to innovate in a university while ironing out the differences between the
two merging universities, one is piling layers upon layers of complexity onto realising this
vision. As the new university, through Vulcan, had already gained experience with the
Oracle, the transition to implement an ERP was not as great as for organisations with no
experience. Second, the process was filled with constant struggles and unexpected
outcomes. In the end, the reason that the implementation was successful for the dominant
coalition was neither because of the technology (it had too many failings) nor was it
because of the expertise and skills of the implementing consultants (they were strongly
disliked, too expensive and not very skilful). Rather, it was because of the central position
the management group obtained by skilfully maintaining a consistent vision for the future of
Cornfield and enrolling a powerful coalition and using manoeuvres to create a new order
and excluding the alternatives. In this vision, the ERP was not to be ‘just another IT
system’ but an inscription of part of the new university order. This was a project led from
the top, provided with generous resources and enrolled with powerful actors to sustain
their supportive stance. It would be difficult to see anything but a long drawn-out failure,
if the management had abdicated their responsibility and passed the leadership to the IT
people, for example.

Second, it is the top management’s constant vision and support that stands out from this
case. This, of course will have important lessons for other universities and commercial
organisations embarking on long, risky and complex implementation projects. Many IS
textbooks discuss the importance of top management support and user involvement as
crucial factors in a cross-sectional story of how to implement systems successfully. Here,
we see the value of studying such concepts as part of a complex diachronic process. In
doing so, we begin to unravel issues that would have remained hidden had we used
factor models. For example, our evidence counters the received wisdom that user
involvement is a *sine qua non*, an essential process to solve the problems of imple-
mentation. Cornfield was successful not only because of the unflinching support of the top
management and the constancy of their vision but also because their coalition effectively
marginalised the user community. While it is true that there were opportunities for users
to express their views and system requirements, in practice, most of their requests were
dismissed in the pursuit of the overall goal of inscribing in a timely fashion the centralised
model in the new ERP technology that would then become back boxed as the OPP. The
inscribed system at the time of handover was incomplete, it lacked important functions, it
was clumsy to use, and hugely expensive. The partner implementers, CIBER, were
vilified in most of the interviews and were even accused several times of ‘lying’ by
promising features that were never delivered. Indeed, when we analysed the interviews
by paragraphs, we generated over 11 pages of negative quotations about the poor
system quality and the CIBER group. Despite all this evidence, top management was
delighted with the resulting centralised system and has since then gradually eliminated
shadow systems and most work-a-rounds. Couple this with many of the new administrative
staff who replaced those who retired or took redundancy payments and who have known
no other system than campus solutions at Cornfield, we have seen that resistance has
largely been eliminated.8

Overall, had we correlated in the traditional way a measure of user involvement (in our
case surely a low value) with the success of implementation (apparently a high measure,
certainly if assessed by the top management group), we would have missed the point in
explaining this unusual case. Only by tracing and narrating how the new order emerged
through a political process where a powerful coalition marginalised some groups to allow
the system to align with their vision the study demonstrates that process studies,
although complex and resource-consuming, can account for the outcomes of unusual,
large-scale ERP processes. Here, the PSIC model was found to be valuable in delineat-
ing critical events and showing where and how gaps emerged during the change. It
revealed the twists and turns before the system was finally delivered as an inauguration
of the new order (Quatrone & Hopper, 2005). We also found value in ANT as it helped
sensitise ourselves to the political processes that connected different actors to the
system, how such coalitions were formed and how they interacted to influence the
implementation outcome. However, the findings of this study and the role of coalitions
need to be examined in other contexts – especially to what extent the current

8We had the opportunity recently (2014) to return to Cornfield and this evidence is derived from that visit.
Both the President and Registrar/Vice President had retired, and many of the ‘old guard’ administrative
staff from Vulcan and Umbra had left Cornfield through retirement, generous redundancy settlements or
by natural attrition.
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Names Removed (1993).


Names Removed (2007).

Names Removed (2008a).

Names Removed (2008b).

Names Removed (2008c).


Names Removed (2009).


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APPENDIX 1: Sample interview questions/prompts

Can you give me your opinion on the merger of [Vulcan] and [Umbra], paying attention to cultures, IT systems etc. if possible?
Discuss the centralised v decentralised structure alternatives
How/why was [THE AUDITOR] brought in?
Can you tell me about the best of breed ERP system Campus Solutions and what was your direct involvement in the project?
How was the issue of customisation handled? Was the management choice to change the process to fit the system or the system to fit the process?
Please tell me more about the old legacy systems of Vulcan (Oracle-based product) and Umbra (SITS)?
In your opinion how has the change in technology, i.e. the move from the old system to Campus Solutions mapped to changes in the organisation?
Can you provide an explanation of how the technical capabilities of the system fulfil the objectives that were set out by the management?
Can we discuss the management of the project; in particular how the teams you worked in were formed? Also, how interactions between parties were conducted? Please elaborate on the following:

- Roles of people
- Documentation processes
- Meetings and discussions between management and staff.
- Relationships between various actors (vendors, consultants etc.)

What was your take on interdepartmental cooperation and communication amongst employees, managers, consultants and teams?

Note that these were some of the prompt headings/questions sometimes used in the interviews. The aim of the interviews was to have the subjects to drill down into the processes being discussed and tell their story about campus solutions in their words (Myers & Newman, 2007).
Marginalising the users while successfully implementing an ERP system
APPENDIX 3: PSIC model and ANT: the two coalitions at Cornfield

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