Rethinking IS project boundaries in practice: A multiple-projects perspective

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ABSTRACT

Information systems research and prescriptive IS project management methodologies are dominated by a perspective on single projects that treats the unit of analysis as a lonely phenomenon with strictly defined boundaries. This study questions this assumption by exploring how the taken for granted project's boundaries are defined in practice. It investigates a case study of an ERP implementation project in an international organization. The findings show the busy multiple-projects platform of contemporary organizations that ERP project cannot be isolated from. They also reveal that project management boundaries are continually crossed and that project's boundaries in practice are malleable and changeable. They are defined through negotiations with other projects and programs where what is inside or outside a project is subject to change according to the outcomes of such negotiations. A flatter view of project organizing could facilitate such an interaction. The implications for IS project management research and practice are discussed.

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1. Introduction

Information systems implementation usually takes place in a temporary organization of projects. Projects are objective-based organizations, hence an administrative boundary between a project and the rest of the organization has to be created to allow the division of labor between a project and routine operations and the allocation of other resources that this temporary organization requires for achieving its objectives. These administrative boundaries have encouraged a stream of research on project management to arise that maintains an internal focus on projects in attempts to develop tools and techniques to control them.

Studies of IS projects and more specifically packaged software implementation projects, also adopt such a lonely project perspective. This perspective treats the project – as a unit of analysis – as a unique, isolated phenomenon, separated from the rest of the organization (Engwall, 2003). The focus is solely on the system being built and the internal dynamics of the project, isolating it from the organizational platform. This view implicitly or explicitly conceptualizes the boundaries around an IS project as pre-defined, clear-cut lines that strictly define the project territory and separate it from other projects within the organization. It also assumes implicitly or explicitly that a project has to operate within these pre-defined boundaries and hierarchical structure.

Despite recent reports that organizations are increasingly under competitive pressures to innovate and introduce change, which is usually done through projects, this single project focus dominates IS project management studies and the majority of the project management literature (Payne, 1995). Thus, modern organizations are increasingly involved in several projects at the same time (Masini and Pich, 2004). It is estimated that up to 90% of projects in general, are carried out in a multiple

project environment (Payne, 1995; Dooley et al., 2005). However, little is known about the implications of such a busy platform of IS projects.

Overlooked in the literature, the multiple project perspective is recognized in project management methodologies[1] adopted in IS such as PRINCE2 (Projects IN Closed Environment). PRINCE2 accommodates a multiple project management perspective while maintaining a hierarchical structure view based on bundling related IS projects under the governance of a central body called a program, the aim being to better allocate resources and ensure compliance with schedule (Olson, 2004). It is through this bundling that programs get separated from each other, and it is the role of a central IS body within the organization to manage the IS portfolio of programs and to allocate resources between them. Different project management methodologies have respected these boundaries and developed frameworks to manage and control projects within the organization. This focus on project control infused by the existence of administrative boundaries for projects has contributed to a lonely project perspective where interactions with the rest of the organization are regulated through the closed hierarchical structure of project, program, and portfolio.

This study examines the conceptualization of IS project as a lonely phenomenon and the taken for granted IS project boundaries. It explores a case study of an Enterprise Resource Planning (ERP) system's implementation project in an international organization. ERP is increasingly considered the de facto standard for doing business (Skok and Legge, 2001) and hence serves as a contemporary example of IS projects in organizations. This study questions how a contemporary IS project interacts with its organizational platform, and the nature of IS project boundaries in practice. It applies Actor Network Theory (ANT) as ANT can provide "a very good way of telling stories about 'what happens out there' that de-familiarizes what we may otherwise take for granted" (Calas and Smircich, 1999, p. 663). The study aims to contribute to the understanding of IS implementation projects in organizational contexts and also to extending the theoretical base of project management.

Following the introduction, the paper proceeds as follows. The second section reviews the literature on project management in general and IS project management in particular. The third section presents the concepts of Actor Network Theory (ANT) that will be applied to conceptualize the field data. The fourth section explains the research methodology and presents the background of the case study. The fifth section reveals the findings of the case study. The sixth section provides analysis and discussion of the findings. The seventh section concludes the study and discusses its contribution, limitations, and further research.

2. Literature review

2.1. Project management

Most project management (PM) methodologies and professional associations emphasize the project management boundaries of project, program, and portfolio and clearly demarcate and define the realm of each. These methodologies focus on the internal processes for managing a project and specify the exchanges between the different layers of project organization. Even when taking a broader view of project knowledge, these boundaries and hierarchical view continue to exist. For example, the Project Management Institute (PMI) identifies nine knowledge areas for project management namely; Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, and Project Procurement Management. Despite this broad perspective, it continues to respect hierarchical boundaries and assumes static relationships between the different layers of project organization namely; project, program, and portfolio management. The interaction between a project and the rest of the organization is assumed to occur within these boundaries.

Most project management research shares a narrow conceptualization of projects "as a lonely phenomenon, independent of history, contemporary context and future" which is adopted in most project management studies (Engwall, 2003). This single project focus continues to dominate, despite the reported increase in organizational practices of having many projects running at the same time (Masini and Pich, 2004). When a multiple project view is considered, PM studies focus on developing mechanistic tools and techniques to manage multiple-projects (Soderlund, 2004), drawing largely on the field of operations management. Tools such as critical path dependency, simulation, and modeling have been developed to address the complexity of scheduling and human resources across multiple-projects. The aim is to provide technical optimization of project organization and dissemination of current and latest 'best practice' (Themistocleous and Wearne, 2000).

Studies of multiple project environments are rather scarce. Evaristo and Fenema (1999) agree that the overwhelming number of projects presented in the literature, as well as most of the practical and theoretical developments on projects, are centered on single projects (Evaristo and Fenema, 1999). They tried to reveal the complexity of projects, presenting a classification of projects based on the number of projects and sites involved. In addition to the simple, single and multiple-projects categories, they introduced categories such as collocated program, multiple collocated programs, distributed projects, and multiple distributed projects in shared or discreet locations. On a different but related front, Desouza and

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[1] It should be noted here that project management methodologies are based on the consolidation and monitoring of a project plan that is a combination of an organization plan and a project schedule. The organization plan consists of two activities: (1) a work breakdown structure (WBS) to define the tasks required and the aim of each one as well as their interdependencies, and (2) an organization breakdown structure (OBS) to allocate roles to the WBS defined tasks. Project management tools such as critical path methods or Gantt charts are then used to schedule projects (Cijsouw et al. 2007; Steyn 2002).

Evaristo (2004) studied the knowledge management needs in non-collocated work environments (Desouza and Evaristo, 2004). They applied Damm and Schindler's (2002) categorization of project knowledge: knowledge in projects, knowledge about projects, and knowledge from projects, to suggest the need for a hybrid approach to project knowledge management (Damm and Schindler, 2002). 'Knowledge in projects' means knowledge generated inside a project such as schedule, milestones, meeting minutes, and training manuals. 'Knowledge about projects' refers to the organizational need to keep an inventory of all projects to aid planning and controlling such things as employee assignments to projects, return on investment, cost and benefit analysis, deadlines, and customer commitments and expectations. 'Knowledge from projects' is a post hoc analysis and audit of key insights generated from carrying out projects. Damm and Schindler's proposed hybrid approach consists of a central repository to hold knowledge about and from projects and individual repositories available to peers. This view recognizes the different needs of project-related information, yet it is limited to a traditional view of project knowledge that focuses on scheduling and allocation of resources, typically financial and human resources. Moreover, it is suggested that knowledge in projects be kept individually and exchanged between individual projects upon request, on a peer-to-peer basis. This proposition assumes that individual projects are aware of other projects and hence recognize particular information needs from other projects. Currently, this proposition is not well grounded and has no evidence to support it. Desouza and Evaristo do not provide any empirical evidence to support this assumption. Neither does the current project and program management maintenance of strict boundaries between projects, support this view either. IS project organization is largely hierarchical; it encourages projects to maintain an inward view and allows program management to allocate resources and keep schedules of their own bundle of projects. It leaves it to the organization-wide central IS organization to keep an inventory of the organizational portfolio of projects for strategic planning purposes (Olson, 2004).

Dissatisfied with the current narrow theoretical base of project management, a recent UK-based study entitled "Rethinking Project Management" expressed the need to both recognize the complexity and provide broader conceptualization of projects (Winter et al., 2006). It recommended developing and enhancing concepts and approaches that facilitate "broader and ongoing conceptualization of projects as multidisciplinary, having multiple purposes, not always pre-defined, but permeable, contestable and open to renegotiation throughout". This paper responds to this call by questioning the taken for granted assumptions regarding project boundaries and organizational platform in the context of contemporary organizations.

2.2. Packaged software project management

Packaged software development, both in software houses and their implementation in buyers' organizations, usually takes place in a pure project organization; a separate, largely self-contained entity that is devoted exclusively to achieving the project aims and that will be disbanded when the project is completed or abandoned (Garrety et al., 2004; Hobday, 2000; Meredith and Mantel, 1995). The management of packaged software projects has received the attention of researchers who traditionally focused on studying the software production project in software houses. From this empirical angle, studies focused on project management techniques and practices (Kraul and Steeler, 1995; Raffo, 2005), teams composition and structure (Carmel and Sawyer, 1998; Dube, 1998; Sawyer, 2000, 2004), sources of knowledge (Segelod and Jordan, 2004), threats (White, 2006), risk management (Wallace et al., 2004), control of time and cost, and project performance and success (Procaccino and Verner, 2006).

The implementation side of packaged software has been understudied, until the rapid and widespread adoption of large integrated business packaged software, and in particular Enterprise Resource Planning systems (ERP). Stories of problematic ERP implementation and serious failures that led some large organizations to bankruptcy and litigation proceedings (James, 1997; Montoya, 1998), brought about an emerging body of research that focuses on the complex and distinctive nature of ERP implementation projects. Studies on ERP implementation projects varied in their orientation. The normative stream of research is partly dedicated to identify the "critical success factors" required to achieve a successful ERP implementation and reap its benefits (Al-Mashari et al., 2003; Al-Mudimigh et al., 2001; Brown and Vessey, 1999; Colmenares and Leopolodo, 2004; Holland et al., 1999; Hong and Kim, 2002; Parr et al., 1999; Ross and Vitale, 2000; Scott and Vessey, 2000; Skok and Legge, 2001; Umble et al., 2003). Other studies within the normative stream, focus on identifying the consecutive stages or "life cycle" that an ERP implementation project should follow within the buyer organization (Brehm and Markus, 2000; Lee and Lee, 2000; Markus and Tanis, 2000; Parr and Shanks, 2000; Ross, 1999). There are also studies within this stream that extract from case studies implementation methods, models, and frameworks of ERP implementation (Al-Mudimigh et al., 2001; Brown and Vessey, 1999; Krumbholz et al., 2000; Rebstock and Selig, 2000).

The other stream of research on ERP implementation focuses on the social and organizational elements of the implementation. This stream has revealed the processes by which organisational understanding and interaction with ERP evolves (Boudreau and Robey, 2005; Cadili and Whitley, 2005; Grant et al., 2006; Lee and Myers, 2004). Some studies within this stream focus on the requirement gap between the system inscribed processes and users' needs (Chiasson and Green, 2007), the improvisation pattern of implementation (Elbanna, 2006b), and the social conflicts surrounding the implementation (Elbanna, 2007; Wagner and Newell, 2004). This stream of research, though providing a significant insight into the implementation process, tends to ignore the ERP project organization and the organizational administrative and operational boundaries.

Both streams of research implicitly or explicitly accept the existence of clear boundaries between the ERP project and other projects within the organization, as they provide a lonely project perspective to the ERP implementation project. They

treat the ERP project as a single phenomenon isolated from other projects in the organization. Studies disregard that ERP projects could be implemented in parallel of other projects, and hence ERP projects' interfaces and interdependencies tended to be ignored. The multiple project view is largely handled by methodologies, such as PRINCE 2, that prescribe the governance of multiple-projects. Their sole reliance on the rational thinking of methodologies, tools, and techniques, has been criticized for nearly a decade in the information systems field (Ciborra, 1998, 2000, 2002; Iivari and Maansaari, 1998) and recently in the project management field as well (Melgrati and Damiani, 2002); there is a lack of empirical studies that provide a practice-lens on multiple IS projects. Indeed, very little is known about what contemporary package implementation projects face in a multiple-projects environment?

3. The creation of boundaries

The early version of Actor Network Theory (ANT) explains how scientists pursue their goals through the construction of a network of human and non-human allies (Latour and Woolgar, 1979). The theory was later expanded to cover other settings and the construction of other types of projects, such as aircrafts, engines, expeditions, atomic bomb, railway system, and market economy. The basic idea of ANT is that in order to achieve a goal, a network or assemblage of faithful alliances needs to be created to carry the network builders' intentions and materialize their goal. The theory holds a distinctive view of society as a network of humans and non-humans that interact and cooperate to pursue a certain goal; hence building a network would involve the recruitment of human and non-human actors.[2]

Some ERP studies apply Actor Network Theory (ANT) to reveal the complex negotiations actors go through in their attempts to construct a workable network that carries out the ERP project (for this argument see: Elbanna, 2006a, 2006b; Hanseth and Braa, 1998; Scott and Wagner, 2003). This strand of research establishes the view that ERP implementation projects resemble the building of an actor network: a network of humans and non-humans allies assembled to pursue the network builder's goal of implementing such a system. These studies maintain a narrow focus on the ERP project, isolating it from other projects that are taking place in the organization. The current research builds on this work and takes it a step further to investigate the multiple-projects organizational platform where the ERP implementation project takes place, and implications for the ERP project. The following key concepts of ANT have been adopted to aid data analysis. They have been chosen due to their connection with current research questions and their potentials to allow for opening up and going beyond assumptions regarding boundaries.

3.1. Changing global/local scale

ANT adopts a symmetrical view of sociological dichotomies, such as those between global and local, and macro and micro phenomena. It does not consider any difference in kind between the macro-structure and the micro-structure and hence treats both with the same analytical tool.

ANT regards the socio-technical world as not having a fixed, unchanging scale, and argues that "it is not the observer's job to remedy this state of affairs" (Latour, 1991, p. 119). Latour (1991) emphasizes that these global/local definitions are not fixed as actors could change them. He encourages researchers to observe these changes of scale rather than having fixed pre-defined ideas, arguing that "respecting such changes of scale, induced by the actors themselves, is just as important as respecting the displacement of translations" (Latour, 1991, p.119). In that sense, ANT is empirically sensitive and does not impose any a priori structure on actors. To the contrary, it is open to following the actors in their construction, modification, and negotiation of their macro- and micro-structures.

3.2. Negotiation space

ANT treats the distinction of inside and outside as open to question and negotiation. It therefore leaves it to actors to define what is inside and what is outside, and the boundary between them (Law, 1992). Actors also define one another in their interaction (Callon, 1991). By defining what is local and inside, actors try to create a *negotiation space*, a notion seen as having two essential characteristics: it is (1) a private area, physical and/or metaphorical, that is relatively inaccessible to those outside and (2) an area in which plans, ideas, designs, and/or possibilities with implications for control of the outside world may be generated, explored, and tested in a way that is largely invisible to those on the outside (Law, 1992).

The negotiation space thus represents an area of relative autonomy approved by actors in the global network in order to build a local network. The establishment of a negotiation space is one of the strategies that actors adopt in order to build stable networks of socio-technical objects. Law and Callon (1988) explain that a negotiation space makes it possible for mistakes to occur in private; within a negotiation space, it is also possible to experiment and, if all goes well, it is possible to create relatively durable socio-technical combinations.

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[2] This view has been criticised particularly from main stream Sociology and the Sociology of Scientific Knowledge (SSK). See: Bloor (1999). Anti-latour. Studies in the history and Philosophy of Science 30 (1), 81–112; Collins and Yearley (1992a). Epistemological chicken. In: Pickering, A. (Ed.), Science as Practice and Culture. The University of Chicago Press, Chicago, pp. 301–326; Collins and Yearley (1992b). Journey into space. In: Pickering, A. (Ed.), Science as Practice and Culture. The University of Chicago Press, Chicago, pp. 369–389; Pels (1995). Have we never been modern? Towards a demontage of Latour's modern constitution. History of the Human Sciences 8 (3), 129–141.

3.3. Scale negotiation

Continuous work and many negotiations take place on the boundary between the global and the local or the outside and the inside, in order to secure the existence of the inside. For example, in his book Science in Action, Latour identified the inside as the laboratory itself, with all its heterogeneous combinations of scientists, machines, and natural phenomena. On the other hand, the outside of the laboratory is the combination of financial institutions, governments, and others. The internal/external division becomes the provisional outcome of a relationship between the outside recruitment of interests and the inside recruitment of new allies that "each step along the path the constitution of what is 'inside' and what is 'outside' alters" (Latour, 1987, p. 159).

3.4. Recruitment of allies

The recruitment of allies could follow different strategies. One of the most quoted in IS is the translation process. According to Callon (1986), the translation process might consist of four moments namely; Problematization, Interessement, Enrolment, and Mobilization. Problematization means to find a problem for the presented solution that other entities could subscribe to. The network builder defines an obligatory passage point for the actors if they want to realise their displaced goals. Interessement is the action of interest building. Interest here is derived from the Latin origin *interesse* that is "to be situated between". Interessement hence is the group of actions by which an entity attempts to impose and stabilise the identity of the other actors it defines through its Problematization (Callon, 1986, p. 207–208). The successful process of Problematization and interessement leads to Enrolment. Enrolment does not imply, nor does it exclude, pre-established roles. It designates the device by which a set of interrelated roles is defined and attributed to actors who accept them. Thus it entails conflict and struggle between entities in order to convince them to play the roles they are ascribed. Actors could be enroled through seduction, transaction, or consent without discussion (Latour, 1987, 1988). Enrolment also includes the efforts to pull entities together towards the enunciator proposal. The last moment of translation is mobilization. As the word suggests, it is to render entities mobile, which were not so beforehand.

Callon emphasizes that translation is a general process that does not necessarily follow such linear, well identified steps as presented above. All moments (tactics) and strategies in "reality overlap" (Callon, 1986, pp. 203) and "are never as distinct as they are [presented]" pp. 224. In this spirit, the current study applies the moments of translation loosely to the analysis of findings while maintaining a focus on the boundary creation and the defining of what is inside and what is outside the ERP project. Therefore, the concept of recruitment or alignment will be used in the discussion section to encapsulate the successful translations.

4. Research methodology

4.1. Research method

This study follows the interpretive tradition of research. Interpretive research does not predefine dependent and independent variables, but focuses on the complexity of human sense making as situations emerge (Kaplan and Maxwell, 1994). Interpretive methods of research in IS are aimed at producing an understanding of the context of the information systems, and the process whereby information systems influence and are influenced by the context (Walsham, 1993, p. 4); thus are consistent with the research aim of exploring the nature of IS project boundaries and its organizational platform. Interpretive research does not seek any statistical generalization but allows for insight and theoretical generalization to be drawn (Walsham, 1995). This theoretical generalization would support the research contribution of closing the conceptual gap regarding the lonely view of IS projects.

Data collection took place mainly between February 2001 and October 2001and follow-up phone calls, e-mails, and short meetings were conducted till February 2002. Data were collected through semi-structured interviews with 34 informants as shown in Table 1.

Data were also collected through participant observation, with the researcher attending most of the configuration sessions and project meetings in different organizational levels. The researcher also participated in social events, conferences, and different organization-wide events and was copied in most project e-mail correspondence.

Data was analyzed and grouped first according to the traditional structure of project management specified in methodologies into project, program, and corporate IS governance (Miles and Huberman, 1994). A chart has been drawn of issues that crossed these boundaries. New charts have been drawn of each issue crossing the traditional boundaries identifying actors involved, negotiation, and resolution. Special attention has been taken to identify the negotiation space, the settling of issues, and where they settle.

4.2. The case of posta

Posta is a large European postal and parcel-delivery services company. It provides national and international mail services and handles over 75 million items every day. The cost of its SAP project was around EUR114 million. This study focuses on

Table 1
Research formal interviewees.

Role of interviewee	No. of formal interviews
Project management (including project director, project managers, module managers, and programme director and manager in Posta case)	8
Change managers	1
Consultants	5
Project team members (including BU managers, departments managers, and other members)	14
Users	5
Corporate managing director	1
Total	34

examining the course of the financial project. The financial project aimed to implement SAP financial modules that include finance, material management, assets management, PS, and e-procurement in one hundred different locations within the country, entailing over 11,000 users.

The financial project was planned to take 30 months and be released (local implementation) in three phases. The first phase covered four business units (BUs) and served around 4000 users. This phase was initially planned to go live on May 1, 2001. However, it was rescheduled to go live three months late at the end of July 2001. The second phase covered eight business units and about 6000 users. It was initially scheduled to go live on 1st September 2001. In order to accommodate the slippage of the first phase, however, its deadline moved to end of October 2001, then was delayed again to the end of November 2001 but went live in December 2001. The third phase was planned initially to go live on the first week of January 2002 but was experiencing severe delay and no re-scheduling had been conducted or announced till the last visit to the organization at the end of February 2002 where there was speculation that a fully functional finance system would not be delivered before March 2003 "at best depending on all the rework [that had to be undertaken]".

5. Research findings

The SAP Finance project was managed under the umbrella of a program called Enterprise Systems (ES program). This is in line with PRINCE2 methodology and PM wisdom of bundling related projects under the governance of a program organization. The ES program included four projects: a human resources project to implement the HR module of SAP, a Finance project to implement the finance modules of SAP, a decision support project to implement an off-the-shelf decision support system, and an infrastructure project. The SAP Finance project was running in parallel with other projects and programs in Posta including the Restructuring program and the Customer Relation Management (CRM) project as depicted in Table 2. The remainder of this section is organized according to the IS project management's pre-defined hierarchical structure of project and program[3] in order to examine the exercise of these boundaries in practice.

5.1. On the program level

5.1.1. Allocating resources or recruiting allies

The Finance, HR, and infrastructure projects were launched at the same time and were managed under the ES program. The finance and HR projects were co-located in the same building. The Finance project was portrayed as "essential for the survival of Posta." It managed to involve the most powerful top management in Posta since all descend from the finance department and are loyal to the "Finance Community," as it was referred to in Posta. They supported the project in securing a generous three floors of desk space in the building. They also backed and promoted the Finance project in different departments, encouraging employees to join this powerful network and to join the Finance project on a secondment basis.

The Finance project succeeded in acquiring "sufficient internal resources" in terms of human expertise, desk space for their teams, and management support. On the other hand, the HR project struggled to find sufficient desk space in the same building as the Finance project, and 25% of its team did not have their own permanent personal desk space and had to "hot desk."[4] The HR project also could not attract sufficient staff, as staff preferred to be seconded to the Finance project.

The HR project complained to the ES program board of its shortage of desk space and staff and its inability to "operate efficiently and cost effectively," particularly when some of its staff had no desk space and needed to spend hours every day trying to find suitable workspace. The board recognized the problem and commented, "indeed productivity may well suffer if the early part of the days are spent in the search for a hot desk which, when found, is unlikely to be close to the

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[3] Terms such as programme management, multiple project management, and portfolio management tended to be used interchangeably. In the following narrative multiple project management means grouping several relatively small or related IS projects under a program and addressing the complexity involved in scheduling and human resource allocation Dooley, L., Lupton, G., and O'Sullivan, D., 2005. Multiple project management: A modern competitive necessity. Journal of Manufacturing Technology Management, 16 (5), 466–482. Portfolio management is a wider concept that covers all projects in a certain department or area of business. For example IS portfolio covers all IS projects within the organization and R&D portfolio covers all R&D projects.

[4] Rotating and using any empty desk available that day.

Table 2
An overview of SAP Finance and other projects.

Programs	Projects
Enterprise systems program	SAP Finance project
	SAP HR project
	Decision support
	Infrastructure
CRM program	Siebel-CRM project
Restructuring program	Restructuring project 1
	Restructuring project 2
	Restructuring project 3-distribution units

people with whom the individual needs to relate in work terms" and that "efficiency, effectiveness and costs are all likely to be adversely impacted" (minutes of board meeting). The board also recognized that the HR project had a serious staff shortage and was unable to fill many of the vacancies. Yet the board could not find a solution for the problem and gently asked the Finance project to help out. These problems persisted until the program board later terminated the HR project in a prioritization exercise following corporate budget reduction.

5.1.2. Negotiating program methodology

The ES program followed the Posta tradition of managing projects using PRINCE2 methodology and straightforwardly assumed that all projects under its governance will adopt the same methodology. The SAP-based Finance project refused to adopt anything but the ASAP methodology. ASAP is the SAP AG recommended methodology for the implementation of SAP. The Finance project team refused to use PRINCE 2 and argued in favor of ASAP threatening that they cannot guarantee success if they use PRINCE 2. Under this pressure, the ES program reluctantly agreed for the Finance project to differ in its methodology from its program and the other projects governed by it.

5.2. Outside the program

5.2.1. Negotiating functions and technical components

When the SAP financial system moved to the realization phase in February 2001, one of its technical components—the customer database—was discovered to be handled and held by a CRM project to implement a Siebel system that was underway under a different program management. The Finance project team soon realized that this would jeopardize the billing functionality of the SAP system and raised the matter to its program board, which initially thought that the issue was "simple, we need it [the database] in a certain time, IS strategy will ensure this." The issue was then raised to the corporate 'IS strategy' level—the governing body of the corporate IS portfolio—to "immediately resolve." The IS strategy communicated with the CRM project requesting the delivery of the disputed component at a certain time but the CRM project explained and justified its different timeline and inability to deliver at that time. The timing of the delivery of the customer database continued to be a highly debatable issue between the two projects.

Most of the Finance project configuration sessions were overshadowed by this issue. Senior users questioned and debated the nature of data that the CRM would hold, denying particular data to be held there: "there is no way that this [data] would be held there [in the CRM], it has to be in the finance system". Senior users recognized the need for direct communication with the CRM project team: "let's clarify what they are doing." They urged the Finance project management to establish direct talks: "we have to negotiate this with them [CRM project]".

The Finance project team, having accepted the CRM timeline, was concerned about how much visibility (access) would be allowed between the financial system and the CRM. In particular, the position of the billing queries part of the SAP system needed to be clarified, as this required access via a SAP front to a Siebel database. The Finance project raised this issue with the ES program which contacted the CRM project sponsor. It then became a matter of negotiation between the Finance and the CRM project teams where a decision was eventually reached to "allow full visibility between the SAP billing database and the details [of customers] on the Siebel pricing database". Following this a CRM representative was invited to attend the Finance project's board meetings as a member in order to "bring in views about what [was] happening in the CRM" and to "ensure full integration of the Finance project with the CRM."

5.2.2. Negotiating the organization structure

SAP in Posta was initiated as an outcome of an organization-wide restructuring program that began in 1998. In June 2000, the government enforced something new when it published a report that stated, "Posta should urgently take forward work to maximize the... efficiency of network operation." The government allocated EUR270 million for Posta to implement the report's recommendations over the following three years. To achieve the necessary efficient performance, Posta identified the urgent need to change the structure of its three distribution business units. The restructuring program suggested an initiative that would involve redesigning the three distribution business units and amalgamating them into 1 unit.

In February 2001, rumors started to spread within Posta that the organizational structure might change again and that Posta Board was studying the creation of a new entity, known here anonymously as "distribution unit." The three distribution business units that were said to be part of further restructuring (if the rumored new distribution unit came about) constituted the majority of phase one of the finance system implementation as the latter was comprised of four business units. The Finance project team was also in contact with the business units at that time in order to finalize their requirements.

The Finance project director heard the rumor about the distribution unit and thought to find out something more definite in discussions with the ES program director. The ES program board met to discuss the issue and to assess the impact of creating this new business unit on the Finance project yet it could not confirm what would happen and hence "the impact assessment [was] deferred until the situation is clarified" (minutes of ES program board meeting).

In March 2001, the director of the Finance project arranged a general meeting to announce that "as nothing is confirmed yet, we will go on with the financial project as it is". Accordingly, in April 2001, the Finance project team contacted the three distribution units and prepared sessions to sign off their business requirements, although the project team realized that their requirements were evolving and what they agreed on at that time was subject to "potential... significant rework" (interview with project manager).

In June 2001, the Posta Board announced the creation of the distribution unit as a new business unit, incorporating three of the existing distribution BUs, with the aim of having it fully operational by the end of September 2001. Since the organizational redesign wouldn't be final before September 2001, the Finance project board was aware that "the window of opportunity for finalizing their optimum design is diminishing; even if it is to be included in phase three of the system build (instead of the planned phase one)." Hence, the Finance project agreed with the three distribution units involved in the reengineering that they should implement a "tactical solution... to meet their current immediate requirements subject to later changes." This phase of the system went live at end of July 2001 after three months delay to consider the impact of the restructuring. The Finance project was aware that "many changes to the current thinking [would] occur and that many things in the system built would be undone when the final organization design [is] complete" (interview with the financial project's director and comments at a project board meeting and program board update meeting).

6. Analysis and discussion

This section predominantly focuses on the Finance project's boundary creation. It highlights the erosion of the project management's traditional boundaries at the operational level. The adopted ANT perspective reveals that the Finance project surprisingly crossed its organizational boundaries to identify alliances, competitors, and collaborators and in all cases had to directly negotiate with different parties. For example, the Finance project crossed its organizational boundaries to attract powerful organizational alliances and resources, thereby suffocating the HR project that was running at the same time under the same program management. It also negotiated with its program management, which is traditionally viewed as its governing body, and the result was its use of a different project management methodology. Moreover, it negotiated with another bundle of projects running under the management of a different program that was viewed in the traditional IS project management as a remote project under the governance of an IS corporate management. Finally, it had to follow a corporate restructuring program that, in the traditional IS project management, was out of the realm of IS.

6.1. Network building and project/program boundary crossing

In Posta, directors on the corporate level traditionally ascend from the Finance department. Therefore, the Finance project succeeded to translate and recruit Posta's various directors in the project network tapping into their previous finance background, continuous loyalty to the "Finance Community", and the notion that it is the Finance Community that can lead change. In doing so, the Finance project sponsored by the Finance department crossed its project/program boundaries and the pre-specified role of project champion and project sponsor to conduct organizational wide recruitment and alignment of corporate directors.

Posta's directors were swiftly translated to faithful allies to the Finance project. Posta's directors carried the Finance project agenda and went onto translate more allies to join the project. They participated in project events and conferences and faithfully invited staff from different departments to join this "essential project". According to ANT, when the network builder succeeds in translating actors, it gains the power of representing them and speaking on their behalf. Recruiting such prestigious allies granted the Finance project the power to represent corporate directors. Hence, the Finance project request of desk space became Posta directors' request and the Finance project appointment of staff became Posta directors' recruitment. In traditional organizations such as Posta, staff status is tied with seniors' recognition. Hence, staff competed to join the Finance project and desk space was generously allocated as staff perceived the Finance project to be the Posta directors' own network.

In contrast, HR project management followed the formal prescribed hierarchy and ways of working; it depended on its program board to allocate resources and on the project champion to speak on its behalf and did not translate actors beyond the prescribed roles. The recruitment of staff to the HR project was taking place at the local managers' level following formal procedures. It also followed formal procedures for requesting desk space. This contributed to the creation of an image of it as

a low-key project. As it was failing, its management requested in the same formal way, assistance from the ES program board.

In contrast with PM assumptions, the power of the ES program board became less than the power of the Finance project's network. Negotiating with the Finance project was perceived as negotiating with corporate executives that the Finance project had successfully recruited. Therefore the ES program's role was limited to recognizing the problem and gently requesting from the Finance project to assist, without putting any pressure on it. This shows that network building and the crossing of the project and program pre-specified boundaries could bring to the project a competitive edge against other projects even if they are within the same program.

The project/program boundary was also crossed in negotiations on choice of methodology. The SAP company positioned the ASAP methodology as an *obligatory passage point* for its implementation. The company problematization is based on the system's complexity and its intense experience in developing different versions of it, and implementing it in different contexts. The external consultants of the Finance project are also part of the SAP network since they are SAP-certified consultants and hence committed to pursue SAP interests in applying ASAP. Therefore, the consultants *problematized* the use of ASAP as a pre-condition for success and set it as the obligatory passage point for the system implementation arguing, "we've been there before, we saw the best and worse… this [SAP] is different, no way to implement it with PRINCE. We are here to deliver. If you use PRINCE, we cannot guarantee delivery." The ES program tried to *problematize* the use of methodology as a longstanding good practice that ensures a consistent and uniform management. The ES problematization was weaker than the SAP vendor's and external consultants' problematization of survival, ensuring delivery, and achieving the promised good results.

Furthermore, the internal teams of the SAP project, being *enroled* in the SAP network, cautioned the program board against using PRINCE2. They argued that it would "waste a lot of time and won't guarantee anything really." They also argued that "if we use PRINCE, it would take us ten years or more to implement SAP. Do we have time?" This left the board with no way but to accept the use of the ASAP methodology despite its differences from the program methodology and Posta's tradition of using PRINCE 2. The program management continued to use PRINCE 2 to govern the program.

Supported by the SAP network, the Finance project crossed the pre-defined boundaries between itself and its program. It *translated* its program interest in achieving a successful project and shifted it to accept the implementation of a new and different IS project management methodology than its own and even than the rest of Posta. This process shifted the project management methodology to be an *inside* matter for the Finance project to decide upon and not to be ruled by its governing body; the ES program which presents an unexpected project/program boundary creation.

6.2. Negotiation and project/portfolio boundary crossing

The Finance and CRM projects were ruled by their project and program management which prescribe particular boundaries for each project. Therefore, there was no relationship between these projects. The billing function was supposed to be a local private matter for the Finance project. It was part of the SAP technology under implementation and hence was assumed to fall within the Finance Project boundary. This apparent *local* matter crossed the project boundary and turned into a *global* issue when the Finance project management discovered that the Customers Database which is a major actant in the SAP billing functionality has been already recruited as an actor in the CRM project network. Trying to attract such an actor from the CRM network to the Finance project network could not take place through hierarchy and authority of program and subsequently Corporate IS strategy. A new negotiation space for the Finance project had to be created to include the CRM project team and allow for direct negotiation between projects to take place. Both projects had well established networks and the actor under negotiation was already recruited (i.e. Customer database) and stabilized in the CRM network through scheduling and work breakdown charts. Therefore, it was difficult for the Finance project to pull it towards its network. Hence the *negotiation* ended by agreeing that the customer database would continue to be held in Siebel and the Finance project would recruit new alternative allies (workarounds) to build a semi-functional billing network. Realizing the threat of the rival CRM network, the Finance project decided to keep the newly created negotiation space ongoing and gave full membership to some members of staff from the CRM project into the Finance project Board in order to "bring in views about what [was] happening in the CRM" and to "ensure full integration of the Finance project with the CRM."

The Finance project could not achieve a particular resolution regarding its need to gain full visibility between SAP and Siebel through the traditional structure of project, program, and IS corporate governing body. The Finance project found that the hierarchy of the prescribed IS project's governance had to be overcome to allow direct interaction with the CRM. The CRM project sponsor problematized the issue as a financial matter and a question of whether the Finance project should financially contribute to the CRM project as one of its beneficiaries. It was down to both projects (Finance and CRM) to negotiate functionality, components, and delivery time in addition to financial support. This *negotiation* resulted in a semi-functional billing function for the Finance project that would require "many interfaces with old systems" until the CRM project delivered the pricing engine, which was due nearly a year after the scheduled end of the Finance project.

Organization structure is traditionally regarded as a context for project implementation and part of the business requirements that needs to be specified and captured in the early stages of an IS project. In Posta, there was another program taking place to restructure the organization. This restructuring program was a high-level initiative that Posta corporate directors were committed to. A corporate response to a government report meant for the restructuring program to re-consider the organizational structure of the distribution units. When the Finance project was faced with the rumors regarding new

changes of organizational structure, following the traditional project structure by raising the issue to its program which would subsequently raise it to corporate IS strategy, proved unproductive. Alternatively, the Finance project opened up its boundaries and created a new negotiation space that included the distribution units that would be affected by the rumored change. This new negotiation space presented a private platform for the Finance project to discuss the rumored change with the affected BUs away from its embedding network of the restructuring program. Within this private space, the Finance project negotiated with the affected BUs to adopt a temporary system that will later change depending on the final organizational configuration. Being embedded in the restructuring program network (business program), the Finance project management decided to go ahead with a temporary solution away from the restructuring program and to follow its embedding network on a later stage. This decision proved problematic later on when the system went live on end of July 2001 as the new organizational structure that became operational by the end of September 2001 changed the structure and business processes of the three affected business units considerably which caused severe delay to the delivery of a working system.

This shows that events outside Posta, such as a government report and corporate response of restructuring has become an internal matter for the Finance project, crossing traditional organizational boundaries and structure. The Finance project at the start followed the traditional, project management structure of raising the matter to its program management but this did not pay off. The ES program had no means within the traditional model to seek high-level information regarding organization strategy and structure. So the Finance project had to negotiate the matter directly with the business units affected to agree on a temporary solution and account for the delay and further rework on the system after going live. In effect, the Finance project had to break its predetermined IS organizational boundary to decide on its future course of action since the whole matter was beyond its program and even corporate IS strategy unit. Crossing the IS project boundaries in terms of monitoring the corporate environment and detecting change and discussing the risks directly with customers was useful. In addition, crossing the boundaries between IS projects and business projects by opening direct link and negotiation with the embedding network of the restructuring program could have been beneficial despite being against the traditional IS/business boundaries.

6.3. The nature of IS project boundaries

The case study reveals that in practice, IS projects are in constant negotiation of boundaries as different organizational actors emerge to renegotiate the previously set boundaries. Therefore, the inside and outside of the project are results of negotiation. This negotiation and setting of boundaries tend to be continuous activities rather than being static and prescribed. Fig. 1 sketches the alternative dynamic conceptualization that the case study reveals. It should be noted that the figure presents a sketched picture at a point in time.

Fig. 1 contrasts the conceptualization of the Finance project from a traditional project management perspective with a conceptualization based on a dynamic in practice perspective. The dynamic view is flatter as it shows that the project interacts with other entities within the organization bypassing the hierarchical structure of project management. The results of this interaction depended on the strength of the network of each entity and the course of negotiation and not necessarily on a command and control basis.

The study confirms what other studies found that an IS project is a network building activity (Elbanna, 2008; Scott and Wagner, 2003). In addition, this study shows that in building its network, projects cross traditional project management boundaries to recruit different actors that contribute to its success. The studied project extends its interaction beyond those boundaries to create its network of allies and finds ways to work collaboratively with them. This reflects that project boundaries cannot be black-boxed, as any could be opened, negotiated and new ones created according to the outcomes of nego-
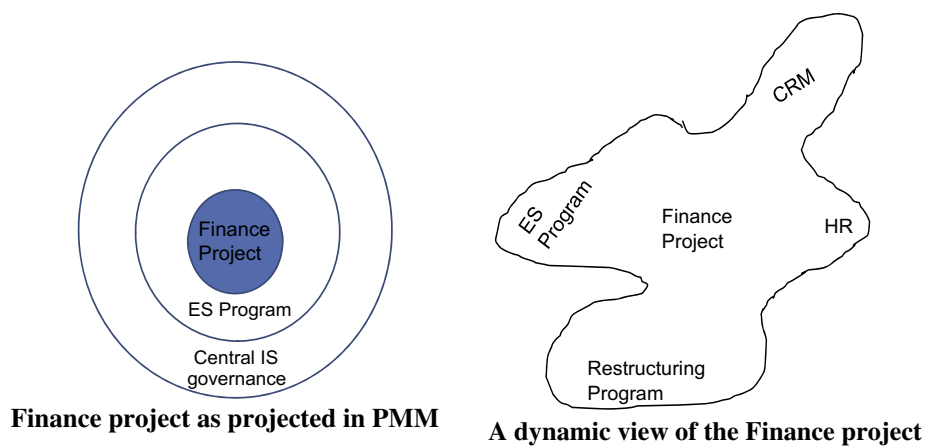

Finance project as projected in PMM   **A dynamic view of the Finance project**

Fig. 1. Alternative conceptualizations of the finance project.

tiation. The case study revealed that projects in practice are not in silos as they cross PM prescribed boundaries in their interaction with other entities within the organization. Hence, an IS project cannot isolate itself and limit its project management to the use of WBS, OBS, and a scheduling tool.

6.4. Implications for project management

The study provides theoretical and empirical evidence for Drummond and Hodgson's (2003) metaphor-based criticism of project management focus on controlling budgets and deadlines and their suggestion that the pre-conditions for success may lie elsewhere (Drummond and Hodgson, 2003). It demonstrates that an IS project management linear organizational structure is insufficient to manage packaged software projects, particularly in a multiple-projects environment. For packaged software projects to succeed, they have to cross these pre-defined boundaries to detect other entities and hence potential rivalry and collaborators.

The study contributes to IS project management by uncovering the complex organizational platform and the open space that an IS project sails through during its course. The perception of an IS project as a network provides a dynamic, flatter view of IS project innovation and its management structure. It departs it from the silo view suggested by IS project management and the traditional organization of project and program. Accordingly, an individual IS project should actively and continuously span this open space to detect collaborators, rivals, and partners. This study provides an explanation of White and Fortune's (2002) study where 46% of respondents reported that their project gave rise to unexpected side effects or outputs and that nearly 70% of the side effects could be attributed either directly or indirectly to lack of awareness of the environment. They concluded that "this may imply that many of the tools and techniques the respondents used were poor at modeling 'real world' problems or that insufficient account was taken of project boundaries and environments" (p. 5). Indeed, this study shows that tools that focus on scheduling and cost are not enough to manage projects in the complex platform of today's organization. Mechanisms for spanning and scanning the project landscape need to be incorporated into project management practices and awareness needs to be increased that an IS project is no longer a local matter that can be treated as closed and isolated from the rest of the organization.

7. Conclusion and contribution

This paper investigates the nature of IS project boundaries and how contemporary IS projects interact with their organizational platform. Through a case study of an ERP implementation in an international organization, we have observed that the traditional boundaries prescribed by project management methodologies were continually crossed, project negotiation space extended, and new boundaries created. The study proposes a dynamic conceptualization of project work in a multiple project environment.

By studying an IS project in a multiple project environment, the study introduces a new layer of complexity that IS projects face in modern organizations that is currently understudied. The multiple project focus of this study and its application to ERP projects, extends packaged software and in particular ERP studies beyond the single project perspective. This study also contributes to the very thin strand of studies that consider the management of IS projects in multiple project environments. It provides a practice-lens and theoretical grounding to the Desouza and Evaristo (2004) study on project knowledge management. Indeed, knowledge in and about projects should be exchanged and individual projects should actively scan the organizational platform for other projects that constitute possible collaborators, rivals, and partners.

The research contributes to the project management field including multiple project management. It responds to the call for "the need to develop new models and theories which recognize and illuminate the complexity of projects which extend and enrich our understanding of the actual reality of projects and project management practices"(Winter et al., 2006). It provides a detailed case study to the project management field that suffers from the lack of practice-based investigations (Sauer and Reich, 2007). It also contributes to broadening the perspective of multiple project management by revealing different aspects of the interaction between projects, beyond the repeatedly reported time and human resources.

On the practice side, the study suggests opening up the management of IS projects to span the organizational platform to look for rivals, collaborators, and allies. In this regard, a role of "project scout" could be created in each project to provide a broad view of the organization that crosses traditional project management boundaries and structures.

The study is limited to a single case study of an ERP system. Further case studies of the implementation projects of different systems are needed. Also, further research to investigate how a more dynamic flatter view of projects could be incorporated in project management models and methodologies could be of theoretical and practical value.

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