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THE CONSTRUCTION OF ORDER IN THE PROCESS OF LIBRARY MANAGEMENT SYSTEM DECISION MAKING

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The Construction of Order in the Process of Library Management System Decision Making

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Cover
Duality of structure in LMS decision process
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Anything looked at closely becomes wonderful.

(A. R. Ammons, 1926-2001)

ABSTRACT

This thesis is an empirically based, theoretical discussion of the process of decision making in relation to Library Management Systems (LMS). Although the conceptualization of the LMS decision process in rational terms, common in many LMS selection models, may be useful in different respects, here the process is viewed from a social constructivist stance. It is argued that due to the complexities involved, the potential choice of an LMS does not necessarily reflect the superiority of the chosen LMS based on objective inherent qualities. Nevertheless, libraries continually choose new systems and in many of these selection processes, the chosen system is perceived as the optimal choice. In this study, therefore focus is placed on examining the way in which this shared perception is constructed.

Three theoretical views are adopted as the research framework, including Brunsson's views on the process of decision making and its consequences, Collins's views on methodological symmetry and construction of conceptual order, and finally Giddens's views on duality of structure and the social order. Observations, interviews, and document studies are the methods employed in four different case studies that each lasted from 10 months to two years. In this study an array of different factors were found to be influential during the long process of the LMS decision making. It was also found that although the norms of rationality were striven for, and shared perceptions of rationality were constructed, the complexities involved did not allow a true rational choice by determination of all the options, projection of future needs, evaluation of the identified options, and selection of the optimal outcome. Instead, the different activities and happenings during the process helped construct a shared perception of the possible courses of action and optimality of the decision outcomes. Based on this study and with the help of the theoretical framework, it was suggested that an LMS choice is only one potential consequence of the LMS decision process; other consequences include legitimization, action, responsibility, and constructions of conceptual and social order.

Through this study, the importance of the day-to-day actions and interactions (at micro level) and their wider implications for the construction of shared perceptions and shaping and reshaping of social structures are highlighted. This thesis contributes towards an alternative conceptualization of the process of LMS decision making. It may also have implications for the library practice, LMS related research, and educational programs within LIS.

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PART ONE

This thesis examines the process of *decision making* with regard to selection of *Library Management Systems* (LMS). The traditional views on LMS selection process, which will be presented later in the thesis, have strong ties to classical decision theories, where the assumption of rationality is central.

A main aim of this study is to make room for and present an alternative view of the LMS decision process as a social activity. In different sections of the thesis, elements of LMS decision process are examined to show that the traditional views, although very useful in some respects, are not the only, or the most instructive lens through which the LMS decision can be analysed. The theoretical framework of the study provides an alternative analytical tool in examining and explaining some of the elements of the LMS decision process.

Two strands of thoughts have been present throughout this study. One thought has been to adopt a '*from the outside*', a critical stance, in which various issues and basic aspects of the area of the study are NOT *taken for granted*. That is, by taking this stance, effort has been made to question why and how certain aspects get to be taken for granted. The second prevailing thought has been not to treat the actions of individuals in the LMS decision process and the potential emerging structures as a dichotomy but rather to be mindful of their interactions and the way they shape and enforce one another.

With these thoughts in mind, four research questions have been posed in this study and various levels of analysis are attempted in order to answer these questions.

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The contents of the thesis are organized in three different parts where each part, in turn, is subdivided into a number of chapters.

Part one, which comprises chapters 1 to 5, introduces the research topic, related background, and the premises of this study. In chapter 1, I introduce the topic and argue for the importance of, and the need for, this study. Further, I present the research goals and then position this study in the relevant research area. Chapter 2 is dedicated to clarifying some central themes, and

presenting the contemporary view of LMS selection as well as research on LMS-selection decision making. In chapter 3, a brief overview of a number of decision theories is provided as a background to what follows next. The theoretical framework is presented in chapter 4, and chapter 5 is dedicated to research methodology and related topics and discussions.

Part two is dedicated to case presentations. It includes chapters 6 to 8, where three of the studied cases are presented. Although various levels of analysis are already mixed with the presentation of the cases, these chapters are more directly related to each case and are more empirically oriented than part three, which extends the level of analysis.

Part three deals with further analysis and discussions of research findings and conclusions. The chapters included in this part present the findings of the study at an analytical level with a higher level of abstraction. The analyses presented in these chapters draw from the full set of data in a cross analysis, and are not directly associated with any one case. Chapters 9 and 10 are a cross analysis of *elements* and *practices* involved in the LMS selection process. I tie the various threads together by relating the findings back to the theoretical framework in chapter 11, and then by directly answering the research questions in chapter 12. Chapter 13, with a starting point in a potential criticism of this study continues with an outline of a few research contributions, suggestions for future research and a few theoretical reflections. A short summary in Swedish forms chapter 14. A list of references and a collection of appendices conclude the thesis.

The readers who are not familiar with common LMS related terms, which are used in the thesis, are referred to appendix 7 for simple explanations.

1.   Introduction

Various aspects of library management systems (LMS) are studied and discussed within the field of Library and Information Science (LIS). There is an abundance of literature that presents and discusses the LMS selection process and related activities. The majority of these are based on personal and organizational experiences, and are written by the professionals in the field. Research on LMS selection decisions remains limited. What is common in much of the existing writings is that the selection of a new LMS is commonly described or investigated from an implied rational choice perspective. Although the rational choice and utility models have been challenged, as will be shown later in the thesis, the effects of these challenges are not immediately visible in the mainstream LMS selection models.

This study departs from the type of selection models that adhere to rational choice in all its variations. A central aim of this thesis is to make room for, and present an alternative view of the LMS selection decision as a social activity. This study aims to take a closer look at the LMS selection and decision process to outline possible aspects of the process that deviate from the rational choice models. In this thesis, I argue for an alternative view of the LMS selection and decision process where consensus in the final choice, and shared perceptions regarding superiority of the selected system, are seen as socially constructed.

1.1 Background and Motivation for the Study

Library Management Systems (LMS) constitute the main information system (IS) used within libraries, and the investments made in the purchase and upkeep of these systems make up a major cost to libraries. In a CPI (Capital Planning Information) publication, a system budget of £1 million is reported to be rather typical for larger academic libraries where the overall 'cost of ownership' of such a system over a five-year period will be two or three times the purchase cost (as cited in Muirhead, 1997: 21). The North American automation market in 2004 was estimated to be worth $525 million, which meant an increase of 5% as compared with 2003 (Breeding, 2005). Saarti (2003) studied the cost of establishing automation in the Finnish public libraries and found it to be "approximately 16.8 million Euros with annual

operating cost of about 5.7 million Euros". Information Systems in general have been shown to influence various aspects of organization (see e.g. Pfeffer and Leblebici, 1977; Robey, 1977, 1981; Robey and Azevedo, 1994 cf. Kling, 1996). Various impacts of LMS in particular have also been reported (e.g. Bichteler, 1986; Burkhardt & Brass, 1990; Cartee, 1990; Craghill, Neale, & Wilson, 1989; Crawford & Rice, 1997; Howard, 1981; Johnson, 1991; Morris & Dyer, 1998; Pungitore, 1986; Shaughnessy, 1982). There are indications that the pivotal role and increased use of these systems are likely to continue. Many trade journals and introductory textbooks report continual improvements in computer technology in terms of capacity, memory and size, networking facilities and standards, in addition to decreasing costs. Gordon (2007) provides a rather recent look at technological trends within libraries. These reports imply an improved and increased use of technology rather than a retreat to the manual systems of the past. Felstead, (2004) reviewed papers published on integrated library management systems between 1999 and 2003 and found a trend towards more open systems. Furthermore, with the extent and dynamics of the LMS marketplace (see e.g. Duval and Main, 1992; Tedd, 1993; Leeves, 1994; Nordinfo, 1997; Thorhauge, Larsen & Thun, 1997), at each system selection or migration point, any library is faced with an uncertain situation and large number of products from which to choose (see e.g. Breeding, 2005, 2007).

Meanwhile the actual systems have also evolved significantly since the early modest in-house-built single modules (see e.g. Duval & Main, 1992; Lindqvist, 1974; Tedd, 1993). Today, even in their simplest forms, LMS are very complex and perform an abundance of functions (see e.g. Leeves, 1994: 393-401; see also product descriptions on different supplier websites including SirsiDynix, Innovative, ExLibris, VTLS, Axiell). These functions range over a wide spectrum from simple routine operations such as issues (also called loans and check outs), and returns in the circulation module to covering management of all aspects of administrative library work and even providing user portals and acting as sophisticated gateways to internal and external resources. As DeSanctis and Poole (1994) indicate, no clear indicators exist to determine which technology properties or contingencies would consistently lead to a positive outcome. A related difficulty according to them is "the repeating decomposition problem: there are features within features …and contingencies within contingencies…" (ibid: 124). Therefore, the task of selecting an LMS, a complex enterprise system, from among a number of other similarly complex systems, poses a major challenge for libraries. These factors, in conjunction with limited research (see section 2.4) in this area, necessitate further investigation. The ambition with this study is to provide insights and an alternative understanding of the issues involved to pave the road for improved theories and practices.

1.2 Research Aims and Objectives

The aim of this study is to investigate the process of LMS decision making with an emphasis on examining the activities involved and the social aspects of how and why a particular choice is made among all the possible options. This is in order to explore an alternative analysis and conceptualization of the LMS decision process.

What is of interest is to follow the process of LMS decision making and to identify important events and junctures and their role, significance and order (if any). Moreover, it is of interest to identify the people included (and excluded) in the process, as well as examine the timing (when) and extent (what) and role of the events and involvements. The questions under investigation are:

- What practices (if any) are utilized in order to establish 'matters of facts' in negotiations and formation of the final LMS choice(s)?
- What type(s) of questions are treated as having a taken for granted answer and which become subjected to a decision making process?
- By the means of which mechanisms (if any), do various criteria that are used during the LMS selection process achieve their status?
- How do various related beliefs achieve credibility in the LMS decision process?

While trying to answer these questions, attention is paid to actions and interactions between microsocial activities and potential structural features.

Another consideration has been to examine whether the assent reached is a determined outcome of rational decision making or if other explanations are needed. In other words, I investigate how the assent regarding the process and final choice is negotiated and reached in the social activities and interactions that take place during the LMS selection decision process.

1.3 Positioning the Study

LMS are used to hold and manage extensive information related to library holdings, external information resources, library users, library suppliers, library transactions, as well as managerial information required for operation and management of libraries. The study of organizational resources, that are required and used in production and management of information, form a field of study called Information Resource Management (IRM), which in turn is a sub-field of Library and Information Science. The concept of Information

Resource Management was born in the 70s. Since then, this concept has been the topic of extensive discussions. Various views of IRM have emerged and the concept has been defined in a variety of ways. A broad definition of the term is as follows:

> "IRM is a comprehensive approach to planning, organizing, budgeting, directing, monitoring and controlling the people, funding, technologies and activities associated with acquiring, storing, processing and distributing data to meet a business need for the benefit of the entire enterprise." (Lewis, Snyder, & Rainer, 1995)

LMS are a main information resource within libraries. Therefore, a study of the LMS (as an information resource) and its management falls within the field of IRM. Furthermore, the management of other resources required for LMS selection, purchase, implementation, management, and use also fall within the bounds of IRM and Library Management. The ambition is that this study will extend the field's understanding of the process of LMS selection by rethinking the concept of LMS decision process and outlining potential issues and implications that need further attention by both practitioners and theorists in the field.

In positioning this study within the subfields of IRM and Library Management, a relevant consideration would be to outline what separates this thesis from other potentially similar studies in other fields. The two neighbouring fields that seem relevant are those of Diffusion of Innovation (DoI) and Information Systems (IS). A further consideration is whether there is a notable difference between LMS and other commonly studied information systems.

In the following sections, I will briefly address these considerations by looking at potential differences between my study and typical studies conducted in the neighbouring fields of DoI and IS. I will then outline a few characteristics of LMS to allow a comparison between LMS and other information systems that are commonly the subject of other studies.

1.3.1 Research within the Field of Diffusion of Innovation

Diffusion of Innovation (DoI) is an area of study that provides explanations about the way in which a new idea or product spreads among, or is adopted by individuals or groups of people. DoI theories examine the influencing factors and relationships between innovations and their acceptance or rejection. The main elements of the process of adoption are categorised as *Knowledge*

Acquisition, *Persuasion and learning,* and *Decision* (Rogers, 1995; Prescott & Conger 1995: 21). According to Rogers (1995), a degree of 'uncertainty' is associated with diffusion of innovation, due to the newness of the idea. Therefore, when faced with an innovation, one goes through a decision process in order to reduce the uncertainty caused by the innovation to a tolerable level in order to be able to decide to adopt or reject the innovation. This decision process involves information-seeking and information-processing activities to reduce the individual's uncertainty about the advantages and disadvantages of the innovation (c.f. Brunsson, 2007:15, i.e. "instead of waiting for uncertainty to be dissolved before the decision, the decision can be used to dissolve uncertainty"). Among the characteristics of the decision-making unit that can affect the information seeking or knowledge acquisition stages are socio-economic characteristics, personality variables, and communication behaviour. Traditionally the diffusion research has been concerned with adoption of innovation by individuals, however, diffusion studies in more recent times have evolved to include diffusions in organisational settings also. The stages of innovation process in organisations is described by Rogers (1995: 391-404) as 'agenda-setting' and 'matching' as part of the initiation phase prior to the decision point and then 'redefining/restructuring', 'clarifying', and 'routinizing' as part of the implementation. Here organizations are commonly seen as "stable system of individuals who work together to achieve common goals through a hierarchy of ranks and a division of labor" (Rogers, 1995: 375, 403).

When a library selects a new LMS or when a library migrates to a new LMS, the system that the library purchases is *perceived* to be new to that library. Therefore, the new LMS is an innovation based on the definition of the term *innovation* (e.g. Rogers, 1995: 5; cf. Zaltman, Duncan & Holbeck, 1973), and the field of DoI can be seen to be of interest when studying the selection and adoption of an LMS. Typical studies on adoption of LMS that could stem from the field of DoI could for example include 'the rate of diffusion of a library system among the library world', 'the early or late adopters of a particular LMS', or 'the factors that affect the adoption or rejection of a particular system', etc.

One could outline a number of differences between this study and those that are typical of the DoI field. First, DoI research considers the whole process from initiation to the adoption of an innovation, while I am mainly interested in the decision process only. Although decisions and decision processes do hold a place in DoI research, the decision process by itself is only one among many stages and is not the main emphasis in DoI theories. In the stages of the Innovation Process in an Organisation, what is termed as the *matching* stage is followed by the *decision* stage (Rogers 1995: 392), but current diffusion

theories do not emphasise how this transition from one stage to the next is made. As the decision process is very central to my study, the diffusion theories do not provide the guidelines that I seek in this study. Second, DoI research tends to side with the promoters of innovation rather than adopters (Rogers, 1995: 114). In a typical DoI study, the emphasis is placed on *one* innovation from the perspective of the promoter and then the process by which this innovation is adopted or diffused among individuals or groups is studied. In my study, the emphasis is rather reversed. Here *one potential adopter* (the library) is faced with *several* innovations and tries to choose one among these, hence leading to new issues that are not the focus of the DoI theories.

A third reason relates to one of the criticisms of diffusion theory, namely the fact that although the diffusion process is theorized as a social one, the complexity that this entails has not been dealt with adequately by the diffusion theory (e.g. Alvarez, 1999; O'Donovan, 1998). In this study, analytical tools are needed that allow a deeper analysis of the social aspects involved. Fourth, mainstream DoI research seems to be based on assumptions that I do not want to take for granted, I do not want to assume that individuals who come together in forming an organization have the same common goal, or follow a rational actor model of decision making. Instead of assuming that, I examine how such assumptions become taken for granted. DoI studies mainly represent the type of studies that could be termed 'from within', while I conduct a study that could be described as of the type 'from without' or 'from the outside' (see theoretical framework in chapter 4).

1.3.2 Research within the Field of Information Systems

The academic field of information systems (IS) has been a growing area of research over the past three decades and provides a vast range of research on a wide range of topics. This can be seen in the extensive research presented at conferences such as ICIS (International Conference on IS – initiated in 19801) and ECIS (European Conference on IS); in journals such as Information Systems Research and Information Systems Frontiers. Further evidences can be found in the growth of working groups (e.g. 8.2 – information systems in organizations and society) of IFIP (International Federation on Information Processing), and in publications such as Clarke and Lehaney (2000).

Within the field of IS, the relationships, as well as actions and interactions, between information systems and individuals, groups, organizations, markets and societies are main areas of concern. Hence, as well as covering a wide range of topics, the research in this field employs various theoretical perspectives, methodologies, analytical tools, and research settings. One can find a number of different definitions of IS in Mingers and Stowell (1997).

One of these definitions is given in an early section of the book (i.e. series' forward) by Avison and Fitzgerald, which identifies the information systems field as "the effective design, delivery, use and impact of information technology in organization and society" (1997: xv). A broader definition by UKAIS (UK Academy of Information Systems) is provided in a later part of the book, which states:

> "The study of information systems and their development is a multi-disciplinary subject and addresses the range of strategic, managerial, and operational activities involved in the gathering, processing, storing, distributing, and use of information, and its associated technologies, in society and in organisations". (as cited in Avison, 1997: 114)

Neither of these definitions identify the study of decision making or system purchases as central to the field of IS. This is not the case, however, for all definitions of the field. Some definitions indeed include the *acquisition* of systems for information use as an area of interest (e.g. a North American definition cited in Avison, 1997: 116). Accordingly, one could argue that my study would well fit within the field of Information Systems.

Although, due to sheer numbers it is difficult to attain a comprehensive overview of the topics covered in the field of IS, general trends can be outlined. In typical IS studies, the emphasis ranges over technical aspects; design, development, and use of information systems; and the impacts of IS and the imbedding context on one another.

In this study, the focus is not the technical aspects or the influences of an LMS on its embedding organization or the various influences of the embedding organizations or society on the design and development of these systems. The influences that are central here relate to the actions by human agents and the embedding structures that shape and are shaped by the LMS decision making related activities. The focus is on the social interactions that emerge within the decision process and their relationships with the decision outcomes. Unlike some IS studies, the influences of the embedding context on the design and technical functions of LMS are not the focal issues here.

Many scholars within the field of IS place the focus on the adoption of information systems and accordingly the diffusion theory has been expanded. Kwan and Zmud (1987) suggest a synthesis of the diffusion model and the application implementation research and add task and environmental characteristics to an earlier model. Cooper and Zmud (1990) further modify this model by suggesting an implementation process that includes initiation,

adaptation, acceptance, routinization and infusion stages. The Theory of Reasoned Action (TRA), by Ajzen (1988), is concerned with people's actions in relation to their traits (e.g. dominance, sociability, independence) and attitudes (e.g. attitudes towards politicians, education, ethnic groups). In Technology Acceptance Model (TAM) by Davis (1989; Davis, Bagozzi, and Warshaw, 1989), two theoretical constructs of 'perceived usefulness' and 'perceived ease of use' are central as determinants of user behaviour. Agarwal and Prasad (1999) build on theories in different areas including DoI, social psychology, and learning to propose a model in which the constructs of TAM are viewed to mediate the relationship between individual differences and IT acceptance. Lucas and Spitler (2000) found that TAM and its extended versions were weak predictors of a large amount of variance in their investigation, which was based on a field study as compared with earlier experimental or quasi-experimental studies. A further focus in a vast range of IS research is on finding ways of improving technology adoption effectiveness and on reducing resistance. In the vast array of studies that are based on these and related theories, focus is placed on the process of adoption and not pre selection stages. Particularly in some areas such as 'resistance to change' and 'conflict management', much of the empirical research is conducted after technology implementation (see Meissonier & Houzé, 2010).

Unlike such studies, my focus is on the issues that emerge in the process of decision making which precedes the point of selection and adoption. In this thesis, I do not share the ambition of improving effectiveness of LMS diffusion. I rather focus on extending the understanding of the LMS decision process by attempting an alternative analysis of this phenomenon.

In the IS research that are of more relevance for this thesis, the social aspects are brought in focus. Some such studies examine the social consequences of implementation and/or diffusion of IT in different organizational settings (e.g. Alvarez, 1999; Avgerou & McGrath, 2007; Davidson, 2006; Orlikowski & Gash, 1994; Poole & DeSanctis, 1990; Sahay & Robey, 1996; Westrup, 1994) and propose new approaches for studying such phenomena (e.g. Ancona, Goodman, Lawrence, & Tushman, 2001; Sahay, Palit, & Robey, 1994). Some explore the social roles of IS (e.g. Askenäs & Westelius, 2003), or the complexities of social influences (e.g. Griffith, Fuller, & Northcraft, 1998). Others discuss or re-evaluate research approaches and meta-theoretical issues of information systems (e.g. Bostrom, Gupta, & Thomas, 2009; Klein, Hirschheim, & Nissen, 1991; O'Donovan, 1998; Orlikowski, 1992; Orlikowski & Barley, 2001; Orlikowski & Baroudi, 1991). Similar to these strands of studies, I am interested in the dynamic network of interrelated aspects that emerge in the LMS decision process.

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A number of such studies (e.g. Hirschheim, 1985, 1986; Robey & Sahay, 1996) show that even identical technologies can have varied consequences in different organizations. Similarly, Skretas (2005) presents the varied use of LMS in French public libraries. It is reasonable, therefore, to assume that the social issues that arise vary also based on the differences in information systems that are studied. The types of information systems, readily studied within the field of IS, include decision support systems, database management systems, management information systems, health care systems, office automation/information systems, expert systems and more. LMS and organization of libraries do not receive much notice in typical IS studies. The lack of attention to LMS and organization of libraries in IS research could be witnessed for example in Bryant and Jary (2001), and Jones and Karsten (2008), which provide comprehensive bibliographies of some IS research (namely those that draw on Giddens work).

Therefore, this research is intended to extend our understanding of the social aspects of the decision making process that precedes the implementation and adoption stages by studying a less considered information system within an organizational setting that has tended to be neglected in previous studies.

In the next sections, I briefly discuss a few characteristics of LMS in order to provide a sense of understanding of these systems in comparison with other organizational information systems, which are commonly studied within the field of IS.

1.3.3 LMS As Compared with Other Information Systems

A starting point in the current investigation is that previous research on other information systems in other organizational settings does not equip us with adequate understanding of the LMS decision process within libraries. LMS and their technical and social contexts have unique properties that make them valuable as objects of research in their own right.

Many different information systems have been the topic of earlier investigations. A consideration is therefore, to outline characteristics of LMS to allow positioning of LMS in a comparative scheme. This would allow a more informed comparison of an LMS with other IS. The characteristics provided here can be verified by reviews of introductory material and textbooks in the field as well as a review of the information provided on the web by the vendors, and libraries' websites.

LMS are extensive enterprise information systems that are used in libraries throughout the world. For example, the company information provided by

SirsiDynix (http://www.sirsidynixinstitute.com/company) in summer of 2010 lists the number of their clients to be 4000, spread in more than 23000 locations in 70 different countries in all corners of the globe. The LMS available on the market can vary from each other based on their technical capabilities and the type of library that they serve. On the other hand, some of the available systems can be adapted to meet the needs of different types of libraries and can operate on numerous hardware platforms allowing the use of various operating systems and other third party products. That is to say, the same product can be adapted to suit different technical environments and user needs. Furthermore, LMS are used in both very small libraries as well as vast libraries with tens of branches, located in diverse geographical locations. In recent times, it has even become common for a number of libraries to come together and use the same LMS in a consortium to manage their joint collections and activities.

What then, are the similarities and differences between these systems and other common information systems used in organizations? In relation to some types of information systems, a number of dimensions for comparison of different levels of technological advancement have been proposed. For example, related to *group decision support systems*, a number of measures such as *relative restrictiveness*, *level of sophistication*, and *degree of comprehensiveness* have been identified (see DeSanctic & Poole 1994: 126). Although these terms have not been defined in relation to LMS, parallels can be drawn between the capabilities of a typical LMS and other IS.

Related to the level of sophistication DeSanctis and Gallupe (1987:592) have identified three different levels of group decision support systems (GDSS). One could also identify different levels of sophistication in LMS, especially with a historic review of the development of such systems. While earlier systems only allowed simple operations, such as production of keyword indexes, in a single module, later generations integrated many different functions and modules to allow the conduct of routine operations. This was followed by addition of communication facilities and more. Today, a typical LMS has reached a higher level of sophistication (See e.g. Duval and Main, 1992; Lynch, 2000; Saarti, 2003:25; Tedd, 1993). That is, in addition to the vast expansion of routine administrative and managerial operations, a number of more intelligent operations (e.g. relevance ranking, recommendations to users, or visualizations) are becoming more and more common.

The degree of comprehensiveness refers to the richness of a system's structural feature set; the higher the degree of comprehensiveness, the greater the number and variety of functions. LMS at large libraries can store and manage information about tens of millions of holdings and transactions.

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Libraries commonly serve varying types of users, each with different needs, necessitating a high level of sophistication in indexing, classification, and information retrieval. LMS are multipurpose and conduct a variety of different tasks from ordering and financial accounting to keeping record of the schedules for regular and irregular serials and loan transactions, to management information and more. In addition to these, accessibility to other internal and external resources and services, provision of portals, and self-service functions are common. The communication capability demands from an LMS are also notable. At some distributed libraries and consortium set ups, an LMS has to be operational throughout. An LMS has to provide for communication and the required interfaces with other internal and external bibliographic resources. Furthermore, an LMS has to seamlessly communicate with other organizational computer based systems, and uphold high inter-connectability. Therefore, the level of functionality offered by such systems is extensive. That is, today's LMS exhibit a high degree of sophistication and comprehensiveness.

Relative restrictiveness refers to a measure of the set of possible actions open to the user; the more restrictive the technology the more limited is the set of possible actions. The number of possible actions open to the users in an LMS is vast. In instances, the library policies are set to determine the rules of, for example, loan periods and so on. That is, for example, at the time of discharge, the system accesses relevant pre-specified rules, and based on these it calculates the loan period for that particular item to that specific user. Still the staff members, in most LMS, are offered the freedom to override such predefined rules. In these respects, LMS can be said to have a low level of relative restrictiveness. However, this issue is more complicated than this. When it comes to this measure, based on the parameter setting and decisions that LMS administrators make, the level of relative restrictiveness can vary from one LMS to the next, or within the same system from one installation to another and even within the same installation from one library branch to the next. Functions within the same brand of LMS can be set centrally to restrict or enable the staff to work in a more, or in a less restrictive fashion. For example, functions within the acquisition module could be set up to allow different associated and branch libraries to have local policies or spending possibilities. Alternatively, the acquisition functions could be set up to enforce centralized decisions, expenditure, and work patterns. Based on this, the measure of relative restrictiveness becomes problematic with regard to LMS. The definition of this measure in terms of *user* does not accommodate the multiplicity of user types within a library. That is, although much freedom can be afforded to some users (i.e. the library management and administrators) to set up and customize an LMS in much detail to suit their wishes, restrictions can be placed on other users of the same system (e.g. library staff members, or

the borrowers). Therefore, an LMS may be found to be more restrictive or less restrictive within the same organization depending on considering different sets of actions that are available to different sets of users.

In addition to these measures, which have been identified in relation to other types of systems, I add a number of other more relevant characteristics of LMS that could be considered when comparing these systems with other IS.

Content size and area of operation – Due to varying size and nature of libraries, LMS cater for a large variation in both the content size and area of operation. While a small library may specialize in a narrow area of interest and hold a small collection, a large library may hold millions of items. Some libraries only deal with limited LMS related activities such as cataloguing and limited circulation activities, while at other libraries the full range of facilities are in heavy use. Some of the existing LMS cater for a wide range of library types, collection size, and areas of use.

The nature of the contents – The objects about which information is held within an LMS are mainly books and other types of documented material regardless of media and format. In a contemporary LMS, not only meta-data is held about these objects, even the actual objects (e.g. full text electronic documents or other electronic material) are stored and managed. In addition to these, information about people (e.g. library users), organizations (e.g. supplying companies), services (e.g. technical equipment that can be used by the users), financial transactions, and more is also stored and managed. Simpler information systems may not hold and process information on varying objects and larger enterprise information systems that hold information about a wide range of objects, do not share the core focus of an LMS. A few other organizations such as museums and archives are viewed as close relatives of libraries. Even the systems that are used in these organizations differ from an LMS. Either the contents held by these organizations' systems vary (e.g. in museums, many of the artefacts, unlike text based or audio-visual material, cannot be kept in the system), or due to their business operations, the system functionality differs (e.g. in archives there is no need for functions such as serials control, book bus, various loan transactions, and so on). The nature of the contents held on an LMS leads to high demands on the capabilities expected from these systems. Whereas common objects held on database systems may be easily identified by descriptive metadata (such as a list of rooms with internet connection in a hotel management system), the identification and retrieval of relevant textual objects demand a more sophisticated treatment to allow a more directed, content-based, and language sensitive access.

Accessibility – Today, a common LMS is often in use throughout days, nights, and holidays and is accessible throughout the globe by a large number of different types of users. While all the bibliographic information is to be easily accessible, other information on these systems is to be kept confidential. Therefore, these systems need to offer a high level of combined accessibility and security at all times. A social aspect related to the information held on an LMS concerns the personal nature of the information held on these systems. Access to reading habits of users by the wrong people in some circumstances can lead to life threatening dangers. Protecting records of individuals' readings has proved to be of importance in safeguarding individuals' social rights and, in some instances, lives. This discussion can be extended further in relation to the historical and social roles of libraries and the issue of ethics in comparison with other commercial organizations that have or can gain access to equally sensitive information but which are not bound by the same ethical standards to safeguard individual's rights (e.g. Nokia's mobile system drama in Iran).

Geographical and contextual boundaries – Some activities, such as operation of libraries, air traffic control, management of the dairy industry, and so on are repeated in different parts of the world. Due to local differences in conducting some of these activities, it is difficult to produce a system that manages the related information equally well in different countries or contexts. Many of the common LMS are marketed and used internationally. The organization of libraries can vary from one organization to the next. The size and type of libraries vary, so do the governing bodies and mother organizations and the embedding technical and social environments. These contextual factors create a demand on LMS to allow for local adjustments within these systems. The way a particular LMS looks and operates can vary enormously from one installation to the next, although the actual base system is the same. This has been possible due to the broad flexibility that these systems offer. The flexibility in an LMS relates to, for example, provision of different classification systems, local policies (including complex loan policies), multiple-languages of the material held, and multi-lingual human computer interactions, using different alphabetical systems, interconnections with varying hardware and software components and more. A typical LMS provides an extensive number of parameters and other set ups that allow for local fine-tuning of the systems to accommodate national and local preferences and even differential operations within different parts of the same library. The demands for such flexibility inhibit some other information systems to cater for a wide use across national boundaries. This issue is of interest in relation to how this may affect the norms and expectations related to LMS and how in turn this may influence the issues related to LMS decision process. Many information systems are still developed to cater for specific local needs and are usable within finite predefined contexts.

Organizational context implications – Another area of comparison between LMS and other information systems relates to the type of organizations in which these systems are used. A number of organizational factors affect the IS selection decision process and are worth considering. The source of financing is one such factor. The libraries included in this study receive public funding. This means that the LMS selections in these libraries differ from the selection of information systems in private or commercial organizations. There is one more difference between this study and other IS research. Many other studies of selection and adoption of information systems are conducted within organizations that are male dominated, while library workers are predominantly female. This difference in the embedding organizations can also have a bearing on the findings.

1.3.4 Concluding Remarks

Library practice, with its core business being the organization and management of a vast quantity of information, constitutes an interesting organizational setting, rendering LMS, as the main information system in this specialized area of practice, worth investigation. The findings of this study could be, therefore, useful in extending our understanding of related issues in the field of library and information science. Although an LMS is similar to other IS in a number of ways, there are also differences between LMS and other systems previously studied. A number of issues related to the specific nature, organizational contexts, and social aspect of LMS add to the marked relevance this study.

2.   Central Themes within the LMS Decision Process

In this chapter I will first clarify a number of central themes including what is meant by an LMS, the LMS decision process, and the related traditional models. Then I provide a review of some of the related literature to show the state of research on LMS selection and decision making and hence outline and discuss a research gap and accordingly demonstrate the necessity of this study.

2.1 Library Management Systems

It was only in the fifties and early sixties that the advances in computer technology allowed the automation of some of the routine library work. The early development initiatives typically started on a modest scale to include single purpose functions such as producing a list of keywords. Then more sophisticated systems were produced that took care of a whole section of library work such as cataloguing, circulation, or acquisition functions. This was followed by the arrival of even more comprehensive systems that bundled together a number of different single modules. Initially the modules included in the early multi-function systems were not integrated and, for example, the data input in the cataloguing module had to be exported to the circulation module to allow the use of the newly catalogued records in circulation activities. As the technology advanced so did these systems. This 60-year long journey and the different stages of development have meant that a number of different terms and concepts are used to refer to these systems. In this section I present a number of related terms in order to clarify what is meant by the term LMS in this thesis.

The term 'automation' in libraries has been loosely used to refer to greatly differing levels of use of computers. It has been used to refer to anything from having a simple personal computer or having access to a locally held CD-ROM, to the most sophisticated use of technology. Conducting all library routines, use of robots for heavy-duty jobs, use of the latest most advanced multimedia and communication systems to allow the interchange of information and services with virtually the whole world can be included here.

While automation in general can mean a very wide spectrum of the use of technology, Automated Library Systems are a more identifiable entity. According to Duval and Main (1992: 1)

> "A library can be regarded as being made up of functions such as acquisitions, serials control, cataloging, circulation, and the online public (or patron) access catalog (OPAC). When a computer system is used to operate these functions, the term Automated Library System (ALS) is used."

Of all the automation possibilities, it is *integrated* Automated Library Systems that are going to form the focus of this study. Integrated Automated Library System, refers to an Automated Library System where all its subsystems, also called modules, work smoothly and seamlessly with each other. This means that a piece of data would only need to be entered in the system once for it to be useable throughout all the relevant parts of the system.

However, even Integrated Automated Library Systems vary considerably from one another. Some include the bare minimum of modules while others include all the modules named above (i.e., in Duval and Main's definition), and many more such as Requisition, Interlibrary Loan, Mobile Library/Housebound, Closed Reserves, Community Information, Offline Transaction Logging, Day Log, Reports and Statistics, Administration, Info-fronts/Gateways, Federated Searches, and others. There exists a variation between different systems; for example, products such as Perco and Percico place emphasis on management of serials while other products such as Millennium, Voyager, Horizon, Aleph, Virtua, and so on are more comprehensive and included a variety of modules and add on sub-systems (see various suppliers' websites or introductory literature). In addition to these, some systems include separate modules for some functions (e.g. management reports), while others incorporate these facilities in the whole system so that there is no separate module by that name present in the system. Alternatively, some suppliers name some subsections of their solution as core modules and part of their standard system, while they label other functions as extra add-ons. Moreover, some of these systems include proprietary database management systems, word processing, etc., while others follow available standards that make the incorporation of third party products possible in a seamless fashion instead. One other point leading to confusion can be the varying names used to refer to these systems and their different parts both by the system vendors and generally, by others, whether at libraries or as found in the literature. Names commonly used include Housekeeping Systems, Library Solutions, Library Systems, Automated Systems, Library Automation Systems, Automated Library Systems (ALS), Integrated Automated Library Systems, Management Information Systems, Library and Information Management Systems (LIMS), Library Management Systems (LMS), and more. I find the latter two to be among the better descriptive names for these systems. However, as the last term has been

increasingly used and it is a shorter option, *Library Management Systems* (LMS) is the name adopted in this thesis.

To determine the boundaries and the types of systems that are included or excluded in this study, here the term LMS is defined as a system that includes at least three of the main modules of Cataloguing, Circulation and OPAC in an integrated way, regardless of the names given to these modules by the vendors or others. There will be no upper limit for the number of modules or functions included in the system. Since this work discusses only the issues regarding LMS, when I refer to automation or the process of automation, I use these terms only to refer to implementation and use of LMS and not any other technology that could be adopted by the libraries.

2.2 The LMS Decision Process

Having clarified the meaning of LMS in this document, another term that needs clarification is that of the LMS decision process.

As mentioned, different terminology is used to refer to what in this study is called an LMS. Similarly, different terminology is used to refer to a process in which a series of activities takes place to determine the future LMS used at a library. When a library moves from a manual system to an automated system, the term automation is common, where the process involved can be referred to as the *automation process*.

Today, with the widespread use of technology within libraries, it is less common that a library moves from a manual system to a computerised system for the first time. More commonly, a library chooses to replace an existing computer-based system with an alternative computer-based system. Common terms used to describe this move include the *migration process*, the *system selection process*, or LMS *procurement* or *re-procurement process* and so on.

In this study, it is not taken for granted that all LMS changes within libraries involve a selection process (some system changes occur without a formal selection among a number of alternatives), or a procurement process (e.g. the people involved may decide to develop their own system). Furthermore, a process of system evaluation and selection does not necessarily need to lead to a system change. A system selection may be terminated. Alternatively, a system selection process may proceed to the end, but it is then decided to remain with the existing system. The process that takes place in any of these cases, regardless of whether it involves a selection, procurement, or a system change is here called *the LMS decision process*.

In this study, by decision making process I mean a series of communications, activities, and events that are involved in making a decision over time. The focus of the decision making process in this study relates to the studied libraries' future LMS. I will use a number of different terms, with the same meaning, to refer to this. By *LMS decision making*, or *LMS decision process*, or in short *LMS decision* I refer to the decision making process related to a library's future LMS, whether the existing LMS remains the same after the process, or an alternative LMS is selected and used.

LMS decision making is not necessarily equated to *LMS selection*, *LMS procurement*, or *LMS change*. With LMS *selection* process, it is meant an active process within which a number of alternative options are evaluated and where one alternative among several options is chosen as most suitable. LMS *procurement* process refers to the formal activities in which a number of system suppliers are invited (or allowed) to compete for the business of selling a suitable LMS to a library. LMS *change* relates to situations where a library decides to exchange its existing LMS with an alternative. The LMS decision process as defined here can include all, some or none of these processes.

As will be seen in the upcoming chapters, a choice can be made without the selection process, a system-change can occur without an LMS procurement, and an LMS selection process can be terminated without a system change, i.e. the library remains with the existing system. The LMS decision making process, in this study, covers all these variations.

2.3 Library Automation Process: "Traditional Models"

In the previous sections, I discussed that different terminology is used to refer to what is called 'an LMS' in this thesis. I also pointed out that what I call the 'LMS decision process' is an aggregated term that allows for variations including LMS selection, LMS change, and LMS procurement and so on.

Another important issue in need of clarification is what I call the 'traditional models'. In this section, I examine some of the literature within LIS that provide guidelines on how one should go about automation and selection of a new LMS. With the help of this examination, I then outline a prevailing view of the LMS selection process and the underpinning assumptions. That is, in this section, I present an outline of the existing views of the automation process and LMS selection to which the term 'traditional models' refers.

Regardless of what the process of LMS decision and the related activities are called in the related literatures, a large body of literature discusses this process

and/or provides guidelines as to how the activities in the process should be conducted.

There are a number of books that introduce automated library systems and their management, including sections on, for example, planning, selection, and procurement (e.g. Boss, 1984, 1990; Clayton & Batt, 1992; Corbin, 1985, 1988; Duval & Main, 1992; Tedd, 1993). A number of books present a collection of different essays that build on local or personal insights by people who are somehow involved in library automation in various roles (e.g. Head & McCabe, 1993; Muirhead, 1997). There are also a number of books that present methodology for the process (e.g. Matthews, 1980) or practical handbooks (e.g. Cohn, Kelsey & Fiels, 1998) to be used by libraries that plan to introduce a new or a replacement system. A number of other books address some related issues as part of wider topics (e.g. Morris and Dyer, 1998) and yet others are descriptions of individual cases at different libraries (e.g. Bagley & Oyston, 1982; Head & McCabe, 1993; Herring & Mackenzie, 1986; Plaister, 1982).

There are also a number of reports by different organizations (e.g. the Library and Information Technology Centre at the Polytechnic of Central London) that are specifically written to provide guidelines for prospective purchaser of an LMS (e.g. LITC, 1992a, 1992b, 1992c). The majority of the literature on the topic is, however, in the form of articles published in both peer reviewed and professional LIS related publications. Some of these present a set of steps involved in system selection and installation (e.g. Koneru, 2005). A number of other articles present advice from expertise or examine issues that somehow can be related to the LMS selection decision (e.g. Burton, 1987; Manifold, 2000; Schulman, 1998; Schuyler, 2004; Sykes, 1991). A large portion of the literature includes local personal experiences of automation projects or studies of different cases in which processes of LMS selection are described (e.g. Alam Ansari, 2008; Clarke & Morris, 1998; Daniels, 1995; DeCorso & Russo, 1994; Khurshid, 1996, 2006; King, 2000; Marcin, 2008; Matthews, 1995; Myhill, 2000, 2004; Nfila, Dintwe, & Rao, 2005; Pachent, 1996; Pedley, 1999; Peterson & Lowery, 1995; Prisk, 2005; Rankin, McInnis, & Rosner, 1995; Skretas, 2005; Smith, 1993). 'Lessons learned' or 'guidelines to reach successful outcomes' are typical in this group.

Other issues taken up in the above literature include system selection criteria, political influences, human implications, communication strategies and staff involvement. Just to elaborate on issues discussed in such material Skretas (2005), for example, highlights the varied and partial use of LMS in different libraries where some aspect of an LMS may remain unused even at the time of use termination. To overcome this problem he offers a list of potential

affecting factors and normative guidelines. The recommendations (which are based on the insights gained in personal experiences), aim at a better use and more successful implementation of LMS and do not deal with the LMS decision process. Even so, a number of issues brought up are related to the LMS decision, for example, it is stated that the library "must have its own goals and aims that must be clearly stated and known to everyone who is involved with it" (ibid: 142). What is lacking in such statements is the opening up of issues such as 'goals according to whom' or 'who is involved in the definition of the goals' or 'what does their involvement mean for the outcome' and so on.

Myhill (2000) describes the process of LMS change at the Exeter University and provides personal insights regarding successful system implementations. The process promoted by Myhill, (similar to other models, see below) includes planning, formulating a specification document, tendering process, decision making based on local selection criteria and so on. As Myhill describes, many people at different organizational levels have had the opportunity to contribute to that process, however the main people involved included the deputy librarian and the section heads and system staff. It is not specified how the choice of those members had been made and the effects of that on the process. Other questions such as 'how the criteria for selection had been decided on', 'how the merits of different systems were evaluated', or 'how different views had gained acceptance', and so on are not addressed. Furthermore, a number of problems are presented related to the implementation of the new LMS including delays in the implementation by a number of months necessitating a retraining of over 50 staff, low quality ILL module, conversion problems leading to manual data re-entry, continued loan of a computer to operate the old system in parallel, and so on. Nevertheless the article is said to demonstrate issues "arising during a *successful* implementation" (ibid: 89 – emphasis added) with the conclusion that "[w]e are sure that we made the right choice of system" (ibid: 98).

Some of these articles highlight important issues, for example, Manifold (2000) states that "[n]othing can guarantee that an automated system selection process will be successful" (p. 119), or "[a] process that might be stunningly successful for one library might not work at all for another" (p. 129). However, they often fall short of investigating these issues further. Other statements found in such material raises other questions, for example, Smith states that "[i]t must be admitted that *we had a gut feeling* about our eventual shortlist, *even before* sending out the proposal" (1993: 53 – emphasis added). What then becomes interesting is to investigate whether this *initial gut feeling* might have had an influence on bringing about the final shortlist.

Generally, most of this literature (and many others) is directed at effective management of the automation project towards achieving successful outcomes. While all of the above literatures are somehow related to the LMS selection and most offer guidelines, only some provide models and frameworks for the selection process. The general spirit of the stages of the process presented in that literature remains the same, although the details vary.

Issues commonly highlighted in the selection models include a few or a combination of the following stages (in different mixes and varied extents):

- planning and securing the required budget for the project
- involvement of the staff in the process
- formulation of system specification documents that in detail list library's needs and wants against which the potential systems are to be evaluated
- attempting data gathering activities such as Request For Information (RFI) from vendors, or contacting colleagues in other libraries and attending relevant fairs, site visits, and system demonstrations
- Request For Proposals (RFP) and formal tendering process
- evaluation of potential systems based on their technical merits, costs, support, supplier reputation, supplying company's financial standing, etc
- negotiation and signing of contracts (which normally include the terms of purchase, level of support, amount of training), while allowing for legal considerations
- installation of the system and conversion of the data from the old system to the new, migration from the old system to the new either in one go or gradually
- staff training
- running and testing the system live
- consequent amendments and modifications
- periodic re-evaluation of the system until the system is no longer deemed to meet library's needs when the process starts over
- starting the process over again

A consideration of the process along these lines is still a prevailing view as can be found even in recent literatures (e.g. Koneru, 2005).

Tedd (1993) nicely incorporates an overview of different elements of the process in a model that is depicted in figure 1. The elements included in this model are not necessarily discrete and may overlap.
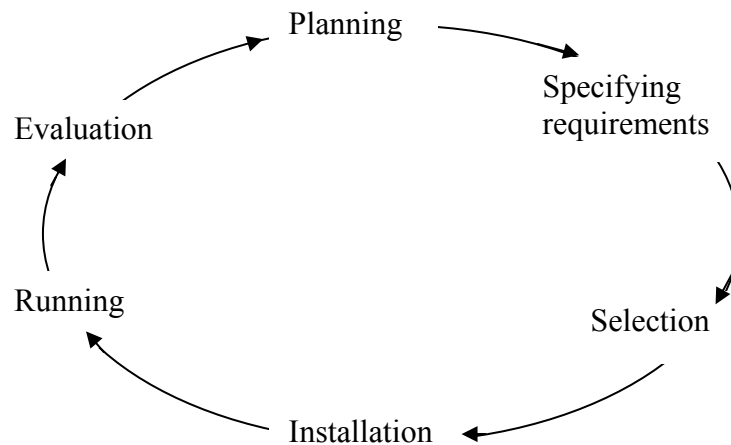
Figure 1 – General Cycle of stages in setting up a computer-based library system (Reproduced by permission of Wiley; from Tedd, 1993: 96)

Similarly, Rowley (1994, see also 1993, 1995), for example, proposes a five-stage methodology to support an effective management of LMS selection and implementation. The stages proposed by Rowley (1994: 41) are: definition of objectives, specification of requirements, system selection, system implementation and systems evaluation. That model is also cyclic, where the last stage leads to the first stage. A checklist of issues to be considered at each stage (i.e. from 6 to 12 points for each of stages) is offered.

These and other models have been powerful tools in many respects and have served libraries well over the years. However, what these and similar models seem to have in common is their treatment of the LMS selection process from a 'rational choice' perspective with a 'means end' view.

This can be seen by an examination of the common ingredients of the literature that propose steps in the process of automation or LMS selection. The steps recommended include:

-   identify library's needs (current and future)
-   identify the potential options
-   compare the needs with the features offered in each of the options
-   choose the system that best meets the specified requirements

As will be shown in the next chapter, these steps are the essence of a view of decision making that builds on the assumption of rationality where individual or groups are envisaged to rationally choose the option that yields the highest utilities. In much of the LMS selection related material, it is also assumed that the goal (and outcome) of the process is, for example, in the words of Jenkinson, Lowe, and Rowley, to "optimize the effectiveness of the

organization's information resources" (1997: 33). Such objectives are common in the rational models.

Both in some decision making theories (i.e. those theories that although improve the classical views, still share the ambition of achieving the highest utility and build on the underpinning privileged position of rationality) and in some LMS literature, the limited resources and individuals' limited cognitive and physical abilities have been acknowledged. Based on this insight, modified guidelines have been put forward. For example the notion of satisficing (Simon, [1945] 1997) which refers to a 'good enough' choice, is what some of the authors who discuss the LMS selection, recommend as the aim of an LMS change project. However, even in the guidelines in which such limitations are acknowledged, the perspective that is adopted in viewing the LMS change builds on the assumption of rationality. As will be shown in the next chapter, this is not the only possible conceptualization of decision making (or LMS selection). At times, it is beneficial to change stance, abandon accepted frames, and take a fresh look at the situation. A starting point in this study is to question the assumptions held in current views of the LMS selection and to explore an alternative conceptualization of this process. The above literature commonly considers questions such as 'how can the process of selection be improved to allow the choice of the best option in a more efficient and effective way'. What is considered here instead, is for example, whether it is at all possible to identify the best option.

The difference between the predominant perspective adopted in the existing discussions of LMS choice and the stance held in this study are numerous, for example:

- While it is implied in the existing LMS selection guidelines that a system selection process is entered into in order to choose an improved system, the stance here holds that there may be other aims related to this process.
- While in the existing literature it is assumed that adherence to the norms of rationality are adopted in order to choose the best option, the stance held here considers that there may be other reasons for adhering to these norms.
- While it is implied in the existing literature that adherence to the proposed guidelines would lead to the selection of the best option, the views adopted in this study raise questions as to whether it is the adherence to the recommendations that leads to the choice of a best option, or whether an option is accepted as the best due to adherence to the guidelines.

By adopting this alternative stance, it is intended to shed light on some of the shortcomings of the existing conceptualization of this process and to extend our understanding of the issues involved. A critical examination of the existing views highlights a number of issues, which are worth closer attention, in order to improve our understanding of this phenomenon.

In many existing models, not only are there many elements included in the process, each of the steps is broken down further. For example Matthews (1980: 10-25), dedicates 15 pages to discussing only the needs analysis step as part of which he proposes that a consistent set of information must be gathered as the basis for an informed choice. This involves "gathering data about each functional area and breaking down each major area into further areas of analysis" (ibid: 14). He provides an example of how, for example, the circulation functions can be broken down into smaller and smaller functional areas. Matthews (1980: 14-15) proposes a six level system of measure, which includes (1) dollars expended, (2) resources consumed (personnel broken down to part and full time and material), (3) resources consumed compared to recognized standards, (4) services delivered, (5) patron and staff satisfaction and (6) community and library wide satisfaction. Each of these six levels is then used as a measure for each of the functional areas such as circulation, cataloguing, and so on. A closer look highlights the level of time and resources that is required for each of these steps. Just, to measure 'dollars expended' for each of the functional areas will be an insurmountable task as many hard-to-measure benefits and costs are involved. It is to be remembered that this step is only a small part of a wider whole.

An underlying assumption, in such models, is the availability of unlimited financial and human resources. This assumption is shown to be problematic by wide research on decision making, as will be discussed in the next chapter.

In addition to the type of literature mentioned above, other literatures within LIS also touch upon related issues. For example, some discuss various issues of automation from a management of change perspective. Most of such literature refers to the rapid technological changes within libraries (e.g. Dougherty & Dougherty, 1993) and the need to be responsive and flexible to accommodate these changes. Some refer to the importance of addressing issues of human resource management in the successful adoption of change. They emphasise, for example, in the words of Farley, Broady-Preston and Hayward (1998: 239) that "[t]he effective management of change is fundamental to a successful and productive organization". An implied underlying assumption in some of the related material is that change is positive and various managerial techniques ought to be used to reduce resistance to change (e.g. Klobas 1990; Steffen, 1987).

Klobas (1990), for example, discusses a number of strategies for a successful introduction of technology within libraries. She presents a number of techniques that among others aim at developing "a common understanding of the need for the change and the goal of introducing the new technology, confidence in the effectiveness of the new technology" and "*reassurance* that *the new technology does not pose a threat* to any individual or to the organization as a whole" (1990: 346 – emphasis added). Although decision by consultation is promoted, this consultative approach does not seek to accommodate everyone's views, rather to "*transform opposition into indifference*, with the former opponents of the change neither actively supporting or actively opposing it" (ibid: 347 – emphasis added). The idea is to make those who oppose the proposed change "to feel" that they have nothing to lose from its introduction. These could be seen as techniques in construction of shared perceptions. As the details of the case studies in this thesis will show loss of jobs can occur due to organizational change and as presented in other work "greater centralisation is an attempt to reduce staffing and administration costs" (Farley et at: 244) and loss of jobs do indeed occur due to technical and organizational change. That is, there exist threats to both individuals and organizations. In many management of change literature that address LMS and other technical change, 'management' receives a privileged position and positiveness of change is taken for granted.

Adding to the above, management of change within libraries (related or unrelated to LMS or other technology) is a wider discussion within LIS. A range of views can also be found in that body of literature that can be of interest for the topic of the thesis. Here one can find views of those who see libraries and library administrators capable of creating their own desirable futures (e.g. Butler & Davis, 1992) to those who see change as inevitable and library workers as unable (or restricted) to influence the course of change. This can, for example, be seen in statements such as:

> "Libraries have not, do not, and probably never will affect technological change themselves. They are users, or non-users as the case may be, of a technological change or advancement that was affected for some other larger industry or area of the economy." (Brown, 1982: 184)

In my reading, a larger portion of the related literature seems to view change as an inevitable fact of life (e.g. Kinnersly, 1996) that needs to be coped with and managed. In these, the main discussions centre on how to manage change. Various strategies are then discussed in different lights, for example, by adopting radical new ways of managing or by adopting traditional rational approaches (for further elaboration, see e.g. various entries in Branin, 1996).

Unlike the management literature that promotes change and offer guidelines as to how to reduce resistance to change, my view based on this study takes a different critical standing in questioning whether resistance to change is necessarily negative. *In this study, I do not seek to propose normative guidelines for how to achieve optimal choice or effective and successful management of change.* Furthermore, some related and seemingly objective assumptions are not taken for granted.

To recap, generally the works on the LMS selection seem to share the goal of devising better and more effective ways of finding progressive and optimal systems to reach successful outcomes. Inherent in that line of thinking is the implied assumption that there is such a thing as an optimal system, or a successful outcome. It should be noted that many aspects and complexities of the LMS decision are highlighted in isolated or compound forms in different publications. These aspects include external and political influences, power issues, complexities of the systems, the marketplace, the evaluation process, as well as limited resources and expertise, and more. However, in the view of this author, the aggregated complexities brought forth by all these different relevant factors are not adequately addressed.

The perspective adopted here separates this study from the literature mentioned above. The lens through which one chooses to view and analyse the world, inevitably highlights certain aspects and obscures others. For example, the presence of a high ranking member of management in the process of LMS selection may be viewed as a helpful involvement towards a more effective and efficient management of the process. The same involvement from a constructivist perspective, or a study of power issues, may be found to represent a mechanism of control or manipulation. Unlike the view adopted in the literature presented above, I adopt a constructivist view and question some of the basic assumptions that are often taken for granted. At the end of most LMS selection processes, a shared view is formed regarding the optimality of the chosen system. Rather than assuming that this shared view rests on the superiority of the system, which is established through the process, I examine how these shared perceptions are formed. In the presented literature some basic assumptions are taken for granted, therefore, the stance adopted here and the questions asked in this study are important in shedding a different light on this topic.

For simplicity, I hereafter refer to the literature presented above (and others that share the same perspectives and assumptions), as *the mainstream library automation literature* and to the models of automation process presented in that literature, as *the traditional models*.

This study is limited to the process of decision making and potential selection of an LMS; stages such as installation and adoption are not included. One could depict the bounds of this study as compared to Tedd's (1993) model, in the following manner indicating that the grey areas are not included in this study.
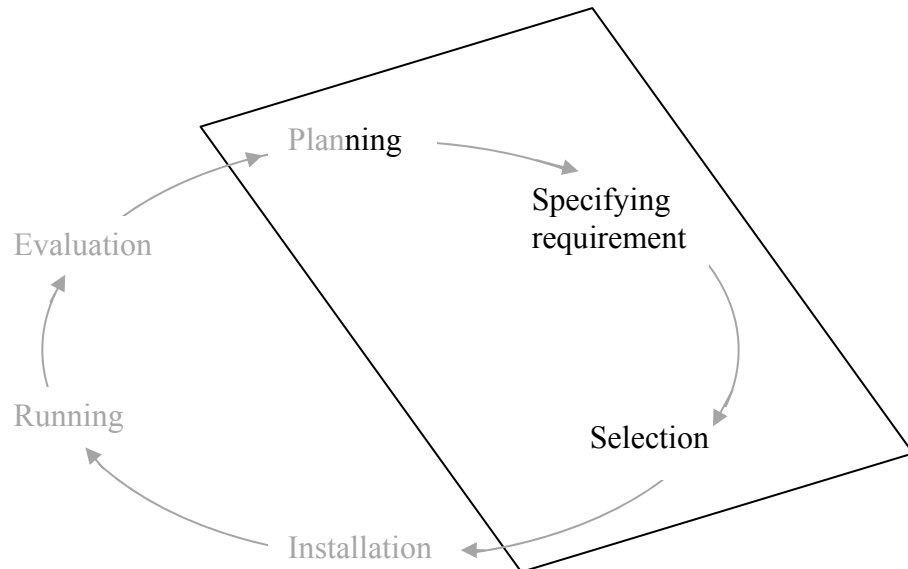
Figure 2 – Stages included in this study as compared with Tedd's model

2.4 Shortage of Research on LMS Decision Making

Now that a few central themes have been clarified in the previous sections, I will use this section to describe the present state of research on this topic. Here, I draw attention to a shortage which, considering the importance of the topic, would indicate a need for further investigation.

According to Storey (1992: 1), the two lines of approach excessively found in the library automation literature are the "machine side" and "what we did in our library to install a system". Like others (e.g. Fine, 1986: 84), Storey finds the amount of literature written on 'human aspects' less frequent. However, today the pivotal role of human aspects and human actors in organization of library, and the process of automation are discussed and widely accepted (Clarke & Morris, 1998; Cross & Bawden, 1987; Farley, Broady-Preston & Hayward, 1998; Jordan, 1995; Olsgaard, 1989). For example, it is stated that more than half of most libraries' budget is spent on staff salaries (Jordan, 1995: 1). Large-scale changes that result from system migration and their affects on all levels of staff are discussed (Clarke & Morris, 1998: 153). Goulding (1996: 94) states that based on indications from research, 90% of change initiatives fail due to human factors not being taken adequately into account. Similarly, Cirillo (1983: 25) refers to reports from federal

government that estimated 85% of all failures in computer systems are to be attributed to "people problems". Accordingly, a vast range of literature is written that provide guidelines as to how to go about automation to achieve successful results (e.g. Boss, 1990; Broom, 1997; Clayton & Batt, 1992; Cohn, Kelsey, & Fiels, 1998; Epple, Gardner, & Warwick, 1992; Leeves, 1989; LITC, 1992a, 1992b, 1992c; Lovecy, 1984; Matthews, 1980,1986; Muirhead, 1997; Rowley, 1990). Despite this, costly mistakes are still made on a recurring basis (e.g. Gratton, 1983; Lancater, 1978).

Of interest in much of the LMS selection or guidelines literature, as mentioned before, are the underlying assumptions that suggest a rational choice model (see chapter 3) in selection and implementation of library automation. What is often lacking is attention to the complexity involved. This includes a combination of the technical sophistication of such systems, involvement of numerous actors (both internally and externally), variety of organizational structures, cultures and goals involved, social, economical and political influences on the process, ever-changing functionality within systems, volatile LMS market dynamics, changing library needs and roles, global trends and so on. For example, regarding selection of an LMS, Rowley (1990: 230) suggests that after having identified system requirements, it should be possible to identify a system that best meets the requirements for a given application. Similarly, Morris and Dyer (1998: 270) propose that careful evaluation of all available options [potential systems] should be made before a system is chosen.

However, due to comprehensiveness of LMS, it is not normally possible to test fully all the functions included in a normal system specification document against a particular LMS, let alone against all potential options. Even if one were to do so, it would take very long, and require experienced staff and a normal operational load (including library's collection, users, transactions, etc) in place on the system that is being tested. If one were to conduct a thorough test of the functions in a system, the time lapse required would most probably be long enough for new versions of the system to arrive on the market, making the test results obsolete. Even if this could be done and the version of the system would not change, current literature does not normally consider 'how these system specifications come about', 'whose wishes and demands they represent' or 'why, to what ends, and under what influences they are formed'. Nor do they offer a viable measure of success or assessments of the level of success that following their guidelines would achieve (if this could be defined). Indeed the writing of these guidelines assumes that these guidelines are accessed and used as part of the information seeking process that would be included in rational ways of going about choosing the best system.

A study was done by Karlsson (2005) on information sources that were accessed by librarians during the LMS change process. That study included all Swedish libraries that had gone through the purchase of a new LMS during the years between 2000 and 2004. The results of that study showed that very few of the involved library staff had accessed written sources in their search for related information.[1] Of those few written sources that were used, not many were of the type of guidelines mentioned above. The reasons for this can be many, but what this information indicates is that the assumptions that underpin this vast sea of literature are questionable.

A number of articles in other fields deal with technology acquisition and other relevant issues such as existence of qualitative attributes in multiple attribute decisions. Klein and Beck (1987) highlight that many methods of aiding multiple attribute decisions lack adequate measures for dealing with qualitative attributes. Accordingly, they develop an approach that involves value functions and *paired comparisons*. Although that approach improves on earlier methods by considering the existence and importance of qualitative attributes, it does not solve the problem of LMS decision process for at least two reasons. First, that approach is developed with a single decision maker in mind and does not cater for the complexity of organizational group decision making. Second, the qualitative attributes that enter an LMS decision process are exorbitant and create a complexity that cannot be adequately addressed by that approach.

Bacon (1992) examined the criteria used in allocating strategic information systems/technology in organizations. In that study, senior executives were questioned about the frequency and ranking of 15 different criteria that could be used in deciding among competing investment projects. That study was limited in a number of ways. The options in the list of criteria were pre-specified by the investigator, and therefore, did not allow for other potential criteria (such as personal or political gains) to be considered by the participants. Furthermore, the study related to post action reconstructions by the respondents and did not follow the process in an observational mode. Finally, the study was directed at the senior executives, and was conducted by the means of a survey and therefore, did not allow access to potential complexities involved.

Durrani, Forbes, Broadfoot, and Carrie (1998) proposed a formalized approach to technology acquisition in industrial organizations. Not only are

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[1] This result differs from the findings of McClure (1980: 130-136) where the participants were asked to *evaluate* a number of sources (their perceived preferences) in relation to a number of potential *decision situations* including automation of circulation. The study by Karlsson investigated the actual sources *used*.

the technologies and the organizational contexts, addressed in that article, different to this study, so are the conceptual frameworks used. Durrani et al (1998) propose a formalized approach to technology acquisition with the aim of providing a competitive advantage to organizations. In their approach, rather similar to the traditional LMS selection models, one finds steps such as selection of agreed evaluation criteria, ranked list of market-place requirements, and so on. It is not considered, however, 'agreed' or 'ranked' by whom or how.

When it comes to publications that are more directly related to this research, although not exactly on LMS selection decision making, Luquire (1976) conducted a closely related study that investigated the impact of OCLC (Online Computer Library Center inc) on twenty-three American libraries, where eleven of the twenty-nine hypotheses that he tested related to the decision making in the library. In that study, Luquire found support for nine out of the eleven relevant hypotheses. The majority of those hypotheses were related to the perceptions of different subsections of library staff about their own and others' levels of influence on the decision. For example, a number of hypotheses are formulated as follows (Luquire, 1976: 14):

H2:   Top management, middle management, and non-administrative librarians all perceive that top management has preponderant input into the decision-making process.

H4:   Non-administrative librarians perceive that they have little or no input into the general decision-making process.

Except for this type of hypotheses, one hypothesis was about the relationship between the level of participation and evaluation of the new system:

H1:   The more participation there is in decision-making in the library generally, the more positive is the evaluation of the new system or innovation.

A traditional positivistic approach was adopted. In that study, the process of decision making or the way in which the decision had come about was not investigated.

Another relevant research within LIS, which examined the decision making process related to library issues, is that of Giesecke (1993). Although the study did not focus directly on the LMS decision process, it examined two models of decision making (*political-bargaining* and the *garbage can* models – see next chapter for further clarification) within the context of an academic library. The study assessed the models' usefulness for understanding the decision making

process. One of the findings of the study was that both the political-bargaining and garbage can process "can exist in the same decision-making situation" (ibid: 111).

One direct study on LMS decision process is a doctoral thesis (Bell, 1997) where, by adopting a case study approach, the *garbage can* decision making model was used as a lens through which decision making activities related to an LMS acquisition were analysed and interpreted. The study suggested that the garbage can model was an appropriate framework for explaining the library's decision process due to a number of factors including problematic preferences, decision flight, weak access, and decision structures.

That thesis, was followed a year later by another study conducted again by Bell and an associate (Bell & Cronin-Kardon, 1998). A survey was conducted that provided descriptive information about the decision structure and participants. In that study, 142 academic libraries that had acquired a new LMS over the previous eighteen months were identified and contacted. The response rate was 78%, of which 71% proved usable. A list of six hypotheses, which would identify the garbage can as a viable model for analysing the LMS decision process, was examined. The statistical analyses failed to find significant correlations between a number of variables, "suggesting that in the LMS decision process, academic libraries cannot be said to reflect the Garbage Can Model of Organizational Choice" (ibid: 356). The authors, maintaining the viability of garbage can model for describing the LMS decision process, proposed a number of reasons as to why the results of the study did not provide support for the posed hypotheses.

As part of that study, Bell and Cronin-Kardon (1998) reviewed and reported on the literature that could be found at the time and that related to LMS selection decision making. As the basis for their review, they had conducted searches for material related to LMS decisions in ERIC, LISA, and Information Science Abstracts. They had also searched ABI/Inform for articles related to IT decision-making. For monographs, they had searched Books in Print, LC MARC Records and local OPACs. The result of this investigation showed that:

> "A considerable amount of information on library automation exists, but within that literature *virtually nothing was found on the decision-making process for selecting an LMS*. The automation literature is largely directed to the practical aspects of acquiring a new LMS, from developing system selection criteria to procedures for a successful implementation." (Bell & Cronin-Kardon, 1998: 350 – emphasis added)

One of the conclusions of that study was that further research is needed on LMS decision making. It was recommended that the case study research method should be utilized and participant observation and interviews should be included.

A further study was done by Holgerson (unpublished work, 2004) that searched for articles published over a ten-year period of 1994-2004 on topics related to LMS selection decision making using extensive search strings in four different databases of INSPEC, Compendex, ISAP, and LISA; where 2843 hits were found. A clustering of these was done using bibliometric methods; many documents were not related to any other documents and hence were excluded. Of the remaining documents, 20% of the clusters that included 2 to 6 documents each (i.e. 156 clusters) were then chosen randomly and added to other documents (i.e. 198 documents) that had built clusters of 7 or more documents. I was given access to this material, which I examined initially by reading all the abstracts followed by reading the full text of those documents that seemed more relevant. However, only a handful of these articles were found to be of any interest at all; these included descriptions of the process at various libraries, the reasons leading to changes of systems, checklists to be used for selection and evaluation, and so on. However, none had investigated the decision process except for one, which is in fact the study mentioned above by Bell and Cronin-Kardon (1998).

As the search by Holgerson was new at the time when this study was about to begin, it indicated that the need for further research on LMS decision making was outstanding and this research was needed to combat the deficiency.

2.5 Concluding remarks

In this chapter, I have argued that the research on LMS decision process is minimal and that further investigation is required. Many of the existing LMS selection literature provide seemingly objective rational guidelines as to how to go about automation. In this study by adhering to the advice of scholars who advocate adoption of varied perspectives in research topics (see chapter 5), a constructivist approach is adopted. Based on the topic and the perspective of the study, as well as the theoretical framework (see chapter 4), the questions addressed become different. Here I do not ask what constitutes a 'good' system specification document, or what should be included or excluded from such a document. I rather study the role of such a document and other practices that may be utilized during the process in forming a consensus in the final LMS choice. I do not ask what criteria lead to a successful outcome, but rather how various criteria gain their status. I do not study how to reach the best decision, I rather look at which sub decisions become subject to decision

making and which are overlooked and taken for granted. I do not ask what is the best choice of LMS for a library, rather what leads to shared perceptions regarding an LMS.

3.   Decision Making Theories – A Background

T he focus of this study is on the LMS decision process that potentially takes place in the pursuit of determining a library's future LMS. This topic, therefore, demands a familiarity with *decision making* as a field of study. Due to the vastness of the area of decision making (see e.g. Hastie, 2001; Miller, Hickson, & Wilson, 1996; March, 1988, 1994), the attempt to provide a brief overview is strictly limited to a few, for this study, more relevant topics and milestones. In the following subsections, I first briefly present the progression of views related to *individual* decision making before moving to models of *organizational* decision making.

3.1 Individual Decision Making

Decision making is closely related to the areas of *judgment* and *problem solving*, and has been a topic of much research, interest and debate in a variety of different disciplines such as economics, mathematics, organizational theory, sociology, psychology and social psychology. As Miller et al. (1996) present, decision making studies have involved a compounded mix of assumptions and positions, in which, competing views and varied theoretical frameworks have shaped alternative methods of inquiry and subsequent explanations.

Decisions are defined by Hastie (2001:656-657) as, "situation-behavior combinations […], which can be described in terms of three essential components: alternative action, consequences, and uncertain events", and in his view, decision making is "the entire process of choosing a course of action". Another definition of decision making can be found in Nutt (1976: 84):

> '"Decision making" is defined as the process of selecting a particular alternative for implementation. "Evaluation" serves as an adjunct to this choice process by assigning a quantitative value to each alternative considered or by providing information which clarifies properties of the alternatives.'

Traditionally, with a strong dominance of a normative orientation, the theories of decision making have been based on rational choice models. These models are often linked to the 'economic man' the origins of which have been attributed to the writings of John Stuart Mill, Jeremy Bentham, and John Dewey (e.g. see Browne, 1993: 20). In these models, the assumptions are that the goal (often singular) is known, alternatives and their consequences are known, required information is available, the criteria are known, there is no

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conflict or bias, and that the alternative that best meets the goal (or maximises output) is chosen (e.g. Allison, 1971: 29-33; Nutt, 1976: 86; Browne, 1993: 20; Giesecke, 1993: 109). March (1978: 587) presents that rational choice involves two guesses, "a guess about uncertain future consequences and a guess about uncertain future preferences". In rational choice models, as Miller et al. (1996: 294) explain, "[p]redicated on the supposition that individuals normally act as maximizing entrepreneurs, decisions are thought to be arrived at by a step-by-step process which is both logical and linear". According to Shafir and LeBoeuf (2002: 493), in most accounts of rationality, a common notion is that although a person is entitled to his or her own views or preferences, these should cohere, as well as adhere to basic rules of logic and probability theory. Furthermore, views should not be formed or changed based on immaterial factors related to, for example, mood, context, or mode of presentation. As such, in the theories on expected utility, 'the economic man' is seen as choosing rationally the option that would yield the highest utility. According to Hastie (2001), two central key issues here are *utilities* (what the decision maker wants), and *expectation* (what the decision maker believes is true about the situation). The main idea is that a decision maker would weigh what s/he believes to be the outcome of each option with what s/he wants and then choose the option that would yield the highest utility. In reality, things are not as simple and straightforward as these views suggest. Cyert, Simon, and Trow, (1956: 237), identified a number of elements missing in rational models, and suggested that in many decision instances (a) the alternatives are not known, (b) the consequences of the alternatives are not known, (c) the criteria used in comparing alternatives are not simple or single, and (d) even the actual problem is not often given.

Hastie (2001: 658) explains that the rational expectations principle is based on the evaluation of "each alternative course of action or choice option" measured in terms of the probability of "its global expected satisfaction-dissatisfaction". Hastie (ibid) proposes two important limits in the expected utility framework. One is its incompleteness where many aspects of the decision process (e.g. how the decision situation is comprehended or constructed by the decision maker) are not within its bound. The second limitation refers to the lack of a valid description of the details of human decision making processes, where "people are boundedly rational and moderately selfish, and they exercise limited self-control" (Hastie, 2001: 659).

A number of works confront some of these limitations. Simon's ([1945] 1997, 1955, 1957) notion of bounded or limited rationality and Kahneman and Tversky's heuristics and biases program and prospect theory (Kahneman & Tversky, 2000; see also Fox & Tversky, 2000; Tversky & Kahneman, 1974) are a few examples.

Simon (1955, 1957, 1997) presents a detailed critique of the shortcomings of the traditional economic theory's postulates of the *economic* or *rational man* and presents that decision makers due to being constrained by their own cognitive capacities and complexity of organizations are unable to comply with conditions of perfect rationality. March (1987) describes the fundamental idea of this thought as being "not everything can be known, that decision-making is based on incomplete information about alternatives and their consequences". Simon proposes that rather than striving to arrive at the 'optimal' choice that would require unlimited time, energy and other resources, decision makers often aim for a *satisficing* choice, which is a concept introduced by Simon to indicate a 'good enough' choice given the constrained circumstances.

The *prospect theory* is Kahneman and Tversky's (1979) response to some of the shortcomings of the utility theories. Kahneman (Kahneman & Tversky, 2000) refers to four themes that emerged from this effort, namely: the nonlinearity of decision weights[2], the reference dependent characteristics of the value function[3], the significance of framing effects[4], and the need to distinguish experienced utility from decision utility[5].

Shafir and LeBoeuf (2002: 493) have reviewed and provided a list of a number of other studies that have documented the inadequacy of rationality assumption highlighting that judgments and decisions do not cohere or follow principles of logic and probability, and that they systematically depend on irrelevant factors. The authors suggest that although the intuitive strategies and simple heuristics that people use can be effective at times, they also produce biases and lead to systematic error. Thus, although, the classical theory with its assumption of rationality has been a useful tool, it has failed to address a number of central problems related to dynamic nature of the situations, the complexity involved, and the limitations present.

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[2] This means "raising the probability of an outcome from .39 to .40 has much less impact on preferences than increasing the probability of the same outcome from 0 to 0.1 or from .99 to 1.00" (Kahneman & Tversky, 2000: xi)

[3] In the utility theory, the outcomes of risky prospects are viewed as 'states of wealth'. In the everyday language, one rather talks about gains and losses. It is shown that this conceptualization in terms of gains and loss leads to different reactions from the human decision makers than would be expected if they were to think of it as states of wealth.

[4] The same option can be put to a person in two different wording (or framing) leading to different choices while the actual options available are the same.

[5] This can be explained by imagining that, for example, one can pay a certain amount of money to reduce the number of a series of painful injections. To pay a certain amount to reduce the number of injections from three to two seems a lot more attractive than paying the same amount to reduce the number of injections from 20 to 19.

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The issues involved, however, become more complex as one moves towards group decision making as in organizations. A large body of research have been conducted, and accordingly a number of different views of organizational decision making have evolved over the years. I will present some of these in the next section.

3.2 Organizational Decision Making

In this section, the discussion of decision making is continued by presenting some views related to organizational decision making. Many writers have described decision making as a core activity that holds a central role in organizations. In the development of organizational decision making, it has been shown that decision making is a major ingredient of managerial work. An assumption has been that decision making is "the primordial organizational act" (Perrow, 1986). Decision making processes have been said to, for example in the words of Simon ([1945] 1997: ix-x), "hold the key to understanding organizations". In line with these, organizational decision making, as a topic of study, falls under the broader field of organization studies and organization theory.

In organizational decision making, as Miller et al. (1996: 293) present, the dominant paradigm of structural functionalism view has been concerned with rational decision making in management. Rational-legal authority is suggested to empower and compel managers to take rational decisions. In such classical models, organizations are seen as coordinated and unified, and choices are seen to be made by unitary decision makers (Allison, 1971: 144).

However, again in organizational decision making, the issue of rationality has been debated widely and rational choice models have received criticism. Naturally, the complexity of the situation increases as one moves from individual single-period decision making towards organizational decision making which takes place over a longer period and involves complexities such as presence of potential multiple goals, which is a possibility when individuals and groups build an organization together. Other identified problems such as limited rationality also intensify when numerous, complex, time-bound decisions need to be made within the confines of limited resources.

A number of alternative conceptual models of organizational decision making have evolved. In some views unlike the rational models and predictions of future states, decision making is conceptualized as the outcome of standard operational procedures and rules. One stream of decision models regards decision making as a process. For example, Simon (1965) views decision making process to consist of three phases of intelligence, design and choice.

Mintzberg, Raisinghani, and Théorêt, (1976) provide an extended process model consisting of identification phase (comprising decision recognition and diagnosis), development phase (comprising search and design routines), and selection phase. Some deviate from the traditional views by not assuming that the causes and consequences of decisions are the choice of action. In these, the assumption of rationality is questioned, and decision is viewed as an institution with taken for granted rules (e.g. Brunsson, 2000, 2007). In some models, numerous complexities of decision making are highlighted and order in decision making is described in terms of temporal rather than consequential order (e.g. Cohen, March, & Olsen, 1988). In yet other models, decision making is conceptualized as a political act and the issue of power assumes a central role (e.g. Pfeffer, 1981).

Many attempts have been made to categorize different decision models, and many studies start by describing and then comparing various models in a particular setting to identify which model may best fit that setting or situation. However, it is not always easy to decide where the boundaries of these categories lie or which category best accommodates a particular study or view. Therefore, rather than reinventing the wheel and trying to categorise different views of organizational decision making afresh I take advantage of other studies that have provided such overviews. Each of the studies presented below refers to a number of categories of different conceptual models of organizational decision making.

A classic study was done by Allison (1971), who utilized three different decision models in his analysis of the Cuban Missile Crisis. Allison terms the models used in that study as (i) the rational actor (or classical) model, (ii) the organizational process model, and (iii) governmental (bureaucratic) politics model. To elaborate further on these, in the first model, the unit of analysis is governmental choice and the events are seen as purposive act by unitary rational actors to make a choice with defined goals in mind. In the second model, the process and procedures of the organization (government) are emphasised. Rather than placing the focus on *act* and *choice*, the events are seen more as the "*output*s of large organizations functioning according to standard patterns of behaviour" and less "as deliberate choices" (ibid: 67 – emphasis added). In this view, standard operating procedures, or *rules*, determine decision outcomes rather than predictions of future states. The third model emphasises the politics of the government and rather than analysing foreign affairs as acts and choices, they are viewed as a series of bargaining games.

By showing how different analytical lenses can lead to different interpretations, Allison suggests that just information and analysis are not

enough in understanding different decision events. He shows that the same phenomenon can be analysed through different conceptual lenses, and proposes that:

> 'what we see and judge to be important and accept as adequate depends not only on the evidence but also on the "conceptual lenses" through which we look at the evidence' (Allison, 1971: 2).

He suggests that this understanding is the key to improving the quality of answers that one can provide to crucial questions about complex events. That study is interesting to include here because it presents and discusses three different decision models, and because it highlights that the use of different theoretical lenses yield different results (and insights). This is something that I have considered in my choice of the lenses through which I examine the LMS decision process.

The bureaucratic model is revisited as the first of six organizational decision making models that are identified by Nutt (1976). As presented in his analysis, in the *bureaucratic model* a master plan (rules and procedures) governs contingencies, expectations, and individual behaviour in decision making. The decisions are made by people with power and competence who interpret the master plans. The second model presented by Nutt is that of *normative decision theory*. Here, the assumption is that the goals are known and adequate information regarding the decision task is accessible and that the quest of decision making is to obtain certainty. In *behavioural decision theory*, the third model, the limitations of the normative decision theory are addressed, where acceptable (rather than optimal) alternatives are sought. The fourth model is termed *group decision making*. In this model, the group decision processes are seen as a decision mechanism, where rules for group formation, cohesion development, processes, and controls are considered. Here human relations and social aspects hold a pivotal place. In the fifth model, *equilibrium-conflict resolution*, conflicts in decisions arise when there is an uncertainty related to the choice among alternatives. This conflict is postulated as an unstable condition and the organization is said to seek equilibrium. To resolve the conflict and reach this equilibrium four strategies are adopted by the organizations: problem solving, persuasion, bargaining, and politics. In the final model, *open system decision making*, the decision tasks are seen as too complex, suggesting that some key variables cannot be understood or defined let alone predicted. Adaptation is therefore, a key element in this model of decision making. Nutt's (1976), analysis of these models is interesting in its description and critique of these models and in the criteria that it identifies for selecting a model in different decision making tasks.

More closely related to libraries is a paper by Giesecke (1993) that attempts to expand the understanding of decision models in the context of academic libraries, by comparing two models of decision making, political-bargaining and garbage can models. The first of these two models, i.e. the political bargaining model, was mentioned earlier. It refers to decision processes that involve bargaining and compromises rather than a rational analysis of participants. A central cornerstone in the political model is the concept of power (see e.g. Burkhardt & Brass, 1990; Hickson, Hinings, Lee, Schneck, & Pennings, 1971; Pfeffer, 1978, 1981; Pfeffer and Leblebici, 1977; Pfeffer and Salancik, 1978; and Salancik and Pfeffer, 1974, 1977). Power is often seen as an "ever-present feature of organizational life" (Miller et al. 1996: 296). Pfeffer (1981) examines the role of power in decision making. For him power is context specific and is related to the ability of social actors in achieving a desired outcome by influencing other social actors (ibid: 2-3). The concept of power is distinguished from the concept of authority. In social settings, some beliefs and practices become accepted and expected over time. Values and activities that become accepted are said to be legitimate within that context. As Pfeffer explains:

> "The distribution of power within a social setting can also become legitimated over time, so that those within the setting expect and value a certain pattern of influence. When power is so legitimated, it is denoted as authority." (Pfeffer, 1981: 4)

Those who have been given 'rational-legal' power according to their status can participate in decision related activities such as discussing or authorizing the decisions while a smaller numbers of others are given trivial tasks related to decision making such as providing data or recording the outcomes, etc. Often, the majority of people will not take any part in decision activities. Legitimate use of power is not the only power utilised, a power holder may choose to use his or her power for personal gains and frame the decision situation in a way to achieve his or her own objectives by blocking the objectives of others. This could be done through manipulations such as withholding information, ignoring some, or all of it, and pushing for alternatives that suit one's own ends. Not only those who are directly involved can engage in such activities, but also others can influence the situation by adopting similar tactics.

The second decision model named as part of Giesecke's (1993) paper was that of garbage can. In the 'Garbage Can Model of Organizational Choice' (Cohen, March, & Olsen, [1972] 1988 – (See also March, 1994: 198-200)), a choice opportunity is viewed as a garbage can in which participants dump problems and solutions as they are generated. A decision is seen as the outcome of

several streams within an organization. Attention is placed on interrelations among four such streams, namely *problems*, *solutions* (somebody's product), *participants* and *choice opportunities*. Choice opportunities are occasions when an organization is expected to produce a decision. Problems refer to concerns of people inside and outside the organization whereas solutions are answers actively looking for a question. Participation in decision making is fluid; participants come and go. The variation in participation depends on alternative claims on participant's attention as well as attributes of the decision. The process is characterized by disorderliness and is affected by the temporal coexistences of problems, solutions and participants at a choice opportunity.

A further work bridging decision making and information science is by Browne (1993) who examines the role of information in decision making. In that study, Browne (1993: 19) utilizes a categorization of decision models (also used by others), as follows:

1. classical, rational
2. neoclassical, organizational and bounded rationality
3. political

A general brief outline of these models has already been provided above. The studies mentioned above and many more show that various aspects of decision making can be analysed by, and indeed benefit from, combining and supplementing different models.

Years of research in the field of decision making has provided us with rich and useful analytical tools. A main ambition in this study is to take advantage of this strong theoretical base to deepen the understanding and conceptualization of LMS selection, change, and decision in the field of Library and Information Science. Various models of decision making have been applied to the study of decision making within libraries (political-bargaining and garbage can) and LMS decision making (garbage can). The studies by for example Giesecke (1993), Bell (1997), and Bell and Cronin-Kardon (1998) indicate that the decision process within libraries does not fully fit any one of these models and a combination of different models or further investigations and use of alternative lenses are recommended.

As many have discussed, various aspects of the different decision models can co-exist in the same decision situation. In my analysis and discussion of the LMS decision process I will return to some of the discussions of decision making presented above.

4. Theoretical Framework

In the following sections, I present an overview of the different elements that together form the theoretical[6] framework for my study. Adaptive theory (Layder 1998) provides guidelines, tools and freedom to synthesise a number of theories in a manner that fits the intentions of this study well. Adaptive theory's inherent flexibility allows the use of various concepts and theories in interaction with the findings as they unfold.

In identifying the elements of this framework, two ideas have been central. One thought has been to move away from dichotomies that separate micro-macro and individual-structure (further elaborated in section 4.4). The second idea has been to hold a 'from the outside' (see section 4.3) stance and instead of taking various aspects of LMS decision process for granted, to indeed question the 'taken for granted'. With these thoughts in mind and with the guidelines provided by the adaptive theory, three different theoretical views[7] are synthesised to form the study's theoretical framework. These are:

- Collins's (1981, 1992) views on methodological symmetry as well as the way in which conceptual order is maintained and changed. The methodological tenet of symmetry (Collins, 1981), promotes that beliefs are treated on par with one another. That is the stance taken in conducting this study. Collins (1992) further proposes that joint entrenchment in network of interrelated concepts is the way in which perceptions and conceptual order are maintained. This study will not attempt to evaluate the superiority of one LMS as compared to others; it rather examines how the preferred system achieves its status. The effects of various beliefs and actions within the LMS selection and decision process are also examined.
- Brunsson's (2000, 2007) view on organizational decision making, where a 'from the outside' stance is adopted to examine the institution of decision making. This view is an alternative to the more traditional

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[6] I use the term theory broadly, similar to Vaughan (1992), to mean theoretical tools such as theory, models and concepts as opposed to a more restricted formal meaning that is described by Vaughan as "a set of interrelated propositions that are testable and explain some phenomenon" (Vaughan, 1992:175).

[7] Numerous other thoughts and concepts have also been instructive, for example, the concept of *matters of fact* or Schutz' notion of *taken-for-granted*, which relates to instances where people see every state of affairs as unproblematic until further notice. I was also inspired by Shapin and Schaffer (1985), both in the uptake of the stance of a *stranger* in examining the taken-for-granted and in efforts to identify different categories similar to their *material*, *literary*, and *social technologies*, which were identified by them as utilized in early experimental programme to establish matters of facts.

rational decision theories. In accordance with this view, it is not taken for granted that the cause and effect of decisions is the choice of actions, rather other causes and consequences of decision are also considered.

- Giddens's (1984) notion of the 'duality of structure', which is an attempt to overcome the action-structure and micro-macro dualisms, is considered in trying to find how structures are formed and reinforced in the process of LMS-selection and how in turn they influence the LMS decision activities.

Collins and Brunsson's views provide the grounds for a critical approach. These views guide me not to take things for granted and instead to study why and how some ideas get to be taken for granted. I am instructed to treat the different beliefs and actions of the study participants symmetrically. Accordingly, I investigate the practices that play a role in forming possible agreements among actors to identify why and how some of the possible arguments become accepted while others do not. Giddens's interest in actions and interactions and his duality of structure informs my analysis of the actions and interactions that take place in the process of LMS selection and understanding of how individuals' actions may be related to the structures that are formed and reinforced.

The different elements included in my theoretical framework could be depicted as follows:
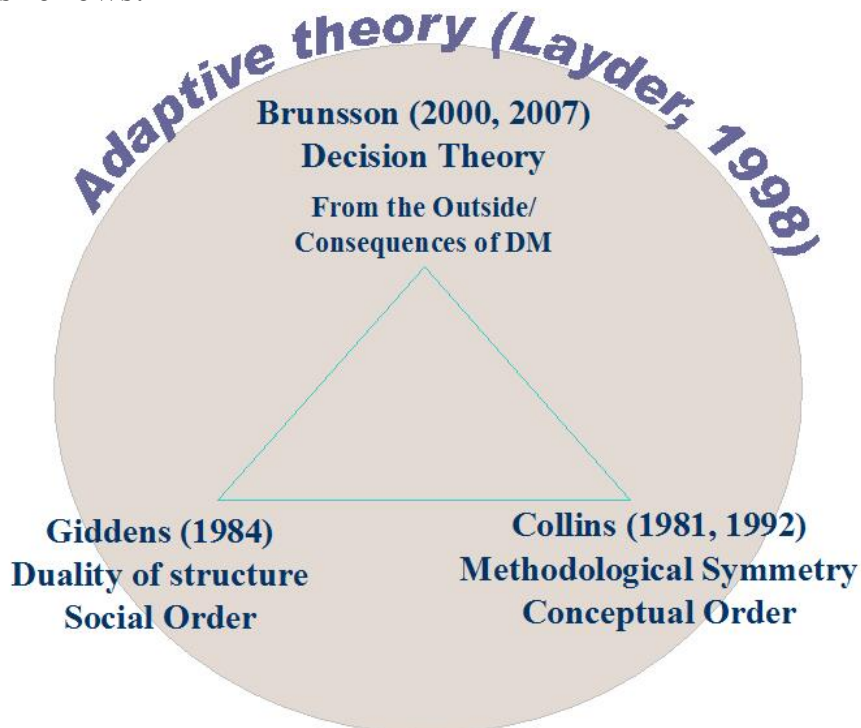
Figure 3 – A representation of the theoretical synthesis

4.1 Adaptive Theory

While trying to overcome some of the problems associated with the use of theory at various levels, adaptive theory (Layder 1998) is inspired by both middle-range and grounded theories. However, since these approaches are somewhat antithetical to each other, Layder suggests a re-fashioning of the premises, upon which these approaches are based. He proposes that focus is to be placed "on the construction of novel theory in the context of ongoing research by utilizing elements of prior theory (both general and substantive) in conjunction with theory that emerges from data collection and analysis" (Layder, 1998: 27). As such, the resulting theory represents "an attempt to depict the linkages between lifeworld and system elements of society" (ibid).

When it comes to combination of different theories at various levels, in accordance with Layder (1994: 1), a central thought has been to allow for the dynamic interaction between some aspects that traditionally have been held apart in dualisms such as micro-macro, agency-structure, and individual-society. Accordingly, the entities in these dualisms are not viewed as separate and opposing, instead they are indeed thought of as interrelated and interdependent, and hence it is held that a social analysis could consider both elements in the same work.

My ambition regarding the research-theory relationship in this work fits well with the views expressed by Layder in both the adaptive process and integration of theory. As the theories and concepts that seemed relevant were numerous, it was difficult, from the outset, to identify the most suitable theories to guide this study and the extent of their use. At the early stages of this journey, it was also difficult to identify the exact analytical resources that would prove to be instructive. Therefore, the adaptive theory acted as a practical tool that allowed me the flexibility to go into my investigation, fully informed of the research problem, the perspective to be adopted, and a number of relevant theories without having to be rigidly tied to the extent of use of each theory. This catered for flexibility in the extent of use, so that the extent could be determined in the course of the investigation and in interaction with the study findings as they unfolded. This approach also allowed the emergence of new concepts (such as elements and practices) and theory (see part three) from the data and analysis during the study.

4.2 Collins's Views on 'Methodological Symmetry' and 'Conceptual Order'

This study is very much inspired by the social constructivist approach, which is associated with a field of study that is broadly referred to as STS. STS is used to stand for a variety of terms such as 'Science, Technology, and Society', 'Science and Technology Studies', and 'social studies of science and technology' (Van House, 2004). As STS is rooted in various disciplines, there is no agreement on its topics, methods, or approaches. Therefore, saying that one is inspired by STS does not shed much light on one's position. However, by this admission, an association with the context in which the theoretical and philosophical views regarding STS have come about is being implied.

Of all the areas that can be housed under the broad umbrella of STS, the social constructivist stance most relevant for this study are the views that are often referred to as the Bath school (based on the work of Collins, Pinch and their associates (Van House, 2004)). Of all the related issues, two issues that have been more specifically inspirational to this study are the methodological tenet of symmetry as proposed by Collins (1981), and Collins's (1992) views on how conceptual order is initiated, maintained, and changed.

I use the term inspirational, as this study does not deal with sociology of scientific knowledge (SSK) and is far from what Collins does. However, the views that have evolved from SSK related research have been very inspirational in (a) creating the idea of this study and the questions asked, (b) guiding the research design, and (c) the way the study was conducted and the findings were analyzed.

It may be argued that Collins's views have evolved in the field of sociology of scientific knowledge with intentions different to the aims of this study. Therefore, questions may be raised as to the appropriateness of the application of his views in the analysis of the LMS decision process. As will be shown in the next section I establish a parallel between the context of LMS decisions and the restrictive views of sociology of knowledge, and hence, the intentions of this study and the objectives of the non-restrictive views that have evolved within STS and SSK. Furthermore, although the focus in Collins's analyses is the scientific practice, his intentions go beyond this focus and he treats a wider topic. For Collins, the scientific practices are seen "as broadly exemplary of all cultural development and innovation" (Collins, 1992: 18).

4.2.1 Methodological Symmetry

In order to lay the background for Collins's views, one needs to go back to the school of thought that has become known as the Edinburgh school which builds around the views proposed by Bloor and contributions by other scholars such as Barnes and MacKenzie. Traditionally sociology of knowledge was not seen able to investigate and explain the very content and nature of scientific knowledge. Adherents to the restrictive view believed that knowledge being distinct from the circumstances surrounding its production would be beyond the bounds of sociology. In the restrictive view, therefore, the explanation of why a rational belief is held would differ from the explanation of why an irrational belief is held. In other words, rational beliefs should be explained by the fact that they are rational, while in case of irrational beliefs causal, socio-psychological or external explanations are called for.

The Edinburgh school of thought builds on the Strong Programme, initially proposed by Bloor, ([1976] 1991). The Strong Programme tries to overcome asymmetrical treatments and rejects a restrictive notion of sociology of knowledge. Instead, it argues for, and encourages, the search for various social factors that contribute to the explanation of formal reasoning (Bloor, 1991: 3).

The strong Programme includes four tenets of causality, impartiality, symmetry, and reflexivity. The most relevant of these tenets for this study is that of symmetry[8], which is explained by Bloor (1991: 7) as, "It [the sociology of scientific knowledge] would be symmetrical in its style of explanation. The same types of cause would explain, say true and false beliefs". Unlike the restricted view, in the Edinburgh school it is proposed that,

> "all beliefs are on a par with one another with respect to the causes of their credibility. It is not that all beliefs are equally true or equally false, but that regardless of truth and falsity the fact of their credibility is to be seen as equally problematic. […] This means that regardless of whether the sociologist evaluates a belief as true or rational, or as false and irrational, he must search for the causes of its credibility." Barnes and Bloor (1982: 23)

However, the tenets of the strong Programme are discussed on different fronts and debated widely. To overcome some of the problems that are highlighted in such debates, Collins (1981) proposes a modified version of this programme, where the first and the fourth of these tenets (i.e. causality and reflexivity) that

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[8] For further discussions of the requirement of symmetry and its philosophical implications and its viability (or not) see e.g. Larsson (2003); Newton-Smith (1981); many writings of Barnes and Bloor; various writings by Collins; as well as various entries in Labinger and Collins (2001).

are the subjects of most critiques, are removed and hence only the second and third of these tenets (i.e. impartiality and symmetry) are kept. Collins refers to this modified version as the Radical Programme.

Larsson (2003) argues that the implications of the tenet of symmetry proposed by Collins are somewhat different to that proposed by Bloor. As Larsson states, "Collins is not interested in the causes that contribute to bringing about actions and beliefs, but rather in their effects" (2003: 129). That is, the Strong Programme and the Radical Programme vary in their emphasis on cause or effect. Therefore, for the purpose of this study the adoption of the Radical Programme has been more fruitful. The type of explanations acceptable according to the Radical Programme would be those that do not include terms such as true, rational, successful, or progressive at all, or alternatively the type of explanations that use these terms exclusively as actors' categories. Collins (1981: 221) further states that one should "avoid all reference to what is inside actors' heads in all explanations of scientific knowledge".

In this study, I am interested in the effects that various views may have on the LMS decision process. I do not attempt to get access to "what is inside actors' heads", I rather try to investigate various practices that may exist. I do not study whether a system is superior compared to other potential choices; I rather look at how a system achieves its status as superior in the LMS selection process. I also investigate potential mechanisms that play a role in this.

In adopting this perspective, I have tried to draw a parallel between some of the discussions in the sociology of knowledge and LMS decision making. Traditionally, a common assumption in decision making has been that individuals and organizations follow an intentional and rational logic in their decision making activities. Although this has been challenged, as shown in the literature review, much of the existing models of LMS selection imply an underlying assumption of rationality. It has been a tradition in STS studies to show that in both rational and irrational beliefs social influences have been at play. In LMS decision explanations, an asymmetrical treatment can occur. The choice of successful systems may be justified based on the merits and strengths of the selected system, whereas in unsuccessful outcomes, other explanations may be offered. In such asymmetrical treatments, a similarity between LMS decision explanations and the restrictive notion of sociology of science can be recognized. Therefore, one of the reasons for the adoption of methodological requirement of symmetry as part of my theoretical framework relates to the parallel that I see between the purpose of non-restrictive social studies of science and what I intend to do in my study of the LMS decision making process.

4.2.2 Creation and Maintenance of Conceptual Order

Many studies associated with both the Edinburgh and Bath schools focus on controversies. That is, situations where it is hard to judge the 'truth' or merits of contradictory rival views. In closing the controversies, decisions are being made about what the scientific community believes and why. In typical STS controversy studies, the mechanisms, and practices that lead to closing the controversies are studied. A similar situation is created when libraries are faced with an LMS decision among a number of difficult-to-evaluate options. In the LMS selection process, decisions are being made about what the members of a library or an organization believe and why. Here, similar to STS studies, I examine the mechanisms and practices that lead to LMS decision outcomes.

Some of the objectives of this study are to identify various practices that are possibly utilized in order to establish 'matters of facts', and to examine how different beliefs and criteria, which are used during the selection process, achieve their status and credibility and how consensus and closure is reached. These are typical of the types of objectives in studies by followers of the Bath school, (although the topics of investigation are different in STS and in this study). Therefore, I find Collins's views to provide a suitable analytical dimension as part of the theoretical framework for investigating similar questions in relation to the LMS decision.

What Collins (1992) is interested in is to examine the ways in which concerted perception and action come about. Although there are variations in perception between different groups, he proposes that much of our normal life and our culture would not be possible if people could not generally see things and responded to them in similar ways. Formation of groups is based on 'the uniformities within them'. Collins explains, "[t]he fact is that there are groups, societies, and cultures; therefore, there must be large scale uniformities of perception and meaning" (ibid: 5). Therefore, although concentrating on how scientists come to perceive and describe natural phenomena in a uniform way, what Collins sets out to do is to investigate and to provide insights into the deeper problem of culture by investigating how these concerted perceptions actually come about. Collins suggests that such concerted perceptions and action are formed and come about in such 'unthinking ease' that their formation hardly looks like an achievement at all. He has used an analogy to ships in bottles in saying that it is hard to conceive the artful trick that has been required to get them in. He suggests that to find out how our common perceptions are formed we need to free our mind from the taken for granted ways of seeing and instead try to see the small components, from which these ships are built. To this end, he uses philosophical scepticism, however, with a shift of focus, which he calls 'sociological resolution'. Rather than asking how

one can in principle be certain about induced regularities, he asks, "how we actually come to be certain about regularities in *practice*" (Collins 1992: 6 – italics in the original). To elaborate on this, Collins exemplifies using a number of regularities of the form a-b in terms of billiard balls striking one another (where the second ball rolls away, when the first one has struck it) and weather forecast (where in an ideal case it rains every time that weather person says that it will rain). He then asks how one can see whether these sequences are extended coincidences or causal relationships. In other words what is it that we see in the first example that makes us view it as a causal relationship. According to Collins the answer to this question is 'nothing', thus in his studies he sets out to investigate what goes into the process that leads to our perceptions. Collins presents views by Goodman, for example:

> "I submit that the judgment of projectibility has derived from the habitual projection, rather than the habitual projection from the judgment of projectibility. The reason why only the right predicates happen so luckily to have become well entrenched is just that the well entrenched predicates have thereby become the right ones." (as cited in Collins 1992: 11)

Collins, in agreement with Nelson Goodman, states that "[o]ur language and our social life are so intermingled that our habits of speech help determine the way we see the world and thus help form the basis for social interactions" (Collins, 1992: 11). However, he suggests that although Goodman may have solved a philosophical problem, he has not solved the sociological puzzle as he fails to answer questions such as "how we first came by these particular orderly ways of seeing, how we maintain them and how we develop new ones" (ibid). Goodman presents a discussion that we see regularity due to our entrenched linguistic practices. Goodman clarifies this by an example where he talks about a colour called *grue* (a colour that is green up to a certain time and blue after a time in future). He suggests that we can project that something will be 'green' rather than grue (although grue could technically be a valid option[9]) because green is a better-entrenched predicate than grue. Collins's view is that at times there are several equally entrenched terms available, therefore, the existence of entrenched terms "does not explain the orderliness of any mode of perception" (ibid: 12). He then expands the discussion to all perceptual modes, from language to every cultural activity and asks whether there exists a set of rules fixed within our brains that allows us to organize sense experiences, and proposes that Wittgenstein's analysis of rule following suggests that such a simple solution would be untenable. Collins presents that

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[9] To appreciate this example fully one needs to be aware of the background discussion related to the problem of induction, which is presented in many publications such as Sismondo (2004), Popper (1979), etc.

we all know the correct way of following a rule and argues that this is not due to rule's specifiability. Thus, while proposing that there must be something more to a rule, he suggests that this something is 'social convention'. According to Collins, Wittgenstein puts this in saying that we know how to go on in the same way as we share a 'form of life'. Accordingly, the stability of for example the greenness of emeralds, Collins argues is not due "only to the entrenchment of *green* but also to the stability of entrenchment of the concept of *emerald* and of *other green things*" (ibid: 131, emphasis added). He proposes that this is "a matter of *joint or multiple entrenchment*" (ibid, emphasis added). In his explanation of the 'joint or multiple entrenchment' Collins uses the metaphor of *network,* based on the writings of Mary Hesse. As such Collins is of the view that our concepts and social conventions reinforce each other, as in a network, explaining that order is maintained and that both "concepts and conventions are 'jointly entrenched' within 'forms of life'" (Collins, 1992: 2).

Another issue of interest for Collins is to examine how conceptual change comes about once social order is established. Collins does not find explanation of human action in terms of conceptual life satisfactory. He questions why a stable system of concepts should ever change? He argues that "conceptual frameworks will never generate trouble spontaneously; contradictions will not become apparent by themselves" (Collins, 1992: 27). He therefore, suggests that "[w]e must take it that people want change for reasons which emanate outside a closed conceptual system, if change is to be understood" (ibid).

Kuhn in Collins's view is the only recent philosopher of science who deals seriously with conceptual change, although his treatment is not seen as entirely successful. As Collins suggests, Kuhn "places too little emphasis on the social determinants of scientific revolutions" (ibid). A limitation that Collins discusses is related to the ambiguity of the notion of 'anomaly' which was proposed by Kuhn as a means of change. Collins explains further:

> "On the one hand, changes seem to be brought about, at least in part, by a build up of anomalies – these presumably must irritate scientists. But on the other hand, calling something an anomaly is a device for ignoring it – it enables it to be swept under the carpet, as it were, so that the appearance of the coherence of the paradigm is maintained. We have, then, an unsatisfactory idea of the build-up of an irritating mass of soothing things as partial conditions of the occurrence of a scientific revolution. Clearly, something more is needed. When and why do the soothing things become irritating? The notion of anomaly cannot, of itself, explain this."

The way Collins proceeds with his treatment of conceptual change is to argue that, like any other activity, science "rests on a foundation of taken-for-granted reality" (ibid: 18). One belief that is taken for granted, within the scientific world, is the value of replicability as a measure of validity of new claims and discoveries. In complex controversial situations, different experiments lead to different results. To determine which result is to be accepted, one needs to determine which experiments have been done well and competently. But to judge whether the experiment is done well and competently, one needs to know whether the outcome of the experiment is correct. This creates a circular dilemma that Collins calls 'the experimenter's regress' (Collins, 1992: 83-84; Collins & Pinch, 1993: 97-101). Collins, thus, examines the notion of replicability (Collins, 1975), and shows that it is "as much a philosophical and sociological puzzle as the problem of induction" (Collins, 1992: 19). Still, appeal to the argument of replicability is the way scientists establish the acceptance of their claims, and it is with this argument that new discoveries are established as part of public domain. By showing that replicability by itself is not a determinant of truth or falsity of a claim, he argues that entrenchment of the notion of replicability in our forms-of-life goes hand in hand "with the entrenching of the corresponding new elements in the conceptual/institutional network. This network is the fabric of scientific life" (ibid).

How this is done (or a ship is put together in a bottle) in practice is then explored by Collins in many different detailed case studies that are presented in his various publications (E.g. Collins 1992; Collins and Pinch 1993, 1998 etc).

In these, he examines ways in which scientific facts are established (e.g. by experiments and breaking the experimenter's regress); conceptual order is maintained (by crystallization and re-crystallization after periods of doubt); and at times changed (starting with a claim contradictory to the accepted view, ending with favourable closure through appeal to help from colleagues and other tactics). Collins (1992) does not "explain the establishment of any particular consensus", nor does he offer a theory of change (sociological or causal). He, instead, offers a description of how scientific form of life is transformed, and by this, he makes room for bringing about "a change in a well-established order of ideas concerning science as a whole" (ibid: 183).

In this study, the methodological symmetry outlines the position that is held. Case studies conducted by Collins and others show the way for adopting methodological symmetry. The concepts and theories related to the formation of social conventions that have emerged from Collins and colleagues' research (E.g. Collins 1992; Collins and Pinch 1993, 1998 etc) provide tools for analyzing the findings. Like Collins, I do not set out to find a casual theory of

LMS decision, by this study I intend to bring about change in well-established conceptualization of LMS decision.

4.3 Brunsson's Organizational Decision Theory

Brunsson (2000, 2007)[10] presents the long tradition in decision theories of adopting a perspective of 'from within' the institution of decision, whereby some basic aspects are taken for granted by the researchers, just as they are taken for granted by others in the same culture. In this view researchers share general institutional assumptions such as regarding 'choice' and 'decision' as synonymous, or viewing decisions as intentional acts, or that both the cause and effects of decisions involve choice. That is to say, both the intentions with, and the results of, decisions are seen to be choice of action.

An alternative perspective is that of looking at decision making "from the outside". A critical stance where institutional aspects are not taken for granted and indeed a question of study could be "why certain things are taken for granted" (Brunsson 2000: xi-xii). In this perspective, therefore, it is not taken for granted that the causes and effects of decisions are choice of actions, nor is it taken for granted that there is necessarily any relation between decision and action, or that a high degree of rationality is strived for or that rationality is achievable (ibid: xiii). Adopting this stance rather prompts other types of questions such as:

> "what gets people to make decisions, when or in what situations are decisions made and when are they not, and what actions are preceded by decisions and which ones are not? Who are allowed and willing to act as decision-makers in various context, and what are the requirements, the incentives and ways of achieving the authority to perform the role? What are the effects of decisions, and are there other effects apart from action choices?..." (ibid: xii-xiii)

It is this, "from the outside" perspective, that is espoused by Brunsson (2000: x) and is applied to his analysis of decision making in organizations, and the decision making's consequences for action and change.

Rather than viewing *decision* as synonymous with *choice*, Brunsson (2007: 1) argues for treating decision as "an institution – as a well-known pattern of action with a ready-made account and with rules that are taken for granted". *Decision making* is the associated *process*. Traditionally, the decision making process has been viewed as involving the identification of needs and wants,

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[10] For other related work, seealso Brunsson, 2002; Brunsson & Jacobsson, 2000; Brunsson and Olsen, 1993.

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evaluation of the potential alternative options, and a rational selection of the best outcome.

Brunsson questions both the general expectation in traditional theories, that individuals and organizations are to be rational, *and* the assumption that this rationality is possible or that the lack of it is a problem. Normative decision theory adheres to rational norms for reaching the best decisions. As explained by Brunsson (and others, cf. March & Olsen, 1984: 736), the general normal expectations in rational decision making are that one should predict preferences, generate action alternatives, predict all consequences of each of these alternatives and then compare and evaluate all of the consequences in order to choose the best possible outcome. In practice, it has been shown that following the rules of rational decision making is difficult and deviations occur. Decisions are often based on current preferences although they may change later, very few alternatives are normally taken into consideration, consequences are not often known and are often assessed by the rule of thumb and even when decision are made, one fails to act according to them (Brunsson, 2000: viv). Even so, in normative decision theory, these deviations are not seen as undermining the norms themselves. The underpinning view is that in order to choose the best alternative, one should strive to follow the rational norms, as closely as one can, although this is not fully possible.

In an alternative view, "decisions are seen as ways of finding out the choice prerequisites rather than the other way round". Here, "instead of waiting for uncertainty to be dissolved before the decision, the decision can be used for dissolving uncertainty" where at times decisions are not connected to choice at all (Brunsson 2007: 14-15). In line with this view, Brunsson separates the decision process from choice (a decision process does not necessarily lead to a choice, and a choice can be made without the presence of a decision process) and therefore, decision from action.

Informed by Berger and Luckmann (1966), Brunsson gets support from related research to show that people often use other forms of intelligence including imitation, rule following or experimentation, and that deviation from the rational norm is routine (ibid: viv). While, traditionally a common assumption has been that individuals and organizations follow an intentional and rational logic, the perspective proposed by Brunsson (2000) is to look at decision making as instances of rule-following. Rather than being guided by predictions of future states and choosing the best outcome based on careful examination of all the alternatives, one is guided by past ideas where existing rules guide the actions. Rules regarding appropriate actions can often be established by shared beliefs and norms, which can produce a similar pattern of actions among those who share these beliefs and norms – a view in which

special attention is paid to social institutions and cultural systems of beliefs and norms that people take for granted. Brunsson describes social institutions as "sets of very general rules which affect many people's actions in various social settings, thus explaining much individual and organizational action." (ibid: x)

Brunsson (ibid: xiii) observes that,

> "[t]he causes and effects of decisions do not necessarily correspond. A common cause of decision making is that there is an institutional rule saying that decisions should be made. The effects of decision processes and decisions can be manifold. Decision processes may affect what action is chosen, but they may also affect the chances of the chosen actions actually being performed."

Thus in conjunction with decision making, Brunsson introduces the closely related concept of *organizational ideology,* which is an important element in his analysis of decision related actions, as another aspect of organizational thinking. Here, decision making is seen as only one cognitive aspect of organizational life. Of other aspects, organizational members share interests that determine their participation in an organization or hold similar perceptions of the organisation and its environment, history or future, etc. It is cognitive phenomena such as these, which are referred to by Brunsson as *organizational ideologies* (ibid: 28). For Brunsson an ideology is defined as a set of ideas, while a person's ideas about a particular object or situation are termed as a *cognitive structure*. Brunsson distinguishes three kinds of ideologies in organizations, namely *subjective ideologies,* which refer to the individual cognitive structures of the organization members; *perceived ideologies*, which refer to members' ideas about the cognitive structures of their colleagues; and *objective ideologies,* which refer to ideas that are shared by all organizational members. Accordingly, ideologies "describe how things are and prescribe how they should be" – two, often independent, aspects that answer questions such as "How do organisation members act in relation to one another or to people outside the organisation?" and "What has already happened (history), or what is going to happen (expectations)?" According to Brunsson, ideologies both define what is perceived as fact, and decide what facts will seem important (ibid).

Brunsson (2007) identifies three further consequences of decision other than choice. These are *action*, *responsibility,* and *legitimacy*. Based on the consequence that is foreseen the level of rationality in the decision process can vary.

If the objective of organizations is to coordinate action and to achieve results beyond the reach of unorganised individuals, then Brunsson argues that in complex situations, trying to comply with the demands of rational decision making can in fact hamper coordinated organizational action. Hence, by separating action from decision, Brunsson develops a theory of organizational action for change that differentiates between 'decision rationality' and 'action rationality' (or action intelligence).

Brunsson (2000: 13-34) proposes three conditions for organizational action: *expectation*, *motivation*, and *commitment*. The first two conditions, expectation and motivation, are sensitive to uncertainty. If organization members are unsure of what outcome can be expected or are uncertain of an action's value, they are less likely to undertake the required individual actions. The third condition, commitment, is the social aspect of action. In order for people to be willing to participate in a common act, they will need some form of control over one another in being able to rely on certain types of attitudes and behaviours in the rest of the team. "This control is secured by creation of mutual commitment" (ibid: 20). These conditions are not mutually independent and their importance varies with the situation. Therefore, in real decision situations the norms of rational decision making are not always followed nor are these most useful as these norms can counteract the conditions for action. Therefore, Brunsson argues that in "big" decisions, which are to be used in successfully initiating potentially risky change action 'decision rationality' is less useful, and proposes that here action would be facilitated by "action rationality" which involves a combination of rule-following and systematic irrationality and refers to situations that lead to promotion of the relevant condition(s) of action named above. (ibid: xv).

At times, in organizations, the decision process may be used to reduce the uncertainty, not only about the decision, but also about the decision makers. In such cases, decision making is used as a means of allocating responsibility. The connotation of the concept of responsibility as used here, refers to the attribution of causes. "If a person is perceived as being the cause of an event, he or she is considered responsible for it" (Brunsson, 2007: 17). This causal definition is dependent on the actor's involvement on voluntary basis; those that are forced to take certain actions are not seen as responsible for the action. As Brunsson explains, "responsibility is given to individuals who are observed (by themselves and others) to have affected events (or just their own actions) by having freely chosen and carried out one of several possible actions or inactions" (2007: 18). Brunsson explains that the standard decision making places the responsibility on the decision makers and for this, both the decision process and the decision makers are to be highly visible (e.g. through minutes and formal meetings, voting, arguments). If the decision makers do not want

the responsibility, they can make the decision or their role less visible (e.g. by not participating in a related meeting). Alternatively, rational decision procedures can be used. The use of rational decision procedures in such cases is to illustrate that the decision is based on logical, objective and impersonal grounds and not specifically tied to the decision makers.

Responsibility can affect both the decision maker and actions and it can be seen as a link between these. Decision making, in which responsibility for the decision is accepted by decision makers with high levels of personal or role legitimacy, allocates legitimacy to the action. Again, decision making that is used as a legitimating device, "must be clearly visible to the environment" (Brunsson, 2007: 26).

Brunsson (2007: 98) identifies three different tools or organizational outputs, which can provide legitimacy for the organization: talk, decision, and action. By talk, he refers to "the spoken and written word with which the organization presents itself to its environment" (ibid: 26). Brunsson further suggests that in situations of inconsistent norms, there could exist inconsistent talks, decisions, and actions. That is, inconsistent talks, decisions, and actions can each be used to satisfy some of the existing demands or views. Alternatively, inconsistent explanations of the same decision may be offered to different groups.

According to Brunsson, application of rationalistic decision processes are of interest for supporting the cause of action in two types of organizations; those that cannot use their ideologies as instruments of choice due to inconclusive or inconsistent ideologies, and those in which rationality is prized highly and represents a basis for legitimising actions and the organization (Brunsson, 2000: 61). In such cases the dilemma of a simultaneous quest for decision rationality and action rationality can lead to appropriating the decision process to achieve different ends such as to arouse commitment to the decision or create expectations or motivation. (ibid: 85-86)

This study investigates the LMS selection decisions with a focus on the social aspects involved and the effects of these on the process and outcome. The views presented above provided me with support in the design of my data collection activities and the analysis of my findings. The above views guided me to assume a 'from the outside' stance, questioning the taken for granted, in conducting my investigation in accordance to the aim of this study. Accordingly, during the study I paid attention to possible ideologies, norms guiding rules, and potential relationships between action and decision.

Skelley (2000), while promoting Brunsson's works, suggests that association of Brunsson to institutional perspective might deter some from making use of

his work. In the institutional view, the organization and the larger institutional contexts are greater than the sum of their individual human parts; hence, the emphasis is placed on the macro structures. With this research being about an understanding of the interactions between the micro and macro, I have tried to find a way of bridging the individual-structure duality by the inclusion of analytical tools provided by other views that support this pursuit.

4.4 Giddens's Duality of Structure

Giddens (1984) draws on a number of different ideas from divergent sources in developing his structuration theory. [11] It is not only Giddens's (1984) views on the use of various theories in the same framework that meet well with the view adopted here, of a greater interest for my research is his attempt to overcome such dualities in social theory as micro-macro or actor-structure. Giddens (1984) rejects the idea of macro structural social properties being built upon encounters in circumstances of co-presence. He also rejects the idea of interactions in situations of co-presence being short lived as contrasted to the solidity of long-established institutions. In his view, social life is not the sum of its micro-level activities, nor can social activity be completely explained from a macro perspective. While Giddens acknowledges the call for decentring of the subject, he does not accept the removal of subject and subjectivity. He does not focus on either the individual actor or societal totality but rather on social practices ordered across space and time: "social practices, biting into space and time, are considered to be at the root of the constitution of both subject and social object" (Giddens, 1984: xxii).

Layder (2006: 156) explains that Giddens is interested in breaking down dualities such as micro-macro and focuses on their convergence. Giddens does this in what he calls the *structuration* theory. Structuration refers to the conditions within which structures are shaped and reshaped, and hence the preproduction of social system. In trying to resolve the action-structure dualism within the structuration theory, Giddens introduces the *duality of structure* where structure is seen both as the medium and outcome of the conduct that it recursively organizes. Here, "the structural properties of social systems do not exist outside of action but are chronically implicated in its productions and reproduction" (Giddens, 1984: 374). Accordingly, activities contribute to reproduction of structures as well as being shaped by them. Therefore, by performing their activities, actors draw upon the rules and resources that make up the structure while at the same time, through

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[11] He argues that if ideas are important and illuminating, their origins should not be a barrier in taking advantage of their usefulness "even if within a framework which might be quite different from that which helped to engender them" (p. xxii).

performing these activities, those rules and resources are produced and reproduced. A number of other terms are integral to Giddens's conceptualization of duality of structure including structure, structural properties, structural principles and system (Giddens, 1984: 376-7; see appendix 7 for definitions of these terms).

For Giddens, structures can be conceptualized as *rules* and *resources* organized as properties of the social system. Two aspects of rules (whether codified and unwritten) are of interest: *constitution of meaning* and the *sanctioning* of modes of social conduct. Resources are seen as structured properties of social system, which are drawn upon and reproduced by agents in course of interaction. Giddens identifies two types of resources that constitute structures of domination: *allocative* and *authoritative*. Allocative resources refer to capabilities, or forms of transformative capacity "generating command over objects, goods or material phenomena" (Giddens, 1984: 33). Although some allocative resources may seem to have a 'real existence', Giddens argues that their 'materiality' does not contradict with their becoming resources. Authoritative resources on the other hand refer to "types of transformative capacity generating command over persons or actors" (Giddens, 1984: 33).

Structure 'as recursively organized sets of rules and resources', Giddens (1984: 25) explains, "is out of time and space, save in its instantiations and co-ordination as memory traces, and is marked by an 'absence of the subject'. In this sense, as Bryant and Jary, (2001: 12) elaborate "they have only a *virtual* existence". Social systems, which as Giddens (1984: 25) explains "comprise the situated activities of human agents, reproduced across time and space", on the other hand, have an actual existence (Bryant & Jary, 2001: 12). To better understand this, one can consider the comparison that Giddens (1984: 21-22, 24) draws between *speech* as an element of action and interaction and *language* which he views as 'structure' or 'structural property' of a community of speakers. As Roberts and Scapens (1985: 446) elaborate "[w]hereas speech is always situated in space and time, language is a 'virtual order' outside space and time. Speech involves the activity of subjects, language does not". In other words, the rules of language exist in knowledge and memory traces of agents out of time and space, while a particular speech is the visible act of an agent across time and space.

Giddens (1984: 28-33) clarifies the main dimensions of this duality of structure by what he calls the 'modalities' of structuration, depicted as follows:

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structure signification ←----→ domination ←----→ legitimation

(modality) interpretive scheme   facility   norm

interaction communication ←----→ power ←----→ sanction
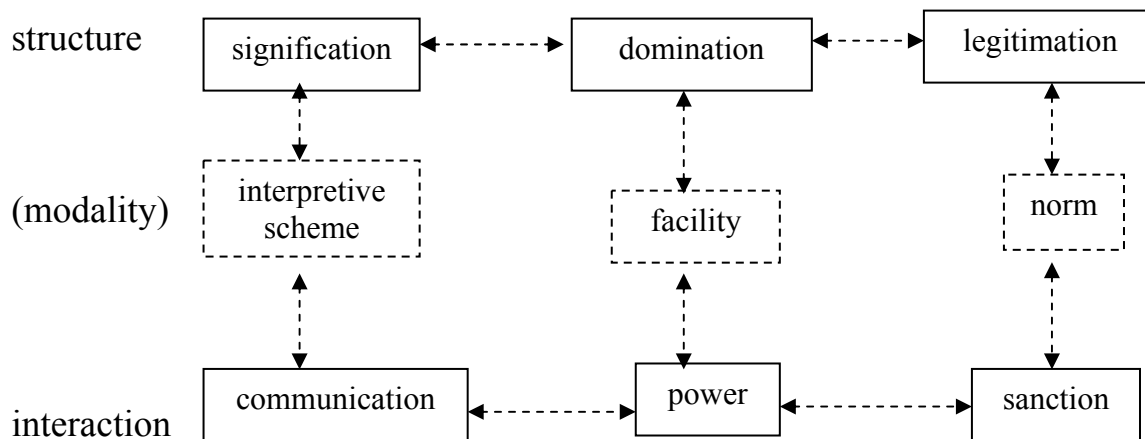
Figure 4 – Dimensions of the duality of structure (Reproduced by permission of Polity Press; from Giddens, 1984: 29)

These interlinked dimensions are to be grasped in connection with each other. According to Giddens, the identification of acts or aspects of interaction "implies the interlacing of meaning, normative elements, and power". The modalities of structuration relate "the knowledgeable capacities of agents to structural features" where actors draw upon these "in the reproduction of systems of interaction", while they reconstitute "their structural properties". (Quotations from Giddens, 1984: 28)

Another concept discussed by Giddens, which is instructive for this study, is the distinction between *practical* and *discursive consciousness*. The practical consciousness refers to actors' tacit knowledge about how to 'go on' in various contexts of social life without being able to express this knowledge discursively. The discursive consciousness, on the other hand, refers to the ability to describe coherently actions and reasons for them (Giddens, 1984: 44).

A further concept of interest is that of routinization. A basic element of day-to-day social activity is the routine, which is what one does habitually. This is primarily carried in practical consciousness. The recursive nature of social life is grounded in the repetitiveness of activities that are done in similar fashion day after day. This refers to structural properties of social activity being "recreated out of the very resources which constitute them" (Giddens, 1984: xxiii). Routinization leads to a sense of security in the daily activities of social life; an effect that plays a role in explaining the fixity of much of social conduct.

Bryant and Jary (2001: 33) propose that Giddens's approach to the agency structure and micro-macro is the most persuasive of all debates on offer. Giddens's structuration theory is very extensive and can be used to understand

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a great number of topics from the nature of day-to-day activities to the nature of modernity and evolutionary theories of society (e.g. Layder, 2006: 156). Structuration theory, in its full extent, is not considered in this work. My use of the views presented by Giddens is limited to the notion of duality of structure and the dynamics of action, interaction, and structure. Furthermore, I limit the use of these concepts within this study to the boundaries of the LMS decision process within organizations.

In response to the critiques that propose that duality of structure cannot account for the constitution of social systems, Giddens (1993: 6) reaffirms that the duality of structure does not 'account for' anything; it has rather an explanatory value, which is what I intend to make use of in analysing and discussing the finding of this study[12]. The implications of these views for the choice of method will be further discussed in the next chapter.

4.5 Section Conclusion

My choice of theory has involved a long journey, during which many different views have been considered. With the aim of this study in mind, and much deliberation, this combination of views emerged as a viable and strong alternative approach in analysing the LMS decision process.

The 'from the outside' perspective, the methodological requirement of symmetry, and overcoming dualism such as actor-structure are themes that run throughout this study. Brunsson's views allow an analysis of the decision process; Collins's views help explain how conceptual order is achieved; and Giddens's duality of structure allows an examination of how social order is formed within this process. In the following chapter, I will explain further on the way these views are used and the implications of each of these views on the design of this study.

The synthesis of the presented theories should not be interpreted as equating these theories. Each of these theoretical views is used as an analytical tool at various levels of analysis. Theory triangulation is a strategy that is advocated by many scholars (e.g. Denzin, 1989; Patton, 2002; Yin, 2009), based on whose recommendations, it is envisaged that the use of these multiple theories will lead to enriched analyses and useful insights in our understanding of the LMS decision process.

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[12] Many studies in different fields make use of Giddens's structuration theory. These are instructive in demonstrating possible applications of this theory. For a couple of examples see DeSanctis and Poole (1994), and Orlikowski (1992).

5. Research Methodology

E ach scholarly investigation demands a number of decisions regarding ontological and epistemological issues, the relationship between research and theory, and data collection and analysis methods. These elements are interrelated and one should not just adopt a method without having carefully considered these issues. Even if not explicitly stated, any choice of method or theory implies some underpinning assumptions. In this chapter, I discuss these matters as they relate to this research and an investigation of LMS decision making process.

The choice of approach adopted in this study has been deliberate. The path to the adoption of this approach has involved considering the recommendations that promote adoption of varied meta-theoretical perspectives.

Burrell and Morgan (1979) presented four different paradigms (Functionalist paradigm, Interpretive paradigm, Radical Humanist and Radical Structuralist[)] in understanding organizations from a social perspective. Since the publication of that paper, other scholars have examined the state of theory in their respective disciplines (e.g. Chua, 1986 in the field of accounting; Orlikowski & Baroudi, 1991 in the field of IS and Benediktsson, 1989; Day, 1996; and Hjørland, 2000 in the field of LIS). Based on such examinations, these writers have proposed a better examination of the philosophical (meta-theoretical) assumptions that inform the theories of their respective area. Accordingly, recommendations have been made to adopt varied philosophical assumptions in order to enrich the accumulated knowledge. Since the publication of those seminal articles, much diversification of theory use has happened within a number of fields (see e.g. Jones and Karsten, 2008: 127).

Therefore, espousing the above recommendation, to enrich our understanding of the LMS decision process, a social constructive perspective (as opposed to a traditional positivistic viewpoint) was adopted in this study.

5.1 Methodological Implication of the Theoretical Framework

The approach adopted in this study, in accordance with adaptive theory (Layder, 1998) was to construct novel theory in the context of my ongoing study by considering both prior theory and theory emergent from the collected data and analysis. That is to say while I started my study by investigating the microsocial processes in the LMS selection, I was open to allowing the findings of the study guide further steps of the study efforts (c.f. Eisenhardt, 1989). In the theory chapter, I presented my theoretical framework, as a

synthesis of a number of theories that inform this study. What is of interest is to examine the underpinning assumptions as well as the implications of these theories on the choice of data collection and analysis methods.

The following figure shows the overall ontological stance taken in this study as compared with other views that treat the agency and the structure as a dichotomy.
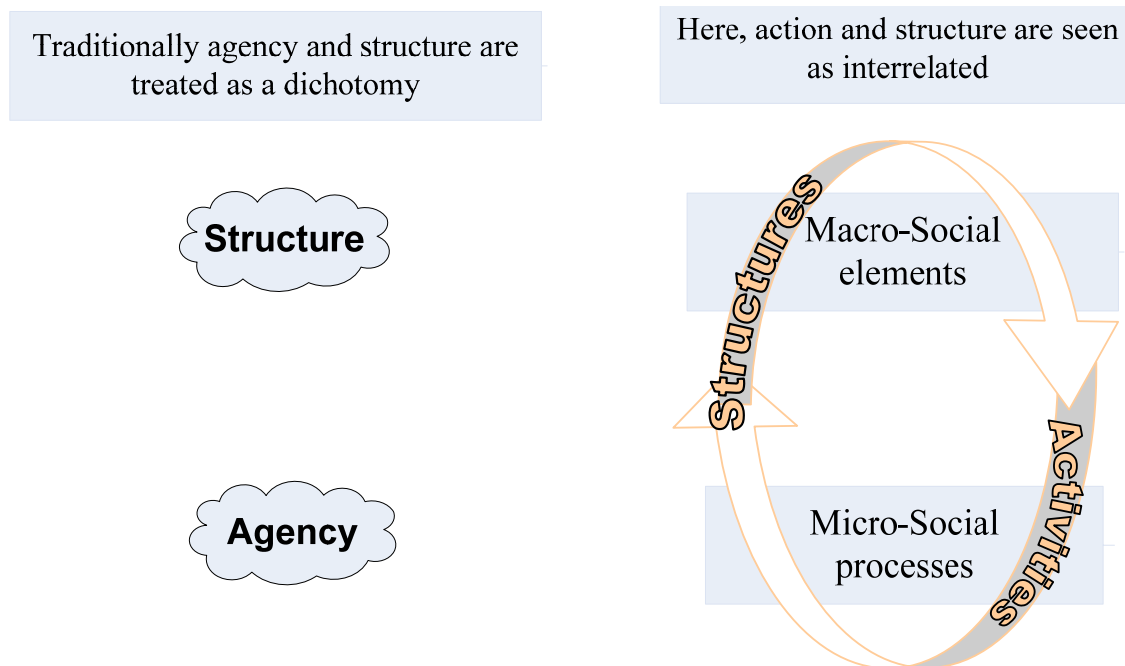
Figure 5 – the traditional view of agency and structures vs. the view adopted in this study

The left hand side of the drawing depicts the traditionally held dichotomy between agency and structure reflected in different ontological positions held in various strands of social theory. That is, on the one hand, there are social theorists that follow the views presented by Weber and see the social reality as subjective and social systems as based on meaningful human behaviour. On the other hand, there are those who build on the views proposed by Durkheim who argued for the primacy of society over the individual person and that society is more than the sum of its individual parts. In the latter, the social system is regarded as objective and the institutional aspects of social systems are of the primary concern. Here, the institutional aspects are seen to be constraining and independent of human action (see Giddens, 2006; Orlikowski & Robey, 1991; c.f. Burrel & Morgan, 1979; and Layder, 2006).

On the right hand side of the figure, the view that is adopted in this study is shown. This is to indicate the ambition of the study as an examination of the microsocial processes in relation to potential structures (and vice versa) in the limited context of LMS decision making. The study started by looking at the day-to-day activities and microsocial processes that were involved in the LMS

selection process. While doing so, attention was paid to potential norms, rules, and resources (structures) that could influence, or be influenced, by the related activities and processes. This in order to examine the relationship between agency and structure, not as separated dualism, but rather as a duality of structure, where activities both contribute to production/reproduction of structures and are shaped by them.

The way the underpinning theoretical elements are brought together is as follows. The study of microsocial processes is inspired by STS and Collins's methodological symmetry. To analyse the decision process and potential influences, the views put forward by Brunsson guide the study. To examine the potential interactions between activities and structures, Giddens's view on the duality of structure informs the analyses.

This assemblage of the theoretical views can be depicted in the following figure.
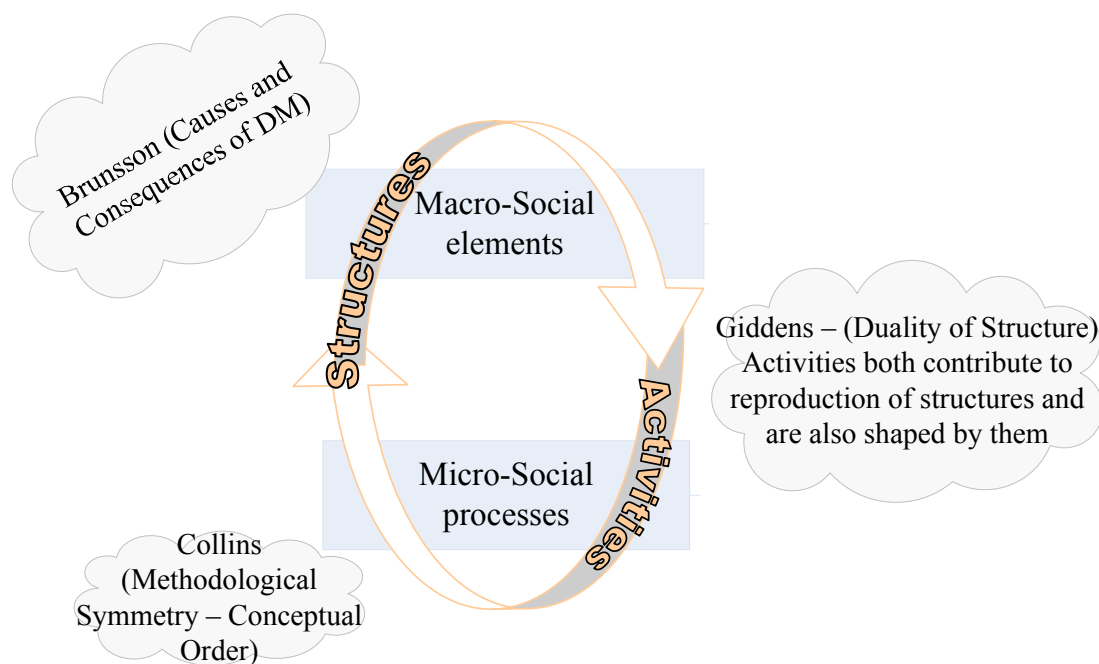
Figure 6 – Application of the theoretical framework

5.1.1 Collins and Microsocial Processes

In the previous chapter, I mentioned that in conducting this study I have been inspired by the Radical Programme (Collins, 1981), and the methodological symmetry. The adoption of this perspective and its meta-theoretical and methodological underpinnings brings forth a number of implications for the issues examined in this research, the choice and use of methods, data-collection activities, analysis, and the way the study is conducted.

For one thing, some of the objectives of this study are similar to the objectives of studies conducted by followers of the Bath school. These include identifying various practices that are used in order to establish 'matters of facts', examining how different beliefs and criteria, which are used during the selection process, achieve their status and credibility, and investigating how consensus and closure is reached. Collins's views on how shared perceptions are formed, and conceptual order is maintained and changed is instructive in this respect. Furthermore, the methodological tenet of symmetry is a suitable stance to be held in any sociological investigation and hence this investigation of the social issues related to the LMS decision process. In the analysis of the data, actors' categories of true and false or rational and irrational are treated similarly, and what are perceived as successful or unsuccessful outcomes are examined symmetrically. That is, the same types of explanations are invoked in both the perceived successful and unsuccessful outcomes. Here, rather than judging whether a chosen system is superior, I examine how a chosen system achieves its status as the superior LMS in the process of LMS decision.

Next, according to Van House, those associated with the Edinburgh school "examined classical macrosocial variables to show that not only access to resources but also the outcomes and content of science were influenced by class, professional interests, and other institutional factors" (2004: 10). In the Edinburgh school, the focus is placed on the *macro*social, whereas in Collins's and associates' work, the focus is on the *micro*social processes (ibid). In this study, I take support from the views presented by Collins in investigating the microsocial processes and practices that may exist in the LMS selection and decision process.

Moreover, Collins discusses that much of our knowledge seems to be 'solid', not requiring any justification. He uses the analogy with ships in the bottle. It is hard to imagine how the ships have been placed inside the bottles unless we follow the process of forming these ships, stick by stick. That is, to understand how facts and ideas are formed we need to look at them "while they are being formed, before they have become 'set' as part of anyone's natural […] world" (Collins, 1975: 205-206). Based on this, and as typical of other studies that adopt this perspective, observation becomes a preferred method, and a concurrent mode of study takes precedence over retrospective examination of past events.

As a further implication, "what is inside actors' heads" is not the focus of this study. Although a number of central concepts in the study, such as perceptions, values, belief, and conceptual order refer to cognitive attributes, the emphasis in this thesis is not a psychological study of these at a cognitive level. What Collins is interested in, is the reasons for formation and change of

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conceptual order "which emanate outside a closed conceptual system" (Collins, 1992: 27). That is, he is interested in the 'social determinants' rather than cognitive activities within actors' head. He looks at the social circumstances surrounding the formation of shared ideas.[13] That is the way this study is conducted. By the use of the chosen methods and through the applied analyses, I examine and question the effects that various expressed views may have on the LMS decision process. The focus is on actions and observable activities rather than internal cognitive processes. I look for potential mechanisms that may play a role in the process.

Finally, in data collection, a critical position is held where the participants' black-boxed taken for granted beliefs are not taken for granted by the researcher; instead they are searched for, identified, opened up, questioned, and their implications observed.

5.1.2 Brunsson and Decision Making

When it comes to the decision process in LMS selection, this study is informed by the views presented by Brunsson (2007). LMS are very comprehensive. As outlined earlier (section 2.3), a rationalistic evaluation of a number of such systems in order to choose the best option demands exorbitant resources and can therefore, become problematic. The traditional rationalistic theories of decision making do not seem to provide a suitable analytical tool in studying the decision making that takes place in selection of LMS. As indicated at the start of this chapter, at times assuming alternative theoretical positions can enrich our accumulated knowledge.

Adopting Brunsson's views as a lens through which the LMS decision process is examined is such an endeavour where an alternative stance to the traditional views is held. This has a number of major implications for this study. First, the types of research questions that are asked are different to those asked in traditional rational decision models. Rather than looking for normative guidelines to maximize utility, questions are asked related to the causes and consequences of the decision process. Second, adoption of this view influences the position that is held in this study and the types of analyses attempted. Brunsson takes a 'from-the-outside' stance and treats decision making as instances of rule-following (Brunsson, 2007). Rather than assuming that the outcome of an LMS decision is the choice of a system, for example, potential alternative outcomes have been allowed attention and space.

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[13] Compare with the view put forward by Burger and Luckmann (1966: 50-51) regarding 'objectivation of human subjectivity', where as a crucial case of this, signs and sign systems is proposed to be "objectively available beyond the expression of subjective intentions".

To access data that allow required analyses, adoption of this view guided the identification of the relevant data and appropriate data collection methods. That is, retrospective interviews or document collections alone would not give first-hand access to, for example, what was taken for granted along the line, or the detailed discussions within meetings, talks, actions and sub-decisions and so on. To access the required data, a predominantly concurrent study, with inclusion of a mix of methods was called for. The combination of methods used in this study made it possible to access details that otherwise would have not been reachable.

What this and the position presented in the previous section have in common is their critical stance, where matters of facts and the taken for granted beliefs and views are identified and questioned. A combination of these two views enables answers to the objectives of this study in identifying potential practices and processes that take place in the LMS decision activities and possible institutional norms and structures that may influence some of these practices. In line with 'methodological symmetry', microsocial processes are studied and in line with 'decision making as rule following', the norms and rules that influence the decision-making are analysed.

5.1.3 Giddens and Duality of Structure

The question remains, however, as to the relationship between the day-to-day activities and encounters that takes place in LMS selection process and the wider social environment. Is there a relationship between the day-to-day practices and wider social structures? Should either of the micro or macro perspectives take precedence in the understanding of the social reality in relation to LMS selection?

In sociology, this question is related to dualisms such as micro-macro, subjectivism-objectivism, individual-society, action-structure and more. There have traditionally been two camps related to the ontological questions of the makeup of the social world. The question relates to whether individuals shape the social reality or society takes primacy over the individuals. In Functionalism and Structuralism, the individual is seen as determined by society while in the interpretive approaches the individual is seen as the producer of social reality (see e.g. Layder, 2006). That is, in these schools of social theory, the subject and object, the individual and society, and the micro and macro are treated as a 'dualism'.

My view of the relationship between the activities of library workers in their LMS selection efforts and the wider social structures does not fall within either of these camps. When it comes to the relationship micro-macro or

agency-structure, my thoughts follow views that see such divisions broken down and instead focus on their convergence. In such views, social life is not the sum of its micro-level activities, nor can social activity be completely explained from a macro perspective. Here "the structural properties of social systems do not exist outside of action but are chronically implicated in its productions and reproduction" (Giddens, 1984: 374).

A study of the interactions and the relationship between micro individual and macro societal levels is beyond this project. However, it is possible to a certain degree to study microsocial activities (in line with Collins's views) and examine, whether the circumstances of the selection affect their actions (in line with Brunsson's views) and whether the activities of people who are engaged in selection of an LMS shape the circumstances that they find themselves in (in line with Giddens's views). An interest in the study is related to the practices, beliefs, and criteria used during the selection process. The focus has been on how these achieve their status and credibility in social interactions and how consensus and closure is reached. Closely related questions of interest have been how the taken for granted elements become taken for granted or how the values that are accepted by the participants (agents, actors) in turn affect their behaviour. This is where Giddens's (1984) conceptualization of structure as a duality, becomes instructive, where structure is seen both as the medium and outcome of the conduct that it recursively organizes. Therefore, in studying potential relationships between microsocial practices and the rules and resources, I make use of the views put forth by Giddens (1984).

For Giddens (e.g. 1984: xx) ontological questions take precedence over epistemological concerns. Giddens (1984) does not focus on either the individual actor or societal totality but rather on social practices ordered across space and time: "social practices, biting into space and time, are considered to be at the root of the constitution of both subject and social object" (Giddens, 1984: xxii).[14] This provides the grounds for the ontological position held in this study with regard to the relationship between, and the position of, individual/actor and structures found in an LMS decision process. Dimensions of the duality of structure as presented by Giddens are instructive in examining and in forming an understanding of the production and reproduction of structural properties of LMS decision making in the actions that take place during the process of decision making. Accordingly, attention has been paid to both practical and discursive consciousness and routinization in interviews and observations. Focus is directed at how activities may

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[14] The relevance and value of this perspective in understanding a wide range of topics including organizations (e.g. Roberts & Scapens,1985: 445), is witnessed in the growth of scholarly writings that have adopted this perspective (see Brayant & Jary, 2001: 46).

contribute to reproduction of, or be shaped by structures. Adoption of this view adds an extra dimension to the level of analysis in this study, bringing together the findings of the study that are based on the use of the other two views mentioned above.

5.1.4 Adaptive Theory and Theory Use

The idea of synthesising various theories to form the theoretical framework is not unique to this study and Layder (1998) provides guidelines with the help of which this synthesis is achieved. Even Giddens (1984) draws on a number of different ideas from divergent sources in developing his structuration theory. He argues that if ideas are important and illuminating their origins should not be a barrier in taking advantage of their usefulness "even if within a framework which might be quite different from that which helped to engender them" (p. xxii). Furthermore, as the history of our collective knowledge demonstrates, many different approaches have been utilized in building the theories that form our knowledge and many different approaches have been adopted in the pursuit of uncovering the unknowns. Indeed sometimes very enlightening new insights have come forth due to unconventional approaches or applications of concepts from one area of investigation to another.

Naturally, there are major differences in the views utilized in this study and especially in the underpinning meta-theoretical issues. My intention here is not to equate these positions or claim anything more than admitting that I find each of these views instructive in its own particular way in helping me achieve the goal of this study and in providing me with an analytical tool to make sense of the findings of this investigation.

As will be shown, this mix of views has been valuable in providing interesting and useful insights in issues related to LMS decision making.

5.1.5 Section Conclusion

One of the concerns in adopting a theoretical view is its strength and viability. My journey in making sense of various schools of thoughts has introduced me to debates and critiques of each of the views presented above and indeed every other school of thoughts that I have ever examined. No theory represents the absolute truth and no method unfolds the full reality. Each school of thought has its critiques and can be discussed and debated. Nonetheless, one cannot abandon this investigative pursuit because one cannot find an approach or a position that is beyond critique. Indeed, it is part of our scientific practice to question and critique and endeavour to improve our thoughts, methods,

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knowledge, and findings. Naturally, I personally have formed a deep admiration and respect for the strength and merits of these views. However, a deeper discussion and a defence of the views adopted in this study will not be attempted here and the reader is referred to other more in depth treatments of these (e.g. Giddens, 1993 (the introduction to the second edition); Collins, 1992 (the *Afterword*); and Labinger & Collins, 2001). With this in mind, I conclude this section by saying that various approaches have been considered and I have deliberated on their implications and my choices of perspective and approach are based on these deliberations.

I conducted the investigation using a 'case study' research strategy. The case study approach and the reasons for my choice of the case study and a qualitative approach are presented in the next section.

5.2 Case Study Approach

One of the main limitations of many LMS selection studies is due to their post-selection reconstruction of the events. Much of the intricacies and details of day-to-day activities and processes are easily forgotten or are not necessarily accessible afterwards. Such details are important in examining how views and actions are formed. A main consideration has been to conduct the bulk of this study in a concurrent rather than retrospective mode. This research is conducted by studying four cases.

According to Stake, the case study approach is characterised by its concentration on experiential knowledge of the case and close attention to activities as well as social, political, and other contextual influences. This approach gains credibility by triangulating the descriptions and interpretations (2005: 443-444). Similarly, Yin's definition of case study (2003: 13-14) highlights the importance of the case study's real-life context, and its reliance on multiple sources of evidence and proposes case study to be a comprehensive research strategy. Walton (1992: 129) examines the way in which cases are constructed in research process and suggests that, "…case studies are likely to produce the best theory". Eisenhardt (1989) likewise finds theory building from cases to lead to novel, testable and valid theories.

Vaughan (1992: 175) describes cases as "organizational forms that are analyzed regarding some similar event, activity, or circumstances" and suggests that variations in organizational form and function are "crucial to this method" (ibid: 176). According to Vaughan this method, by virtue of producing 'lots of facts' and 'radically different kinds of facts', has a number of major benefits one of which is further explained as follows:

"selecting cases to vary the organizational form sometimes permits varying the level of analysis. Because of the different sorts of data available from microlevel and macrolevel analysis, choosing cases that vary both the unit of analysis and the level of analysis, when possible can lead to the elaboration of theory that more fully merges microunderstanding and macrounderstanding" (1992: 177).

She further discusses that although the importance of micro-macro connection is accepted by many, empirical work and research often deal with micro and macro as a dichotomy ignoring the connection, or try to link them by data at one level and theoretical speculations at the other level of analysis (ibid: 182). Considering that one of the ambitions of this study is to look at the interactions between the individual actions and the imbedding structural context, and another ambition is to suggest an alternative explanation of LMS decision, I found case study to be a suitable choice of research strategy in this work.

Stake (2005) identifies three types of case studies:

- Intrinsic case study – here a case is studied because of the interest in that particular case and all its particularity and ordinariness. The purpose in such case studies is not to understand an abstract construct or phenomenon.
- Instrumental case study – this is used to provide insight into an issue or to redraw a generalization, here again the case and its context are studied in detail but the main interest in such a study is to advance understanding of other interests rather than the particularities of that one case.
- Collective case study – in these, there is a lesser interest in a particular case with the main aim being to investigate a phenomenon, or general condition.

The main purpose of this study is not to focus on the specificity of each case rather the emphasis is on investigating the LMS decision as a phenomenon. With the aim and the research questions of this study in mind, the selected type in this study became the *collective case study*. Accordingly, four cases are studied to provide further insight in the related issues and LMS decision process as a phenomenon.

Yin (2009: 19-20) presents different applications of case studies including to *explain* (causal links), to *describe*, to *illustrate* and to *enlighten*. As LMS selection decision has not been studied much in the past, there is an element of exploration in this study, but these case studies are mainly descriptive and to

some extent explanatory, although not in a strong causal sense. The findings of the study indicate relationships and influences; but for a causal relationship to be established further research will be required.

Different types of triangulations are identified by Denzin, ([1970, 1978] 1989: 237) including *data* triangulation (with three subtypes of *time*, *space* and *person*), *investigator* triangulation, *theory* triangulation, and *method* triangulation (see also Patton, 2002: 247). From the case study design and method literatures, it is not quite clear what level of triangulation is seen as sufficient, necessary, or expected within a case study (e.g. see Yin, 2009: 114-118). It is rather implied that higher levels of triangulation ensure a higher level of rigor in the study. Of the four types of triangulations named above, the only type not included in this study is that of investigator triangulation. This clearly is related to the nature of a PhD research where, in most such studies, investigation is conducted by a single student researcher. One may consider the involvement of research advisors in the process as a small step towards even achieving an investigator triangulation. Regarding the other three types of triangulation, the inclusion of an extensive number of sources, in different cases, settings, and contexts (i.e. four different cases involving around 20 different organizations, two different library types, in three different countries) allowed for variations in type of source, person, time, and space, and therefore, *data* triangulation was achieved. Furthermore, different methods, i.e. interviews, observations and document collections were used to study the same phenomena, thus achieving *method* triangulation. Finally, some level of *theory* triangulation was achieved by using multiple perspectives in interpreting the set of data.

5.2.1 Case Selection

The case selection strategy utilized in this study follows what Patton (2002: 230-246) calls a *combination or mixed purposeful sampling*.[15] In preparation for the study, I used my personal contacts with the library community and library system vendors, in addition to looking for related advertisements and calls for tenders. I also placed an enquiry on several nation-wide library related mailing lists to establish a list of libraries that were thinking of changing their LMS in the near future. My initial thought was to study only Swedish academic libraries, but as the number of such libraries did not seem

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[15] Patton identifies 15 purposeful sampling strategies where the 16th strategy (used here) is a combination or mix of a number of the other strategies. In this study, one could include snowball or chain sampling, theory based sampling, opportunistic or emergent sampling and criterion sampling as a mix of the different strategies used.

sufficient (virtually non-existent)[16], I expanded my area of search to include both academic and public libraries within the Nordic countries, the UK and New Zealand. The choice of these countries was due to my familiarity with these and the limitations on my knowledge of other languages.

This wide search indicated that, at the time, the library market place was rather inactive. A number of criteria were used to choose among those libraries that were found.

One criterion was that the selection decisions process had to be related to LMS, as defined earlier, and not other library related systems such as union catalogues (i.e. the types of systems used by national libraries) or add-on products (e.g. a stand alone self service stations or federated search solution). Another criterion was that the case lent itself to investigation of the social aspects. Rather than choosing small libraries staffed by just one single (or just a few) staff member(s), a level of complexity was expected in the organization of the libraries to allow insights in more of the related issues. Another very important consideration was the feasibility of conducting the study and the willingness of the potential participating libraries. Due to limited number of libraries that I could choose from, a final consideration was allowing for measures toward upholding anonymity of the chosen cases in the close-knit communicative community of libraries.

Based on these criteria, four cases (including two *types* of libraries, i.e. academic and public) in three different countries were identified and included in the study.

5.2.2 Case Study Boundary – What Is This a Case of?

The topic of this research relates to the process in which library's future LMS is decided. In this study, this is called the LMS decision process. The cases included in this study were chosen because in each one, the related libraries were about to embark on the process of making a decision related to the future of their LMS, regardless of whether it led to LMS change, LMS procurement, or LMS selection. As the study unfolded, variations became evident in whether or not a selection process took place, whether or not a procurement process was entered into, or whether or not the existing LMS supplier was replaced. Despite these variations, it was clear "what this – the research subject – is a case of" (cf. Ragin, 1992: 8). I planned to study the decision

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[16] At the time, the national library of Sweden was conducting an investigation (Libris som lokalt system) about the possibilities of developing a new system that could be used by all the academic Swedish libraries. In anticipation for the results of that investigation, system changes at academic libraries in Sweden were on hold.

process and activities that related to the future LMS used at these libraries. Therefore, it was possible to form a general view about the activities, people, and documents that were to be included in the study from the outset.

The identification and selection of the data took better form as the cases progressed, and the list of people, meetings, and documents included in the study were adjusted accordingly. That is to say, a process that I have called the LMS decision making process was followed. Related activities, documents and relevant people were identified and included in the study. When it came to each process and its duration, it was easy to identify the cut off point for the conclusion of each case. The starting point was somewhat less defined as informal talks and efforts could start a number of years before the official decision to initiate a more formal process. My involvement in each case started before, or coincided rather closely with, the official start of each LMS decision process. To gain access to the history and background that had led to the process initiations, efforts were made to form a retrospective account of such events by accessing related documents and through interviews. The time-scales involved in these LMS decision processes varied over ten months in two cases, twelve months and fourteen months (fourteen months following the case, but a total of two years collecting completing data) respectively.

In each case, a number of people were identified as key people in the process. Some of these people met at various times, conducted various tasks, arranged various activities, and communicated among themselves and with others. Such activities (as much as possible by the circumstances or allowed by the participants) were included in the case studies and followed. In order to eliminate the risk of missing vital information or activities, the approach adopted was to include more rather than less of what might prove to be of relevance or interest. Therefore, some data related to other events and activities that could somehow be related to the LMS selection were gathered, but of course again only as far as the circumstances and participants allowed. This included observing meetings at a higher level (where for example, the funding or strategic issues related to the library and the LMS selections were discussed) rather than just the meetings at the actual library. Even talks with people representing all levels of staff who perhaps were not directly involved in the selection decision were also included in the case studies.

5.3 Data Collection

I entered this investigation with a concrete view of the problem area, and a general view about the perspective and the theoretical views to be adopted. The adaptive theory (Layder, 1998) allowed me flexibility in deciding the extent of the theories used based on the emergent data. However, already from

the outset, the mix of theories that were to be used was known. Accordingly, the data collection efforts have been informed by the theoretical views presented earlier. The case study approach promoted data and method triangulation. The various theories and related concepts outlined what was to be looked for, and the 'from the outside' perspective and methodological symmetry guided the stance that should be kept in relation to the findings.

5.3.1 Preparatory Steps and Ethical Considerations

Data collection included several preparatory steps. Following recommendations on research ethics (Vetenskapsrådet, 2002), a consent form was drawn up and was presented to the individuals that were identified as interesting for the study. Those individuals that accepted participation were asked to sign the consent form, a copy of which was provided to them for their keeping. Further, based on the wish of some of the participating libraries, a confidentiality agreement was drawn up (in collaboration with the legal adviser at the University of Göteborg) and signed copies were presented to the participating organization. This document assured them of my efforts in safeguarding their identity and the information disclosed to me by them. A copy of these documents can be found as appendices 1 and 2. A third document was devised that outlined the topics that were to be covered in the interviews. This interview guide is included as appendix 3. Finally, a short description of my research topic and my intentions with the study was also written and sent to the potential participants. This document is included as appendix 4.

5.3.2 Pilot Study

Research started with a pilot study that included seven interviews. The participants of these interviews were members of various subsections of a higher education academic organization and were in the process of choosing an information system. The main aim of the pilot study was to examine whether the interview guideline that had been previously formulated was adequate and workable. The pilot study was also an exercise in improving my interview skills by practicing, for example, formulation of questions in an unbiased fashion. This pilot study helped to fine-tune both the questions included, and the language used during the interviews. The pilot study acted as an assurance that even a very simple case can provide rich insights.

5.3.3 The Selection of the Data Collection Techniques

According to Silverman (2005: 112), it is not whether a method is right or wrong, the issue is rather whether a method is appropriate for the research topic and the models that one works with. Klein, Hirschheim, and Nissen (1991: 2), consider science to be, "a convention – related to societal norms, expectations, and values" and propose that the tools used in search for understanding are those that become accepted as "appropriate for the particular subject matter under study." Silverman (2005: 11) differentiates between studies that are concerned with perceptions and meanings and emotion and those that are concerned with what people do without concern for their thoughts or feelings. He terms the first group as emotionalism and the second as constructionism. In constructionism the focus is on behaviour, and the aim of the study is to find out how phenomena are constructed. The preferred data for this type of studies are observations, texts, and tapes. Based on this, the observations and texts are seen as appropriate in giving access to behaviour and to what people do. Furthermore, although in this study, I am not interested in what is inside people's head, I am concerned about the arguments put forward and the effects of these arguments within the process. I am also interested in perceived views as articulated by the informants. Therefore, to gain access to these, interview is an appropriate method.

In order to address research questions, therefore, I used observations, interviews, and collection of related documents and communicative exchanges between participants and other related people as data collection techniques.

As outlined earlier, the main research goal in this study is to gain further insight into the process of LMS selection and decision making, with emphasis on the social aspects, by identifying:

- possible practices that may be utilized in the process in order to establish 'matters of facts' (i.e. what)
- types of questions that are treated as taken for granted and those questions that become subjected to decision making (i.e. what)
- possible mechanisms by the means of which various selection criteria achieve their status (i.e. what, how)
- the way related beliefs achieve credibility (i.e. how)

According to Holstein and Gubrium (2005), the *what* and *how* are the types of questions that have traditionally been associated with qualitative enquiry whereas the *why* question has often been left to quantitative sociology. Many qualitative studies do, however, deal with, and provide answers to even the

'why' questions. The findings here also deal with a few 'whys', although the 'what' and 'how' questions take precedence.

The observations of the meetings and other activities involved in the process, gave access to details of discussions, events and happenings that are not otherwise fully accessible. These, in conjunction with the study of related documents help identify the 'what' and 'how' questions related to the practices and mechanisms employed in the process. Interviews are used to extend the understanding gained by the means of other data, and to give access to informants' discursive knowledge (cf. Giddens 1984: 44) and reflexive interpretation of their thoughts and actions. Interviews are further used to fill the gaps, clarify issues, provide a sense of prior history, and cross-reference or corroborate certain findings, and to add a double-check function for the information obtained by other means.

The interviews included in this study, at times, give indications that would correspond with the 'why' question. In these interviews we hear the voices of informants explaining *why* they have done what they have done or *why* things happen the way they do. Such comments, however, have been treated as informants' interpretations and are analysed in the same manner as other data in the study. That is to say, informants' interpretations are treated just as such and not as researcher's interpretations and voice. Generally, all the gathered data have been drawn upon and many different pieces of information from each case have been related to each other in order to depict the patterns that emerge and the findings that are presented in the following chapters.

5.3.4 Observations

Observation is defined broadly by Adler & Adler (1994) as "the act of noting a phenomenon, often with instruments, and recording it for scientific or other purposes". Scientific observation is more involved and systematic than the normal day-to-day observation, requiring systematic recording, describing, analysing, and interpreting of the behaviours of the observed individuals (Saunders, Lewis, & Thornhill, 2000). Accordingly, observation is a useful method for studies such as this where human behaviour, attitudes, or relationships are to be determined (e.g. Miles & Huberman 1994).

Observations allow researchers to investigate a phenomena in its natural setting and context from various perspectives (Neuman, 2006). In this study, I observed formal meetings, informal gatherings, system presentations, and an on-site visit to the "natural" loci of these activities (as opposed to laboratory and experimental settings) and hence these observations can be called "naturalistic observation" (Angrosino, 2005). While frequencies of actions and

events were observed, interpretive elements were also embedded in these observations and hence aspects of both qualitative and quantitative approaches are present in this study.

There are many types of observations; for example, an observer may inform the participants of his or her presence and be a fully participating member of the observed situation, or the observer can keep his or her intentions totally hidden so that the participants are not aware that they are being observed. At a different level, one could conduct an observation to study the meanings that people attach to their actions, or adopt a quantitative approach and study the frequencies of actions or quantifying behaviour (Bøllingtoft, 2007). My type of observation does not fall at any of the extreme ends of such continuums. In this study, all the participants were informed of my presence as an observer and the aim of my observation, but I was not a fully participating member of the groups or activities. Although I was welcomed and at times spoken to or could pose clarifying questions, I mainly remained quiet and passive. At times, this passivity was emphasised or I was fully removed from the set of interactions that took place or the events being studied. Some of the meetings were held virtually, and participants from remote locations attended the meeting via videoconferencing. This meant that each participant could only view his or her location (and people present at that location) and the person who was speaking (and people present at that location) at any given time. As I remained quiet, my presence at those meetings was minimal. In fact, one of the meetings was recorded for me by the participating organization in my absence.

A number of problems have been associated with the use of observation as a method, including the effects that an observer can have on what is observed and the issue of subjectivity and excessive reliance on observer articulation (Adler and Adler, 1994). In addition to these, Yin (2009: 102) points out that observations can be time-consuming, costly and can either lead to selectiveness or require a large team to allow a broad coverage.

I have taken some steps to minimize the adverse effects of these problems. As mentioned, the participants were informed of my presence and role, and I tried to be as passive and quiet as possible allowing the meetings to proceed without interference from me. Nevertheless, I cannot claim that I have overcome the problems associated with this method. Informing participants about being observed can in itself affect their behaviour. Even virtual observations or being absent during the recordings, cannot be called 'unobtrusive' (cf. Denzin, 1989: 250; Patton, 2002: 191), as the participants were aware that the meetings were being observed. Therefore, I do not claim that my way of observation (being quiet and passive) eliminated the problems

identified with observations, but attention was paid to reducing some of the effects.

When it comes to the issue of subjectivity and reliance on my representations of what was observed, this is a problem inherent in most research methods to various degrees. Although I fully accept the philosophical implications of this, and recognize this as a problem, this problem does not necessarily have to be of a greater magnitude for observational method than some of the other methods commonly utilized. To conduct any investigative research, one needs to make use of accepted contemporary methods, until better, less problematic, methods become available. Not only my explanations are based on the lens that I choose to view the situation through, what I report as the study findings is bound to be based on what I consider to be interesting or important. As Maxwell (1992: 283) points out, "it is always possible for there to be different, equally valid accounts from different perspectives", therefore, viewing a situation from varied perspectives is by itself not contradictory with common scientific pursuit. The subjective influences from the researcher pose a greater problem. External audit may be a solution to this problem. All that I can do is to clearly state the perspective adopted in this study, how the observations have been conducted, seek peer feedback and finally allow for external audits. Beyond this, although my articulations and accounts of observed situations on their own may not build a solid foundation, my findings as one node in the collective of other findings and research will contribute to the base that we call our collective knowledge. In my view, having a theoretical framework to guide the study and use of multiple methods, hence a lesser reliance on any one method should combat the weaknesses of observation as a method to some extent. Considering the aim of this study and the need to get access to behaviours and practices that occur in the LMS decision process, observation is an appropriate method to use.

5.3.5 Interviews

The use of interview as a data collection technique is widely spread. Silverman (2005: 111) refers to our society as 'an interview society', and presents the results of two different surveys that support that interview clearly predominates the choice of method in qualitative papers published, for example, in sociology and health research (ibid: 238-9). Fontana and Frey (2005: 697) who offer a critique of the interview method, still state, "interviewing is one of the most common and powerful ways in which we try to understand our fellow humans". Yin (2003: 89-90) identifies the interview as one of the most important sources of case study information. He further indicates that case study interviews are most commonly open-ended where one can ask the respondents/informants about facts of a matter, their opinions

about, and their insights into events, suggestions for other persons to be included in the study, as well as suggestions for other sources that can corroborate or contradict evidence.

Giddens (1984: 22) considers social actors to be "highly 'learned' in respect of knowledge which they possess, and apply, in the production and reproduction of day-to-day social encounters". Giddens (1984: xxx) argues that in many social theories especially those associated with structural sociology, the agents are treated as less knowledgeable than they are. As a result, some empirical works have failed to gain access to agent's knowledgeability, either by foreshortening actors' discursive account of "the conditions of their action and that of others", or more importantly by a lack of access to actors' non-discursive consciousness (or tacit knowledge). I have considered this point in the interviews and have made a conscious (cf. Giddens, 1984: 44 & xxiii) effort to gain access to discursive accounts, and to make room for what the informants had to say about the conditions of their actions. The open-ended interviews (and observations) further provided a glimpse of informants' non-discursive knowledge.

The interviews used in this study were semi-structured and open-ended (see the interview protocol in appendix 3). Most interviews were with individuals but a few group interviews were also conducted. Some of the interviews were on location where I visited the informants in their places of work or in a meeting-room in close vicinity of their place of work. A number of the interviews (less than a third) were conducted remotely mostly by the use of video-conferencing facilities, with less than a handful being conducted via telephone.

As with any data collection technique, there are a number of concerns associated with the use of interview method. Although very widely used, the interview is said to be "inextricably and unavoidably historically, politically, and contextually bound" (Fontana and Frey, 2005: 695). Indeed, due to the nature of this method and the one-to-one interaction that goes on between the study participant and the interviewer, a number of problems may arise. Yin (2009: 102) lists the interview's weaknesses as:

- Bias due to poorly articulated questions
- Response bias
- Inaccuracies due to poor recall
- Reflexivity – interviewee gives what interviewer wants to hear

In addition to this, a philosophical issue that becomes of concern is the question of what it is that one can get access to when interview becomes the choice of inquiry method.

I cannot claim that I have overcome such concerns in my use of interviews. However, again, with practice (especially in seven pilot study interviews) and care I have tried to minimize the adverse effects by following relevant guidelines for good interview practice (e.g. Yin 2003: 90-91). The informants were told about my research aim and their rights, and care was taken to, for example, pose questions as neutrally as possible to eliminate leading towards desired answers. To combat poor recall, the study was conducted in a concurrent rather than retrospective mode. In response to the philosophical question, the interviews were mainly used to corroborate evidence that was collected by other means, to help make sense of the process. They were also used to inquire about informants' 'reflexive monitoring of conduct' (cf. Giddens 1984: 44) and discursive perceptions of the various related issues such as events, discussions that had taken place in the meetings, level of information disclosed or disseminated to them, and so on. The data gathered in the interviews are considered, therefore, to give access to corroborative evidence, as well as articulated perceptions, and informants' descriptions.

5.3.6 Document Collection

Collection of documents (and document analysis) is a commonly occurring element in a lot of research and is common to case studies (e.g. Yin, 2003: 85; Silverman, 2005: 160; Denzin and Lincoln 2005: 379). How documents and texts are used and analysed, however, differs based on the research approach adopted. Silverman (2005: 160) differentiates between the types of analysis of written material done by quantitative and qualitative researchers; whereas in quantitative research one tries to "produce reliable evidence about a large sample", in qualitative research one studies a small number of texts with the aim to "understand the participants' categories and to see how these are used in concrete activities".

However, neither of the types identified by Silverman is an adequate description of the sort of document analysis required and conducted in this study. In this study, both qualitative and quantitative elements are present. Furthermore, document study is not an end in itself; it is just one component of a greater whole. The types of written material collected in this study include:

- Invitations to, and the agendas for related meetings
- Minutes of meetings

- Emails and letters
- LMS decision project timetables
- System specification documents
- Prequalification and tender documents
- Invitation to tender advertisements in the official journal
- Responses to tenders
- Newsletters and memos disseminated among the related people
- Other related documented material such as information published on associated web-sites

These documents are studied in relation to other findings of this study to depict a picture of what is happening and what practices take place and how they relate to each other. Attention is directed at what they are and what they are used to accomplish. As explained by Atkinson and Coffey (2004), these documents are not seen as "transparent representations of organizational routines, decision-making processes, or professional diagnoses. They construct particular kinds of representations with their own conventions". Accordingly, the documents collected in this study are not treated as firm evidence of what they report or organizational operations, rather as 'social facts', which are "produced, shared and used in socially organized ways" (ibid: 58). Similarly, Yin recommends that documents should not be treated "as literal recordings of events that have taken place", rather they should be used to "corroborate and augment evidence from other sources" (2003: 87). This is how the documents in this study have been treated.

5.3.7 Transcriptions

Most recordings (mainly interviews and some observations) were transcribed verbatim to as high a degree as possible although the more formal transcription conventions – such as identifying pauses and noting the lengths of each pause (e.g. Silverman, 2005: 376) – were not followed. In subsequent reviews of the original transcriptions, the 'aa's and 'um's, were removed, however, grammatical corrections were not done, and repeated words and other speech characteristics were kept as in the original.

5.4 Research Quality: Limitations and Measures

An ambition in any research is to enhance the quality and credibility of the research analysis and findings. In judging the quality there are a number of criteria that are to be met. These criteria vary from field to field and tradition to tradition. Patton (2002: 542), for example, describes a number of alternative criteria for judging qualitative inquiry. Some such criteria overlap and are discussed in different discussions of quality measures for qualitative studies.

This particular study has a number of limitations that could be discussed in relation to the quality measures more commonly discussed in related literature. After presenting some issues of general concern for most qualitative research (and hence this study), I will present the challenges that I more specifically faced in this study.

5.4.1 A Resolved Criticism of Qualitative Methods

In the early days of qualitative research, a general criticism used to be the lack of rigour where it was claimed that qualitative methods produce "anecdotal data about a small number of situations or research subjects, rather than reproducible facts about large populations" (see Dowell, Huby, & Smith, 1995: 189). The body of literature that responds to this criticism is extensive and therefore, the burden of supportive arguments pro qualitative investigations no longer lies on every individual researcher. That is, the question should not be whether a qualitative or a quantitative approach is better, but which approach is best suited for a particular study (e.g. Silverman, 2005: 6). Therefore, the issue here is no longer for me to convince the reader about the viability of the qualitative approach but rather my choice of it. In this study, a complex set of circumstances, activities, and interactions are examined to form a better understanding of a phenomenon. These types of study are commonly associated with a qualitative approach as the investigation of these types of inter-related complex issues are harder to reach and illuminate by quantitative studies. Such complexities lend themselves better to qualitative investigations. Therefore, the qualitative approach was chosen.

It should be emphasised, however, that by adopting this approach, it does not immediately follow that the study is small, based on a very few interviews, or small set of data. As it is shown, this study is based on an extensive longitudinal study of four different cases involving a large number of libraries and based on many data types and sources. Much care has been taken in the lengthy and detailed analyses to ensure that the findings are based on solid grounds.

5.4.2 Research Population

Research population is important in any research project. However, in most qualitative studies it is not possible to say how many informants should be involved in any one project as the size would be dependent on many varying factors. In qualitative studies, it is not the quantity of informants that counts but the richness of the data collected (e.g. Goodson and Sikes, 2001: 22; Dowell et al., 1995: 190).

Regardless of whether one considers the cases or the informants as the population in this study, efforts were made to be as inclusive as possible. Although in qualitative studies a smaller number of informants or cases are included to provide insight in a specific area, the complexity of the issues involved and the goal of this study necessitated the inclusion of a larger set of data sources. The four cases were the ones that were found at the time fitting the set criteria, and they were all included. In each of the cases, a number of people could be identified as central in the LMS decision process. The majority of these in addition to others were included in the study. The possible exclusion of some informants was due to either lack of access to the people (due to limited resources or participant wishes) or reaching a point of saturation. With saturation I mean a point at which the same information and points of view were being repeated by different additional informants.

Population normally refers to human study participants. If we extend the application of this term to include the collected documents and observed meetings, then it should be said that even there, the identification and choice of the included material was reasonable. The initial ambition was to be as comprehensive as possible. Accordingly, observations were done whenever feasible, but again access to the meetings became limited at times due to the participant wishes, limited resources, or technical difficulties (only in a couple of instances). The choice of documents included in the collections was based on collecting a full set as far as possible and allowed. That is to say, much effort has been made to ensure that the population of people, meetings, and documents were as complete as the circumstances, study participants, and research ethics allowed.

5.4.3 Validity & Reliability or Credibility, Transferability & Dependability

In natural sciences, two concepts commonly associated with the quality of research are those of Reliability and Validity. These concepts are typically defined as:

> Validity – The extent to which a measurement reflects the phenomenon under scrutiny; highlighted by the question whether we truly measure what we think we measure. (Dowell et al., 1995; Kvale, 1989: 74).

> Reliability – The extent to which a measurement yields the same answer each time it is used, the assumption being that scientific finding should be able to be replicated under identical conditions (Dowell et al., 1995; Enerstvedt 1989: 153). In other words, "reliability asks whether repeated

investigations of the same phenomenon by the same method will yield the same answer" (Kvale 1989: 79).

It is common that qualitative research reports do not include a discussion of these concepts (Kvale, 1989: 73). A critique of the application of these measures in qualitative research relates to the fact that these concepts are based on positivistic quantitative approaches (e.g. Eisenhart & Howe 1992: 644).

Validation in qualitative research has been discussed widely (e.g. see Kvale 1989: 7) and has been recognised as problematic in a theoretical sense (Mishler 1990: 417). A number of scholars argue against the application of the term 'validity' in the classical sense to the qualitative research (e.g. see Maxwell 1992; Guba & Lincoln, 1989; Smith, 1998) and suggest that qualitative research has its own alternative procedures for attaining validity (e.g. Kirk & Miller, 1986).

Based on examinations of the underpinning ontological, epistemological and methodological difference, between conventional and naturalistic paradigms, Lincoln and Guba (1986; Guba & Lincoln, 1994) suggest alternative criteria to test the rigor of research. They propose the term *trustworthiness* to parallel rigor in the traditional sense. As part of this, they suggest *credibility* as an analogue to internal validity, *transferability* as an analogue to external validity, *dependability* as an analogue to reliability, and *neutrality* as an analogue to objectivity.

Traditional measures	Lincoln and Guba's alternatives
Rigor	Trustworthiness
Internal validity	Credibility
External validity	Transferability
Reliability	Dependability
Objectivity	Neutrality

Table 1 – Research quality measures

Lincoln and Guba (1985) identify a number of criteria for the measure of credibility. These criteria include:

- *prolonged engagement* (lengthy and intensive contact with the phenomenon)
- *persistent observation* (in depth pursuit of salient elements through prolonged engagement)

- *triangulation* (crosscheck of data and inclusion of multiple sources, methods and investigators)
- *peer debriefing* (feedback and reviews by peers)
- *negative case analysis* (active search for negative instances)
- *member check* (soliciting reactions of respondents to investigator's reconstructions)

For transferability a criteria is to provide *thick descriptive data* to allow judgment of similarity between the studied context and other contexts in which the findings are considered to be applied. For dependability and confirmability, the authors refer to *independent external audit*, where the audit of the process leads to fulfilment of the dependability measure, and audit of the data and reconstructions (i.e. product) ensures the measure of confirmability.

As previously mentioned, this particular study is of a qualitative nature where an alternative analysis of LMS decision process is attempted in order to expand our understanding of the phenomena. The question of validity in the traditional quantitative research sense, does not fully apply to this type of study. Instead, I have tried to follow the guidelines to maintain a good level of *credibility* and *transferability*. The measures taken are as follows. The length of the time that was spent on each case was extensive (i.e. from 10 months to two years – prolonged engagement), and detailed persistent attention was paid to salient elements (persistent observation). Supervisory sessions and research seminars were used to gain peer feedback and testing of information was done by soliciting the reactions of the informants on my findings. As will be shown, thick descriptive data is also provided about the cases involved to allow judgment about the degree of fit. Finally, triangulations were done in *data* (source, type, and context), *method,* and *theory*.

To identify the practices that take place in the LMS selection process, I did not solely rely on informants' descriptions or the documented accounts of these; rather observations were a central element of data collection. What strengthens the support for the findings is the combination of observations, interviews, and documents and variations in the collected data. The interviews included many people (at various roles with varying levels of involvement), in different organizations and countries. Other collected data included observations of meetings at different organizational levels and system presentations and site visits. Even documented data of varying types and email communication exchanges were collected. This is not to claim that I have overcome the limitations of methods, or that my understanding and interpretations of the process is the 'true' presentation of 'reality'. However, I have reflected on the shortcomings and inherent problems of the available methods and have tried to

follow agreed conventions (c.f. Klein et al., 1991:2), and conduct this study in a conscious and thoughtful way, in order to improve research rigor and quality.

In this study, the same phenomenon is investigated in four different cases where many sources are used to find related evidence. Although the details and particularities of each case differed considerably from one to another, the general findings that emerged at an abstract theoretical level were similar. In sociological studies there is a question related to the level of 'sameness' and research repeatability where the variations in context, time, the researcher, and so on all influence the study so much that repeating a study in the same sense as in the natural sciences is not applicable. As Giddens (1984: xxxii) proposes, in social sciences, there are no universal laws, not because the methods of empirical testing are inadequate, but because

> "the causal conditions involved in generalizations about human social conduct are inherently unstable in respect of the very knowledge (or beliefs) that actors have about the circumstances of their own action. […] This is a mutual interpretative interplay between social science and those whose activities compose its subject matter – a 'double hermeneutic'."

What Giddens suggests, in this, is that the human actors are involved in reflections on social processes. By this awareness of, and reflections on, the related theories, the actors can change the social climate of opinions and social processes. That is, the social life moves on and the original grounds upon which the findings could be tested are altered (ibid: xxxiv). Even so, some social findings and theories retain their relevance long after the conditions that help produce them seize to exist. That is to say, that although this particular study may not be replicated in exactly the same way, based on the exact same grounds, it can be argued that its findings will remain relevant and of social interest. Therefore, rather than placing the emphasis on the measure of reliability, which is more relevant for testing of theories in natural sciences, I have considered alternative measures that are more suitable to social sciences. The findings in the case studies were systematically documented and research diaries were written (dependability). Both the process and the product of this study are easy to review. This, therefore, would allow for potential external audits, permitting the dependability and confirmability measures to be met.

5.4.4 Reflexivity, and Researcher's Role and Characteristics

Another important issue that is considered in the literature is the concept of reflexivity and the researcher's role. Research is a social act, subject to the same social rules as any other human activity. As Dowell et al. (1995:189-

215) state, "the role a researcher assumes in a research setting, his or her social identity and personality, will affect relationships between the researcher and the researched thus influencing the outcome of research." Hence, they advise the researchers to be aware of and reflective over their own background in addition to *describing these for the reader's benefit.* The authors then suggest, "making any prejudices explicit also allows the reader to decide how much trust to place in the work" (ibid).

The effects of social and personal characteristics of the researcher on his or her access to and reception in a fieldwork setting have been presented in the research method literature. Such characteristics include age, sex, marital status, sexual preferences, ethnic origin, social class, accent, past biography, physical appearance, and dress. Particular difficulties encountered by women researchers entering traditionally male-dominated settings are also highlighted (see e.g. Warren, 1988).

Although I cannot eliminate the adverse effects of my role on the research process, I can add some related information about me to assist the reader in judging the potential effects of my presence in the research situation and on the outcomes of this study.

With a background in computer science, I have worked with libraries and LMS since 1988. My roles have included systems librarian, systems manager, and software support analyst (working on various versions of an LMS that at the time was market leading). I have been a lecturer (at bachelor and master levels) at the Swedish School of Library and Information Science, which is the largest of its type within Sweden. My teaching, among others, has included a number of courses on various aspects of LMS. In addition to these, I have had an own company that has helped a number of libraries with technical problems or with their selections of LMS. If one were to ask me what my area of speciality is, my answer would be LMS. I believe that at least in some areas within Sweden I am known for this. I place this understanding on the number of contacts that people have made with me concerning LMS related questions and offers of projects that at the time led me to initiate my company. Prior to the start of my PhD Programme I systematically made a point of keeping updated with the LMS related news and events by reading the related journals and attending related fairs and conferences as well as keeping in touch with the LMS vendor companies and libraries.

I am not sure how this background might have affected the participants' view of me, and trust issues, or the ways in which my presence or their view of me may have influenced the process and the study findings. Nevertheless, there are a number of areas that I can discuss.

On the positive side, I found this background to be an asset in understanding the issues involved and the general conversations that took place. The technical details of such systems as well as trade and technical terms were known to me. However, while conducting this study, I made a systematic effort not to take the basics for granted. When an informant mentioned a term, I did not assume that my understanding of the term was the same as his or hers; I readily posed follow up questions requesting the informants to elaborate on what they meant by various terms and statements. I was also constantly aware of not allowing my pre-understandings to interfere with the findings in this study. When analysing the data I made sure to return to the collected data, time and time again, to ensure that my uptake and analyses are solely based on the collected data. However, in my investigations, I did allow my pre-understanding to guide some of the research and interview questions. Indeed, the whole aim and objectives of this study are based on the issues that had been raised in my working life, and which did not seem to be successfully clarified by the existing writings within LIS.

On the negative side, I became aware in a number of instances that my presence might have some effects on the processes that were being studied. Initially, a number of participants sought my opinion and/or advice on various matters. I managed to remind the participants of my role in the study, and of my wish not to influence the process, more than needed. This was soon understood and accepted by the participants. However, generally, to be a disciplined observer and to keep out of the discussions was very difficult, especially as the study participants were very generous, warm and welcoming and tried to include me. To be passive was a difficult skill that I acquired very fast, but not before my first and only lapse. In that occasion, the name of an LMS supplier company was unknown to the study participants who asked me if I knew what it was. I provided the full name associated with that acronym, which then required a very short explanation of the history of the name. This may seem very innocent and uncomplicated; however, later on in the study, there was evidence of slight added weight and status attached to that system, probably due to my utterance. Fortunately, that system was not one of the top favourites in that process and the slight favoured place that it acquired did not affect the outcome very much, but this was not a mistake that I cared to repeat.

When it comes to background related knowledge, although I know quite a lot about LMS, I did not know anything about the organizations that were included in this study, their local specificities, financial situation, organizational structures, norms, technical environments, other organization-wide systems, and standards that were used within the organizations.

Another aspect of my background is that I am a woman, originally from Iran with typical Iranian features. This by itself could influence my acceptance and role in the study. In this study, I have had no means of assessing how the participants felt about me, as a middle-aged middle-eastern woman whose command of the languages used in the study is not optimal. Nor can I speculate how this in turn might have affected the outcomes of the study. What I can add is that all the study participants were very professional in receiving me and generous with their time and almost all were very warm and welcoming. It should be also included that some of the study participants were themselves from minority ethnic backgrounds in the countries where the cases were situated. This shared background and a rapport with the author may have also had some effects on the relationships formed.

5.4.5 Challenges and Limitations Related to This Specific Study

Due to the physical distances between the location of the cases and my place of work and the length of time involved in these cases, I was not able to be on location to observe all the related activities and discussions in their entirety. Furthermore, the level of access to events, information, and documents varied in the four cases. Although the library staff at all levels were more than generous with their time and in assisting me with my investigation, the level of access to documents, meetings, and individuals that somehow influenced the decisions was not equally high. In one case especially, it became very difficult to get access to relevant information and higher up decisions and events that had direct affect on the LMS selection process. When discussing this problem with the director of library and information services the response was:

> "Well unfortunately I think […] our finance people can be a bit […] cautious about these kind of things and they tend to keep everything fairly close to their chest. […] They don't particularly like having outsiders involved in this process. […] Although we've felt with sufficient safeguards that we could involve you in the process, I think they're much more cautious about doing that and ultimately we can't force them to do it."

I eventually did get access to much of the related material; nevertheless, I did not get full access in all the cases. It is rare that one is able to get access to all related material or be present at all stages of such a process. Even if one is on location or even if one is a staff member, one can never be sure that one has heard every conversation that somehow has had a bearing on the process and its outcome. One can only get access to as much information as the participants allow. To combat this problem, however, many measures were

taken to ensure access to as much of the process as possible. For example in at least one case, despite repeated efforts and requests, I was not given access to the relevant meetings. In that particular case, I contacted the participants in conjunction with the major junctures to keep updated with the events as they progressed. To overcome the inherent bias in hearing just one person's description of the events, I tried to be updated on the same events by different people involved in the process. In some of the other cases, I was given freer access to related data and was allowed to attend at least the formal meetings. The observations were done either by travelling to the location or by the use of video conferencing facilities. In all cases, I kept frequent contacts with the study participants to be updated on possible relevant events and activities. The contacts with multiple people also worked as a verification exercise to make sure nothing is left out. I gathered much of the related documents, such as minutes of meetings, calls to meetings, email exchanges etc as far as I was able to (i.e. to the level that I was allowed by the informants or circumstances). I also used web sites and other related published material to ensure that I got a reasonably comprehensive picture of the process.

Another problem encountered during this study relates to the use of technical equipment in communicating with participants, conducting interviews and observations, or recording these. Due to malfunctioning or other mishaps, a very small portion of recorded material was lost (e.g. recordings of two meetings). This was compensated by relying on written notes and access to other sources of data.

5.5 Data Analysis

The analysis of the data in this study was conducted in two different stages. The first stage or type of analysis took place simultaneously with the data collection. While various types of data were collected, the data were examined to determine what the indications were and whether other data, than originally planned, should be included in the study. The next stage of the analysis was a more systematic activity. In preparation for that stage of analysis, all the recordings were viewed or listened to a number of times and most of the recorded observations and interviews were transcribed verbatim.

As proposed by adaptive theory (Layder, 1998), for data analysis, a coding system was used to allow management of the extensive data that were collected. This coding system included a pre-coding that was done at the time of data collection or soon thereafter by means of marking the interesting sections that were seen as important or related to a particular concept or area. Examples of codes and labels used at that time include, 'control', 'heated discussion', 'interesting ways of presenting information to participants', etc.

Following this, a data analysis tool, 'Atlas ti', was partially used to allocate provisional codes to different parts of the transcribed data. These codes were partially theory driven (e.g. 'framing') and partly emerging from the data (e.g. 'social engineering'). The number of codes associated with different sections of the texts was extensive at this stage. These codes were not only a step in identifying potentially interesting conceptual categories. They were also a tool in facilitating data retrieval and category building. The coding at this stage was accompanied by memo writing, where personal notes, questions, possible problems, thoughts, extra information, connections between data and between data and theory, etc, were added. Both these codes and memos were then used to reach a more abstract level of analysis by highlighting the associations between the data pieces and codes and theoretical concepts. All these activities were repeated and revised, and the original recordings were viewed or listened to and the transcriptions were re-read. In analysis of the collected data, and construction of the findings of this study, the focus has been on using prior theory and various elements of the ongoing study and moving back and forth between these as instructed by Layder (1998: 27).

One could summarise the activities involved in the analysis of the data as follows:

- Collecting data – simultaneous initial analysis, making notes, creating codes
- Listening to the recorded interviews and observations – making notes, adding codes
- Reading related notes and documents – adding/modifying codes
- Transcribing the recordings – making notes, adding/modifying codes
- Further comparisons of the transcriptions with original data and potential amendments
- Reading and re-reading the transcripts – making notes, modifying codes
- Using Atlas ti to add codes, memos, build families of codes, establish relationships
- Continue analysis and modifications

It should be noted that all the study activities are conducted in the language local to the participants. The non-English data have been treated and analysed in their original language.

5.6 Presentation of the Collected Data

The strategy adopted in collecting data in this study was to start with the libraries, library staff, and internal documents. Then, as the study progressed and key elements were identified, the scope of the collected data was expanded to other areas and the wider organization based on the specificities of each case.

The empirical data that are at the base of this study include (a) 73 recorded interviews with 41 informants. These participants came from a variety of organizational levels. The roles held included director of learning and information services, director of library and information services, deputy director of finance, head of library services, head of strategy and development, procurement officer, head of IT services, systems librarian, customer services officer, information resources specialist, head of subsections within the library, information officer, information assistant, librarian and library assistant. In addition to these, (b) 36 observations were conducted at related meetings, presentations and a site visit. Most of this material is in the form of audio and/or video recording. When recording was not possible, notes were taken. Please see appendix 5 for an overview of this material (interviews and observations).

In addition to these, (c) a sizable amount of documents has also been collected. These, as mentioned earlier include invitations to, and the agendas for related meetings, minutes of meetings, memos and letters, project timetables, system specifications, prequalification and tender documents, invitation to tender advertisements in the official journal, responses to tenders, news letters, and basically other related documented material such as information published on associated web-sites. The documents also include (d) 573 related incoming emails that include informants' communications either with me, or with others (internally within libraries or otherwise) who somehow were involved in the LMS selection projects. It should be noted that the people involved were informed about the study and I was only given access to data that were deemed ethically unproblematic.

5.7 Style of Presenting the Study Findings

There are different ways and styles of presenting research results and analysis. In some fields such as ethnography, the variation in style can be great,[17] while

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[17] For some references and discussion of various styles, see Richardson and St. Pierre, 2005. Initially I was very concerned about how to present the findings in a way to ensure anonymity. In some studies where the issue of anonymity is of great importance, one can use other

in others a more conventional style is expected. In some studies the 'presentation of results' and 'analysis' sections are separated in different chapters while in others, such as this study, it is difficult to do so fully.

Many research reports present the data first and then lead the reader through the analysis of the data. Here it is hard to separate the data and analysis in a meaningful way. The presentation that follows is formed by considering both practical necessities, and the research goals and ambitions. An endeavour in this study has been to study the link between the micro (the individual) and the macro (the structure). In light of this ambition, the presentation strategy has been to make a selection of the findings that highlight activities and expressed perceptions as well as the context within which these activities and shared perceptions are formed. Each of the chapters in part two is dedicated to only one case. However, already at this stage, various levels of analyses are present in a nested format, where within the same case (i.e. LMS selection at a library) other imbedded cases (e.g. formation of an individual perception) are presented. In other words, in presenting each of the cases, a number of theoretical aspects are treated more closely. The selected data that are presented in such discussions are at times, exemplary or typical, and at other times, extreme or theoretically decisive in some way. Aspects included in the second part of the thesis are further examined in the chapters that are included in the third part of the book. Again, even in the third part of the book, the included sections relate to the ambition of addressing both the micro level analysis related to individuals, their perceptions, and their actions, on one hand, and the search of issues at a structural level on the other hand. Therefore, the chapters that follow are all a combination of the presentation of data and analysis at various levels of abstraction.

Another consideration in choosing the style of presentation was related to the extent of the study. This study deals with many interrelated and complex issues. Numerous chapters were needed in order to allow room for presentation of the data. Space was also required to somewhat illuminate the complexity of, and interrelationships between, the various aspects. That is,

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techniques such as 'allegory' (e.g. Beach, 2005). This refers to presenting the findings of the study in a fictional context, where the informants are presented with the aid of fictional substitutes. I chose not to use this technique here due to several reasons. First, such an attempt would require much work and creative writing, which was not possible in the timeframe available to me. Second, any change in the contextual settings and creation of fictive story potentially could remove and/or alter some of the contents of the study. Finally, I believe that through many discussions and hard work I have found a way of presenting the findings to both safeguard the interest of the study participants as well as remain close to the findings. Therefore, this style of presentation is preferable. After all, it is the details of the findings and descriptions of actual actions and interactions in this study that are some of the main aspects of this study.

three chapters are dedicated to presenting three cases and two chapters present data from all four cases in a cross analysis. Even so, not all the details are included and not all the findings are presented. Much work was required to find a balance between the presented and excluded results and to provide enough evidence for the presented findings without overloading the reader with the less-required details. That is to say, although the story is not told in full, it has been followed in details in order to come to the findings that are presented.

The cross-analysis chapters cover a collective overview of the LMS selection process of the studied cases without necessarily identifying the cases that are associated with the findings. In multiple case studies such as this, "[t]he individual cases serve only as the evidentiary base for the study and may be used solely in the cross-case analysis" (Yin, 2003: 149). Therefore, in presenting the research findings of multiple case-studies, it is common not to present each case as a separate narrative, rather the report can be entirely in the form of cross-case analysis (ibid:148-9). The style of presentation in chapters 9 and 10 (the cross analysis) lives up to such guidelines well. This way of presenting the findings also allows me to include some of the more sensitive data without damaging associations with any particular case or any particular individual. However, as previously mentioned, this is not the only way of presenting the data and the chapters in part two are each more directly related to one particular case.

There is no one correct way of presenting the findings (Richardson & St. Pierre, 2005: 962), and the chosen style is what seemed to be the most appropriate for this study. This way of presenting the results is in line with the study approach used, it is in line with theoretical ambitions of the study, it safeguards the interests of the informants and the organizations involved, and it remains true to the integrity and close to the authenticity of data.

Some excerpts from the interviews, observations, and documents have been cited in the body of the text, these are shown by the normal conventions of using double quotes if presented within a sentence or by using indentations to separate and differentiate the cited excerpts from the main text. In addition to this, some excerpts are presented in boxes. These excerpts are from different cases and are presented collectively to exemplify the point that has been made in the body of the text. The surrounding text can be read without reference to these excerpts and if one so desired the surrounding text can be read in an uninterrupted way by jumping over the boxed excerpts.

When presenting the excerpts from the collected data some words or phrases needed to be excluded (due to issues of anonymity or keeping to the point),

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and in other sections explanations needed to be made to clarify the issue referred to by the informants. To make these changes accessible to the reader I have adopted the following convention.[18]

[ ]	Author's comments
--- [ ]	Exclusion of a word (or text) and explanation of what the said word(s) would have referred to
X[],Y[],etc	Replacing a recurring name or word in a small section of the text with a letter and explanation of what the excluded word would have referred to
[…]	Exclusion of text by the author (irrelevant sections)
[…*]	Exclusion of text by the author (sensitive)
..,	Silence or pause in informant's speech regardless of length
..;	Attempt by the informant to reformulate a sentence (at times in conjunction with a pause in speech)
Italics	Use of italics in the text is to show the author's emphasis to highlight a point
Bold	The bold format indicates emphasis put on a word or phrase by the informants

To ensure anonymity, the names of people, systems, organizations, and counties have been changed. The convention used is that for people, names are chosen that are common in English speaking countries. For organization, university, city, municipality, and county names, fictional names are created. The idea has been to create names that could well fit in an English speaking society. If any of these names happen to be an existing actual name of an organization, city, county, or university somewhere in the world, this is coincidental and not intentional. LMS typically have names that require a length of time for familiarity and remembrance. Rather than more abstract, forgettable names, I have chosen to use names of some known painters to refer to the systems.

At times letters X and Y are use to denote a person or system etc. These are used when the replaced names appear in a small section of the text (on the same page). The Xs and Ys that appear at different sections of the thesis do not refer to the earlier uses of these letters.

The data collections and analyses are conducted in the language local to each case. Translation has only been attempted for the non-English excerpts, if and when they are included in this document. The translations of the non-English text were done by me, checked by an official translator, and kept true to the

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[18] This is inspired by, but not as detailed as the schemes presented by Silverman (2005: 376)

nature of the language tone used in the original utterances. The translated excerpts do not refer to language sensitive matters, and therefore, they are not identified as translations.

The monetary values have been all converted to Euros. As the conversions were done at different times, allowance should be made for some inaccuracies due to differing rates of exchange used at different times. The figures included are just to provide a general sense; therefore, a more accurate conversion has not been attempted.

Some terms are repeated throughout the text, which require an indication of the way they are used.

The terms *internal* and *external* refer to matters within and outside the organization of libraries respectively.

In part three of the book, references are not made to actual cases or pseudo names of informants, instead, references are mainly made to roles such as *management* or *staff*. These terms are used broadly and no specific differentiation is made between the various organizational levels held by the management or staff unless necessary. In this broader sense, *management* refers to top library managers such as heads of departments or directors of library services as well as higher up management at the wider organization. If needed, the text distinguishes between these levels by referring to library management and higher up management. The word *staff* is used to refer to members of library staff at all levels excluding heads of libraries. If a specific differentiation between different levels has been relevant, further distinctions have been specified in the text. These distinctions include LMS selection team, key staff (those who have had a central role in the LMS selection decision process), and general staff (to refer to all manners of library staff without any distinction as to role or involvement in the process).

Deliberate efforts have been made to avoid references to technical terms and branch related jargons in order to facilitate reading. Even so, it became necessary to refer to a few more widely know terms. These terms are not of theoretical significance and are commonly used in LMS decision processes. To help those readers that are not familiar with these terms a glossary is provided as appendix 7.

PART TWO

Presentation of the Cases

The theoretical framework informed the study, rendered the premises and provided a set of lenses through which the process of LMS decision was viewed. All the collected data were used in forming the author's understanding of the LMS decision process. Considering the size of the data, it is not however, possible to present all the details of all the cases that helped form this overall understanding and interpretation. Therefore, the chapters that follow in this part mainly include a brief general outline of each case setting. The more detailed descriptions included in each presentation are limited to one or only a few aspects of interest. A potential strength of this study may lie in the richness of its empirical material. A challenge for any researcher is to provide enough evidence from the empirical material to support the points that are being made without the empirical material becoming too overwhelming so that the points are lost. Therefore, although each of the studied cases provided many interesting insights, I have decided to be selective in the presentation of both the cases and the in-depth details related to each case. The three[19] case descriptions that are included should suffice as an illustration of the basis for the findings in this study. The reasons for the selection of a particular case for highlighting a specific point have varied. In some areas, a point was more readily visible and accessible in a particular case; in other areas, a particular case could not be used for exemplifying a point due to the sensitive nature of that point in that particular setting.

A danger in presenting the details of the cases in incomplete form, such as that which follows, is the possibility of a skewed, distorted view of the process. The following chapters do not deliver a just representation of the *highly ambitious, involved, lengthy, and elaborate efforts* of the involved libraries towards ensuring a selection of the most suitable system. Therefore, it becomes necessary to emphasise that areas included in the chapters below are only those aspects of the processes that relate to the objectives of this study, and which are seen through a very particular lens in order to discuss a number of issues related to the arguments put forward in this thesis. Given the goals and objectives of the study, the main points that I highlight with the help of the following chapters relate to my intention of questioning whether the

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[19] A short description of the setting in the fourth case and the related collected data is presented as appendix 8.

inherent attributes of an LMS determine its superiority in the selection process in accordance with rational choice theories, or whether the superiority of a system is socially constructed.

It has to be stressed that in the studied cases, *enormous amount of efforts, planning, and resources were dedicated to the processes. Many people at various organizational levels became involved. Known guidelines and standard procedures were rigorously followed. In most of the cases, hours, days and months were spent to formulate, re-formulate, add, delete, re-evaluate, and amend hundreds and thousands of lines of text in the sizable system specification and tender documents. Much time was spent on going through numerous responses to the prequalification questionnaires and to the tender documents. Meetings were arranged, held, and documented. System presentations for the short-listed options were arranged and attended by many individuals. Site visits to other libraries were made. Extra activities were put in motion to keep the general staff informed and involved.* In short, tremendous efforts and activity took place, which are not represented in full detail.

The aspects that are included in what follows relate to the effort of showing that even in the most ambitious thorough strivings of LMS selection there is room for challenges and difficulties in upholding a decision process that meets with the norms of rationality, which underpin the mainstream LMS selection guidelines. The aim of the following chapters is not to judge the quality or reduce the importance of the efforts put into these processes. The sections included are to illustrate the shortcomings of the normative rational models of LMS decision process and to illuminate the ways in which the real-life constraints create inconsistencies between the everyday efforts and what is prescribed in the rational choice theories and LMS selection models. As will become evident at the end of this manuscript, the purpose of this thesis is to offer an alternative explanation for the activities that take place in the process of LMS selection, which could relate to what Brunsson (2000, 2007) calls action rationality rather than decision rationality.

In rational choice models, predictions of future preferences and outcomes of various choices are made in order to choose the options that would best meet the needs. Translated to the selection of an LMS, this would mean that firstly the existing system is rejected based on its inherent attributes and in not meeting the needs of the library. This is followed by the process of identification and establishment of library's needs and the functional capabilities that are required from a potential desired LMS. The tender process including identification of an evaluation measure for incoming responses is the next phase in the process. The final step is to evaluate the merits of each

LMS, based on a thorough comparison of the functional attributes of the system and the specified needs and wishes. The rational guidelines are to treat each system equally and to base the evaluations on rational grounds.

A number of considerations are embedded in the presentation of the cases, in chapters that follow. I identify and highlight a number of areas where the real life LMS decision processes deviate from the normative guidelines of the rational choice and the LMS selection models that share the rationality assumptions. I also try to open up and highlight some of the complexities that are commonly overlooked in the mainstream LMS selection models. In doing so, I also indirectly show the various forces at play, and the actions and interactions that take place in the LMS decision process.

To help me organize the presentations of the cases in a somewhat orderly manner, I have been very selective and have used each chapter and each case to attend to a very limited area. I use the chapter and section headings to highlight the area of focus. The complexity of the processes did not allow a neat dedication of each section or chapter to a particular research question. Nevertheless, I have tried to remain somewhat close to the research questions when identifying the focus area for the presentations that follow.

RQ1 – The first research question of this study is concerned with perception formation and the establishment of 'matters of fact'. In relation to that research question and in trying to make sense of how, on what basis, and in what circumstances 'matters of fact' are formed, a number of issues were investigated. These related issues, therefore, formed the areas of focus in some of the presented cases.

- The first issue of concern is related to the potential negative views about a library's outgoing LMS. In relation to this focus area, I examine whether these views are based on sound information and a thorough test of the inherent attributes of the system, or whether other factors can influence the formation of the views.

The area of focus in the presentation of Case A is closely related to answering this question.

- Since an LMS is a central tool for meeting library workers' daily needs related to their work, it is relevant to examine how a system specification document is formed and to what extent it incorporates library workers' needs.
- The next issue is related to evaluation of potential LMS options. It is relevant to examine whether potential replacement systems are fully

tested and whether the selection is based on careful examinations of the inherent attributes or not.

The formation of system specification documents and evaluation of potential LMS options are more closely discussed in chapters 9 and 10.

RQ2 – The second research question in this study is related to identifying the types of questions that are treated as taken for granted and those that become subject to a decision making process. This is closely related to another area of interest, i.e. whether the assumption of traditional decision models that see the cause and outcome of decisions to be the choice of a suitable LMS holds or not. The ambition to shed light on these issues, led to another area of focus in the case presentations.

- The issue of concern here is whether *decision processes* and *choice* are tightly coupled or whether one can exist without the other.

An instance of a negative answer to this question is presented in Case C. Other instances of a negative answer to this question are also seen in earlier LMS decision activities in other cases where such activities had not yielded a choice outcome.

RQ3, RQ4 – The final two research questions related to potential mechanisms that may be used and the way various beliefs achieve credibility. In relation to these, a further area of focus in the presentations became the following.

- An examination of how potential consensus is reached in the selection of a new LMS.

Various aspects related to this question are presented in all the case descriptions and the cross analysis chapters.

Due to the sensitive nature of the information disclosed in these cases, full details of the cases (e.g. exact dates of the study and various events) are not included in this document.[20]

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[20] In the LMS market, very little detective work would be required to establish the identity of the libraries involved if more details were included. Due to sensitivity of data and issues of anonymity, the information provided here is deemed sufficient for the purposes of this thesis. It should be noted that full details of all these cases and access to all the research data will be/has been available to the study advisors and the board of examiners should they wish to investigate the details further.

The following three chapters, included in this part of the thesis, are dedicated to the presentation of three of the cases that were studied, each in a separate chapter. The chapters in the third part of the thesis will build on these presentations and other data in the study to provide an overall analysis of the findings.

6.   Case A: Perception Formations

I n this chapter the main focus is placed on perception formations. The aspects that are highlighted are related to various dimensions of how perceptions of an LMS are formed. In what follows, I first present a general overview of the activities that took place in the LMS decision process in this case, and then look at how external influences, organizational context, personal dealings with a system, and even internal discourse and documents each came to play a role in forming views about an LMS.

There are two main thoughts behind the sections included in this chapter. *On one hand*, I explore the formations of perception related to the outgoing LMS.[21] In this, I propose that shared perceptions are formed based on a network of multiple interrelated factors, at different levels, jointly entrenched in the contexts within which the LMS decision process is situated. The factors, events, actions, and circumstances that from the outset seem far removed from an LMS are closely linked with various aspects of perception formations. Why an LMS is judged as inferior or as "great" is not solely based on the system capabilities. Other issues and interactions can form, reinforce, or change the perceptions.

Another thought behind the sections included in this chapter, *on the other hand*, is related to the ambition to provide the reader with a glimpse of the different levels of analysis, that have been attempted throughout the study, but which are not presented fully in other sections of the thesis. Here, I look at the background, context and the external influences at a wider level as well as the details of the texts in email correspondences and personal experiences at a micro level, all of which are intertwined in forming the perceptions of various LMS.

My study of this case spread over a period of ten months. The empirical data in this case include 16 recorded interviews and 19 observations (of which 16 are recorded). Furthermore, over a thousand pages of textual documents and

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[21] The analysis of how shared perceptions are formed were primarily based on observations and studies of concurrent happenings in the actual case studies. However, in providing evidence for the presented points I chose to refer to examples from previous rounds of LMS decision. These examples are not as rich and illuminating as the examples from the current rounds of LMS decision process. However, they are typical of the findings in current cases and have the advantage of safeguarding some sensitive information and informant anonymity, which otherwise would not have been possible.

292 incoming email messages are also included. In addition to these, due to the wish of informants, no recordings of 3 further interviews (and a number of informal observations, and talks with people involved in the case) were made. However, partial notes were taken during or shortly after these. I refer to the day of my first contact with this case, as the study start date. At the study start date, the case was at a pre re-procurement phase and the commencement of the re-procurement project was not yet officially confirmed. The funds for a replacement LMS were approved one week after my first contact with this case, and the process was officially initiated shortly thereafter.

	Total numbers (Approx.)
Records	90 000
Copies	150 000
Issues /year	52 000
Renewals	25 000
Returns	52 000
Full / part time staff	21/ 13
Students and other users	24 000

Table 2 – Statistics related to case study setting A

The system purchase activities in this case resembled a consortium-like system procurement in which more than a dozen autonomous and distributed colleges and research institutions had come together under a unifying umbrella. For the purposes of this study, this umbrella organization is referred to as the New University or NU for short. The attached colleges and research institutions (called Associated Institutes) were geographically dispersed, with each having its own distinctive character and strengths as well as own local library. Some of these libraries were very small but together they held a sizable collection and served a large number of students and other users.

NU was officially formed in the first half of 1990s with the idea of providing university level education in the region, through a partnership among the existing colleges and research institutes. The mission of NU included playing a pivotal role in the educational, economic, social, and cultural development of the region. A goal had been the establishment of a university in the region. NU gained status of Higher Education Institution in the latter half of 1990s, enabling it to provide university level courses based at its different campuses and through a large network of learning centres. This was achieved after much hard work over a long period of time. At the time of the study, NU was able to award its own degrees while some other degrees continued to be awarded by a number of universities that NU cooperated with. However, by the end of this study NU had not yet achieved a university status.

The organizational structure of NU was complex. Although the libraries that were included in this case belonged to their own individual college or research institution, and were autonomous, their home colleges and research institutes were unified as associated partner institutes. In one sense, the associated institutes collectively owned NU and in another, they were its customers. Therefore, each of the libraries belonged to its own college while it was also affiliated with the library services section of the NU.

AI = Associated Institution
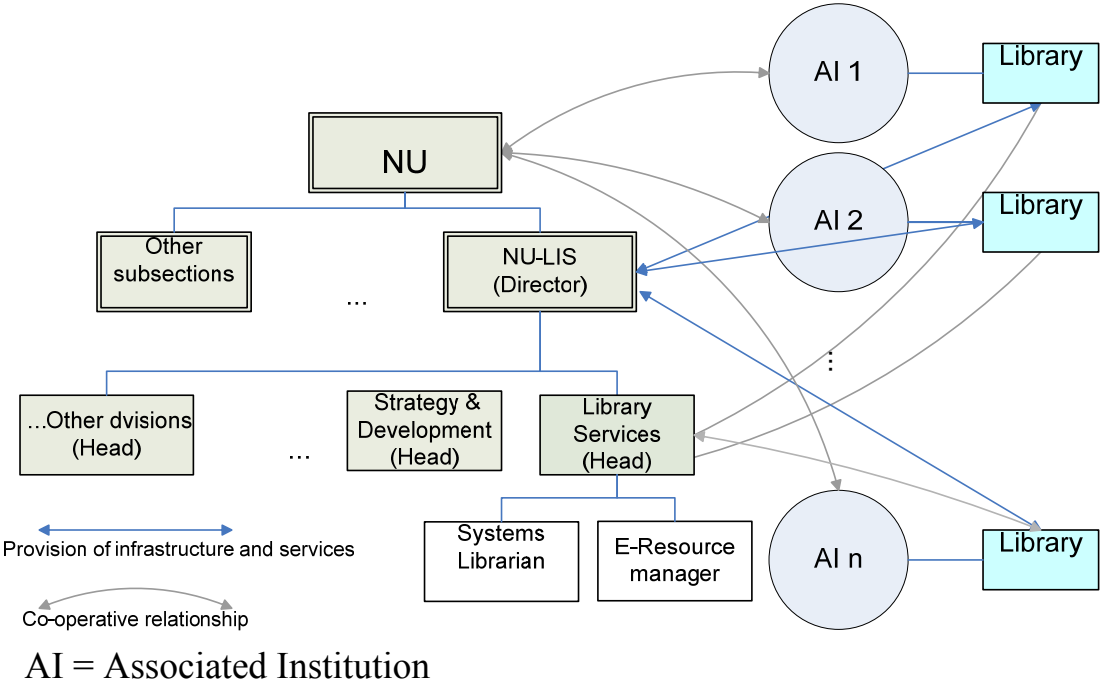
Figure 7 – A simplified overview of the organizational structure at NU

The *Foundation*, *Board of Governors*, and *Academic Council* were the principle bodies established by NU. The foundation was formally consulted and its agreement obtained for any change in the constitution of NU. The board was the governing body of the institution and appointed committees for finance, audit, nomination and remuneration, etc. The academic council was responsible for the board of governors and matters such as approval of the educational curriculum, promotion of research, quality assurance, and other related functions.

NU was formed to offer higher education to its students that were spread across the associated institutes. In each of those institutes, as well as higher education, other vocational further education was also offered, and various trade-related diplomas and certificates were awarded. NU offered various services to its associated institutes for the benefit of NU students. However,

since it was difficult to offer these services solely to the higher education level students, these services were offered to all regardless of whether their level of study was higher education or further education.

The Learning and Information Services (NU-LIS), which was a subsection under NU, had its headquarters and a number of staff located in one city while the rest of its staff were spread across different geographical locations mainly situated at different associated institutes. NU-LIS oversaw and was responsible for most issues related to IT including networking, video conferencing, email, the network, network-based applications, virtual learning environments, as well as management systems and the coordination of the libraries. NU-LIS was financed partly by student fees, and partly by donations, governmental grants and other projects. That reserve of money was then allocated by them to different projects, provision of services, and purchases. An infrastructure for remote learning, telecommunications, videoconferencing, virtual learning environment, student record system, as well as provision of electronic serials and the LMS were of the type of services that NU provided to each of the associated institute (AI) libraries.

Therefore, the LMS that was to be selected in this case was an example of a project financed and managed by NU-LIS and intended for use by all of the AI libraries. NU library team was made up of library staff from associated institutes as well as the staff at NU's library services department, which comprised the head of the service, the systems librarian, and the e-resource manager. The library team met bi-monthly for library team meetings and some staff development training.

6.1 The Selection Process

The following table lists the pseudo names for the key people in this case. Due to the issues of anonymity, these names are just subdivided to NU and AI. The roles held by these people included director of Learning and Information Services; NU's heads of library services, strategy and operations; systems librarian; organizational technical experts; library management; and library staff.

Informant	Organization	
Adam	AI	
Agnes	AI	
Amy		NU
Elizabeth	AI	
Frances	AI	
Fred	AI	
Gavin		NU
Hilary	AI	
Jill	AI	
John	AI	
Kent		NU
Linda		NU
Louise		NU
Martin		NU
Mary	AI	
Mike	AI	
Mona	AI	
Ruth	AI	
Sharon	AI	
Tod	AI	
Tom	AI	
Wendy	AI	

Table 3 – List of key people included in the study of case A

How and when the dissatisfaction with the existing LMS at the NU libraries (hereafter called the Picasso system) had come about will be discussed in later sections of this chapter. This section briefly outlines the process of system selection from the point when the talk about replacing Picasso was initiated up to the point where a preferred system was selected.

Librarians' dissatisfaction with Picasso had been communicated to Martin, the director of learning and information services (NU-LIS), since his arrival half a decade prior to the study. One of the informants, Amy, referred to a time a few years back when Martin had attended the occasional library team meetings, and explained that,

> "He [Martin] picked up on the discussions of the librarians that --- [Picasso] didn't do everything that we would like to see it do and it just went from there.
> …
> He was the one that said, you know, 'start looking, it is obvious that we do need something else'."

The informants agreed that the thoughts about the need for LMS change dated back to then. Consequently talk regarding the possibility of Picasso being replaced had started. From the libraries' point of view, the intentions to replace Picasso had taken a more definite form about two years prior to the study. As put by Elizabeth,

> "They [the NU-LIS management] were making very definite sounds about procuring a new system. And that was confirmed to me by --- [Kent] who came to visit me here in --- [two years prior to the study], I think, and sort of said to me then 'how would you feel about a new system?' And I just sort of said 'that'd be great', and he did a rough timescale of when it could possibly happen."

The timeframe specified at that time indicated an earlier start for the project by one year, but it was highlighted that the start of the project would depend on the availability of the required funds. Those early discussions were described by different informants as 'discussing possibilities' or 'buying into the idea'. Following those initial talks, the idea had gathered momentum mainly in informal discussions. The idea of possible LMS re-procurement had been formally announced one year prior to the project start. The library staff's view was that they had become aware that the project was definitely going to go ahead only five or six months prior to the project.

Therefore, although LMS was a system for the libraries, the decision to replace LMS and initiate the project fell within NU-LIS' area of authority and responsibility and was carried out by them.

The informants who were AI library staff had become aware of the idea for the replacement of Picasso through their line manager either in informal chats or in formal meetings. The level of awareness about how far the project had come or about other project details varied among the library staff. While some informants seemed more informed, others said that they did not know much at all about the process. There were also those who believed to be well informed while their accounts of the happenings were quite inaccurate.

Prior to the project initiation, a number of activities had already taken place. Amy had started gathering information and formulating a systems specification document, a few years earlier. A number of staff from NU-LIS and associated institute libraries had also been to various sites and related fairs to investigate the possibilities in terms of available systems.

When the informants tried to recall the events and the systems that had been looked at, the dates, names of systems, and positive or negative features of each system were rather faint and mixed. Some informants had looked and tested the systems closely at the time, but by the time of the study, they could not remember which system it was that had a particular attribute. A common impression was, in Mona's words, "they all had their good points and their bad points". There were, however, those who still remembered their impression of some of the systems that they had looked at. For example Kent, posed a very small number of questions to each vendor. The main two questions related to highly technical matters (e.g. related to user-authentication protocols). The idea had not been for him to get a very detailed look into the systems. He had rather looked to see "whether they flinched" to assess whether the topic was new to the suppliers or whether they could have an informed discussion on the topic. He saw this as a good indication of the suppliers' awareness of new technical advancements. He had also tested each system by a couple of searches to see whether the system had implemented Unicode and whether it was able to display and search for non-Latin characters within and outside the local catalogue. He could not remember all the systems that he had looked at but he could recall two of them, which coincidentally later on in the process were the two finalists in the selection process. Kent's impression of these two system at that stage had been that one was not "very interesting" or "good", while he had been "quite impressed" by the second of these systems (which incidentally was chosen in that case). According to him, those were the only system suppliers who had heard of the technical issues that he had asked about, and which were very new at that time. As he mentioned,

> "Now that, maybe, says that they've sent their top people to this show rather than a junior salesman or is there something about them as a company? It's difficult to say what it means, but I remember them particularly because they were the only ones who'd ever heard of that."

Kent was aware that this was not a thorough test of the systems. That encounter, however, had already left an impression on him and his view of those systems. Except for him, those earlier site and fair visits did not seem to have left a lasting impression on most of the other participants. Longer lasting impressions, even to the point of passionate views, were also observed in discussions with other informants. However, those impressions seemed to have been based on closer encounters with some of the systems in past jobs or based on contacts with people who had in turn conveyed strong views of some particular systems.

By the time this study started, an LMS procurement project team was already formed and related LMS-selection meetings were planned. The project team comprised the head of library services, the head of strategy and development, and the systems librarian (the project leader), representing NU; three library staff from three different associated libraries; a representative for the academic staff; and a student representative, a position, which at that time remained vacant and was filled later on in the project. A Pre-Qualification Questionnaire and an Invitation to Tender document were being finalized. The first project meeting, which took place around four weeks after the study's start date, was attended by all project members except for the not-yet-selected student representative. A number of documents were sent out to the project members the day before the meeting, including an agenda, a list of project team members, a preliminary project timetable, a Re-Procurement Project specification document, a Pre-Qualification Questionnaire document, and a project summary document. That meeting started with welcoming the participants to the meeting and the project, followed by the members' presentations of themselves, a general introduction to the project, and hence, it was a formal official start to the project.

In the subsequent project meetings, the responses to the prequalification questionnaires were looked into and the first short-listing of the 10 interested vendors was done. Then the responses to tender documents were shared and evaluated. The outcomes of the individual appraisals were summarized. Further short-listing of the contenders was done so that only two companies were invited to present their systems as the finalists. These presentations were then evaluated by the project team members as well as the library staff in general and technical staff both from NU and associated libraries. These evaluations were summarised and discussed and one of the two contenders was identified as the preferred system.

Most meetings were preceded by a call to the meeting and agenda for that meeting; minutes of the last meeting, and related material and information. The major milestones in this process included placement of an advertisement in the related official journal, formulations of pre-qualification and tender documents, evaluation of responses to prequalification questions, evaluation of responses to the tenders, invitation of the finalists for system presentations, and evaluation of the presented systems including contacting the reference sites, clarifying communications with the suppliers and contract negotiations. In addition to these activities, the library staff members were informed of the progress.

6.2 The Scene for the LMS Change

Having presented the process of LMS selection at NU, it is relevant to take a closer look at the scene that forms the backdrop for this decision making process. In this and the following sections, I present the background setting for, and then discuss a number of aspects of perception formations.

Purchase of an LMS fell within the NU-LIS budgetary structure. Martin, the director of NU-LIS, had occupied his position half a decade before this study. During his time at NU-LIS the funding for the library services part of the department had grown considerably, although the funding for library services, in comparison to the funding for IT services, which also fell within the responsibilities of NU-LIS, constituted a relatively small proportion of the total departmental turnover. The increase in library services funding had entailed an increase in the number of staff in the library services department from one to three posts during that time. NU-LIS had purchased a number of larger and smaller systems over the years and was responsible for a large number of systems and services. In planning the activities and future purchases by the department, Martin expressed that he had an overview of the various systems. He had a sense of whether they operated to a desirable level or not, and a sense of whether (and when) any of those systems would need to be replaced. Some of the systems such as replacement of the entire network infrastructure would cost millions of euros while other systems such as an LMS or other smaller organizational systems might have cost only a few hundred thousand euros. The issue for the department, according to Martin, was to keep the spending profile flat. With the nature of the organization being as it was, the associated institutes needed to have a level of stability in their funds and were not tolerant of sudden fluctuations and dramatic changes in funding matters. Therefore, management had put effort into keeping the budget for major re-procurements as flat as possible. Even so, the amounts did fluctuate but other elements of the budget also fluctuated and there was a need to balance all those. As Martin and other informants explained, another issue that needed consideration was the effort that they could afford to expend in human terms for managing various procurements in any given year. According to these informants, one major and a couple of smaller procurements stroked the right balance. Any more than that, for example, three major re-procurements in a year was seen to be beyond the efforts they could afford even if the funds could be made available.

The discussions regarding LMS replacement at the NU libraries predated the recent project initiation by a number of years. When and how the idea of changing Picasso had originated was not something that one could put a finger on. The management referred to on-going problems with the system or user

dissatisfaction over a longer period with comments such as "the librarians hated it". As put by Kent, "it's always been dreadful; my understanding was that it wasn't very good when we bought it in the first place". Martin explained that he had felt an obvious demand to change *Picasso* in the conversations that he had with the AI-libraries early on, soon after his arrival half a decade ago. According to him, he had been asked by everyone 'when' he planned to replace the system; "we discussed the matter at very many library team meetings [...], the issue wasn't, you know, whether to replace, but when". The main reason for the purchase of a new LMS was, according to many informants, the shortcomings and problems with *Picasso*.

But, what were the inherent problems in *Picasso* that had led to this dissatisfaction? When and how had these problems started becoming an issue?

I investigate such questions further in the sections that follow. A closer look at this case indicated a number of potential attributing factors that contributed to the decision to change, including external influences as well as organizational goals. In the following sections, I present a discussion about how contextual factors may have a bearing on perceptions of an LMS. Furthermore, I take a closer look at how organizational goals and external influences may be tied to the timing and decision to change an LMS.

6.3 Perception Formation

The reception of *Picasso* by the staff at the AI libraries had varied. While recollecting their perception of *Picasso* in its early days, some staff members referred to positive aspects of *Picasso* in uniting the NU libraries through a union catalogue (e.g. Elizabeth). Others recalled how *Picasso* was completely different to what they were used to and that it took them some time to get familiar with (e.g. Mona).

When it comes to the earliest problems experienced with *Picasso*, many informants referred to problems with *Picasso* throughout its life at the AI libraries. According to Mona, there had initially been many email exchanges related to problems with *Picasso*; "always felt we were moaning all the time and we said 'well this is not working, that's not working'", but Mona reported that these types of emails had stopped after a period of three years.

The 'system not working well', and there being a lot of 'moaning' seemed to be a common perception of the first years of *Picasso*. In order to understand the nature of these problems, a closer look into the nature of these problems

becomes necessary. To address some of the complexities involved in forming a widespread negative perception of a system at an organization, I use the following sections to take a closer look at a number of issues. The first section shows a lack of a local driver and agent for the then new LMS, as that purchase was led by an external consultant. The next issue looked at is training, as training can have a strong relationship with the perceptions of a system. Then some of the perceived problems with `Picasso`, which are documented in a number of internal email exchanges, are examined more closely. The formation of a negative perception of `Picasso` by individuals is exemplified by following and examining one informant's perception formation. Finally, the organizational context at one of the AI libraries in which the negative view of `Picasso` is formed is described.

6.3.1 Detachment and Low Levels of Commitment

Many LMS decision processes are project managed and run internally by the members of library staff. However, it is not uncommon for external consultants to be brought in to manage the project or help the library staff with the process. There are both advantages and disadvantages related to each of these. In this section, a potential influence of an external consultant in this case is briefly looked at.

`Picasso` was purchased in the latter years of the 1990's. At one of the AI libraries, the staff's perception of the reason for the purchase of `Picasso` was said to be the lack of ability in their older system to deal with the transition to the year 2000. This reason was not the same for all the AI libraries, as prior to the purchase of `Picasso` some of them did not have an automated library system and those that did, did not have the same system. Not having a system that would cater for transition to the year 2000, or not having a system at all, formed a strong reason for wanting a new system, and purchasing `Picasso` was therefore, an achievement in that sense. Regarding the organizational goals at NU, the purchase of `Picasso` was an achievement even in another respect in that all the AI library collections were brought together on `Picasso` as a unified automated system. This unification was a step in the right direction considering the goals (and the disparate and distributed structure) of the organization of NU.

At that time, a large injection of funding from a national lottery had made it possible for NU to purchase a number of products including the `Picasso` system. However, that purchase had been led by an external consultant. None of the internal staff that might have been directly involved in that system

selection could be located at the time of the study due to retirements and staff turnover. The current NU-LIS management (as compared with the NU-LIS management at the time when Picasso was purchased) did not see the purchase of Picasso as a procedure that was done well (e.g. Kent, Martin). Use of an external consultant was explained as problematic with the clarification that a consultant would leave soon afterwards and would not have to live with the consequences of the decisions made. As put by Martin,

> "I mean one of the reasons why we, I think, we made a mistake in buying --- [Picasso] in the first place is that we allowed a consultant to come in and tell us what to do. That's got to be a bad idea in most cases. It's important that we retain ownership and control and belief internally."

Although, in this sentence, Martin (who had not been part of the organization at the time of Picasso purchase) used terms such of "we" and "us", assuming responsibility, other descriptions of the Picasso purchase typically referred to "them" and "they", placing the responsibility elsewhere. Furthermore, other problems associated to that purchase were also reported by the informants. Kent, for example explained,

> "And I think that they allowed themselves to be distracted by some things that were thrown in for free, so they were buying an LMS but it came with some other things for free and they thought the other things looked nice. And in fact the other things turned out to be a lot of nonsense and we never used them and they weren't in the tender exercise anyway so the other suppliers weren't asked to present those things. I have the impression that they were just led to one side by the idea that they would stand with a library management system and then buy a virtual learning environment from the same supplier that would work together. Nonsense, absolute nonsense."

The implications of the use of an external consultant are not studied in this thesis. However, what became evident was the absence of a person internally in the organization who owned the Picasso purchase process. There is evidence in research, for example in the field of diffusion, which supports the idea that innovation champions play an important role in the acceptance and adoption of innovations in organizations (see e.g. Rogers, 1995: 398). *A question arises as to whether the absence of such a champion for Picasso, had an implication on the perceptions and acceptance of Picasso in this case.* Another issue raised here relates to allocation of responsibility for the selection of Picasso. The staff that used the system did not feel a sense of responsibility for the selection of that system or potential shortcomings of the

system. *The question is whether the staff would have been more committed to solving or bypassing the perceived problems if they had felt responsible for the choice of that system.*

6.3.2 Training

The level of familiarity with an IT system can influence the perceptions of ease of use, and the level of training can influence the level of familiarity with the system. To form a better understanding of the perceptions formed regarding Picasso, I take a closer look at the issue of training in this section.

When discussing various functions and facilities offered in Picasso with some members of staff at some AI libraries, there seemed to be a gap in their knowledge[22] of Picasso, its capabilities and its interplay with other organizational systems and infrastructure. This information gap can be exemplified by a discussion with a member of staff who did not find Picasso 'very intuitive compared with other systems', and described it as 'rather cumbersome'. When asked for more details, she referred to a facility that was offered in other systems but she felt was missing in Picasso. When she was asked whether Picasso did not offer this facility, the response was, "well maybe, but I don't know because I just come and go over a period of time" (Agnes). Other informants, who were considered to know the system fully and had used the system since its arrival, had also found the lack of this facility to be a problem and testified that Picasso did not offer this facility. However, based on the information received from an account manager at the supplying company this facility had existed in the system for at least a number of years before the time that the informants claimed its absence. Another example was that Picasso was often seen as limited and the centre of problem, inhibiting the staff from performing certain tasks. However, when some of the problems were looked into, one could see that the inability was dependent on how the Picasso parameters or policies were set up in these AI libraries based on decisions made centrally and not due to lack of functionality within Picasso (see below).

Despite this, the training received on Picasso was perceived as adequate by many of the library staff although the amount of time allocated to training was rather limited (e.g. Kent described the amount of training in connection to Picasso installation to have been "hardly any"). What a library staff member (Mona) remembered was that she had received about one day of training from an official trainer but by the time the training was given, she and her

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[22] C.f. Saarti (2003: 26, 29) found similar knowledge gaps in Finnish public libraries.

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colleagues had been already using the system for a period of time. To be able to get started on the system, the person responsible for the system had shown them the basics and there was a manual that could be consulted. Not everyone in the AI libraries received **Picasso** training from a supplying company trainer. Some had been trained internally by their line manager or colleagues[23] or by the person responsible for the system.

Training and associated issues form a particular challenge in this case. This is due to a number of factors including the number of libraries involved, the libraries' remote locations, and the size and nature of staffing at some of the smaller libraries.

Normally, in most LMS procurement projects, the members of library staff are situated in the same location, or in the case of multi-site libraries, the members of staff belong to the same organization, and follow the same directives. Therefore, in those situations, it is less problematic to coordinate and bring together the relevant staff for a particular training session. In the AI libraries, each library belongs to a different mother organization, and therefore, the local organizational circumstances and directives vary from library to library. Presence of different organizations and dispersed and remote locations of the libraries make the coordination of the training efforts rather complex and difficult. An alternative to gathering all the involved library staff in one location for a collective training session would be to arrange separate (therefore, repeated) training sessions at each location; however, this would also be problematic. Repeated multiple training sessions at such a large number of different locations would incur extensive costs for NU, and cause coordination and scheduling difficulties for the (often limited) supplying company's training staff. This would also require the training sessions to be spread over a longer period, and hence would result in delays in training for some of the staff.

At smaller AI libraries, specialization was not possible and the member(s) of staff typically worked with all aspects of library functions and needed to be trained on all the subsections of the system. This also adds to the training challenges, as learning all aspects of a new system in one go is often seen as problematic by the individuals involved and repetitions in training sessions may be necessary.

Not only staff training involved difficulties, it was also hard to maintain staff skill set. Some of the smaller AI libraries were manned by one or just a few members of staff, some of whom worked at different shifts with short or no

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[23] Some problems related to this are discussed in later sections.

overlap in their working hours. Therefore, contacts with colleagues, and peer support, which are common in larger libraries, were minimal in those libraries. Hence, learning from colleagues during the normal working situation became less intrinsic at some of the AI libraries[24]. Due to the size of the smaller libraries, staff turnover also meant loss of expertise and skills. As put by Kent,

> "if somebody leaves, there isn't anybody else who knows, somebody new comes into post, they don't have..; they're not joining a team who can teach them how to use it, so whenever there's a staff turnover they just make it up for themselves."

Therefore, although the level of training was perceived as adequate by some of the informants, the surrounding circumstances indicated possible issues and shortcomings related to the level of training received.

This study does not establish the level of staff expertise related to Picasso, nor does it show that potential gaps in staff knowledge are directly related to lack of adequate training. However, in analysing the data, notable difficulties associated with staff training at NU libraries were highlighted. There were also strong indications that a knowledge gap existed in the grasp of the full range of functions available in Picasso or what could or could not be attributed to an LMS related problem. What could be seen in the collected data was that staff's limited knowledge of the system affected their views of Picasso negatively both in terms of ease of use as well as system capability and reliability.

6.3.3 Documented Reports of Problems with the LMS

Another aspect related to the formation of perceptions, is what was seen as problematic in relation to Picasso. In retrospect, the informal day-to-day discourse related to Picasso throughout its life at NU was not accessible. Therefore, instead, documented problem-reports were examined.

In this section, I present a close reading of a number of email exchanges that were made available to me as typical reports of the very many frustrating problems that were experienced with Picasso. These include formal reports of problems within Picasso by library staff and responses to these by the technical staff in charge of the system. This is in order to explore another dimension of perception formation. This subsection provides a brief look at

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[24] Organizational issues also add to this problem, where for example some members of staff are assigned the task of educating new staff while they feel that they are not compensated for this task and therefore, opt a passive resistance stance. See below.

what the users had seen as real technical problems with Picasso. These represent the sorts of problems that the informants readily referred to as being major, frustrating, and time-consuming shortcomings that had based their dissatisfaction with that system. What I present in this section is that not all the perceived problems were necessarily shortcomings within Picasso. I also propose that the way these complaints were addressed would have influenced the perceptions of the system.

These emails include problem reports from two library staff who were at the time responsible for LMS issues locally (Mona and Mary) at an AI library, and responses from the people who at the time were responsible for Picasso (Mike) and the servers hosting the Picasso system (Jill). The people reporting the complaints were the local 'channels' through whom the complaints were to be reported. The text of these messages indicates that the problems are not the authors' personal complaints and that other members of staff (including the head of the library) have been involved in channelling these issues through the authors. As these messages were formulated and documented as problems, it could be said that these messages contain issues that the staff had considered as 'real problems' rather than general complaints among the staff on informal basis.

First email – problem report: This problem is reported in the first year of Picasso use. The problem discussed in this email relates to duplicate borrower records attached to some users.

The first problem reported in this message relates to a student, Bob, with two user accounts, one old with the record id of say LB001234 and a new account with the user id of say 006742. The described problem is that although this student has four loans on the LB001234 account, when the librarian keys in 001234 the system brings up another student record, Richard.

The questions asked are "Are the new cards going to have --- [LB] in front of the student id and is the scanner going to recognise --- [LB] as part of the barcode".

The second item in this email is a report of inconsistencies in student records where some students have two records and some only one. No question is asked in association with the second reported problem.

Second email – response to the first email: The second email is by the person responsible for the system (Mike) and is in response to the first email. It reads as follows:

"These students would not have had an ---[LB00]-whatever card last year.. so all I would have imported is any change of address details which have occurred." [dots after 'last year..' as in original]

Analytical discussion of the first two emails: Other data in the study indicated that internal conversions of data including user records had been done and new user record id numbers were introduced. The format of user ids attached to the old and the new records varied in that the old user ids were a mixture of letters and numbers, while the new ones were just numbers. For example, an old library record id could be LB001234 while a new library record id could be in the form of 123456.

The problems reported in the first email do not describe shortcomings in Picasso, they rather refer to a problem with the internal conversion process or decisions. Rather than merging the data attached to the old records with new accounts, a number of users were left with two user accounts with transactions attached to both accounts in some cases. If Picasso accommodates different record id formats, it could be seen as strength. Any computer system would treat 001234 and LB001234 as two different strings of characters (unless otherwise instructed). Although account LB001234 belongs to Bob, the account 001234 does not (001234 had been assigned to Richard instead in this case). Therefore, the reported problem is not associated with lack of functionality or shortcoming in Picasso, rather problematic conversion and library staff's lack of knowledge on how computer systems deal with strings of characters.

The second segment of the first email reported inconsistency in some users having two accounts and some having one account. This is again due to local issues and happenings (such as a less than optimal conversion) and not a fault of their LMS.

As shown, the response from Mike is very short, and does not fully address the questions asked or clearly describe the cause or source of the problem. The problems expressed in the first email were reported as problems with Picasso. The response from Mike does not clarify the source of the problems as unrelated to Picasso. In interviews, it was indicated that such problems continued to be associated with shortcomings in Picasso.

Third email – query and problem report: The first part of this message was a query related to loan procedures and the way in which loans for registered and non-registered borrowers should be treated. The first part of the email explained that a number of students, from another AI library, were to be

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positioned at this AI library for a period of one year. The students from the other AI library had had student ids from their home institute. The question was whether Mike would want this library to use student identity numbers associated to the students' home institute on Picasso, or if they should be given temporary numbers.

A second question was about the length of Short Loans on Picasso. The members of staff at this library were under the impression that short loans referred to a two-day loan. It was also included that two-day loans would suit them well as they had a number of items that they would have liked to loan out for that period. What had prompted the question was that they had noticed that when they issued a book on short loans, the due date was given as the following day's date.

A third point made in this message was about incorrect information in some user records regarding the department to which they belonged. For example, the department for a student studying a BA in Social Sciences was reported to be recorded in Picasso as Advanced Engineering.

Fourth email – response to the third email: The next email was Mike's reply to the above email. It responded to each question raised. He had written that he would send some NU type user cards to be given to the visiting students, that the short loan was indeed set up as a one day loan and that he would get back to the sender, Mary, regarding the last query with the note in parenthesis " (if I have time before I leave for hols.)".

Analytical discussion of the third and the forth emails: Again, the first two questions raised in here clearly do not indicate functional deficiencies in Picasso and relate to the organizational decisions and central set-ups. However, the second issue, although not a problem in Picasso, refers to a central decision that did not suit this particular library. Whereas the length of short loan was centrally set to have a one-day duration, this library preferred a two-day duration for their short loans. As the decision at NU was to set the LMS policies to encompass all the AI libraries in a uniform manner, this library did not get to operate as was locally desirable.

Only the last problem reported in the third email could have potentially been caused by Picasso. However, even this problem could have well been related to other issues such as human error at the time of data entry or less than optimal local programs that extracted data from their student record system for use in the Picasso system. From Mike's reply, we do not get an answer as to the source of this problem. This item is left for action at a later time. The

emails that were sent to me did not include any further communication regarding this issue.

Fifth email – response to an ongoing complaint: This email was sent by Jill (the person in charge of the server), starting with a comment that she had found the Picasso access to be "pretty quick" on that particular day. It also included that she had been in touch with a member of management, reporting that both the web and non-web servers on which Picasso was running "are in desperate need of upgrades". The message also included that quotes were being obtained to put in a recommendation to NU-LIS for ordering upgrades. Jill stated that they had found that when the number of users on Picasso exceeded 90, it began to lock up or become extremely slow to respond. Their temporary solution had been to disconnect the web connections to free up the system. The note concluded with the promise of letting the recipient know when the order is sent to NU-LIS and thanking the recipient for patience with this.

Analytical discussion of the fifth email: Although other emails related to this issue were not included in my small collection, the tone of this message indicated an on-going speed problem with Picasso access and use. However, as this email includes, the problem seemed to have been due to under-dimensioned servers that had been in need of upgrading as well as slow web connections. In this message, no separation of Picasso and the server that it ran on is made. It is stated that when number of users exceed a certain number "it", the Picasso system, jams. This message also points to a process that would need to take place (e.g. obtaining quotes, putting in a recommendation, ordering the servers), before the problem (that seemingly had been going on for a while) would have been resolved. The data in the study indicated that the local discussions regarding similar instances were not of the form of "the servers are under-dimensioned and the process of putting in a recommendation, ordering and purchasing replacement hardware is taking its time"; the more likely conversations were of the form "Picasso is slow again, it's so frustrating!" That is to say, these types of infrastructure problems were commonly interpreted by the general staff as problems within the LMS.

Sixth email – problem report: This was a message from a library staff, Mary, reporting a couple of cataloguing problems to the person in charge of the system, Mike. The first complaint started with "We were under the impression that only one classmark should be entered in the main entry", then giving examples of records in which more than one classmarks were entered. The next problem was formulated as follows, "We have also noticed people are adding the cutter to the main classmark", also providing examples of this.

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Seventh email – response to the sixth email: This email was a response to the email above. In response to the first complaint, it was stated, "Many classmarks can exist in the bib. record. Some of the imported records contain LC as well as DDC classmarks".

The second part of the response confirmed that cutter should not be entered in the 'classmark' field and it was stated that the sender, Mike, would post a note to the library list to inform the staff about this. He also noted that some cutters might have been added during the data conversion process. This note was concluded by saying that the receiver, Mary, holds 'librarians discretion' to delete the unwanted subject terms.

Analytical discussion of the sixth and the seventh emails: The number of 'classmarks', or what should or should not be entered in assorted fields is not normally an issue of LMS dysfunction. The exception is in fields where a set of permissible values (or a rule for determining these) is identified and used to check the validity of the contents at the data-entry point. Even concerning such fields, often the library can choose whether to make use of such an option or not. The first reported problem regarding the number of classmarks in a record is clearly not a Picasso problem, rather it relates to local decisions and ways of communicating these decisions with those involved. Even the second part of the problem that reports entering data that is against local decisions is not an LMS problem. Fields that are declared as a string of characters are not checked for accuracy by a computer system, unless an algorithm is in existence that instructs the computer how to check the data validity. The responsibility to ensure the validity of data in character fields falls on the data entry person. The data in a database are as good as those input in them. If errors during data entry or data conversion occur (due to local practices or lack of information or training), this is not due to shortcomings on the part of the LMS.

The response from Mike also implies a lack of adequate information regarding this issue, which he planned to remedy by posting a note on the library mailing list. Another issue worth noting is the last line of his response, which would imply an extra-added job for the librarians to edit and correct all those items that hold undesirable data whether due to human error or data conversion problems. In the conversations that took place in the interviews, these types of problems were typically referred to as cumbersome extra work that the problematic Picasso created.

Similarly, the rest of the emails indicate misunderstandings and human errors interpreted and presented as technical problems within the system. The responses from the technical staff continued to be minimal.

Closing comments on the emails: The above emails were sent to me as typical of those frustrating problems that had led to staff's dissatisfaction with Picasso and a reason for constant 'moaning'. However, these communications indicated that at least some of the potential problems that had been perceived as shortcoming in Picasso, may have been due to other issues. A number of points can be discussed.

None of the issues reported here as problems within Picasso was *shown* to be related to shortcomings in Picasso. At least some of the presented problems could be argued not to be related to shortcomings in Picasso. The responses to the issues raised were not always very complete or accessible. More notably, not many of these clearly identify the source of the problem to dispel the negative perception of Picasso as a problematic, frustrating system with recurring shortcomings.

Issues raised by the library staff, that could potentially relate to serious problems with Picasso in corrupting their data (e.g. the third point in the third email), were to be further investigated and the above emails do not show the outcomes of those investigations or the way (and if) the outcomes were communicated back to the library staff. However, other data collected in the study and interviews with technical staff and other people who subsequently became responsible for the system indicated that no serious problems such as corrupting data had ever been detected with Picasso. Other data in the study indeed indicate that Picasso had been a solid and functioning system although with limitation in areas such as seamless interfaces with other systems or in what the library staff expressed as the "looks and feels" of it. If the included emails could be seen by any means as a representation of problems and shortcomings of Picasso, then one would need to seek the source of dissatisfaction with Picasso in other explanations than shortcomings in the system and it seems that organizational structures, communication, training, and policies all contribute to the formation of the perceptions.

6.3.4 Individual Perception Formations

In this section, I follow the formation of an individual's view of Picasso and look more closely at how and when potential negative perceptions of Picasso were formed by looking at one informant's recollections. Each informant had a different story but a general trend could be identified along the same line as the example that is included below. I chose this informant, because she had been working as a librarian at an AI library at the time when Picasso was first introduced and because of her central role in the later years. The assumption

was that she would have had an informed knowledge of Picasso and its problems and shortcomings due to personal work experiences with Picasso and through the problems reported to her by her staff and the discussions that took place among the AI librarians regarding Picasso.

This is the story of Elizabeth who had been the sole librarian at an AI library already a number of years prior to the time when Picasso was purchased. After Picasso was installed and was used for a couple of years, Elizabeth had moved to a non-AI library as the systems manager for a period of time before returning to a larger associated institute as the head of the library. At the time of the study, Elizabeth chaired the AI library team meetings, a forum in which the staff from different AI libraries met, discussed various issues, and exchanged information.

Prior to the introduction of Picasso, the AI library that Elizabeth worked at did not have an automated system. Elizabeth's first reaction to Picasso had been very positive; she expressed this by saying "when we first got it I thought, oh, this will be great, we've all got the same catalogue". It did not take long, however, before Elizabeth's view of Picasso began to waver. When describing when and how she first experienced any problems with Picasso, Elizabeth referred to the arrival of Picasso and commented that her view had changed "when I realised I'd several thousand items to catalogue and it was incredibly slow at cataloguing […] it was hopeless". Elizabeth estimated the amount of items that needed to be catalogued manually to be 55 to 60% of their whole collection, requiring "a good year and a half's work of cataloguing".

Elizabeth also explained about another issue that had escalated the problem with the negative view of Picasso. This was related to a lack of access to an adequate database from which they could import data into Picasso. According to Elizabeth, the only database they had used had only supplied a relatively small proportion of the records that they needed. Therefore, the level of work required from the staff had been excessive. As expressed by her "so there was heaps of work for me and for all the other --- [AI] librarians, an awful lot of retrospective cataloguing".

Apart from these issues – slowness, lack of access to an adequate database, and the required extra work in retrospective cataloguing – she had found Picasso to be a "great improvement" on having a manual system.

After this initial experience with Picasso, Elizabeth had changed jobs and moved from this single-staff AI library to a larger non-AI library as the

systems manager overseeing the implementation of a new LMS (here called **Monet**) at a public library and associated school libraries. It was in that job, after seeing **Monet**, that she thought,

> "Wow, this is great! [Laugh] What a difference this would've made if we had this system because they have a huge database of stuff that you can draw catalogue records from, even if you customise them yourself, virtually everything ever printed is on there".

She had found that **Monet** had "optional things like reading lists" that she felt **Picasso** just could not cope with, without a lot of extra input from them. Her view was that **Monet** was "what a system should be like". However, the level of training that she had received, the tasks that she conducted as part of her job, and consequently the level of her familiarity with the two systems varied considerably. In the AI library, she was the sole librarian, having to conduct all aspects of library work, one of which was to use **Picasso**. Considering that much of her time would have been spent on retrospective cataloguing and other aspects of library work, little time would have been available to get familiar with other aspects of **Picasso** than those necessary in the daily work. Elizabeth was a systems librarian in the second library. She had received full training at the supplying company including training on their LMS and database architecture, SQL, a report generating system, and writing a number of smaller applications and reports. Some of the tasks that were included in that job were:

> "Setting the parameters for the system; designing and delivering training for staff; preparing user guides for the staff; coordinating different parts of the project plan; making sure that different things were happening at different..; the right times; liaising with people from the council's ICT department […]; designing and writing up all the various reports; and then once the system was up producing them on a.., however often was required; putting together a system for backups; and then first making sure that they happen."

All of these were therefore, areas in which she was trained for **Monet** but not necessarily for **Picasso**.

After a period at the second library, Elizabeth moved to another job at another AI library as the head of the library. On her arrival, she came in contact with **Picasso** again and as put by her, "there were a lot of grumbles and moans and groans about --- [**Picasso**]".

When it came to her own personal experience and contact with Picasso at that time she said,

> "I had to sort of spend a couple of days relearning how to use it and it all sort of came flooding back to me. Because I don't use --- [Picasso] much on a day-to-day basis unless I'm doing masses of cataloguing. … [She then explained that such work is mostly done by other staff.] So the only way in which it affected me is if there was going to be down time, and there's been a lot of down time this year, we've had to do a lot of manual record keeping and there's lost data as a result."

Therefore, the problem that directly affected her was the down time and she did not have detailed examples of functional problems with Picasso. In explaining how she had come to notice the problems with Picasso, she referred to just using it and its slowness, adding:

> "I think the having to do so much retrospective cataloguing put a lot of people off, the way it can be so slow; maybe is that a networking problem? I don't know. The way that it can't produce the lists and things that you want but there's no easy way of pulling off the reports that can, or designing them for yourselves, it's quite a complex process of designing work. Just..; and I think seeing what happens in other universities and how much more their systems could do in terms of student support. Envy!"

6.3.5 Analytical Discussion on Individual Perception Formations

The initial point at which Picasso began to be perceived as problematic goes back to when those AI libraries that did not have an automated system had to catalogue their holdings on Picasso for the first time. The problems that Elizabeth highlighted concerning retrospective cataloguing were the slowness of cataloguing module, and the lack of a database from which they could import catalogue records into Picasso. She also mentioned presence of options such as reading lists that existed in other systems and were missing in Picasso.

Concerning the import functions (i.e. importing cataloguing records from an external database), normally, there are a number of national or international databases that are commonly used by libraries. Even imports from other libraries do occur. As time progresses and import software is written for import of records from various databases into a particular LMS, these can be reused. Therefore, if an LMS has been on the market for a number of years,

chances are that import software may be in existence for a number of databases. Although a number of companies that sell LMS have diversified their area of business and offer other services such as bibliographical databases for imports of records by libraries, this is not a norm for the majority of LMS suppliers. The responsibility for existence of suitable bibliographic databases, for the purpose of import, does not necessarily lie with an LMS vendor. What lies within the vendor's area of responsibility is to give access to the LMS database structure and information needed for writing the required import software so that data transfer can be done in a correct and desirable manner. However, as many LMS are sold in an international market and there are a number of sources from which one can import records, import software will need to be developed for each system and each potential database. Many LMS vendors offer to write the required software (at a cost), but not all such software is written by them. At times, the library chooses to write the required software internally, at other times third party programmers are employed for this task. The decision as to whether the library is willing to pay for the costs of the imported bibliographic records and the development of the required software lies with the library and its decision makers. The same applies to investigations about finding a suitable database from which to import. This is to say that if the AI libraries did not have access to an external database or did not choose to pay for the purchase of bibliographic records, or did not choose to develop the required program to import the desired data into their system; this should not necessarily be dedicated to the shortcomings of their LMS. However, in this case `Picasso` was indeed blamed.

The work required for modification of imported data is less demanding than original cataloguing. Elizabeth, like other staff found retrospective cataloguing of "several thousand items" time consuming and bothersome, especially as the cataloguing function was perceived to be slow. There are a few aspects regarding slowness in `Picasso`; one is whether the functions available in `Picasso` were designed well enough to minimize the steps and key strokes required in cataloguing. Another is whether the network and infrastructures, that made the distributed use of `Picasso` possible, allowed for a fast transaction. A third aspect is related to the speed of modifications in cataloguing setups and related parameters in order to custom design the cataloguing module to suit users' preferences.

Addressing the first aspect, the staff did not find the design of the cataloguing module in `Picasso` to be optimal. Elizabeth compared `Picasso` with another system, `Monet`, which she perceived as a good system saying that the functions in `Monet` were so much quicker and fewer steps were involved. This may well be fully correct. However, it should be noted that no systematic

comparisons were done between the two mentioned systems. At the time of the study, no other studies could be found that had compared the two cataloguing systems either. When discussing the specifics of each system as examples, Elizabeth referred to some shortcut options in **Monet** that allowed it to operate faster, which did not exist in **Picasso**. These options were discussed with the **Picasso** vendors later in the study and as confirmed by them, those functions existed even in **Picasso**. It was indicated by the vendors that the level of presence and use of such function can be set up differently by different users and therefore, can vary from one library to the next. The absence of such functions at the case library therefore, could well have been based on the local settings and the way the people responsible in NU had chosen to make the system available to its users. This is not to say that the staff's perceptions of **Picasso** as an inferior system were wrong. However, questions arise as to whether other factors such as policy and parameter decisions and **Picasso** set-up at NU or a lack of adequate training could have inhibited the level of use, and therefore, influenced the perceptions formed. When it comes to Elizabeth for example, her training in **Monet** was done at the vendor's company and was much more involved than the training she received in **Picasso**. In her initial contact with **Picasso**, she was the sole staff member at her library, inundated with tasks covering all aspects of day-to-day library work in addition to a sizable retrospective cataloguing project. Her contact with **Monet** had come about in a different setting. Due to her role as the systems manager, she had to learn a lot more about **Monet**, not only at the operational level but also at the level of systems administrator. Her role as the trainer also ensured her reinforced and updated knowledge of the system. Furthermore, it was she who fine-tuned and managed the parameters and policies that were set-up in the **Monet** system. In the AI libraries, parameters and policies were setups centrally, to be used by all the libraries involved in a uniform way. As there were many different libraries involved, each with different structure and needs, the procedures adopted in the system involved a compromise and amendments needed to be done in a way to suit all. This in itself leads to another aspect of slowness in that changes in the system set up, parameters and policies that were potentially requested by a library in NU were not necessarily done, or at least not as fast as they would have been done in a more typical library where such decisions and changes are considered locally.

Another aspect of slowness with **Picasso** and other general negative perceptions of **Picasso**, involves other issues. Related to slowness Elizabeth commented: "when it comes to the stage where you can go and make a cup of tea, as --- [a colleague] was saying earlier, and it's still processing a catalogue

record, that's just daft". These types of slowness problems do not just relate to the design of **Picasso** or lack of short cuts or functions that help speed up routine operations. To understand the nature of such delays and other related problems it is necessary to look into the way **Picasso** was distributed for use among the AI libraries. This relates somewhat to the historical background of the formation of NU and its NU-LIS unit, which is explained below.

Initially, at its early days, NU-LIS had very few staff members. Various parts of the activities were contracted out to different associated institutes. So while the management of video conferencing facilities were contracted out to one associated institute, email, and data warehousing were dealt with at another institute, and networking at yet another. This was not seen as a successful arrangement by the NU management due to difficulties in coordination of these efforts, lack of control over the staff (as they each belonged to a different organization), as well as higher costs and service tax implications. To solve these problems, the contracts with the associated institutes were cancelled and the staff who had previously performed the related tasks were offered generous terms in order to transfer from their associated institutes to NU. The resistance from the associated institutes were reported by the informants at NU to have been lesser than expected.

Accordingly, the number of staff in NU-LIS grew from six to around thirty members while the physical location of various facilities and related staff continued to be spread over a large dispersed area. This new arrangement and a new managerial structure at NU-LIS solved some of the experienced problems; however, this distributed way of working continued to have implications for the libraries as well as the management and daily operations of **Picasso**.

A problem that arose at the time of this study can exemplify this issue. The server, on which **Picasso** was placed, was located at one of the associated institutes, here referred to as AIx. There was a critical error and the server ceased to function. A new server needed to be found. This server problem coincided with the intentions of the person in charge of the server at AIx to relocate. Therefore, **Picasso** was moved to a different server located at the NU headquarters (NUHQ). This move involved a couple of days of down time, which was understood and accepted patiently by the staff at AI libraries. The new server was tested, up and running and all seemed fine. Then a report was received from AIx that there seemed to be many activities going on, on the old server. This seemed odd, as **Picasso** was, at that time, the only system on that server. The NU systems librarian (who is located at yet another AI), therefore, contacted the NUHQ questioning whether there was any activities on the new

server, the answer to which was 'no'. Therefore, for a number of days, all the library transactions had continued to be directed to the old server and no registrations or recordings had been done on the new server. This led to loss of all data related to that period. It was not an easy task to explain this to the librarians, and in turn, the librarians were quite irritated by this and saw this as yet another example of problems with Picasso. Consequently, the AI librarians had to re-key all the transactions that had taken place during that period. The members of staff that had accepted and shown understanding for the down time due to move of the server found it harder to accept data loss and were not happy with the added job of re-entering the lost data. The problem did not end there. The time-consuming data entry was done and the system was brought up to date, but the members of AI libraries began to experience problems with the speed and performance of Picasso again. The system slowed down noticeably in the afternoons at around two o'clock. It was then noticed that the back ups were scheduled to run at that time of the day while the system was highly used. This was identified as the cause of the slowness. Consequently the back ups were scheduled to run after the office hours. This solved that problem, but other similar related issues did crop up from time to time.

Accordingly, human error, organizational structure, placement of a number of different systems on the same server at times (and hence slower performance in each of the systems), and other network related technical issues, collectively created a number of problems that the library staff perceived as being related to Picasso. But in reality these problems, although experienced, real, frustrating and time consuming, were not all due to shortcomings in Picasso, rather some were caused by human error, or were due to other organizational and technical arrangements.

Therefore, much of the slowness experienced by Elizabeth and other AI librarians was caused by the infrastructure and the way their work and the system were distributed. This problem was acknowledged by management and technical staff; however, the basis of such problems did not seem to be known by the general staff. Whereas NU staff dedicated such problems to their network, organizational structure and human error, Elizabeth and other AI library staff perceived Picasso as the source. In summary, Elizabeth's negative perception of Picasso was accumulated over the years and in at least some respects was due to other factors than actual faults and shortcomings within Picasso.

The contextual factors that led to a perception of problem with Picasso were known to NU management and technical staff. The following conversation

that took place at a meeting in NU, can exemplify this. Prior to the section included below, the server problem that was described above was presented and some complaints by the AI library staff were reported.

Linda It doesn't strike me though that it's **Picasso**' problem.

Amy It's not **Picasso**, none of this has been.

Linda It's NU.

Amy You always get the call to say **Picasso** is slow, **Picasso** doesn't work. **Picasso** actually **does** work and **Picasso** doesn't break.

Linda It's the network and the server.

Amy It might not be a good system but it doesn't break and if it was running over a fast network it would be, it would be good. And what worries me, the situation that we have with our servers is we're looking at new library systems and we can go for the biggest and best system that's out there and it's going to be as useless..

Linda ..as the server.. [filling in on the previous speaker's sentence]

Amy ..because it's the, it's the network that it's operating across and if that's slow, the best system in the world can't cope with it. So on the technical side of things, something has got to be done and it's got to be done soon. Another thing is down in AIx, one day, a man took a server to bits and half way through taking it to bits he thought oh no, the OPAC runs on this server that he had in pieces so it'd gone down. So there was.., I mean he apologised profusely for it happening but we can't seem to stop people interfering, and again, this problem last week, you know you think oh it's [the **Picasso** server] going over to NUHQ, everything will be fine and then they don't point the client to the new server and again, we've got a problem and it's human error and we have to get by this, people keep doing things wrong.

Original names have been replaced by fictional substitutes (Linda, Amy, **Picasso**, NU, AIx, NUHQ).

It should be noted that in further discussions with Elizabeth, she indicated that there existed problems even with **Monet**. For example, when describing how other staff worked with **Monet**, Elizabeth mentioned a number of measures

that she had taken to help others with the problems they were experiencing with it. This implied that other staff experienced problems with **Monet**. Elizabeth explained the nature of these problems as,

> "Troubleshooting problems because we were using a brand new product that was still in beta test from --- [the **Monet** supplying company], there were a lot of teething problems and we all had to be trouble-shooted and tested out until we found the solutions. Writing scripts for like..; if the manager decided that they wanted new, a new set of statistics or a new report of some sort, then writing up the SQL that..; we produced scripts that they wanted, and preparing the online catalogue, setting up all the data needed to put that online and producing stuff to put on it like SQL queries that run every day showing new titles and stuff like that."

Some of these problems were a reminder of what she had explained as problems with **Picasso**. However, in her description of the situation with **Monet** she was dismissive of the problems and referred to it as a success, by saying,

> "It was stressful but it went okay, it was a success, we got the system in, people trained, the system set up pretty well; I went, I mean it was not without its problems as I'm sure you're aware of system installations, but it was pretty good really. It was a big learning curve for me."

Shortcomings in **Monet,** such as the inability to produce reports and reading lists, experienced by other library members (who were not the systems manager) were rather similar to the problems that Elizabeth had experienced in **Picasso**. In relation to **Monet,** the locally written scripts by Elizabeth (as the systems manager) made it possible for other staff to get access to the statistics and other reports that they wanted. Knowing **Monet** and the associated tools, and being in charge of that system would have allowed Elizabeth to write the required scripts to produce the reports that she or others required. This could have been a factor in creating a positive view of **Monet** (for Elizabeth). For her, the situation was not the same with **Picasso**. She did not have the technical expertise in **Picasso** that she had with **Monet**. When working with **Picasso**, the reports and functions that she needed were not accessible to her and she was reliant on others (technical support) for those needs. These, the level of support, or the speed in which her requests were addressed are all the type of factors that potentially could have influenced her evaluation of **Picasso**.

What I have tried to present above is the possibility that Elizabeth's negative perception of Picasso could have been influenced by other factors than Picasso's own inherent properties.

6.3.6 Local Context at One Library

> "The college has got a disease […] the symptoms are coming onto us and we're all going off sick."
>
> "…they felt neglected, ignored, unappreciated."
>
> "I was getting the jitters with this restructuring thing; 'am I going to lose my job?'"

In this section, I describe the organizational and social context at one of the AI libraries. From the outset, the description of the local setting may seem unrelated to perceptions of LMS, or the selection process in general. What is achieved through this presentation is outlining possible areas where these seemingly unrelated issues might be of relevance to the topic of this study. I present the following as an example of the contextual issues that could potentially have an affect on users' state of being and their view of their work and LMS as a tool in their work.

I refer to the associated institute library that is being discussed as AI-Case. AI-Case was situated at one of the larger associated institutes, which comprised of three campuses, two libraries and over 8000 students. At the time of the study, there were six members of staff attached to this AI-Case library. Of these, one (Mary) was on sick leave while another of the six, Agnes, was her replacement. Two of the staff Sharon and Ruth worked part time on different shifts. The remaining two were the head of the library (Elizabeth) and an information assistant (Mona). In addition to these, a technical staff (Tom) and Elizabeth's line manager (John) were involved in the operation of the library.

John	Head of library's line manager
Wendy	Previous head of the library
Elizabeth	Head of the library
Mona	Long term member of staff
Agnes	Long term temporary staff
Mary	Member of staff on sick leave
Ruth	Part time shift worker
Sharon	Part time shift worker
Tom	Technical staff

Table 4 – An overview of the key people at AI-case

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At the time of the study, Mona, who had worked at the AI-Case library for eight years, was the longest standing member of staff at the library. All the people who had been at the library when she started had left. The earlier head of the library (Wendy) had retired while some of the others had left due to illness.

Two issues that were common in the interviews at this library were, on one hand, problems with Picasso and on the other hand a stressful situation at the library that had gone on for a number of years prior to the study. One informant, Mona, even related the two together by saying "…there've been long periods of sickness, quite profound, so I don't know if it's ---[Picasso] that's done that [laugh]". Elizabeth had taken post as the head of the library two years before the start of this study. She described her time at this library as 'great' saying that, "I quite enjoy my job even though it was quite difficult to start off with".

Elizabeth had seen the advertisement for her job (head of the library) in a related journal and had heard "snippets of oh this job's coming up, that job's coming up" from friends and colleagues. Once she had shown interest in the job, "stories were coming out of the woodwork" and a lot of information and rumours about the job had reached her. She had to consider applying for this job carefully as "people had said it would be quite a tough job and a tough community". After much consideration, Elizabeth did apply for the job and she was appointed. Subsequently she had found the rumours to be correct and as expressed by her, "when I first came here I thought, my God, it's ten times as bad as anybody said it was". According to her, this was because "the staff had been badly treated, they were all up in arms about having their pay deals knocked back, not getting support from senior management, not getting any staff development. There had been a long history of people being off long term with depression and related conditions".

Local problems and high levels of stress and stress related illnesses resonated in all the interviews at this site. One full-time member of staff had left her position due to illness and her job had been divided into two part-time positions, which were now occupied by Sharon and Ruth, each working a different shift, one in the mornings, and one in the afternoons. Another full-time member of staff, Mary, had been on a lengthy sick leave and at the time of the study was involved in a dispute regarding whether she still had a position or not. Therefore, at the time of the study, Mona was the only full time, permanent library staff working in a non-managerial post. These instances of leave of absence had implications for the library in more than one way. One direct implication was related to having to use temporary staff, appointed through a job-agency as and when needed. At times, these

temporary positions had been short term, while at other times the temporary staff would be at the library for a longer period and could form a better familiarity with the library staff, the library, and the related tasks. Even so, the change in the hired temporary people was a means of discontinuity in the work situation.

Having incurred a large debt, the economical situation of this associated institute had been dire for a number of years before the start of the study. Over a number of years, the institute had tried to save large sums of money. Not only this financial situation had had implications for the staff morale and job-security, it had also affected the services offered to the students.
According to Mona,

> "I think for the last three or four years they've always been axing jobs each year so there were..; twenty five lecturing staff went last year and this, from now till summer, they're going to lose another twenty five lecturers so lecturers don't know if they've got a job for next term. So last year the ones that were left, you know, came back and thought "oh phew", you know, they've still got a job but there's cutting it again this year. I think the support staff are okay this year but there's just the lecturing staff in the end so the college..; the moral in the college is very low at the minute, you know. And we're not buying any books; if --- [Elizabeth]'s doing anything at all, she's still got to finance, and beg and borrow to get things you know just pens and different things but there's absolutely no books being bought at all, not for well all this year really I don't think we've had any books in."

Therefore, on her arrival Elizabeth had found the situation problematic on several fronts. She explained,

> "Unhappy staff who had not had the pay rises that they were promised, who were left to get on with things by senior management, I mean --- [Wendy] left in January, I didn't appear till July, they didn't really get any effective backup in between times. What else? Gosh I'd know one thing that's enough, I mean the atmosphere here; the staff when I got here were beside themselves, they were applying for new jobs right, left and centre because they felt neglected, ignored, unappreciated. Nobody had given them any staff development for well over a year, no appraisals, nobody came over to help them out when they were really busy, nobody to train new people who were coming in from agencies, it was just a mess. And I can understand exactly why they were in such a state."

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On Elizabeth's arrival, she proposed a number of changes such as upgrading some of the staff's job-levels and salaries to bring them up to the same grading as others who worked in comparable positions. However, her first few proposals were ignored or rejected. These rejections and talk of restructuring created a sense of un-ease among the library staff who had began to question the purpose behind the restructuring. Mona was one of the people who were included in Elizabeth's job improvement proposals. Due to various reasons such as staff turnover, Mona had often been asked to undertake tasks above her grading. Every time she had asked to be re-graded, she had been told things such as "oh, there's no money" or "we'll have to wait till the new manager comes". Even to be re-graded was not without its problems. A possibility had been to have to re-apply for her own job, in the slightly upgraded level, and to risk losing the post to some other candidate altogether. Mona explained her thoughts and feelings in the following way,

> "I was getting the jitters with this restructuring thing, 'am I going to lose my job?', I could! I had a full-time job, I could be made into a part-time job you know.
> […]
>
> I was at personnel and what not and saying how I felt and I went to my doctor as well and I said, you know, 'the college has got a disease', you know, and I said 'the symptoms are coming onto us and we're all going off sick you know', I said but it's, we don't have the problem it's the college that has the problem and we're getting the symptoms from the disease; you know, that's how I could see it."

She also wanted to go and see the institute's doctor to highlight the problems. However, the procedures for meeting with the college doctor had been 'awkward', for that she first had to go on sick leave for a period. She had the impression that they wanted her to go on sick leave to enable them to say that she is the problem and to get rid of her. As well as the management, the doctor, and others, she had also contacted the personnel office questioning them as to whether they had a quality measure for how they treated their staff. The answer had been that there were no such quality measures in place. Her feeling had been that: "sometimes you feel, you know, it's just like banging your head against a wall sometimes, you know, they just want to do it their way sort of thing and that's it".

When elaborating on the staff situation, Elizabeth explained the reasons for treating the library staff in that way as follows:

> "I think it was just because the senior mangers knew that they had nobody to stick up for them and they could just sort of make a few promises and ignore them because they knew that the new person coming in would take the flack and that is what happened to a large extent. They thought well somebody else will mop it up and we can get away with not paying them for a wee bit longer, no importance given to employee relations whatsoever. I think quite unfairly no importance shown to the library staff, I think they were justified in feeling neglected to a large extent."

What I have presented above is a sense of the organizational setting where the financial difficulties at the wider organization had created an economically tight situation at the library by limiting their purchase possibilities and for the library staff by creating a tough working environment where job cuts were a real possibility and the level of support was virtually non-existent. The only long-term member of staff had been very proactive in using the channels open to her to combat the challenges to remain in her post. In addition to low morale, there were other problems facing the library when Elizabeth occupied her post, including confrontations with students. Elizabeth's predecessor had even been physically knocked over at one occasion when she had tried to mediate in a fight between two students.

After much effort on different fronts and several formal proposals that were put forward with supportive arguments and relevant cost analyses, the management had accepted some of Elizabeth's recommendations. Other improvements were also made including creation of a code of conduct for the students. Therefore, many of the initial problems that Elizabeth had faced on her arrival had been resolved by the time of the study. However, based on this background and within this context there remained some residual elements that affected various aspects of work life at this library, which in turn had implications for the process of LMS selection and the use, training, and perceptions of Picasso.

One such element was the cautious reaction of the staff to situations that were a reminder of the past struggles for being treated fairly. For example, Mona was given access to an NU-wide librarians' mailing list. The news and discussions on that forum covered a wide range of topics including items related to Picasso and the process of LMS selection. Mona was a library assistant while others (with the exception of Elizabeth) working as librarians did not have access to this forum. Mona felt unease about having been given access to information that she perceived as being above her level. She often fed through the relevant information to Agnes, but she felt reluctant about this, and did not see the dissemination of such information as part of her job.

Although the information discussed on that list could be interesting and relevant for her, she questioned her access to that list as a library assistant.

This cautious reaction would even turn to passive resistance in situations that the staff felt more strongly about. For example, due to shortage of staff and staff sicknesses, from time to time a number of temporary staff had been brought in to fill the gaps. Sharon was one of those people who initially had a short temporary job at this library as a library assistant. By her next visit, she had completed her librarianship education and returned to the library as a librarian. At that time, there were no other librarians at this library. Sharon, being a newly qualified librarian and not having much experience about Picasso or other librarian-level matters at this library, was briefly introduced to the other staff by John who then left her alone 'to get on with it' without much instruction. Therefore, to be able to find out what she was supposed to do, or to learn about Picasso, she consulted other members of staff such as Mona. At the time, Mona's feeling was that she was being used again. A thought was that she was only employed as a library assistant and it should not be part of her job to train a librarian. Therefore, although Mona helped Sharon on some occasions, at other times, she refused to help her and referred her to John. Sharon took this matter up with John, who had returned to the library, and who addressed Mona with a strong tone, telling her that it was her role to show Sharon various tasks. This led to a conflict and John was reported to the personnel office by Mona. Consequently, Mona joined a union and this matter was followed up by the union representative and taken to mediation. Although that matter passed, one could see continuations of similar matters even at the time of the study. This passive resistance, by those members of the staff who felt that the tasks assigned to them did not match the level of their grading or income, had implications for training new or temporary staff and the efforts towards the LMS decision process. As a result, some members of staff had not received the required level of training or assistance. Some felt left out or stressed, leading to continuation (or escalation) of the problem.

Another implication of this situation for the perception of Picasso or efforts towards the LMS purchase process relates to the temporary staff's potentially lesser commitment to various aspects of the work including Picasso. Whereas a full member of staff may be more committed to master a tool and learn 'all the ins and outs' of a given system (if given the resources and related motivation), the nature of working on a temporary basis, and from time to time, does not warrant or allow the same level of commitment. Hence, once a lack of functionality was experienced with Picasso by the temporary staff, the required efforts were not invested in a more detailed investigation to find out whether the experienced shortcoming was a real lack of function or whether it

related to other factors such as lack of training. The explanations for not looking deeper into the problem included, for example, "because I'm not on the permanent staff here, I just fill in, covering, you know, day to day things".

There are other aspects of the work situation at this library created within this context, which had further implications for the shared views of `Picasso` and LMS selection process. For example, due to staff changes, the information channels could not be optimal. Some of the information that had been made accessible to Mona would have been more appropriate for staff such as Agnes and Sharon. However, Mona had been assigned as the recipient due to reasons such as Sharon working part-time and Agnes being a temporary member of staff. In this way, Mona was in a position to choose the people (if any) that she shared the information with, leading to varying degrees of awareness among the staff regarding, among others, `Picasso` and LMS selection. This situation had also led to varying levels of job satisfaction and feelings of organizational inclusion.

6.3.6.1 Subsection Conclusion

In this section, I have tried to highlight that although an institute's financial well-being, personnel policy, or staff's personal thoughts and feeling seem far removed from how an LMS is judged, these background issues are interlinked and can have implications for an LMS project. An LMS is an element in a wider context and the way it is used, supported, passed down from experts to novice users and judged or blamed is a link in the chain of organizational setting. At times `Picasso` was blamed for, or was associated with organizational problems, like when Mona, although jokingly, questioned whether `Picasso` had been the cause of stress and staff's long history of stress-related illnesses. At other times, `Picasso` was perceived as problematic due to lack of an adequate training. When problems arose with `Picasso`, the staff did not fully investigate the source or solutions to these problems, because of limited organizational resources, or being a temporary member of staff, or disputes on what should be included in one's list of duties, or being left out and feeling resentful. All these factors had an influence on a shared negative perception of `Picasso`. Another point that I wish to return to in a later section of the thesis (in part three), is related to the way the contextual difficulties at this library had persisted over time and the way it was eventually somewhat resolved. The financial difficulties and general attitudes towards library staff had set limiting boundaries. A number of staff members had succumbed to these circumstances but some members had, through several proactive efforts, managed to survive and change their situation and the circumstances in which they operated.

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6.3.7 External Influences

In this section, closer attention is paid to potential external influences on the LMS decision process. The focus will be on whether the goal and timing of an LMS change is based on a library's needs and goals or whether other issues can influence the process.

NU's primary source of funds was a governmental funding council. The bulk of funding received from that funding council was determined by a complex formula which took a number of factors into account such as the number of students, the subjects that they were studying, student status as full or part time, and so on. That bulk fund came to NU, where it was top sliced for the services provided by NU, and then the rest of the fund was distributed by the NU management among the associated institutes, again by the means of a formula. The funding council also earmarked funding for research and development, and tended to have specific funds for infrastructure developments, and particular activities. Very often, such funds were derived from call-backs, which related to funds that were taken back, for example, if the student number target was not achieved. That money was not returned to the government, it was instead redistributed. Therefore, although some of the funding might have been lost due to not reaching a target, some of it could have returned through an initiative to fund the development of resources. NU also received some funding from the local enterprise agency. Furthermore, NU was involved in other joint ventures involving health services and other universities, which also incurred other project income for specific activities. A large section of the project income, including this time's LMS re-procurement project, was not from the top slice and came from other sources. NU at times recharged the institutes for some of the services it provided. It also had a number of other smaller one-off external funding sources. Even so, NU was engaged in very little commercial activity, and therefore, did not have the diversification of income streams that were typical of some other universities in that particular country. Although the income from top-slice varied due to internal factors such as reaching student targets, it was still calculable and dependable. However, the rest of the external funding was volatile and could not be relied on, at least not in the long term.

For division of funds internally, a budgetary estimate was prepared every year and was then included in a broader planning that considered, for example, the level of income the organization was expecting to receive and other competing demands on the resources. Based on that, a draft budget was compiled and was sent to a board that was made up of the NU principal and the principals of the associated institutes. At the board meeting, where a major concern for each

participant was the amount of money assigned to his or her institute, the proposed budget was examined.

Like in other organizations, at times tension was created between NU and some institutes or between the institutes, where "the evil central top slice" was seen to "exist only to spend the organization's money". Here, instead of different departments within the same organisation, one dealt with organizational components that were heterogeneous and legally separate organisations, hence creating a more complex set of circumstances.

The formal structure of the organization of NU demanded a consensual process in decision making and adopting change. As not many changes could be universally beneficial to all involved, some changes were threatening to a number of associated institutes. This management by consensus was said to lead to a slower pace of action or to prevention of change at times. Therefore, some of the more important change processes within the organisation happened outside formal committee structures. At times, these were driven by external bodies, which provided the organization with a lot of money, and therefore, liked to have some say in the path that the organisation took.

This set up could affect LMS related decisions in a number of ways. The budget for purchase of an LMS could come from a variety of sources, and at times could be tied to other projects or restricted to a period. The timing and level of expenditure could also vary depending on the available resources and other demands on the available funds and the negotiations between NU and the associated institutes. The LMS related decision could also be tied to the goals of external bodies for potential change within NU. Those goals were often driven by the means of providing the required resources. According to a member of management, a historical review of the levels of success or otherwise in implementation of organization wide systems at NU, indicated that providing funds had been "a wonderful partner for change" in getting various systems implemented consistently across the organization.

However, the question can be asked as to how a computer system for the libraries at the associated institutes could possibly be tied into external goals and wishes, or why would the choice of an LMS be of any interest to external actors.

Some of the associated institutes, while facing grave financial difficulties, were unhappy with the financial arrangements within NU. Some preferred the sizable funding that was top sliced, and partially redistributed by NU, to go to them directly instead. This was counteractive to the existence of NU and the initial goals behind its formation. Acceptance and continued existence of NU

was tied in both the external and internal goals and objectives. An obvious advantage with the existence of NU was the possibility that it created in seeking university status and the advantages that such a status would bring. Another advantage, which had created an acceptance for and had eased its presence, was the central services that it offered to the associated institutes. Provision of an LMS, free of charge, to the associated institutes, some of which could not afford an LMS with their small financial means, was one such added incentive and could be interpreted as closely associated with this external goal.

The libraries of the associated institutes did not all have an automated system before the advent of NU. Those associated libraries that did have a system did not share the same union catalogue or routines and policies. A wider goal underlying the formation of NU was for the efforts and services offered by the associated institutes to feel seamless, unified, and functional. To achieve this goal, it was imperative to establish a higher level of cooperation and similitude among the associated institutes. Having the same library system and union catalogue had created a unity and synergy within the libraries. It also allowed a more unified library service to all the NU library users regardless of their actual physical location. The purchase of Picasso achieved the goal of unifying the library catalogue in particular, and libraries and library work and services in general. Nevertheless, some variations remained and portrayal of a fully united view was not yet entirely achieved. Replacing Picasso with a new LMS that would streamline libraries' routines and policies and which would allow (or reinforce) further unified ways of working would be a step in further unification of the organization as a whole and hence related to the overall goal with creation of NU.

While steering forward the collective efforts towards gaining a university status, various initiatives had taken form. In this pursuit, some informants were of the view that in order for NU to be easily recognized as a viable applicant for 'university status', it would help if the attributes associated with it were easily recognizable as those attributes that are typically closely associated with a university. Having an LMS used by other well-recognized universities was such an attribute. The problem with Picasso in this respect was that it was mainly used by (and therefore, associated with) public libraries. Having an LMS not used by other universities was seen as problematic as it illustrated that NU was not a university. Replacing Picasso with an LMS predominantly associated with, and used by other established universities, would drive forward the objective of looking like a university, and therefore, tie the LMS purchase with this goal. There were other issues closely related to this point that the purchase of an LMS typically used by

known universities would solve. One concern was that if another unknown LMS or one not used by academic organizations was to be selected by NU, then NU could potentially be blamed for the outcome if the chosen system proved to be problematic. However, if one were to choose a system that was selected by many other top academic organizations, then one would avoid blame with the argument that 'we cannot be at fault as so many others have done the same'.

As described above, the organization of NU was very complex with local goals, and policies at each of the associated organizations as well as NU. Furthermore, the government and other funding bodies would also have their plans and considerations. In this study, I did not have access to all the people, organizations, documents, and non-disclosed intentions, actions, and interactions. Nevertheless, the data in the study indicated other potential external goals and influences.

The data indicated cost savings and further efficiency as goals of governmental funding bodies. However, I did not get access to governmental plans and goals on the future of NU, nor access to plans and details of how to achieve further savings. However, a number of informants had their own thoughts on and interpretations of the possibilities. Some compared the current arrangements where each associated institute operated autonomously and many tasks were replicated at multiple locations with a new arrangement where all the associated institutes would be brought together in one united legal entity. The thoughts were that if such an arrangement were to be implemented, some of the existing problems would be resolved and savings would be made possible.

Just looking at the organization of the libraries in the associated institutes, each library conducted a wide range of activities that covered all aspects of library work including acquisition, cataloguing, circulation, serials control, and so on. Some of the AI libraries were very small with only one or just a few members of staff. For these smaller libraries, the attention of a professional librarian would be spread over a large set of duties. This meant that acquiring a deeper knowledge in each of the job areas became difficult. Furthermore, each change of any staff member meant a major loss of expertise for those libraries.

In the imagined alternative arrangement, where all the smaller and larger libraries would belong to the same organization, the management and arrangement of various tasks would become possible in a drastically different way. Specialization of some tasks would become possible and it would be unnecessary for activities like acquisition and cataloguing to be repeated at all

locations. Thus, it would be possible to staff smaller libraries with non-professionals, while self service stations could be used for the circulation activities. System upkeep and other required activities could be organized centrally. In that arrangement, instead of having more than a dozen staff (one or more at each associated institute) working with acquisition, or cataloguing or other duties, this number could be reduced drastically.

The informants, however, agreed that such an arrangement was not feasible at the time of the study. The institutes would not wish to lose their independence and the staff would not wish to lose their jobs. These informants could not indicate the future path of the related organizations as a whole in times to come. Still, if views such as those expressed here were to be the vision for such an organization, then the purchase of an LMS (and other technical systems) that would make such a vision feasible would tie the selection of an LMS to these external goals, where the potential new LMS could be used as a driver for the desired change.

Above, I have illustrated possible ways in which distant external goals and plans can become related to selection and choice of an LMS. For another influence closer to home, one can take a look at internal organization-wide goals and objectives, which can be related to the LMS selection process.

The general perception of Picasso at NU libraries had been rather negative throughout its presence at the NU libraries. According to the library staff the problems with Picasso ranged over a wide spectrum, from at one end not being intuitive or user friendly, to middle-range problems such as being frustrating, slow and lacking functionality, and at the most problematic end being unreliable by not doing what it should or even more seriously causing loss or corruption of data. The expressed perception of the technical staff and management was somewhat different. They agreed with the library staff in that, the system was not very well designed or liked and that there were problems with 'the feel and looks' of it. However, they did not agree with the more serious problems in terms of it being unreliable, and causing loss or corruption of data. Their expressed perceptions of the cause of such happenings were that such problems often related to the network, human error, and the distributed set-up at NU. An added problem that management and the technical people pointed to, which was not taken up by the library staff, was the difficulties in interoperability and that Picasso did not lend itself easily to being integrated seamlessly with the other technical systems used by NU.

Even so, the management had not seen an acute urgency in the need to replace Picasso, although there had been a will to replace it. This is to say the timing

of re-procurement was not based on urgent needs or difficulties, it was rather related to other circumstances at the organization.

By the time of Martin's arrival as director of LIS, `Picasso` had been in use for a number of years and by the time of the study even more years of use had passed, therefore, the length of time that `Picasso` had been in place was, by itself, a reason for evaluating its future at the associated libraries.

When looking at other organization-wide systems purchased at NU, over a number of years prior to the start of LMS re-procurement, one can see that the timing of some purchases had been determined by presence of acute problems with the replaced systems or due to external circumstances like the vendor discontinuing the support of a system. One system was re-procured not because of technical problems or external circumstances, but mainly due to the internal goals and a need for strategic change and the way in which they wished to deliver various services. Therefore, the timing of that purchase was important in terms of strategic goals. Another system had been changed due to user expectations and that a point had been reached where a decision had to be made as to whether stay with one of the two systems that were running in parallel or whether one should move to a third system. This is to say that the surrounding circumstances had determined the timing of other system re-procurements, while in terms of the purchase of a new LMS, they had a lot of freedom in timing of the project. Therefore, the question is what factors had determined the timing of the LMS re-procurement project?

Martin had been aware of the library staff's views regarding `Picasso for a number of years`. Therefore, for him, it had not been a question of whether to replace `Picasso,` but when. The timing of procurement of a replacement system from his point of view had had to do with two main issues, (a) whether there was a person in place who could manage the project and (b) the time at which he could make the funds available. A third consideration had been to find an available time slot. As mentioned earlier, the personnel structure at NU had undergone a major change during Martin's time at the helm. The contracts with different associated institutes for various services had been cancelled and instead the staff responsible for those activities had been offered a post in NU to conduct the same activities. Therefore, the number of staff at NU had increased from just over a handful to over 30 members. This had called for a restructuring. However, at that time the funds were not available to fill in all the newly created managerial positions. Therefore, a number of vacancies remained in the new structure. Those vacancies were created, although they could not be filled at the time, with the thought that if the required funds are requested repeatedly, they will eventually be made available. One question

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arising at the time of restructuring had been whether one would want a librarian in the newly created structure. The issue here was that other managerial posts created were not arranged by 'technical specialism', but rather based on broader areas of responsibility such as head of operations or head of strategy and development, so the question had been "why go for a librarian?" The thought for creating this position had been that 'the associated institutes have libraries, they are structured that way'. The creation of a post that would fit the existing structures was seen to be constructive by the NU management in bringing together the libraries of associated institutes, so that they collaborate and work with each other. Therefore, one of the positions that was created and remained vacant for a while before the funds were made available was the position of head of library services. As expected, the application for funds to allow this position to be filled was eventually successful and this post was filled about a year before the start of the study. Therefore, having had the LMS re-procurement project on the agenda for a while, efforts had been made to balance the number of major and minor purchases in order to keep the spending profile flat. Having allowed for the required funds in the budget plan and now having had a head of library services in place that could run the project, a suitable time-slot was selected and allocated for the LMS re-procurement project. As put by Martin,

> "… there's a sort of sequence in which you know you can think 'I can make the money available in that year'. So essentially that's what we've done. It's a matter of timing with the money and also my ability to recruit staff who could possibly manage it."

That is, rather than internal matters within libraries, the issues of funding and timing of the LMS change project were influenced by external factors.

Most of the members of staff at NU that participated in this study had a widespread internal, national, and international network of contacts. Many were involved in various initiatives by chairing or being members of various committees and boards. Their activities included organizing and/or participating in various events, fairs, and conferences in a variety of areas. Although this study does not examine the relationship between social networks and system selection decisions in any depth, the data collected in this study indicated various ways in which there may exist influences on forming related views. Contacts and social networks were observed to influence both the LMS related views (positively or negatively) and the expectations from a new system. Included here were contacts both directly associated with and far removed from LMS-related topics. The contacts that related directly included, for example, previous dealings with a vendor, or contacts with colleagues at other organizations that expressed views about various systems. Such contacts influenced the views about the different LMS. The far removed contacts were

related to, for example, technical development projects or membership in various committees, conferences and the like. In these interactions, the members would become aware of, and interested in different issues. For example, awareness about a new technical solution due to involvement in a development project was influential on a number of members' views regarding what technology a new LMS should utilize, or what other considerations should be taken into account in their system selection.

Some areas, which were of interest to various NU staff and their network of contacts, were virtual learning environments, technology that supported e-learning, e-frameworks, and definition of a framework for interoperable systems. Based on committee memberships and attending various events, some technical members of the staff at NU were involved in various activities and development projects, the outcomes of which were adopted both internally within NU and externally by others. Heavy involvements in initiatives formed to define the conceptual frameworks, or participation in actual developments of software and standards in areas such as user identification and authentication, had heightened the local technical staff's awareness of these issues. Those involvements had increased the ambitions of ensuring compliance to these standards in all the new systems implemented at this organization (including the new LMS). Awareness was raised and expectations were created in associations with, and by participations in these national and international initiatives, committees, and projects. Some of the demands on the technical abilities of a potential system were directly related to these. Such demands were not necessarily raised by the librarians. Many of these highly technical issues were beyond the librarians' area of expertise. Many of the librarians were not even aware of their existence or area of application. Therefore, some of the demands on the new library system were based on the awareness and cutting edge technical solutions that the technical staff at NU had encountered, in their various external activities and contacts.

The point made in this part is that the wider organizational considerations and circumstances affect the LMS procurement process in a number of ways. In this case, the timing of the project was tied to other plans, goals, and circumstances. The funds had been made available for a time with considerations for keeping the general organizational expenditure at a reasonably invariable level. A structure, in terms of human resources to cater for project management, was created and in place. The timing of the project fitted well with other organization-wide activities. The purchase of a new academic-specific LMS was seen as positive for achieving a desirable organizational image and goals. In addition to these, the technical environment of the organization, and the technical awareness that was created due to the personal and formal network of contacts of higher-level staff at NU, had

influenced the technical demands placed on the potential new LMS. The new system had to allow the interoperability that was one of the objectives of the wider organization rather than necessarily a demand from the libraries involved.

6.3.8 Section Conclusion

In the above sections, an argument has been put forward to indicate that the negative perceptions of an LMS are not solely based on the shortcomings of the system. It is further proposed that LMS selection related decisions (including if, how and when) are not based exclusively on the internal library needs and inherent attributes of an LMS. It is argued that other factors (e.g. personal, social, local, organizational, and external) also act as an interrelated set of elements that provide a context in which perceptions of an LMS are formed, and LMS related decisions are made. Efforts have been made to touch upon the complexity that is involved at various levels. External influences and organizational norms, perceptions of the existing system, financial situations, organizational goals, and so on, act and interact creating a dynamic setting through which a decision for an LMS selection process emerges. A closer look at each of these issues, and an attempt to examine the intricate details, sheds light on further complexities. The negative views of a system, for example, are not solely based on the system shortcomings. They are formed partly based on actual internal attributes of the system, but also partly due to the surrounding circumstances and influences. The problems that are brushed aside in one system, as typical of all systems, are highlighted as frustrating and substantial in the next system. *A question that arises is whether an LMS is seen as inferior due to the existence of problems in that system or whether the problems in an LMS become visible due to the perception of a system as inferior.*

6.4 Case Conclusion

In the presentation of this case, emphasis was placed on examining a few different aspects of perception formations. The general description of this case, which started the chapter, is a reminder of many other case descriptions that are presented (sometimes in much more detail) in other existing LMS selection case reports. The difference here is that what is taken for granted by the study participant is not taken for granted in the analysis of this case. In a retrospective reconstruction, one could easily simplify this case in the following account of the events: 'The LMS used in this case was out-dated, many problems existed in the system, it was slow and dysfunctional, and it was frustrating and affected the staff's work routines negatively. Therefore, there was a need for a new system'.

Many of the informants indeed described **Picasso** as problematic and frustrating; there were indeed better ways of performing some of the functions that **Picasso** offered. However, here, I have gone a step further to see whether this dissatisfaction has been entirely based on the qualities of **Picasso** or whether other factors have been influential in formations of the negative shared perceptions of the system.

In this case, it was found that other work related problems such as lack of resources, problematic work environments, poor communications, or inadequate training, could influence individuals' motivation and work possibilities as well as views about an existing LMS. Through informal talks, complaints were made about many aspects of work including the existing LMS. Problems, related to organizational routines and human errors, were readily interpreted as LMS problems and reported formally. The real sources of reported problems were not conveyed to the general staff. This lack of clarification in turn strengthened the view of the existing LMS as problematic and the source of problems. In this way, a shared perception of a problematic and inadequate LMS was shaped and reinforced over time. In the study, it was also found that staff dissatisfaction with a system is not the only incentive behind a management decision to go ahead with providing the funds and changing the system. It was further found that the demands from a new system were not solely based on library staff's needs and wishes. Others' heightened interests in various areas, based on different associations and activities, also influenced the list of features demanded from a potential future LMS.

In short, the presentation of this case highlights a mix of various influences. Rather than a hard-core determinism and rational explanation of LMS decision, an alternative way of interpreting the findings in this case is to envisage a network of interrelated issues that in interaction with each other negotiate the emerging outcomes, which in turn shape the circumstances in which these interactions take place.

7. Case B: Negotiated Organizational Structures

"…you must have gathered libraries are very second class citizens in the university so it's not that easy."

In this chapter, I continue to pay attention to various influences on the LMS decision process. Here, I place the focus on examining the way in which organizational context and committee structures can be utilized to promote or stall action in the LMS decision process. At the same time, this chapter is used to illuminate that the organizational structures are not static and are negotiated continually. That is to say, that on one hand the LMS decision process is influenced by the existing organizational structures, while at the same time, to some extent, the LMS decision related activities shape and reshape the circumstances within which they are imbedded. Another aspect that I try to draw attention to is that following the rules and the set paths often reinforces the rules and structures. To change the circumstances, pro-active action on different fronts is required.

In this case, the LMS selection process took place at a university library. The university (hereafter called the Norford University) was founded over 100 years ago and received university status in the early 60s and ranked highly in the national ranking systems. At the time of the study, the library comprised around 50 members of staff, filling the equivalent of approximately 40 full time positions. The library served around 10 000 students and university staff as its borrowers.

Contents in the collection	Total numbers
Monographs	> 211 000
Standing orders	> 28 000
Journal titles	> 4 320

Table 5 – Statistics related to the collection at case study setting B

Despite the willingness and generous help from the library director and library staff, the circumstances of this case only allowed limited access to potentially related data. Access to written material and documents, observation of the meetings, and access to people who were related to the case but external to the library staff, proved to be very limited. These shortcomings were somewhat compensated by more frequent interviews and by documenting the involved library staff's descriptions of the events as they took place.

The time-span, between when I initially started my study at the Norford University Library and when a new LMS was selected was 14 months. But my data collection activities in this case continued beyond the conclusion of the case in trying to access the documents that I did not get access to during the process and for filling in the gaps in information. The total time involved, in this case study, was around two years.

The empirical data related to this case consist of 33 interviews, 1 observation, 121 emails, and over 200 pages of documents. The names given to the key people in this case, in alphabetical order, are: Alex, Colin, Courtney, Deb, Harriet, Henry, Julie, June, Katie, Kiara, Kim, Lauren, Marianne, Sarah, and Sam. The positions held by these members included library assistants, librarians, heads of various departments in the library, technical staff, the director of library, university's procurement officer and university's deputy director of finance.

Being one of several universities in a close proximity and having a tough competitive position in a financially trying time, financial aspects played a major role in this case where a main effort in the process involved securing the funding that was needed for the project.

The process in this case started by efforts from the library to secure finances to allow for the purchase of a new LMS. Due to time constraints, and the time slot available to the library for possible installation of a new system, some procurement activities took place before the confirmation of available budget. The selection process included advertisement in the 'official journal', evaluation of responses to tender, short-listing, LMS presentations, hands on sessions with finalist systems, and site visits. The required finances became available and a new LMS was purchased.

7.1 Background and Reasons for Change

In the discussions and interviews that took place, many informants related one of the reasons for wanting to change the library's current LMS (hereafter called Rembrandt), to the changes that were done in Rembrandt in the recent years. It was said that due to these changes, Rembrandt no longer met with the library's needs. Another reason given by some members of staff was the length of time that Rembrandt had been in use, with comments such as it was time to "try and go out for tender to see what else was around that might be more suitable" (Kaila).

7.1.1 The Existing System's History

Norford University library purchased their system, Rembrandt, approximately a decade before the start of this study. When Rembrandt was chosen it replaced an older but at the time well-established LMS. Although some of the current staff members had been with the library at the time, none of them had been involved in the decision making and selection of Rembrandt. The people primarily involved in that system selection had been the previous director of the library (who had also been the head of library systems) in addition to the heads of cataloguing, acquisition, and document delivery, as well as a member with interest in OPAC, none of whom remained at the library at the time of the study. One of the informants recollected being involved in system presentations and one remembered being involved in testing the system; however, the system tests had taken place after the system selection and implementation, as remembered by the informants. While recalling the reasons for a system change at that time, Colin referred to benefits, not least of which was "cost savings which helped out elsewhere in the university". At the time, the university had been going through financial problems. The cost savings related to the annual maintenance charges that were lower for Rembrandt than for its predecessor. Furthermore, Rembrandt was considered to be of a newer generation than its predecessor was.

This cost saving reason was also confirmed by other documentation that described the previous round of system change at the Norford University. According to a documented version, other reasons for change were 'compelling strategic and service' grounds. Where strategic reasons referred to a wish to use industry standard hardware and software that would enable an easy linkage of the library with other organization-wide UNIX based systems. The service related reasons concerned the earlier LMS vendor's wish to move away from their own platform to a new UNIX-based product, and that would require a move to that vendor's newer system. As that would involve a system change rather than just an upgrade, due to financial situation of the organization at the time and 22% staff cuts, it was explained that the system change "would have to be scrutinised very carefully to see just how much it could help us to offset these staff cuts". Therefore, although this was identified as a separate reason, it seemed to also be very tightly related to cost savings.

Before that system change in the Norford University library, Rembrandt vendors, with public libraries as their main customer base, had been trying to break into the academic library market and establish a user base among the academic libraries. Accordingly, at that time, they had based their system developments on their academic library users' wishes. This had worked very

well for the Norford University library as their requirements and wishes were readily incorporated in the system developments. However, as the bulk of the Rembrandt users were still public libraries, two versions of the system had evolved, one for the public library, and the other for the academic library market. The efforts to establish a position in the academic library market had not been very successful and the number of public library users was not matched by those of academic library users. With few academic users, the upkeep and development of two versions of the system was a major undertaking. Five years before the study start, the vendors had decided to combine both versions. Initially the merger between the public and academic versions was not seen to be problematic by the Norford University library. The expectations had been that the functionalities that accommodated academic libraries' needs would continue to be included in all versions of Rembrandt, and therefore, be offered even to public libraries. However, the upgrade that was the result of the merger was not seen to meet with this expectation and a loss of functionality was experienced. This problem was resolved by adding some custom-made functions in the system, which was used at the Norford library. Following this solution, the Norford library continued to use Rembrandt, but a number of other academic libraries decided to leave and change to other systems. From then on, the idea to look for a new LMS had started at the Norford University library.

7.1.2 Problems with the Existing System

Rembrandt being predominantly used by public libraries was seen as a problem by the Norford University library staff. This was expressed by Colin in the following way:

> I think the reality is for us that any system would be better than --- [Rembrandt], not in the sense that --- [Rembrandt] doesn't work and so on, but that it's not part of the academic community and therefore, we're in a major disadvantage as a result of that, and that's the key driver for changing. You know, we want a system where we're in the mainstream with the other academic institutions and we've got applications that are tailored to those academic needs.

In the interviews, technical staff and management referred to experiencing various problems with upgrades, which did not go particularly well. An expressed perception was that the Rembrandt vendor, from that time on, was "looking more and more toward just concentrating on the public libraries" (Katie), making the system unsuitable for an academic library. As a proof of this, reference was made to the vendor website where Rembrandt was

advertised as a system for public libraries. A related issue raised by some was the feeling of isolation in the **Rembrandt** user group and lack of leverage due to being an academic library user among many public library users. In some of the interviews, it was said that the Norford University library staff had come to the recognition that it would be hard to raise issues of concern at the user group, as the issues of concern for the Norford University library would differ to issues of concern for other **Rembrandt** users.

Even when discussing **Rembrandt** and the reasons for its change with the general staff, many informants referred to its lack of suitability for an academic library and some mentioned getting 'the impression' that it was not 'the best system' that they could be using. The formation of such impressions did not seem to be fully based on personal experiences of the system. For example, an indication of this could be seen in the following response given by an experienced member of staff, who used **Rembrandt** extensively. When the informant indicated that **Rembrandt** was not an adequate system, I posed a follow up question as follows:

> Interviewer: Do you feel that it [**Rembrandt**] has limits?
>
> Informant: Yeah, I think that's true, I think..; I mean I'm not really, haven't really been involved directly with it. […] but, from hearing other members of staff talking about it, like --- [name and explanation who the person was], I rather get the impression they [the **Rembrandt** vendors] don't support us as well as they could do …

Similarly, a number of other informants referred to the experiences of others or to difficulties with upgrades for others than themselves. This was phrased by one informant as her knowledge of the problems being 'second-hand' (Marianne). Even in the case of those who indicated that they had formed a similar opinion independently, one could not be sure whether the formed opinion was based on the system limitations or other factors, such as level of system expertise. For example another highly experienced user, who had found limitations in **Rembrandt** functionality, indicated that there could exist functions within the system that she was not still aware of, referring to shortage of system documentation that could be consulted. This informant further indicated that this potential lack of knowledge would no longer matter, as the system was due to be changed. Regardless of whether the formed opinions were based on actual shortcomings within the system or not, a general negative perception of the system was expressed in the interviews. This perception had been at its peak after one of the upgrades, which had

taken a longer time than anticipated, and was reported as problematic. The general feeling at the time was expressed by Katie as follows:

> "People were just like 'oh this is just rubbish, this, it's rubbish' and they were actually, some of them were even like saying such things [to the users] 'oh, sorry about this, it's our rubbish system.' So..; and they'd had such a bad experience with it that even if we found something which was quite good, it wasn't the response or 'oh that's really good' it was 'oh well it's about time something good happened with this system because most of it is rubbish'."

At the time of the study, most of the informants did not refer to actual current problems with the system. A typical response was to refer to other staffs' negative experiences or views. Most informants mainly referred to past problems or potential problems that could be created in the future, based on the direction that Rembrandt' development was taking. Staff's expressed perception was that Rembrandt's future development path would take it further away from the needs of the Norford library and would make it less and less suitable. Therefore, rather than serious functional problems or shortcomings in the system it was 'the long term strategic development of it' that was seen to be the main problem.

7.2 External Influences

In what follows, the voice of one informant (Colin) is heard predominantly. This is not to indicate that this informant was the only source of data for what is presented. Colin had been present at the organization over a long period and due to his role, as the director of the library he had been involved in, and informed of, various key events and therefore, had formed an overview of the events and activities. Other informants' expressed experiences (and hence descriptions) were mainly along the same line as Colin's, but the other informants did not seem to have a full recollection of the dates or other details, which Colin could provide. Some of the other informants were more familiar with one or another aspect of the events. Colin's recollections or reconstructions of events were more closely verifiable by other data (records of events); therefore, it seemed appropriate to make a greater use of Colin's account of the happenings in the descriptions that follow. It should be emphasised that this greater use of Colin's descriptions is made only in this presentation of the case and not in the analysis, which was based on the full set of the data collected in this case. The descriptions provided below, were checked as far as possible, against other data in this study (e.g. organizational documents, interviews with other informants).

Looking back at the organization of the Norford University over recent years, one could observe a number of larger organizational structural changes. A number of these organization-wide changes, which are of relevance to the library and the LMS-decision related issues, are briefly outlined in the text that follows. The following figure is a rough summary of what is described, to help the reader follow the sequence of the events.
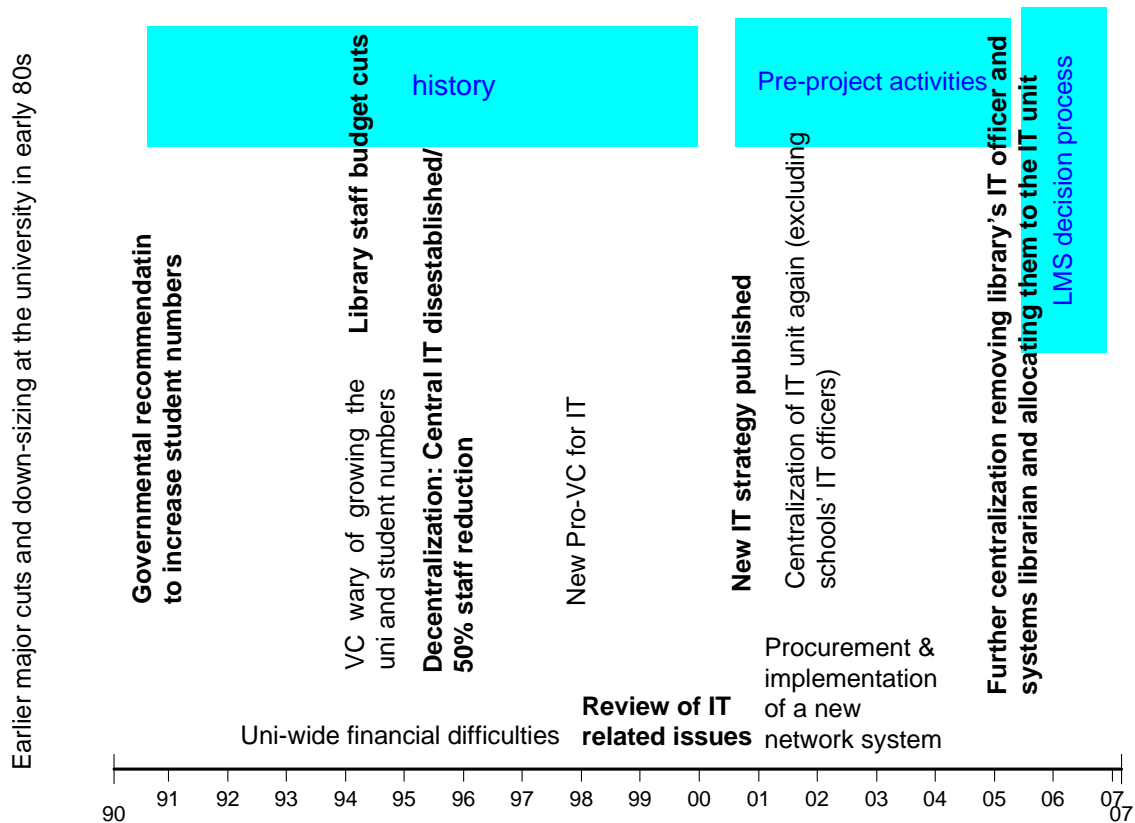
Figure 8 – A rough timescale of a few background events at the Norford University

7.2.1 Budget Cuts and Early Structural Changes at the Library

In the 90s, the government in this country had encouraged universities to increase the number of their students. This strategy was adopted by many universities but not by the Norford University. Some of the reasons for this non-adoption were given to be due to the events that had taken place in the early 80s when the Norford University's budget had been drastically cut (i.e. by 30%). Therefore, in the 90's the then vice chancellor had shown concern about growing the university to a point where they might then have to downsize significantly again. Therefore, instead of recruiting large numbers, the policy had been to recruit a smaller number of high quality students. In the mid 90s, due to not significantly increasing its student numbers over the previous three years, the university had started to experience financial

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difficulties. As a result of the financial difficulties, the library was told that it would have to take a sizable cut in its budget. The instructions had been that all cutting down had to be focused on the staffing costs. This meant that the library could not cancel periodicals or other purchases, as it had already done so in the previous year, this new cut (equivalent to 22% of staffing budget) had to be directed at staff costs. Following this, a number of meetings and activities took place at the library to work out how to respond to this. The library management and staff had examined many potential alternatives and areas in which cuts could be made, to evaluate how much savings could be made by each possibility. As put by Colin,

> "We did a kind of, almost a zero based budgeting approach where we looked at all our services and ranked them in order and said which ones could we stop doing, what would that save? And most of the things we could stop doing, things like information skills programmes and, you know, online searching and things like that, would save us money but they weren't significant enough to save us enough money, the only way to save money was to actually cut staff costs."

Once it was established that the cuts could not be accommodated by other alternatives, the next problem had been then how to go about deciding where exactly the cuts could be placed. Again, much work, thoughts, and discussions had based the next set of decisions. Before that time, the vice chancellor had decreed that 40% of posts across the university should be on fixed term contracts so that if the university did get into financial difficulties, it could cut posts quickly. This was also the case at the library; therefore, theoretically it was possible to cut posts to meet the demands for reduced staffing budget. However, the positions held by those with fixed term contracts had been so that if those posts were terminated, a significant imbalance in available competencies in each library division would have been created, hence the library management of the time had found the problem to be quite difficult to solve. Various scenarios were considered and none of them was found 'particularly palatable'. In the end, an idea had come to Colin (who at the time was not the director of the library) to completely radically restructure the library and move from the existing functional divisions to customer-focused teams. The university comprised of a number of schools of study. The idea was that instead of having the existing *divisions* including the information services, technical services, library systems and a management services divisions, one would have three *teams*, each supporting a number of subject faculties. This new structure allowed both a viable cut in the posts and a suitable combination of competencies present in each team.

Colin explained the details of this restructuring as follows:

"… we changed all the names and instead of having senior library assistants we'd have information coordinators, coordinating the information assistants. And, then we'd have clerical assistants, who would do the processing of books for each team. And we'd have a separate library systems team, and that the posts of head of acquisitions, head of cataloguing and head of document delivery, which was counter and interlibrary loans, those posts would go. Those middle management posts would go and the heads of division, that's myself and the head of technical services, the head of management services would become the team leaders of those three teams."

This new arrangement was viable and could achieve the cuts in staffing budget while simultaneously allowing a balanced level of skills in each group. This arrangement was adopted. In this way, each of the three teams kept a desirable level of competence. Following this, specialization in various areas was no longer possible, leading to what was called 'multi-skilling'. This meant that for example the members of staff that previously specialized on cataloguing were now expected to participate in all aspects of work within their teams, including working on the loans counter, enquiries desk, interlibrary loans, acquisitions, and cataloguing. Another related development due to this structure was that in subsequent years further staff changes had created a situation where at the time of the study, the main expertise in some areas such as cataloguing was concentrated at lower organizational levels i.e. at the information assistant level rather than the management level.

This structural change and re-organization had implications for the process of LMS selection in various ways. The old structure would have made it possible to involve (and expect the involvement of) a group of people at middle management, each with an area of speciality and responsibility, in the production and process of system specifications. However, the old specialised middle management did no longer exist in the same way. In the new structure, multi-tasking had removed concentration on particular areas. Those members of staff who had been specialists in a particular area, such as cataloguing for example, were now attending to many different tasks. Even so, those who did have a greater level of expertise in an area were no longer necessarily at higher staffing levels. Those at lower staffing levels did not have the same level of accountability as the earlier middle management would have had. Due to grading systems and job descriptions and income levels associated with each grade, the input by the staff at lower grades could not be required to be as high. As a result, although all staff members were kept informed and were

invited to participate, the nature of the input from the general staff (even those specialized in a particular area) was on a voluntary basis, as and when they had the time or interest to get involved.

Meanwhile, another change related to the University's financial difficulties in mid 90's was that a department, called central information systems, was disestablished, leading to the dismissal of around 50% of its staff, including most of its user-support staff. The idea had been that from that point on the schools of study would have local computer officers to support local needs. This expectation, however, had not been well communicated and the schools of study had continued to expect some level of service for common facilities (such as the email system) from the centre, to no avail. As put by Colin,

> "The people left in the centre were technical experts, not user support people, and they didn't have the kind of either the particular interpersonal skills or even the desire to become user support people even if they'd had the time to do it."

Therefore, concern and discontentment arose.

The library's budget in the 90's had been very constrained for a period of six years. The library was allocated a relatively small recurrent budget for prioritised running costs without any capital budget to allow support for the network, central servers, and large collection of PCs. The library at that time provided a number of labs each hosting a large number of PCs and printing services to the users. Furthermore, the database services that had been predominantly off-line and CD-based were being improved and more and more of them were being converted into on-line services. Therefore, the number of PCs (i.e. around 300-400) and other technology-based services provided by the library had grown over the years. Because of this growth, a position of PC support was created at the library.

Similarly, during that six-year period, other departments within the university had experienced a lack of responsiveness from the central IT unit and had shared various related concerns.

7.2.2 New Pro-Vice Chancellor of IT and Further Change

In the late 90's, in the middle of these six financially difficult years, a new pro-vice chancellor of information technology was established. Over a period of the three years following that, a major review of IT related issues within the university was done and a new strategy was developed. The review resulted in

the publication of a new strategy (approximately five years before this study started).

By that time, it was recognized that not enough funds had been dedicated to IT and related issues. The new strategy was to combat such problems and it envisaged a need to increase the investment in infrastructure. The recommendations highlighted a need for a new network, as well as a need to remerge the finance, computing, the central networking, PC labs, and servers, and bring them back to one department. The university management received these recommendations positively and consequently substantial investment was made in procuring a new network system over the following two to three years. Even the bringing together of the central IT in one group took place (around four years before this study started). At that time some technical posts were re-positioned and were moved to central IT, however, the schools and other departments managed to keep computer officers that were needed for local support.

7.2.3 Implications of the Wider Structural Changes for the Library

Those wider organizational changes had affected the library by losing a number of people within it by being pulled back to the IT centre, although the post of IT officer remained at the library at that time.

After that, two members of staff within the library, one the IT officer and another the systems librarian, attended to the required technical and LMS related duties in the library. The acting head of the library of the time had then received affirmation and re-established the post of the head of library systems to lead this small group.
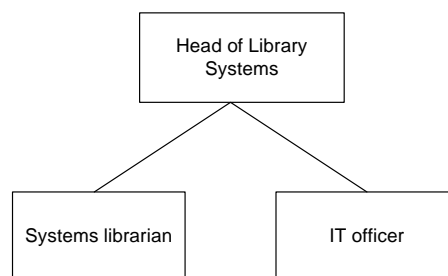
Figure 9 – The structure of Library Systems team at the Norford Library before the latest structural change

That structure had remained in place until approximately a year before the start of this study, when new restructuring and increased centralization had

taken place, this time removing even the local technical staff from various departments and allocating them to the central IT unit.

As part of this, the two posts of IT officer and systems librarian were removed from the library and were placed in the central IT. In the recent years, the number of PCs at the library had increased significantly and the library did not have enough PC support at that time. Two budget bids from the library for more IT support had already been rejected. Considering the financial situation of the time, the library did not envisage that the university would approve an increase in the number of PC support staff at the library. The library was therefore, less concerned about losing the IT officer's post. The proposal had been that due to this restructuring, the library would receive more and improved overall support from a larger team at the central IT rather than having to rely on only one IT officer locally. This would mean that even in times of sickness or leaves of absence there would be other staff that would fill the gaps. The second member of staff affected by the recent restructuring was the systems librarian who was a librarian and not an IT support person. Still, due to the title given to this post, '*systems* librarian', the decision was that even this person is to be relocated to central IT. This demand was not seen as sound by library management (and staff), which could not see the logic of this proposed move. As far as they were concerned, the person filling the post of systems librarian had been a typical librarian who, due to personal interests and experiences had been given the extra responsibility for LMS related issues.

The tasks that defined the role as the systems librarian included setting the internal LMS related parameters and policies or acting as a liaison between the library and the LMS vendor in ongoing communication that is common between LMS users and LMS vendors. The more computer science related technical tasks that are typically assigned to a systems officer were neither included in this role nor was the systems librarian trained for them.

The argument for bringing together all the technical staff from the departments into a central unit went as follows. The centralization of expertise in the central unit would lead to a more effective way of working as well as allow the staff to share areas of responsibilities. If any member of the technical staff were to be detained from a task, there would be other skilled members to fill the gap.

The people at the library could accept this argument concerning the IT officer, but they could not see this argument hold in terms of the systems librarian. In their view if this systems librarian were to be detained from the normal duties, it would not be easy for other central IT unit's staff to fill this role. For this

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role, one would need to have a qualification in librarianship and be familiar with, and aware of the day-to-day running of the library and recurring issues within the library to be able to do that job. Furthermore, the daily routine of the systems librarian included, although minimal, some general library work such as attending the loan counter, which allowed greater involvement in, and understanding of the daily issues faced by the library staff, something to which other member of staff at the IT unit would not have access.

Therefore, the library members argued strongly against this move and made a number of attempts to reverse this top-down decision. For example, a national, library-related mailing list was used to contact other libraries and to enquire into whether the systems librarian was placed as a post in the IT unit rather than the library in any other organization. All the responses that they had received had been negative, except for one where the placement of the systems librarian at an IT centre had been tried for about a year. That arrangement had not worked and that organization had reverted to earlier arrangement and had placed the systems librarian's post in the library once more. This and other arguments had been put forward in several formal appeals. Regardless, the various formal and informal arguments that were put forward in protest to this decision were to no avail and the decision for the systems librarian to be a post within the central IT unit was carried through. Even requests to second back the systems librarian's post to the library just for the duration of the LMS selection project were rejected. As put by Colin despite all the protests and proposed arguments, "ultimately we didn't have a say in it, we were just told well okay that's your view but this post is still moving across."

7.2.4 Implications of Organizational Structural Change for the LMS Selection

This re-organization played a role in the process of LMS selection in several ways. First, a major part of the local LMS and technical expertise was removed from the library reinforcing library's dependence on the central IT. As LMS was a central resource for the students and staff, its integrations with other campus wide systems such as university portal and virtual learning environments was seen as highly desirable. If the links and interfaces between the LMS and other systems did not exist or did not work, creation of such solutions was not necessarily of high priority for the staff at the central IT unit. Therefore, such features that were desirable for the library services and the users failed to be addressed. To get the staff at the central IT unit to do certain tasks was seen as problematic. This was expressed, for example, by an informant in the following manner:

> "So obviously there are organisational issues here because we can only ask you know, we can't..; but you must have gathered libraries are very second class citizens in the university so it's not that easy."

This dependency on the central IT unit was extended to the process of LMS selecting and decision making. Some members of library staff expressed the desirability of the new LMS to be technically fit within university's technical environment and with other organization-wide systems. Some informants expressed that information regarding other campus-wide systems was not shared freely with the library. Therefore, in order to decide on the technical suitability of a new LMS, the library would need to depend on the staff in the central IT unit.

Second, one of the departments within the organization of library, which comprised of the head of library systems, systems librarian, and IT officer, was stripped of two thirds of its members, creating a hollow structure. The head of the department remained but no staff to fill the function did, hence weakening the authority and competence of this department.

Third, after a while, the systems librarian was assigned a new line manager from the central IT unit. This was seen as problematic as the new line manager did not have any direct links with the library and was not fully familiar with the operations of the library and the tasks assigned to the systems librarian.

Forth, the head of library systems, that had been the systems librarian's line-manager until the restructuring, did no longer have any formal managerial authority over the systems librarian. This meant that formally, she no longer could decide the activities and responsibilities that were assigned to the systems librarian, nor could she formally decide how the systems librarian's time should be planned. Hence, she refused to be the LMS procurement project manager, as she did not wish to accept accountability without having the required authority and resources. The project management for the LMS-selection activities was assigned to the new line manager, further extending the level of authority of the central IT unit.

All this meant that in the end, the constellation of the LMS-selection committee comprised of only one library staff, namely the head of library systems department. Two other members, the systems librarian and the project manager, were now members of the central IT unit. The final member of the team was the university's procurement officer.

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7.2.5 Concluding Discussion on External Influences

Through this case a number of issues, which relate the LMS selection decision process with the wider organizational and external factors, are highlighted. Data (presented above and otherwise) in the case indicated that changes of top university leaders had a close link with major organizational structural changes. *Depending on the attitude of vice chancellor of the time, the organization of the library received greater or lesser sympathy and support and was placed higher or lower in the organizational hierarchy.* At the time of the study and for some years before the study, library's position was weakened and library's applications and protests related to changes that were enforced on the library were not received positively. The changes that were decided higher up in the wider organization and which influenced the library were carried through creating a situation where two core members of staff, and one core library project were removed from the library and placed in other organizational units that were being promoted and given a more central role. Many questions can be posed regarding the implications of this arrangement for the LMS selection decision. Would the level of involvement from the library staff be any different if the project management had remained within the library? Some library staff at lower organizational hierarchy, worked actively with the LMS on a daily base. To take advantage of the staff's in-depth knowledge, their interest and involvement, as well as their team leaders' approval would be crucial. The head of library systems was in direct contact with other library team leaders and as part of her position she could influence the internal decisions within the library. Unlike the head of library systems, the IT-unit-based project manager did not have any contact with the library staff or any knowledge of library work.

Another question would be related to the levels of motivation felt by different actors involved and the consequences of this. The systems librarian was moved to the central IT unit against her own wishes, and despite the protests voiced by the library management. The head of library systems was left without any staff on her team and was unhappy about this arrangement. For a time after the restructuring, she had to continue to act as the line-manager of the two members of staff without the associated formal authority and without being paid for this. Although she had different preferences related to various aspects of the future LMS (such as whether it should be an open source UNIX based system or a Microsoft based solution), it was felt by various informants that the project manager's voice was louder and carried further. A view voiced by the head of library systems and other library staff was that the library was often 'sidelined'. At the time of the study, the head of the library systems was re-examining her position, and was considering whether she should remain in that post.

The events described above had created a situation worth noting. The circumstances that were created were partly based on external influences and lack of power within the library to change these. Some happenings (e.g. reclining to be the project manager by the head of library systems) could be interpreted as a lack of motivation or even resistance towards enforced circumstances. Finally some circumstances were accepted (e.g. acceptance of the position of a person in the IT unit as the official project manager and acceptance of university's procurement officer as a key leader in the project) either due to pressures enforced by norms or the conscious effort to place responsibility for the decisions on other units.

7.3 Pre-Project Activities

In discussions with informants, some would refer to LMS selection and related activities, and at times, to 'the project' and 'project management', and later on 'the project group' and 'the procurement project group'. However, what the project was, or the timeframe for it, was not clearly defined. While in some conversations, the process of system selection was seen as 'the project' by some members, others were of the opinion that the project would officially start once the system was selected and installed. In this section, when I refer to the LMS procurement project, I use this term to define the time period and the events that took place from the study start to the point at which an LMS was selected by the library. Therefore, 'pre-project activities' (i.e. this section) refer to various LMS-related efforts and activities that had taken place before the study start.

As mentioned earlier the thoughts of system change dated back to around half a decade before the study start. According to Colin:

> "I think that [the idea for system change] really stems from the point at which they [Rembrandt vendors] merged the public library platform with the academic library platform. That's when we first became convinced that we need to change probably in the next three or four years. I mean, we weren't feeling at that stage that, well, we've got to change immediately but we did feel well we've had this system for, by that time we'd had it for six years, ten years would probably be enough given that it's now a merged system and they were clearly moving much more towards the public side. So we felt, at that stage we'd had it for six years, so in three or four years we'd probably need to change, which was a fairly good prediction really."

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Following this, efforts were made to investigate the possibilities of gaining the required funds for the system change. Accordingly, an application was put to an external funding council, which provided public funds to support teaching and research in academic organizations. The fund was intended for projects that would enhance research environment. In that application the library had argued that a new LMS would achieve exactly what the intention of the funds had been, i.e. providing an enhanced research environment. That application was not successful and the library did not receive a satisfactory answer as to why it had not succeeded. An informant at a managerial level mentioned:

> "Such decisions can be very sensitive politically; people prefer to make decisions behind closed doors."

Meanwhile, a couple of other issues had risen that had led the library to argue for a system change as 'absolutely essential'. One issue related to a decision to move from local MARC format (MAchine Readable Catalogue – standards for representation and communication of bibliographic records) to MARC-21 format. This move was seen as something that could be coordinated with a system migration if a new system was to be purchased. This was a positive incentive for changing the system. However, the issue that was argued to base the need to change the system was another development in book industry standards related to the change of ISBN numbers from ten-digits to thirteen-digits. The current version of Rembrandt did not provide the possibility for 13 digits ISBN numbers. The next version of the system would cater for 13 digits ISBN numbers, but it would not include some of the features that current version offered.

Accordingly, three options were seen to be open to the library:
(1) to remain with the current version of Rembrandt and do not upgrade
(2) to upgrade to the new version of the system during the summer of that year
(3) to upgrade to the new version of the system during the summer of the following year

Efforts were made to produce argumentations to the effect that none of these options were viable or unproblematic, therefore, making a case for a fourth alternative, proposing that funds should be made available to replace Rembrandt.

The thoughts were that the current version of Rembrandt did not allow the use of 13 digits ISBN, so if the library was to go with the first option, the prognosis was that in future it would face difficulties in relation to a number of functions especially within the acquisition and cataloguing modules. The 13

digits ISBN function was available in the new version of Rembrandt; however, the new version no longer allowed continued use of the acquisition site-specific functions related to academic library fund accounting and subdivision of costs over multiple cost centres. At the time of the study, the second option had been ruled out, with the hope to acquire the funds needed to purchase a new system. If the funds were not made available in time by the university, then the library would go for the third option. This alternative was argued to be less than ideal and problematic on various fronts. The upgrade to the new version could entail relatively major costs both for the upgrade and potentially for a new server. Here the library had been given a choice by the vendors to either sign a five-year contract for the continued use of the system or if the library did not commit itself to this length of time, then it would have to pay a much higher amount for the upgrade. To commit to Rembrandt for another five years did not seem to be a good strategy. To pay the extra costs for a shorter contract was also argued to be unwise both in terms of 'throwing good money after bad' and because this option was said to create problems in academic acquisition procedures. Hence, the disruptions that it would cause in library work were declared to lead to slower and lower levels of services offered to the users.

These arguments were formulated in a number of proposals and submitted to various instances in the university to gain support for the idea of changing the system. The initial document was about seventeen pages long, including around eight pages of pros and cons arguing for the case, and nine pages of cost information. This document was reworked a number of times and cut down to eight pages and two short one-page long appendices. However, after submission to the major projects sub-committee, based on their request, further pages were added. What the related formal documents included was an outline of the problem mentioned above, as well as a comparison between the cost of migrating to a new system and the cost of upgrading to the new version of Rembrandt (based on the short term as well as on a five-year period). This was to show that the move to a new LMS would be economically viable and advantageous. Furthermore, they had pointed out that library's current LMS (Rembrandt) was moving away from the needs of an academic library towards catering for public library demands alone. 'Key benefits which would become available with a new LMS' were also highlighted. The recommendation made in these documents was "that the University procures a new LMS" (internal organizational document). By the time of study start, such efforts had not yet yielded any concrete results, and as explained by Colin:

> "… we'd been flagging it up with the university and saying we think
> we need to change in --- [the year of the study] and they basically

said well fine but you can't have any money now so there was no commitment to that." (Colin)

The wish had been to embark on the process of re-procurement about a year before the study-start with the hope of system installation at a time before, or at the early days, of this study. The funding, however, had not become available in time. The main reason for this was given as university's financial situation not being 'brilliant'. Meanwhile, the university's financial situation had been reasonable enough to allow the purchase of a number of larger systems in recent times. One of these systems had cost around 4 400 000 Euros, another around 1 700 000 Euros yet another around 550 000 Euros. The amount of money required for the purchase of a new LMS was minimal in comparison with these expenditures.

While trying to find funding for the LMS replacement, the library had proceeded with other activities. For example, a number of LMS demonstrations had been arranged at the library. These short, approximately one-hour long demonstrations had taken place one per week, primarily focusing on circulation and OPAC modules. The demonstrations were open to all library staff. In conjunction with these presentations, a scoring questionnaire was handed out to (and was filled out by some of) those attending the presentations. This exercise was meant to give the staff a general feel for the systems and to increase staff involvement. Even so, despite the extensive attendance at these presentations, the memories of the presentations were rather dim at the time of this study. When the informants were asked whether they remembered the systems that were presented, a typical answer was; "not very well, truthfully" indicating that "not much is taken in until the funds are made available" and "it begins to seem real". The names of the systems, their attractive features or shortcomings, or the number of presentations could not be successfully recalled during the interviews. The number of systems viewed were said to be 'something like six or seven' by some informants and one informant mentioned 'somewhere between six and nine systems'. These demonstrations were described as 'a cursory view' to get 'a feel' for the systems and to create a sense of involvement among the staff. In addition to these presentations, a few members of staff had visited some of the close-by libraries, to get a further feel for various LMS.

Another activity that had taken place was the formulation of a systems specification document. To draw up this document, two existing documents from other libraries that had recently gone through the process of re-procurement, as well as Norford's previous specification document were utilized to form the basis for the new system specification document. The main job of compilation was done by the systems librarian, but members of

staff were contacted and asked about other possible wishes that could be incorporated. Even a few ideas that were based on previous requests from the academic staff (e.g. the possibility of getting informed about overdue items a few days before to the overdue date) were considered. The first draft of the document was then put to the key people involved in various library functions. The more formal contacts with the staff were in the form of meetings with the team coordinators, and in information services and counter forums. Furthermore, the LMS selection related documents in general were placed in a sub-folder on a hard drive accessible to all the staff. The location of the specification document was communicated to the staff via a library-wide electronic newsletter. The members of staff were invited to comment on the specification document in various forms.

The general view at all levels of staff was that information regarding the specification document had been well distributed and that the members of staff were kept informed. As for the contribution in the production of the system specification, the main job was done by the systems librarian with assistance from others. Team coordinators were said to have had much input, while the lower level staff would have been less involved. When informants were asked whether they had been involved in the production of the system specification document, a typical response was to start with "yes, yes, …", explaining that the information was widely distributed and that everyone has had a chance to contribute. However, when the informants were asked to give examples of individual inputs that they personally had in the document, not many of them could recall any specific examples. Some even said that they did not have any input. For example an informant that was seen as the one most familiar with a main library function said, "I was asked about it but I declined to get involved with that". Another mentioned, "I only had partial input into the background of --- [a small specific area], that's the only input I gave them". Even in the terms of more senior staff, some highlighted, and referred to, the input from others rather than outlining their own personal input.

Considering the organizational structure at the library and the division of the staff in three different teams had some implications for this activity. This is because the organization of the teams was not based on the functional divisions and therefore there was, for example, no team dedicated to cataloguing. Therefore, although a team leader might have had a lot of input in the specification document, that team leader would not have necessarily been the person most familiar or involved with a specific library function such as cataloguing.

Initially before the funds were made available, there existed a vision of how the process would evolve. At that point, it was envisaged that the procurement

team would eventually also include a number of (one or two) representatives for the academics and the students and that these representatives would get to read and comment on the relevant parts of the specification document and have an input in the choice of the system. As the events evolved, no student or academic representatives were included in the process and the LMS selection team.

7.4 Staff Participation

Many efforts were made by management to keep the staff informed and active in the process of the LMS decision. This had started with a number of short system presentations over a period of around two months where one system per week was presented in their weekly training hour. In conjunction with these presentations, the members of staff who attended had been asked to fill out a questionnaire. Although open to all, not all members would have attended due to working part time, on shelving, or due to other reasons, personal or otherwise. Even so, the informants reported that the attendance in these presentations had been high. The information regarding production of the system specification document was also readily spread and some key members were contacted directly to invite them to contribute to its formation. The information regarding the Rembrandt status was also talked about and information related to library's efforts to secure funding for a new system was shared. When a number of LMS were short-listed and system presentations and hands-on sessions were arranged, the members of staff were invited to attend and fill in a scoring sheet.

When discussing the thoughts behind the efforts to involve the staff in the process with the informants, a number of issues were raised. The director of the library was of the view that the people who use the system ultimately are the staff. He expressed this as follows:

> "The views of our staff on the system are probably going to be the most important factor here, because they have to actually operate the system on the day to day basis."

He also expressed awareness that in the end financial or other considerations could determine the choice. However, if there were no real issues with the choice that the library staff preferred, he was happy to look at the financial implications of that preferred choice.

A few of the informants referred to problematic situations that could have arisen. It was said that when people are not involved in the decision making process there is no sense of ownership and commitment to the system. This

was expressed, for example, by one of the informants (Katie) in the following way:

> "..., which is another reason for kind of getting people in, just to do a sort of brief overview of any prospective systems we might have; just so that we kind of get people on side right from the start rather than have people going 'oh well, we didn't see this until it was implemented and it's awful and we hate it and we don't have anything with it'."

Another view was related to the extra efforts and work that would become necessary in implementation of a new system. A question considered by one informant was 'who would do the actual extra work required' when the time for implementation arrives. The view was that the number of staff was down to 'the bare bones' even at normal times, so how could one stretch staff efforts to cover the extra work. In planning ahead, to ease the way for the extra expectations that would be put on the staff, a strategy was to acknowledge that staff's input and involvement was fully noticed and much appreciated. This was done in personal and more informal contacts as well as officially and formally, for example by means of the library's electronic newsletters.

7.5 Committee Structure and the Process

> "So the problem is that we felt that we'd effectively been stopped or stalled at this point."

By the time of the study start, the library director had discussed the need for a new LMS with his line manager. He had also put a formal bid to the budget review group. The budget review group, which consisted of senior members of university such as Pro-Vice-Chancellor, was the body that made decisions regarding, for example, the library's recurrent budget. The budget review group had returned the library's application indicating that the LMS re-procurement was a major project and it had to go through the new 'major projects subcommittee'.

7.5.1 Change of Praxis And Creation of a New Multi-Level Committee Structure

Within the Norford University, a multi-level committee structure was being put in place for processing and passing through major bids. At the time of the study this structure was new, and not yet fully in motion. The new structure required the LMS replacement proposal, for example, to be put to the major project sub-committee which if accepted would in turn place a bid to the ICT

pre-committee, before it was deemed fit to be submitted to the ICT committee. The decisions regarding the expenditure would at that point be reviewed by a budgetary review group, which in turn would present the proposal to the University Council. This committee structure is depicted in the figure 10. Prior to this restructuring, it was said that things were done very much on an ad hoc basis.

However, at that time, the major projects sub-committee had not been fully established yet. Its first meeting took place more than a couple of months after the application to the budget review group. That is to say, the library was asked to go through this structure even before it was operational, and therefore, library's application was delayed as a result. As put by Colin at that time, "we've been caught out by the fact that the structure hasn't been put in place yet."

When the directives were received, namely to submit the proposal to the major projects sub-committee meeting, the next planned ICT committee was over two months away.
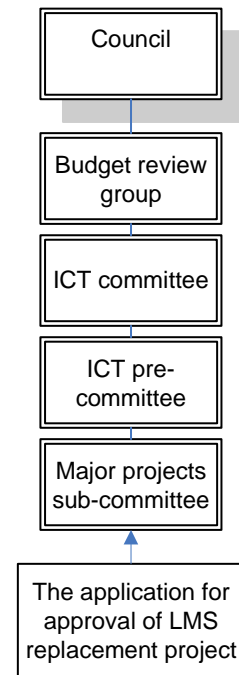
Figure 10 – Committee structure for project and funding approvals

Meanwhile Colin talked to the head of major project sub-committee (to be) and sent him a memo describing that the library had to either buy a new system or move to the next version of the **Rembrandt** system, by the very latest the following summer. The memo informed that the library had decided not to move to the next version of **Rembrandt** during that summer as the upgrade would entail relatively major costs that the library did not have at its disposal due to a recent sizable cut in library's recurrent budget (around 90 000 Euros). The memo indicated that the library had decided to stay with the current version of **Rembrandt** for the time being and highlighted the possibility of potential problems in delayed orders from the beginning of the following year.

7.5.2 Delaying Mechanisms in the Process

Following this, the head of the major project sub-committee informed that they had been having trouble in setting up that committee indicating that there might not be enough time prior to the ICT committee to arrange a major projects subcommittee meeting. He therefore, had suggested that rather than waiting it would be best for the library to submit its bid directly to the main ICT committee. He had offered to provide a covering note, a letter of

recommendation, for the bid to be considered at that meeting. This was seen as encouraging by the library members. It was recognized that the committee chair could not speak for the whole committee, but the fact that he was prepared to shortcut the decision process was seen as supportive and pragmatic.

Meanwhile, slightly later, a memo was also sent to senior members in the university who were considered as influential. These senior members of the organization had been warned earlier that the library had to make a decision regarding its LMS in a near future. The library management expressed two purposes for the memo. First, to inform the university senior members of library's decision not to upgrade, and second, to convince them that the library was in a difficult situation, reinforcing that if the library upgraded to the new version it would be spending a sizable amount of money on a system that would not meet their needs. At that time, the view of library members was that the different instances at the university were aware of library's problem and its dilemma. The level of this understanding was expressed as follows:

> "Well as much as you could expect, given that we're talking a language that they don't necessarily understand. Most of them won't know what a MARC record is for instance. […] Like all senior people in universities you have to try and find a way of explaining a problem in very simple language, not because they're ignorant or stupid but because they don't have […] sufficient time to spend, to get right down to the nitty-gritty of what you're doing."

However, despite the indications, a major projects subcommittee was formed shortly before the main ICT committee without much notice to the library. As put by Colin, "Now, unfortunately what happened was, due to an accident of timing or difficulty getting everybody together, the major projects subcommittee didn't meet until about ten days before the main ICT subcommittee". After having talked to the director of the central IT unit, the decision of the major projects subcommittee chair had changed and instead the library was asked to submit its proposal to the major projects subcommittee 10 days before the ICT committee. This could have potentially created a problem for the library by forcing it to formulate a fast proposal in a very short time. However, this did not become a problem as the library had already formulated its proposal. Therefore, the bid from the library, along side a number of other bids, was put to the major project sub-committee. Regarding the people forming that committee, Colin explained, "that committee has some very powerful people on it". These included the heads of schools of study, director of central IT unit, director of finance, and the Pro Vice-Chancellor for teaching and learning.

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It was suggested at that meeting that the proposals for new projects needed to be considered in more detail. Additional cost-analysis information was also requested including returns on investment, and downstream cost of the project and implementation. The library was asked to provide the requested (and other relevant) information before the paper (what the people involved called the application) went to the main ICT committee about a week later. The library was sent a partial set of questions to be answered. The explanation for the set of questions being partial was given as lack of time for a full template of questions to be developed. That is, the time allocated to both the production of the set of questions and responses to these questions was very limited. Although the full set of questions was not formulated and provided to the library, the library members were asked to answer the specified questions, as well as other potential questions that could have been on the list if the committee had had the time to formulate them.

Having less than ten days at their disposal, the library members had to act quickly but they managed to provide the committee with all the information that they had requested before the bid went to the chair of the ICT committee. Nevertheless, the chair of the ICT committee then decided that this application (and a couple of others) should not be considered at the ICT committee but instead it should be passed back to the major projects subcommittee so that even the additional information was considered by the major projects subcommittee first. Therefore, the library's bid for funds was not considered at that time, although, a bid related to another system, which was substantially more expensive, was considered, and was approved. That ICT committee meeting was the last of that financial year. The last budget review committee of the year was a week later, and the last council meeting of the year was shortly after that. This was just before the summer; the next finance and council meetings would take place around six months later. This posed a timing problem for the LMS selection project. According to library's investigation, the LMS selection project needed to start early in the autumn term to allow installation in the following summer. The delays created by the committee procedures would not allow for such a timetable. As expressed by Colin, "we felt that we'd effectively been stopped or stalled at this point." At that point, the set organizational structures had created boundaries that had put a stop to the launch of the LMS change project at the time. The introduced delay was not based on the contents of the proposal but rather based on the procedures that were put in place.

7.5.3 Finding Alternative Solutions

In this section, I look at the efforts that were made by the library people involved, to find alternative solutions that would allow them to overcome (or

accommodate) the boundaries that were set by the organizational structures and by the timeframe within which the project had to be placed. One aspect here related to finding ways of bypassing the set organizational structures. Another aspect related to gaining a favourable position in competition with other projects (some of which were given a privileged priority by the circles of power at the organization). The library staff needed support for the LMS change project, but it was not enough for different power positions to accept that the LMS change was a good idea. What the library people needed was for the support afforded to the LMS change to be at a favoured level in comparison with the support that was given to other projects that were competing for funds.

The view formed by Colin and other library staff members was that the library needed twelve to fifteen months for the process of purchasing a new LMS, including the preparatory work and going through the official tender process, as well as other activities such as data migration, and staff training. This meant that the procurement and selection of a new LMS had to start in August or at the latest September to allow installation of a new LMS during the summer vacations of the following year. This meant that the LMS selection proposal had to be approved at that time to allow for this. Since the library's proposal was not considered at that time, the library staff hoped for the "chairman's action", which would mean that the chair of the finance committee would agree to the LMS re-procurement proposal over the summer, in the absence of the committee meetings. Therefore, the director of the library alerted the senior Pro Vice-Chancellor who was the head of the budget review about the implications of not getting approval for the re-procurement proposal. He pointed out that if no decisions were made by that summer the library would have to migrate to the next version of Rembrandt in the following summer. That would in turn incur relatively substantial costs for a system that no longer met the library's or the university's requirements and increasingly, would diverge from the needs of the university. In the communications that followed the senior Pro Vice-Chancellor had asked for further information and clarifications. He had also asked whether the library could bear the cost of the purchase within its own recurrent budget. In the proposal put forward by the library it was shown that the cost of ownership of the Rembrandt over a five year period differed from the cost of purchase and ownership of a new system over the same period by roughly 66 000 Euros. This amount divided by five would mean an additional cost of approximately 13 000 Euros per year. Therefore, the response to the senior Pro Vice-Chancellor had been "if push comes to shove then yes" the library would be able to cover that cost although it would be difficult as the library's budget was already very constrained. However, having to stretch the internal funds to cover the system costs was

seen as a better option than continuing with **Rembrandt**. Even so, a problem that remained was that although the cost of the system purchase could be technically subdivided among the following five years, the library would have needed a major part of the money, around 100 000 Euros, up front for the purchase costs. This is something that the library could not manage.

Following this, the director of the library visited the deputy director of finance to discuss the library's options and possible ways of financing the LMS purchase. The deputy director of finance was perceived to have understood and accepted the library's argument about not wanting to put extra money in purchasing the **Rembrandt**' upgraded version. After 'a fair amount of discussion' two possibilities were put forward, one was for the university to give the library a loan that the library would pay back over five years, and the other was that the university buys the system and then the library leases it from the university. Following that, the deputy director of finance was to discuss those options with the director of finance. He also asked the director of the library to establish what the absolute shortest timescale for the process could be. The recommendation was that if they could wait and get a decision through the proper channels that would be preferable.

Based on the request from the deputy director of finance, information was gathered related to the shortest timescale. For this, the previous system change process at the Norford university library was studied and a number of system suppliers and other libraries were contacted about their experiences related to a typical timeframe. Based on the feedback received, they became convinced that twelve to fifteen months was an accurate estimate, where the twelve months timeframe would not leave any 'room for slippage'. The idea was then to communicate the results of this data collection activity back to the deputy director of finance and propose that a decision was needed by the end of June or early July.

What the library was looking for at that point was a provisional agreement from the director of finance to go ahead. The thought was that after a provisional approval, the library could start with its tendering process and then get the official approval through the official structures later that year. They did not need the funds before the actual purchase of the system in about a year's time. Another possibility was that they could start the process without any provisional agreement, while hoping that their proposal would be approved in the next committee rounds. However, the library management did not want to do so. The view was that they 'really did have to get approval from the university'.

One of the difficulties perceived by the library staff at that time was that there were a number of other applications at the same time. Some informants indicated that various powerful people wanted to get those applications through the system. The IT-system that was already approved by the committee was supported by the heads of schools and was led by the deputy director of finance. Another system that also required financing was a new financial system, which was supported by the director of finance, who was described as 'a very significant figure in the senior management team'. Yet another system competing for funds was supported by the director of central IT unit, heads of the schools of study, and the senior Pro Vice-Chancellor. The schools of study, the finance department, and the central IT unit were represented all in the fund approving committees, but no member of the library staff was included as a representative for the library in the make up of these committees. At that time, it was felt that even the library proposal was well understood and supported. The senior Pro Vice-Chancellor and the Pro Vice-Chancellor for teaching and learning were named as people who understood the problems that the library was facing. However, it was also recognised that the library's LMS was not 'broken' and as put by Collin,

> "I think that they see that it's working, it's worked very well up till now, it's not given any problems, like some of the other systems that we've got round the university."

Therefore, it was feared by a few informants that the attitude would be "if it ain't broke don't fix it", as put by one of them. Another problem was that, a number of people including the senior Pro Vice-Chancellor and the Pro Vice-Chancellor for teaching and learning had questioned whether the project could not be financed by the library's own recurrent budget. The other systems that were being considered were all significantly more expensive and even the one with the lowest cost (after the library's system) required around four times the amount required by the library system.

After the library members' investigation regarding the smallest timeframe for LMS selection project, the findings were communicated to the director of finance, clarifying that if the process did not start shortly, the timescale was going to be too short. Colin expressed:

> "And I mean we could allow a bit of leeway there, but frankly I know from experience here that you get a signal that something will happen in a week's time and then it becomes two weeks, three weeks, and four weeks. And the trouble is that you can end up pushing deadlines, you know, back and back and back and then eventually, you know, you just miss it anyway. So I think, at some point, we'll have to say to the university 'well sorry we're not going

to do this next year, we're going to have to migrate to version --- of the existing system and you'll have to pay for that regardless of the fact that it's not what the university needs and it's certainly not what we want'."

The hope at the time had been that based on the arguments put forward, a recommendation would be made to the council to approve of library's LMS procurement proposal.

By mid summer, it was not known by the library if such a recommendation had been made. The idea was to wait until the report of the decisions made in the council was received to see if a budget for the LMS procurement was included. However, it was not known when the memo including such information would be sent out. The idea was that if this information had not reached the director of the library by the start of his summer leave, he would have to get in touch with them. This was because the library would in any case need to know its forthcoming budget in turn to inform the schools of studies about their share of library resources for the following year. This information was required in time to allow, for example, for cancellations of periodicals if necessary. At that time, the library was in an uncertain situation. The situation at the time was expressed by Colin as follows,

> "I mean what they could say is go ahead with the tender but the formal bid for the money will still have to go through the committee process in the autumn, or they might say that the chair of the finance committee has taken executive action and agreed that this should go through. I really don't know."

Neither of the two situations envisaged by Collin eventuated and library's proposal was referred back to the major project subcommittee.

7.5.4 The Battle Continues

In this section, I point to another difficulty faced by the library members. In following this case, a number of inefficiencies (such as requesting the same information again and again) were identified. Not only the members of staff at the library had to provide the requested information within tight timeframes, the provided information did not seem to be fully considered by those requesting it on multiple occasions.

The members of staff at the library had thus far made a case for the need of a new system and had highlighted the problems that could occur if the LMS was not replaced. They had also provided information that had identified the least required time for the process. In addition to this, various information-channels

were used to inform the influential organizational members about the situation and to gain their support and commitment. *At that time, however, it had become evident that the information provided by the library was not fully taken in*. Despite the library staff members' view, that most organizational members had understood the situation, this was not the case. This could be seen for example in a reason given for not accepting the library's proposal, which was expressed as a lack of funds in that year. This indicated a misunderstanding, as the required money was not required in that year. The committee's approval had been sought so that the library could start on the process, but the actual funds were not needed until the following year. Colin expressed this as follows:

> "I don't think they'd fully understood that we wouldn't need the money this year. So I think there was a misunderstanding, it's difficult to know where that came form because I think the papers we'd produced were quite clear on this."

The library members' understanding was that they had made this point very clear. Following this Colin contacted the senior Pro Vice-Chancellor and once again explained the situation and said that if the library does not get an agreement for its procurement project soon, it will have to assume that it is to migrate to the next version of **Rembrandt**. In that meeting[25], Colin had also said that 'there was fairly strong support in the senior management group' for the library's proposal. The senior Pro Vice-Chancellor had then suggested that they start with the tender process to keep their options open. Their (the senior PVC and the director of the library's) views were at the time that they could not do so without talking to the director of finance first. Therefore, the senior Pro Vice-Chancellor suggested that Colin should talk with the director of finance to explore the possibilities including the spread of the costs over a number of years. Following this, Colin met with the director and deputy director of finance, before leaving for the summer vacations. The deputy director of finance had understood the library's case. The director of finance, however, was still unclear on the situation. He started the meeting by implying that the library had already been spending a large amount, and therefore, questioned any further expenditure by the library on a new LMS. This was done by saying that based on a report in a national journal, that university's expenditure on library and IT had been one of the highest in the country. However, the problem with this reasoning was that the high expenditure was incurred by the IT department and not by the library. By conflating the two expenditures together, an unfair view of the library expenditure was implied. The library could disentangle the library's expenditure, which showed that it was below average spent by libraries at similar universities. In the discussion,

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[25] A reconstruction by Colin and corroborated by other data

Colin had pointed out that the library was a small component of the large expenditure, although he felt that the director of finance should have already known this from the expenditure reports that Colin had presented at annual budget meetings over the latest three years. That data had shown that library's expenditure was below the average.

Furthermore, Colin reiterated the details of their application and once more had to present the problems with the current system and the path it was taking. He then had to explain the problem of academic acquisition and fund accounting if the system was not changed. In response to this, the director of finance had questioned why the library could not use the university's finance system instead, to manage the acquisition budget. Colin's response to this had been "well frankly I don't know if that's possible, you know, you'd have to demonstrate that it's possible to do that". He had also explained the current procedures where the ordering, costing, and other related information were managed within the same system in an integrated way, and a new disintegrated arrangement would reduce the services provided to the users. He had then pointed out the difficulties in integrating the current system with other university wide systems such as university portal, VLEs and more, and then had gone through the advantages with a new LMS once again. The costs aspects had to be taken up once again explaining that the costs could be spread over a five-year period and thus being minimal although, the problem for the library being the need to have to pay most of it in the first year.

By that time, based on information that was circulated repeatedly, the expectations were that the director of finance should have been fully familiar with the library's proposal. However, this did not seem to be the case, and inefficiencies were present. What is not clear is whether these inefficiencies were conscious mechanisms built into the committee structure to stall undesirable projects or not. Regardless of the intentions behind these inefficiencies, delays were created on a basis that could be questionable.

7.5.5 Gaining Commitment

After re-explaining the case and having to justify the library's wish to buy a new system, the conversation between Colin and director of finance had continued generally in the following way:[26]

> Director of finance: Well, basically, we're not going to take a decision on funding until December so I can't promise you the money now.

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[26] A reconstruction by Colin and corroborated by other interviews

Colin:	We don't need the money now; all we need is a decision to undertake this tendering process.
Director of finance:	*I thought you'd started that already.*
Colin:	Well, no, we haven't, because obviously we need your permission to do that.

Colin further clarified that they had not started a tendering process but if they did not do so within the next month then effectively they would not be able to do so in time. According to Colin, once the director of finance had realised that all he was being asked to do was to agree to a tendering process he had said, "Well, fine go ahead".

This is how the library started with the process of procurement. A procurement project team was formed and the tender advertisement went into the 'official journal' soon after the summer break.

7.5.6 Lobbying and Gaining Support

Meanwhile, the senior members of the library had continued to mention the need for a new LMS to quite a number of people at the university, including the heads of schools. In a meeting with the head of one of the central schools at the university, the senior library members had mentioned that the library was going through a tendering process and the head of the school's response was "I fully understand the case for this and support it; you don't need to sell it to me any more". This and other similar comments were seen as positive by the senior members of the library. Although all the heads of schools had been talked to and none of them had been directly negative, their support had not been on the same level. One head's reaction was described as non-committal, countering the library's need for resources by saying that they too had resource problems. Even so, the hope was that even he understood the issues involved related to the reliance of the staff and students on the system. The attitude regarding the views of those few who did not support the library's proposal was expressed for example in the following way:

> "I think there's not much more we can do because if people, you know, don't want to listen, or won't listen you can't force them to" (Colin).

Generally, at that stage, the senior library members felt 'reasonably confident' that they had done enough. Colin expressed that there would be a danger in carrying on past the point, where people understood library's position and were supportive. At that point, the view was that people had the facts and they

had been contacted often enough; therefore, any further contacts were seen to have negative rather than positive effects. Therefore, Colin for example, had decided not to contact those people any more before they had made their decision at the next ICT committee meeting.

7.5.7 Committees and Inefficiencies

While the LMS selection team continued with the procurement process, a major projects subcommittee meeting took place in September. Colin updated that committee on the progress to date and the minutes of that meeting went to the main ICT committee. At that point, it had become evident that after all the requested information and decisions made in the earlier round that had led to the rejection of the library's application and delaying the project, the chair of the main ICT committee still did not seem to know about this application. As expressed by Colin, the chair did not seem to have yet seen (or know the details of) the library's application that was submitted at the earlier round of committee meetings.

At that point, the main ICT committee looked at the recommendations made by the major project subcommittee and agreed with it. The recommendations had placed the LMS procurement in the third position in the order of priority. This recommendation was to be decided upon in the next level of committee meetings in December of that year. That committee meeting would also receive other prioritised recommendations related to other matters such as estates priorities. Therefore, not only the LMS procurement project would compete with two other information system purchases it would need to compete with any other major capital expenditure bids from around the university. The situation for the LMS procurement project was, therefore, rather uncertain at that point.

7.5.8 Approval of the LMS Change Project

Meanwhile, two other main events took place. First, a new Vice Chancellor (VC) was appointed at the university.

The outgoing VC had not expressed much interest in the library. On his arrival, he had changed a flat organizational structure (i.e. twenty-eight people, including the director of library reporting directly to the previous Vice Chancellor), to a much more hierarchical line of command where the director of the library was expected to make his case through his line manager, secretary registrar, rather than have direct communication with the VC.

The new VC in turn had made some structural changes on arrival. In this new set up the director of the library was now to report to senior Pro Vice-Chancellor directly. Some changes were also made in the make up of the senior management group who would ultimately decide on whether the library's proposal should or should not be approved. The new group included the director of the library's old and new line managers i.e. both the secretary registrar and the senior Pro Vice-Chancellor. This was seen as positive, especially as the director of the library already had a good established working relationship with the senior Pro Vice-Chancellor. The other members included the VC, the director of finance, and the heads of schools of study.

The second main factor that came into play was a new way of looking at payment methods within the acquisition department. Eighteen months before that time, a university accountant had started to accrue some of the library's database subscriptions over a calendar year instead of the financial year as had been the norm (i.e. January-December rather than August-July). This meant that rather than accounting for the full cost of a database subscription in one lump sum, it was spread over a twelve-month period and only a section of it was offset in that financial year's budget and the rest was carried forward to the following year's budget. This was not originally communicated to the library. Therefore, at the end of each financial year the library had faced some under-spending without knowing why. Once the library realised the reasons for this, the relevant people in the library thought that they would like this to be done on a broader basis for everything. Therefore, this was discussed with the deputy director of finance and it was agreed that from January 1 in the coming year the finance department would accrue all the journal and electronic subscriptions in the same way. In other words, whenever an invoice was received for products that were subscribed on annual basis, the costs would be spread over a twelve-month period. That is, only sections of the annual charges would hit the library's budget in a given financial year although the costs would be paid by the university at the time of the invoice. As virtually all journal subscriptions would arrive in the first two months of the year, around five twelfth of the total subscription costs would not hit the library budget for that year. This meant that the large section of funds that would have had to cover the cost of subscriptions in the first financial year would not be spent by the library in that half of the financial year. This slack created the cash flow for the up-front funds required for the purchase of a new LMS.

Following this, the library put a revised version of its bid for funds to the December committee meeting. In this new bid, it was mentioned that the library was going to save around 270 000 Euros based on this new accrual accounting practice. This would cover the initial up-front costs of the

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purchase. Approval of this bid was seen as a 'no-brainer' based on the following arguments:[27]

> "(a) Their current system won't work properly after the end of this year.
> (b) They're offering up in effect the equivalent of the capital money that they need.
>   So, you know, we don't really need to think about it."

Accordingly, the bid was agreed by the university executives and finance committee, and the budget for the project was thus approved, early in the following year.

7.6 Case Conclusion

Some of the issues, which were explored in this case, can be summarised as follows.

Organizational changes and decisions at the wider organization enforced changes in the organization of the library. The library management and staff's protests against the change that seemed unreasonable to them and efforts to revert the decisions were to no avail.

The reasoning for the LMS change included having had the system for 'long enough', the existing system becoming more and more associated with public libraries than academic libraries, and the development path of the system being seen to create potential difficulties for various operations at this library. The view that the system was no longer suitable for the library's needs was widespread. A number of those who were of this view based their view on what they had heard from others.

Initially the library's application was delayed awaiting the creation of a committee structure that would decide on major expenditure. It was then indicated that the committee would not be formed in time. It was formed at late notice and a very short time was given to the library staff members to prepare their case.

The committee structures that were created at the wider organization seemed to act as a delaying mechanism. Although the lack of adequate information was used as an argument to reject the first application and delay the process, the information that was requested and was provided by the library did not

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[27] A reconstruction by Colin and corroborated by other data.

seem to have based the decisions and committee members seemed unaware of its contents.

Another reason for rejecting the library's application was said to be the lack of funds. Meanwhile, other applications for far greater funds were approved without much demand or resistance from the committee. Committee members often had a vested interest in approving funds for systems that somehow were associated with their departments or their interests. The library did not have a representative in this committee structure.

The library did not initiate a provisional procurement process until it had received approval from the head of finance. This approval was not a promise of funds, therefore, a provisional procurement could have initiated even without this stated approval if the library management had so wished. This way of proceeding was a way of gaining some commitment for this action and the provision of the required funds when the time arrived.

The formal applications for funds, formal protests against loss of staff, and other formal efforts by the library staff members had not been responded to positively. Subsequently, contacts were made with key people around the university, both raising awareness of the potential problems as well as gaining support for the project of LMS change. This, in the absence of responsiveness to formal efforts through formal channels, was one way of influencing the circumstances in which the library operated.

It is difficult to form a view as to the level of influence by these activities in gaining approval for the LMS-change project. In the end, the library had found ways of funding the project by itself; the approval of LMS change did not create a demand for resources from the committee, and therefore, its approval was just a formality. However, it was evident that in this case, a strong application alone was not enough to be heard or to receive approval.

The level of efforts that the library had to dedicate to actions that would gain some advantage for the library had varied over the years in close relation to the vice chancellor of the time and his or her interest in the library. An earlier Vice Chancellor had had much interest in the library. During the reign of that VC, the library and library staff had been faced with various favourable opportunities. The next VC had had no interest in the library and had changed the command structures in a way that the library and its director had been placed at a lower organizational level. During this time, the library's finances had been reduced and library staff (and the related budget) were removed and relocated in the central IT unit and various applications by library had been delayed or stalled. At the end of this case, a new VC was appointed who was

more favourable towards the library. This led to a new for-the-library favourable restructuring of the hierarchical order of the chain of commands.

This case can be concluded by bringing attention to the dynamic nature of the organizational structures that were put in place and which were changed and reshaped continually based on various influences. Not knowing the intentions behind the creation of a multi-layered committee structure, one can only look at the effects that this had. When it came to the LMS change project, the committee structure worked as a stalling mechanism while for some other projects that had a stronger support, it worked as a facilitating aid. When the people at the library were following the set structures and guidelines, the LMS change project did not advance. To combat the set restrictions, the library people used strategies such as lobbying and trying to bypass the set structures in promoting their project. In the events that emerged, not only the existing structures set the premises for the LMS decision process; the activities that took place (by the library members and others) influenced the circumstances in which the process was situated. For example, the organizational structure in place, at the start of this process, was a rigid top-down hierarchy. Gaining the support of powerful people and bypassing the set structures, could lead to establishment or reinforcement of anarchical behaviour, which is often associated with the organization of academic institutes.

By following the set path (i.e. by according the actions with the set rules), the LMS change project was being bypassed by other actors that had access to the political power of the organization. By following the set rules, the library's less dominant position was being reinforced. By taking an active part and negotiating the premises, this library tapped into other aspects of the existing structures. That is, it followed unofficial existing structures of lobbying and gaining the approval of people in positions of power. Based on such actions, the involved library members managed to gain support for, and proceed with, the LMS change process. In addition to this, by choosing this alternative unofficial path in order to overcome the restrains, the possibility of adopting alternative ways of action (i.e. ways of bypassing the set structures) was reinforced.

8.   Case C: Separation of Decision Process from Choice

A theme explored in the previous chapter, was related to the ongoing negotiated changes in the organizational structures. It was argued that these bore influences on the LMS decision process. In this chapter, the theme of change in the imbedding context is revisited, but here, the focus is placed at a micro level. Here changes in both staff roles and posts are argued to influence the LMS decision process.

In addition to this, another aspect that is the centre of focus in this chapter is related to the conceptualization of the decision process. In many decision theories, choice is seen as the logical outcome of decision process. In this chapter, it is shown that the LMS decision does not necessarily equate a selection process, or alternatively, a choice does not necessarily involve a selection process.

A further issue being highlighted in this chapter relates to the ad hoc way in which the evaluation criteria come about. The evaluation criteria are not used consistently in judging the different potential systems. These issues are examined in a retrospective look at how this organizations' current system had been selected. It is shown that, for example, a main criterion used as a basis for the selection of their existing system, i.e. the presence of a trusted agent for the system (projection of future wants), had not remained the same for long and that alternatives to this (i.e. replacement of the system agent) had proved to be preferable.

The initial follow up of this case took 10 months, but other contacts were made for further updates later on (the last contact being more than two years after the conclusion of the study). At the time of the study, no selection process had officially been started; therefore, the interviews that took place and other data collections were minimal and done in anticipation of the start of such a process in a future time. As will be seen, the path that this library took was somewhat unlike other more typical cases as prescribed in the traditional models. Therefore, the data collection activities concluded without collecting much data due to the nature of this case. The data included in this case comprise of 3 interviews, 35 email communications (received) and less than 100 pages of documents. No observation was done in this case. Only three people were communicated with in this study, comprising the old (Malcolm) and the new (Jane) heads of the library as well as the information systems manager, Brian. Much of the historical information provided in this case was based on Brian's reconstructions.

This case concerns a system change at a library of an international academic (research) institute with a global perspective. I will hereafter refer to this institute as IRI (for the International Research Institute). IRI was autonomous but was hosted by a large university (here called the Eastbridge University). IRI had around 250 members of staff (including 100 researchers), and about 200 students. At the time of the study, IRI received funding from several sources including student fees, the Eastbridge University, a national governmental department, and income generated by doing commissioned research for others. The IRI library was not the same as the Eastbridge University library, and was used by the institute's students and staff, as well as the hosting university's students and staff, in addition to others interested in its specialized field, nationally and internationally. The IRI library held the most comprehensive research collection on the institute's specialist area in its continent. The collection at the IRI library is presented in the following table.

	Total numbers
Monographs	> 80 000
Standing orders	> 10 000
Journal titles	> 1 000
Documents	> 200 000

Table 6 – Statistics on the size of collection at the case study setting C

8.1 Library's Earlier System

In the early nineties, the IRI library had used a software package (hereafter called Dali) that was developed by a non-profit organization and was particularly suited to bibliographical applications, information storage, and retrieval. Although used by many libraries around the world, Dali did not offer many of the common functions such as circulation, acquisition, or serials control. Use of Dali was perceived to be easy. One could easily set up relations on its database and hence enhance the system locally. Accordingly, a simple loan system and acquisition system had been developed at IRI based on the Dali system. The main work on that enhancement was done by a library cataloguer, Meg, who also had been allocated the main responsibility for the library system. Meg was assisted in her work with the system by Brian. Brian, who had a PhD in information science, was quite familiar with library system functionality and at the time had the dual role of the Head of Computer and Technical Services and Information Systems Manager. He had also previously worked on an automated system at a national library, and had taught at a school of library and information studies. Based on this background, Brian's main interests laid in information systems, not computer, and technical

services. According to him, he only attended to the computer and technical services activities, because these were part of his job and not due to his interests in these areas.

Some work had already been done on the library's Dali system locally even prior to the arrival of Brian or Meg. For example, the system had already been adopted to use Uni-MARC. Furthermore, an associated organization that had also used the Dali system had started developing a windows version of the system. Later on, a new director arrived at IRI, who had previously been the director of the associated organization. This director had used windows version of Dali developed at the associated organization but did not have much confidence in that system and wanted the library to move to a new commercial system. As put by Brian,

> "He wanted us, to move to something different, to a commercial system and he made that quite a priority; that we moved; that we look for a commercial system".

8.2 The Selection of Library's Existing System

Following that, the services of a consultant were utilized to help their search for a new system. With the consultant's help, six systems were considered, of which three were short-listed. Of the short-listed systems, one was a windows based system (Zorn), another was a comparatively cheap system (Van Gogh), and the third was perceived as excellent for information retrieval (Manet). These systems were explained by Brian in the following way:

Zorn: "And there were really *two things* which impressed us about it, one was that it was entirely Windows based. It had been written from the start for Windows, it hadn't been written for Unix. And the other thing was that they had an agent in this country, which was X [the agent company] who were also the agent for Y [another software package]. And we used Y quite a lot so we knew X quite well and we..; well they were a firm we felt we could trust and the fact that they were providing the sales and support for --- [Zorn] was another strong reason for us to go for --- [Zorn]. I went to see it in use at a college in ---, I couldn't find anywhere that was exactly similar to us but there was a college in --- which was a small sort of academic library and I thought *it looked okay there*."

Van Gogh: "--- [Van Gogh], which was a rather simpler and cheaper system, it is in use elsewhere on the campus, there is another research institute which has --- [Van Gogh] so we'd seen it there and *they were quite impressed with it.*

Manet: "The third one was --- [Manet] which is a very old, established information retrieval package, it's been going twenty years or more and *it's excellent for information retrieval*, really if information retrieval was our priority we would've gone for [Manet] but it wasn't, it didn't look as nice because it was quite old-fashioned. But the people at [Manet] I would say, were the only ones who really understood information retrieval properly, I mean the others understood library functions but they didn't really understand what a thesaurus was and what it should do and *to us thesaurus searching is very important.*"

One thing about the IRI library was that a classification system was not used there, and instead, for example, a report was filed and placed according to the report series in which it belonged. This way of organizing the collection did not allow the users to find the work on a particular subject on the shelf. Therefore, a library system that would facilitate subject searching and use of thesaurus became very important for this library. The Dali system used by the library at that time had a real thesaurus structure, which most library systems of the time did not have. Of the three systems that had been short-listed at that time, Manet was perceived to be "*the best on the thesaurus structure*". However, at that time in the late nineties, the system, which was selected by the library, became Zorn, with the reasoning that "it was Windows based and because of the support firm and it did have some thesaurus facility although not as good as --- [Manet]."

8.2.1 Analytical Discussion

As a concurrent study of that system selection was not done, it is hard to form a decided opinion about the details of that system selection process. Nevertheless, this retrospective reconstruction of the events and happenings raises a number of interesting points. For one thing, it was the new director of the institute who decided that the Dali system (and its Windows version) was not to be used at the library, not the library staff or other IRI staff that had already worked in that institute and probably had some opinion as to what their needs were. Furthermore, it was said that it was important for this library

to have a system that facilitated subject searches and use of thesaurus. However, the selection outcome was not consistent with this wish. Even when looking at the systems in site visits, regarding Zorn, the informant's comment was that it was *okay*, while the users of another system 'Van Gogh' were reported to have been '*quite impressed with it*'. Although the informant identified the site visits as important in the judgements made about the three options, it is questionable whether the information provided in the site visits was consistent with the choice made. Furthermore, one of the two main reasons for choosing Zorn was because the local agent for that product was known to the IRI technical staff. The quality of the local support had not been a pre-specified criterion for the selection. Therefore, the quality of support was not a criterion on which the evaluation of the other two systems was based. That is, one cannot be sure about what the outcome would have been if the support provided for the other two systems had been evaluated in comparison with the local agent for Zorn. As it will be shown below, that agent company did not remain with Zorn for very long after the selection (and indeed, the library found the support provided by the subsequent support provider of a better quality). *Therefore, one of the main reasons for choosing that system did not hold in the long term.*

8.3 The Existing System and Its Support

The people mainly involved in that selection were Brian, as the information systems manager, Meg, as the cataloguer, and IRI's head of finance and administration who according to Brian got involved because,

> "I think the director must have told him to get involved because it was quite a major item of expenditure, it was much bigger than what either computer services normally spend or what the library normally spends, as a sort of one-off project."

Zorn was produced by a company located in a distant country. Initially intensive sales efforts had been in place by the Zorn vendor and agent companies in the country of this case and numerous systems were sold. At its peak, around 20 libraries owned Zorn in the country of the case. Some of these were considered quite important customers.

However, the implementation of the Zorn at the IRI library was perceived as problematic with many functions not working in the way they were expected to work. A number of those problems related to the international nature of IRI, the collection at the library, the diverse document suppliers, as well as specific needs for searching facilities in the system. Some of the problems with

delayed fixes were perceived to be associated with (a) the distant location of the supplying company, (b) suppliers' focus on intensive sales, and (c) concentration of **Zorn** users closer to the vendor's home country. Meanwhile the IRI library was used as a reference site for **Zorn**.

The relationship between the local agent and the supplying company did not last very long and various disputes broke out. The local agent blamed the supplying company by saying things like "they were an impossible firm to work with". On the other hand, some speculations existed about the agent company not paying all the money owed to the supplying company. Regardless of the cause of the falling out, the agent company then had been trying "to get people to change to one of the other systems which they were supporting". Not only the sales of **Zorn** declined in the country of the case but the number of existing customers also fell so much through the years that at the time of the study only less than a handful of libraries were still using that system in the country of the studied case.

The IRI library did not change to any of the systems proposed by the agent, as one of them was perceived as unsuitable, and the work involved in migrating to the other system was perceived to be huge and not so straightforward. Furthermore, the people involved did not wish to change the system so soon (two years) after having recently acquired **Zorn**. Instead, the library opted for staying with **Zorn** while receiving support from another firm. At the time **Zorn** was still used by a number of organizations in the case country. It was also used by others in countries closer to the location of the supplying company. In addition to these, a number of important organizations in one other country close to the case location also used this system. Those users had local support. That support firm subsequently was used by the IRI library. Meanwhile, other changes occurred in the structure of the new support-organization, which initially was larger firm and then later became just one person. Regardless, the people at the case library found the support provided by the new support person as being very good and better than the support the library had ever received from the previous local support agent.

This was the initial view. After some time, the number of **Zorn** customers in that region had declined. The amount of support required from the lone support person did no longer add up to a full time position. Therefore, to compensate for this, the support person started offering support for other systems as well, and therefore, the support offered to the **Zorn** users was no longer perceived by the relevant staff to be as good as it used to be. Although the support person was seen as helpful, the support was perceived as delayed.

Whether these delays were due to the support person's lesser engagement or due to the vendor-company's lack of faster responses remained in question.

8.4 Problems with the Existing System and Solutions to the Problems

Some of the initial problems with Zorn had been resolved over the years. However, at the time of the case study, a number of problems were said to be still outstanding after more than half a decade. An example of outstanding problems was the web OPAC where the received parts of serials were not shown in the web OPAC as expected. As put by Brian,

> "..now, that never worked on the web OPAC. We discovered that although it was sold as an integrated system, that in fact the bit that displayed the periodical parts was not part of the web OPAC, it was part of some earlier OPAC, which we didn't want to implement. And so although we were shown it when we bought the system it wasn't very clear to us that it wasn't part of the web OPAC."

To solve this problem, programs were written locally. Over the years, a number of local fixes had been implemented. This had meant that new releases and upgrades were perceived to be problematic. In some respects, Zorn was perceived to be too complicated by the IRI local support people. For instance, Zorn had been designed for a multi-site library while the case library only had one site, and no need for the related extra functions. The system provided various cost-centres and fund accounting facilities, which were not used by the IRI library. The upgrades were based on the wishes of the full customer base of Zorn, most of which had different requirements to the needs of the IRI library. Therefore, the upgrades were perceived as 90% irrelevant for this library while only a few minor details were seen to be of real help. If the upgrades were not installed, the system would not be supported. On the other hand if upgrades were installed the locally written add-ons and go-around fixes would need to be rewritten or re-included after every upgrade.

8.5 In-House System Developments

The LMS was only one of several projects at the information department at IRI. The information department had been developing a new system based on SQL server to handle all their different information activities (this system will be referred to as IMS). IMS had two parts, one part being an information management system and the other a content management system. A general philosophy with the development of this system had been to bring together

IRI's various resources and projects. While designing this system therefore, a question had been whether and how the library collection would fit into this. Although the library collection was organized in a database, as were other collections of the institute, the standards used by these systems differed considerably. For example, the library followed AACR (Anglo-American Cataloguing Rules), and to some extent MARC format, and had to use the macro-thesaurus terms to be consistent with the records that they already had. Therefore, the inclusion of the library collection was seen to cause major problems. In order to incorporate the library collection with the other databases used by the institute, one option was to change the library system and library catalogue to follow the standards used in the other systems and therefore include the library data in the system that held the rest of the organizational data. Even if this had been a feasible option, it was not perceived as suitable. The library collection with around 200 000 documents was by far larger than any other collections held and therefore was seen to swamp all other projects. To change quite a number of other projects to follow the standards used by the library system was not seen as viable either. As put by Brian,

> "We couldn't easily take records from another project which use different cataloguing standards or use subject indexing and include that into the library. […] Really if anybody was going to change standards it ought to be all our other information sections changing their standards rather than the library changing its. But really we couldn't force that on the library or force that on the other projects".

Therefore, an idea was being conceived to develop two sets of separate but closely related and similar systems, one for the management of other IRI projects (IMS) as mentioned above, and another for the library. Therefore, these considerations, as well as the presence of several home-grown add-ons, in addition to the perceived problems with the support of the existing system were germinating the idea that one should replace the existing system with a home-grown alternative.

8.6 Organizational Changes within the IT Department

Meanwhile a number of changes took place in the organizational structure of what was earlier called Computer and Technical Services, headed by Brian. This section was subdivided into two parts, one dealing with information systems (called the Information Systems Unit – ISU) and another dealing with the Computer and Technical Services. Brian, with his main interest being in information systems, became part of the newly formed section called ISU.

Initially it had been only Brian and Meg who staffed this unit, but subsequently the unit had grown to include five additional members. As the IMS system had been a priority of this unit and as Meg had been the person predominantly involved in that project, she was appointed as the head of the ISU while Brian became part of her staff although he kept his title as IS manager. Therefore, Meg had moved up from the post of cataloguer to being the head of ISU and the relationship of staff-manager had become reversed between Meg and Brian. One can depict the organizational position of the people involved in this case, at the time of the study as follows:
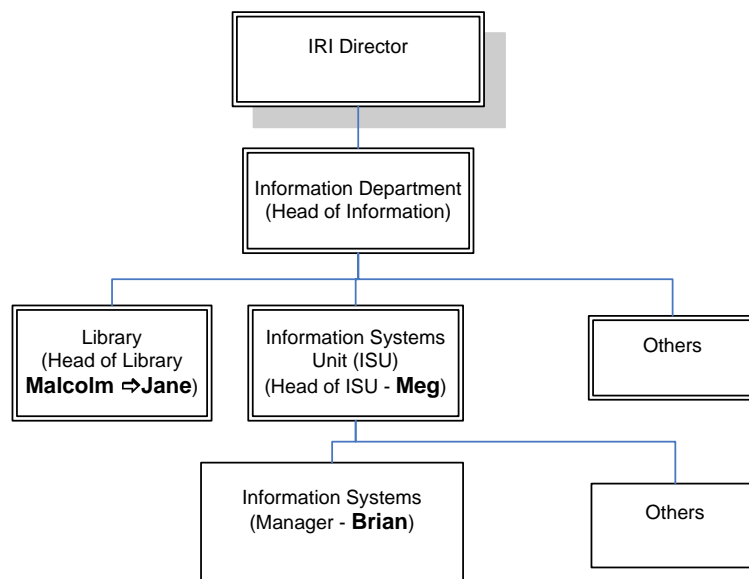
Figure 11 – Simplified organizational structure, case study setting C

The number of staff in ISU grew to seven people with Brian and Meg having a background within library and information science, and the others mostly being technical. These staff jointly worked with the information needs of the institute. The task of local support and daily upkeep of library's LMS was allocated to Brian who was to spend 50% of his time on it. Although, at times, other members of ISU could also do some programming or work on the LMS, this was based on an internal exchange of tasks between Brian and the other members when and if needed.

8.7 The Idea for an In-House LMS is Born

As more work was done on the development of the IMS system, collectively by the members of ISU and by an external firm, Brian began to think that perhaps further internal development work could also be put into their LMS. If this was done, they could create a home-grown system that would be on a par and more compatible with the IMS system that was being developed. Brian's

view was that "there is so much in --- [Zorn] that we don't need and the most important thing for us is to integrate our library information with other databases that we host".

Therefore, the idea for the LMS change was initiated by Brian, first through informal talks and discussions with Meg, and then in the form of a semi-formal proposal put forward by Brian to Meg (his line manager), and to Malcolm (the then head of the library). This proposal was based on an idea that went as follows. A number of local solutions to problems within Zorn had already been developed. This development work could be continued and intensified in order to replace the functions available in Zorn. The move from Zorn to a locally produced system could take a more gradual pace. This internal development would ensure that the library's LMS would be more compatible with their other locally produced system of IMS.

An existing local development was, for example, a piece of software that extracted and exported data from their LMS to another database where other institute data were placed. This data export procedure was done on a biweekly basis to allow web-based searches of the institute's collective data. The new IMS was going to be on a new SQL server (i.e. different from their earlier server that hosted the data for web-searches). This change of servers necessitated new conversion software for extraction and export of data from the LMS into this new SQL-based server. Brian saw writing of this new piece of software as the first step in developing the home-grown system. The proposal put forward by Brian included a schedule for the order of the developments of various sub-sections, starting with OPAC, then acquisition and circulation (during which time catalogue records would still be created in Zorn), and finally cataloguing. Brian perceived the serials module to be the biggest problem, and in his view, a possibility for solving that problem could be to buy a commercial package for that module. He had already investigated whether there were any such systems available on the market eighteen months prior to the time of this study, and he had found one or two solutions available at that time. In Brian's view, there was no set deadline for the LMS development project, or a demand for meeting a particular deadline. As he explained, they could continue running their system, Zorn, and move towards their new home-grown system in stages.

I started my study of this case when informal discussions and the proposal had already been in the pipeline for about a year. At the time, Malcolm, the head of the library, looked favourably upon an LMS decision process but one could not yet fully say that an official selection process had been initiated or that a final decision regarding the replacement and choice of the new system had

been made at that point. This is because Malcolm was about to retire shortly afterwards. He felt that despite his views on the possibilities of replacing the LMS with an alternative, ultimately the decision would lie with the new head, who may have agreed or disagreed with whatever Malcolm's decisions might have been.

Meanwhile, other issues were simmering in the background. At the time of the study, the IRI library was governed by a board of governors, chaired by the university Vice Chancellor (VC). Having the university's VC as the chair of the governing body of IRI was seen as positive and beneficial until a time when the VC started to try to save money at the university level. This saving plan could affect IRI in two negative ways. One was that the university wanted to stop paying IRI for the use of its library by the university students. To motivate this it had been argued that the IRI students also used the university's library and therefore this offset the use of the IRI library by the university students. The other issue was that an idea had risen a few years prior to this study to merge the IRI library with the university library. At that time, some work by the university library had been commissioned to see if the IRI library could be incorporated into the university library but that had not resulted in any changes at the time. However, when the post of new head of the IRI library was advertised, there was a window of opportunity to reconsider this merger and the VC blocked the advertisement. At an earlier stage, when the IRI library used the Dali system, it had had as many as around thirty members of staff. At the time of the study, the members of staff were reduced to fewer than ten. However, as well as the advertisement for the new head, two new posts were also advertised and the number of the staff was on its way up again. If the IRI library was to merge with the university library, a fear was that a smaller number of staff would be needed and jobs would be lost once again. Therefore, the block on the advertisement for the head of the library and merger proposal by the VC had caused some conflicts and raised tempers. The suitability of the VC as the chair of governing body was also questioned and the issue of conflict of interest was raised.

Malcolm left his position around two and a half months after my initial contact with this case. Meanwhile, the appointment of the new head was delayed. The block on the advertisement was eventually removed and employment-interviews for that post took place around three and a half months after my initial contact and the new head started post seven and a half months after my initial contact. During the five months between the first head leaving and the second head arriving, the library was run by an acting librarian. During that time, the development of the home-grown LMS remained pending and most of the ISU's work was directed towards the development of their new IMS system.

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8.8 A Decision Is Made without Considering Many Alternatives

On arrival, the new head of the library, Jane, met with Meg, the head of ISU. In a communication with Brian (who had been on holiday during the first two weeks after Jane's arrival), Jane referred to the confusion on the state of development with the home-grown library system. She stated that Meg seemed to be saying that not much work on the new LMS had been done and the bulk of the work remained. The work was estimated to take at least a couple of years. Questions had also been raised as to how the various functions would work and what would their implications be. Therefore, Jane requested a meeting with Brian to discuss these issues. Meg had also talked to Brian indicating that Jane had raised the possibility of a new commercial system. Following this, Brian who had become quite concerned, prepared a case for the development of the home-grown system to be presented to Jane at their first formal meeting. This included an outline of the home-grown LMS project. This short document (two and a half pages) identified three phases for the project. The first phase included extraction of data from the existing LMS and design and testing of a number of mainly search-related functions. The second phase related to sharing of content with the IMS system. Finally, the third phase was titled 'full library system' and included a number of sections each relating to a module. According to Brian,

> "One of the questions --- [Jane] raised was whether we should go for a new commercial system, but when I explained all our add-ons and the fact that we don't want many of the complications of commercial systems (e.g. multi-site, fund account, fines, import of MARC records) --- [Jane] agreed that --- [the home-grown system] was the best route.",

and

> "--- [Jane] didn't argue against --- [the home-grown system] once I explained why our needs were so special and the experiences we already have in library systems. Her main concern was to know the timescale".

At that point, Jane agreed that the development of the home-grown system could go ahead and the decision regarding the LMS replacement was thus made. She explained her reasons for accepting the proposal in a message intended for me via email to Brian as follows:

> "What convinced me were three things: that it looked like it would take more work to come up with an alternative; that it looked like

we were already relatively far along in the development and I had confidence that you knew what you were talking about; and I decided that on balance, even if I had wanted to make changes, this was not an area where I felt strongly enough that I was willing to do battle, so to speak. When you start as a new manager anywhere, you need to make decisions about where to put your energies, and the energies of your staff, and also which battles are worth fighting (i.e. where it's worth sticking your neck out) and I have confidence that even though we may not get 100% of what we might want, will get at least 80% (and hopefully more), and that's good enough for me!"

This case was therefore, concluded by an LMS decision without an LMS selection process in the traditional sense. In this case, the home-grown system option was not evaluated in comparison with other potential alternatives. The choice was instead made and was constraint by the specific circumstances of the case where a newly arrived manager's time and energy was, by necessity, subdivided among a number of competing areas that all demanded attention.

8.9 Case Conclusion

In presenting a few details of this case, focus was placed on a number of areas including the conceptualization of the LMS decision process, influences of background changes (i.e. in this case changes in personnel and staff roles) on the LMS decision process, and ad hoc use of criteria, within the process.

My study of this case came to its conclusion before it really started. That is, while I was awaiting the start of a selection process as described in the traditional models (i.e. identification of alternatives, evaluation of each, projection of potential outcomes and so on), the decision was made without such a process. In this case, the way the decision was made regarding the development of a home-grown system to replace the existing LMS was not typical of the other cases included in this study. There was no formal process, through which all the alternative routes were considered and evaluated. That is, no LMS *selection project* was initiated. The decision was not based on identification, evaluation, and comparison of a number of alternatives. The decision was rather made within the bounds of emerged constraints. This highlights the possibility for the separation of the *decision process* and the *selection process*. That is to say, not all LMS decisions are based on a selection process in traditional sense.

The retirement of the head of the library had two major effects on the process of the LMS decision. First, during the time of the outgoing head, no major effort was put into making a decision about the path that the library ought to

take. A process of system selection was halted due to expecting a new library head. A selection process did not become possible after the arrival of the new head either due to the competing demands on the new head's time and energy. Second, the LMS decision created an opportunity for the university to cut costs by incorporating the IRI library with the main university library. Although the merger of the libraries did not eventuate, the opportunity was used to discuss the funding contribution from the university toward the IRI library's services and as a result, this funding was cut. Reduced resources at IRI could translate to lesser resources allocated to the LMS related issues and activities in due course.

In both the earlier and the recent instances of LMS change at the IRI library, people external to the library initiated the idea and action for the LMS replacements. In the earlier instance, it was the director of the institute and in the recent round, it was Brian, the head of information systems. Initially Brian's position was head of computer and technical services, but due to his background and personal interests, his association with the library and library related matters was formed and expanded, so much so that for a time his office was situated in the library. Due to the formed association, Brian was assigned (or took on) more and more library related contacts and duties. This in turn strengthened and reinforced the already formed associations. This strengthened position could be seen as influential in defining the direction of the library's LMS path.

An issue, highlighted in this case is that the level and quality of support had a direct influence on the perception of the system, more so than the inherent capabilities of the system.

Regardless of the perceived problems, in the recent instance, no criteria for selection were defined. In the previous round of LMS decision, the reason for selecting the system was not fully based on the system attributes or the identified needs. In that instance, the reasons given for the need of a new system and the qualities of the chosen system did not seem to match. That is, there were some inconsistencies between the identified needs of the library (e.g. the need for a system that offered thesaurus management) and the criteria for the selection of the new system (e.g. selection of a system whose agent was known and trusted).

One of the reasons for choosing the selected system was to favour the agent that provided the support for that system. That is to say, a criterion for the selection of the chosen system was based on an attribute of the company that provided support for that system. In evaluating the three systems, this criterion was not considered in the selection of the other two systems.

In retrospect, one can question the role of some of the criteria used in the previous round of system selection. For example, the relationship with the local agent for the selected system was one of the reasons for its selection. Not only did that agent not stay with that system for very long, the later support of the system by others was said to have been even better. Therefore, that ad hoc reason for the selection of the system did not prove to be a lasting element.

In summary, and to repeat one of the main points highlighted in the case, a decision was made without the traditional selection process, highlighting the separation of the choice from the selection process.

PART THREE

CROSS ANALYSIS: *Elements* **and** *Practices*

The focus of this part of the book is on presenting further analyses and the conclusions of the study. The chapters included in this part will build on earlier presentations and other data in the study to provide an overall analysis of the findings.

Chapters 9 and 10 are closely related, and together comprise a cross analysis of all the four cases. These chapters are used to outline a number of *elements* and *practices* that were identified in the processes of LMS decision. These two chapters are separated due to the amount of issues that are addressed and the ambition to provide a reader-friendly structure to the extensive contents. Both of the two chapters deal with elements and practices that are identified in the processes. In chapter 9, the focus rests on the external influences, the advent of the LMS decision process, goals related to the process, identification of the existing problems, project team selection, and production of system specifications. In chapter 10, I continue the cross analysis by highlighting the complexities that are involved in the evaluation of the potential systems.

In chapter 11, through a discussion of the findings in relation to the theoretical framework an alternative view of the LMS decision process is formed. In chapter 12, the research questions are answered one by one. In the concluding chapter 13, the reasoning behind the choice of a broad study (as opposed to a narrow deep study) is discussed, a few research contributions are identified, and a number of suggestions for future research are offered. The chapter ends with a few theoretical reflections. Finally, a short summary in Swedish, a list of references, and a collection of appendices concludes this thesis.

9.   The Initial Stages of the Process

"I mean, it's important that they feel that they really have owned the process."

Having presented an examination of some aspects of three of the cases in the previous chapters, here, I present some of the findings of this study as a cross analysis[28] that draws from the full set of data from all four cases.

An aim of this study was to take a closer look at the LMS selection process to identify important events, junctures, as well as their role. While addressing this, attention was paid to outlining possible aspects of the process that deviated from the rational choice model. Through conducting this study, it became evident that 'events' and 'junctures' were not adequate as concepts that could explain the various phenomena present in the LMS decision process. New terminology was needed to describe other issues emergent within the process. For this, I chose to use the terms elements, and practices.

I differentiate between the terms *element*, *practice*, *activity*, and *juncture*. The term element here is an abstract entity that goes beyond the actual events in individual cases. I illustrate the way in which I use these terms with the help of an example.

Say, at an organization a number of formal (and informal) meetings take place. Minutes are written, emails are exchanged, and different people within the wider organization are contacted to obtain financing for the LMS project. Nothing seems to lead to a concrete result. The library staff members continue their efforts by communicating with their network of contacts to gain their support. They also systematically use all the information channels within the wider organization to inform the wider organization's members of the importance of this project. They also schedule an upgrade to the existing system to take place at a busy period so that the users that cannot use the system during that time understand the importance of a smooth working system. Meanwhile at the wider organization a campaign is planned to highlight the organization's positive attitude towards modern technology. The

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[28] As it is common in cross analyses, and to uphold anonymity, the excerpts and examples included in this section are not referenced or linked to the individuals or the case with which they are associated. Instead, references are mainly made to roles such as management, staff, or general staff. See section 5.7 for further details.

library members carefully time a meeting with the organization's director of finance to coincide with the campaign. At that meeting the library representatives, highlight LMS as an example of modern technology. They also present a very convincing calculation of the potential costs and benefits to convince the director of finance of the merits of this project. That meeting proves to be positive and leads to allocation of finances to the LMS change project.

At an instance like that, attending each of the meetings, actual writing of a proposal, each email exchange and so on are referred to as *activities*. The important meeting with the head of finance is a *juncture* in the process. Meeting as a phenomenon, securing funds, lobbying, and so on, at an abstract level, are seen as elements. Placing the upgrade at a busy period, scheduling the meeting with the director of finance to coincide with the campaign, and the convincing calculations are called practices (including timing, staging, and imaginative accounting practices).

In this study, a number of *elements* were identified and in relation to each element, various *practices* emerged that were utilized in influencing views, actions, and decision outcomes.

This and the next chapter are dedicated to presenting a *cross analysis* of these. Each of the elements and related practices are presented and discussed in some details in a separate section. The separation of these presentations into two chapters was necessitated due to the extent of the issues that required attention.

An aim with these presentations and discussions has been to look more closely at each of the elements to highlight the level of complexity involved. In this chapter, the focus is placed on a number of issues including the external influences, the advent of the LMS decision process, goals related to the process, identification of the existing problems, project team selection, and production of system specification documents. The complexities that are involved in evaluations as well as a summary of the findings in relation to the elements and practices are addressed in the following chapter.

As presented earlier, the steps involved in traditional LMS selection models embrace the underlying assumption of rational choice models. This can be seen in related texts, for example:

> "Whether you are planning for your first system, migrating to a new vendor, or upgrading your present system, the steps involved will be

the same: analyzing the existing system, providing for future needs, and making projections." (Duval & Main, 1992: 38)

As outlined in the earlier chapters of the thesis, an ambition of this study is to question the underlying assumptions of the traditional models and to argue that other alternative views of the LMS selection (and decision) may be instructive. Therefore, in the presentations that follow, the traditional models are kept in mind and the findings of the study are examined in the light of those models.

The elements identified in many traditional models typically include planning, identifying goals, formulating these goals in system specification documents, evaluation of potential systems based on the specified goals, and finally selection of the system that best meets the specified needs.

In this study, these elements were found but not necessarily in all the cases, or as part of a stable set, or in the order common in related models. It was found that the level of presence or absence of the elements varied in the studied cases. That is, each element can exist or can be missing and the extent of presence of each of these elements can vary from case to case. In addition to the elements present in traditional models, a number of others were also identified, which again were present in, or absent from, different cases in varying degrees.

In what follows, I present the findings and take a closer look at each of the described elements to illuminate the intricacies that are often missing from the more simplified models. The findings highlighted a number of complexities that led to a deviation from the rational choice and traditional LMS selection models. As will be shown an understanding of these details is important in forming a better conceptualization of the dynamics present in the LMS selection decision process.

9.1 External Influences

In traditional models, the external and contextual influences are not examined in detail. It is said that the wider technical environment should be considered so that the chosen LMS can be easily integrated in that environment. That is to say, the selection team members are encouraged to consider the technical and organizational environments in which a future LMS will operate. However, the external and wider organizations' influences on the LMS decision process are less considered. As outlined, none of the processes that were studied took place in isolation without being affected in several ways by the environments surrounding them. Many global and national structural changes are

implemented in the organizations of public libraries, the higher education institutions and their libraries (see e.g. Farley, Broady-Preston & Hayward, 1998: 244; Goulding, 1996; Rikowski, 2005). The changes and administrative reforms in the public sector can be witnessed in the vast international research on public administration[29]. In this study, numerous administrative and structural changes at the wider organizations were readily evident. An investigation of the basis and reasons for the changes in these organizations is beyond the scope of this study. However, what became visible in this study was some of the implications of these changes for the process of the LMS selection project and the LMS decision process. In what follows, a few examples of some of the structural changes are presented in order to indicate how the effects of these changes were noticed in this study.

A restructuring of higher education establishments and/or public libraries was evident in all four cases, where some structural changes had already been implemented and others were planned. These changes were a matter of public record and were verified in both the internal organizational documents, external reports, as well as the information received from the informants.

Some of these changes were in reaction to demands from the funding agencies on organizations to reduce their costs. As expressed by one informant, "generally within the public sector you are limited by the amount of money that you've got", following this the informant indicated that the organizations often have to balance their activities in relation to the resources available. The demands for reduction in costs and subsequent measures such as cutting jobs or centralization of functions and units were also readily expressed by the informants. This could be seen, for example, in excerpts similar to the following, where one informant at a managerial position explained the situation in their case as follows:

> "It's inherent in the way in which we are funded and guided by the government. […], we are very expensive, we are very top-heavy on the staff, and that is unsustainable over the next 5-10 years. We can't continue to be higher education institution the size we are and employ so many people to do similar functions.
> […]
> What we have to do, because we know that's government driven, is that this current structures have to change so that there is, […], centralized functions that are common functions."

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[29] For example, see the publications in fields such as New Public Management and post-New Public Management (e.g. Pollitt, 1993; Christensen, 2007; Lane, 2000, Premfors, 1980, 2003).

The organizational structural changes were implemented in different ways but each of them had an influencing effect on the LMS selection related activities.

In one case at a university, initially the central IT related services were cut while no adequate resources were made available to the local units to increase their own local support. The dissatisfaction that was created due to this was then used as an argument for further structural changes and a recentralization of all the IT related support functions. This meant a replacement of local resources from various organizational units into furbishing up the central IT unit. This had consequences for the library both in terms of lost LMS related resources and in terms of reducing the library's status and the library staff members' influence on their own LMS procurement project.

In a second case, due to national organizational restructuring, a county was brought together with other close counties to build a greater region. A city that had been the capital of the earlier smaller county no longer held that position and hence the library that earlier had been *the county library* had lost its central role. One effect of these structural changes was expressed in the following way, "it --- [the restructuring] has been a huge adjustment, an identity crisis for the entire staff". The structural change had implications on how the members of this and other nearby neighbouring libraries perceived this library's new position. The dynamics of the collaborative efforts between this library and other local municipality libraries was changed, as well as local internal routines, all of which influenced the LMS selection related activities in numerous ways.

In a third case, there were a number of autonomous colleges dispersed over a remote geographical area. The structural change in that case related to the bringing together of those colleges under a unifying umbrella. This structural change had a number of effects on the process of the LMS selection and related decision process. Rather than allocating the required funds for purchase of an LMS to individual colleges involved, the unified structure placed the funds at a central department for this purpose. Not only the existing unified organization used the means at its disposal to ensure the purchase of a unified LMS that met with the wider organizational goals, the selection of a unified LMS in turn reinforced the established unified structures.

In a forth case, the studied research institute and its library were hosted by a larger university. Whereas the hosting university, previously, would have paid for the use of the services provided by the case library, this payment was stopped due to structural organizational changes, influencing the funds available to the case library, which in turn had some impact on their LMS related activities and resources.

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There were differences in all these cases related to the nature of the organizational changes, external influences or the aspects of LMS selection decisions that were influenced by these. However, what these cases had in common was that the LMS selection decision process was somehow affected by these. LMS is an internal tool and resource within the library. From the outset, and from a rational choice perspective, it may seem natural that its selection should be based entirely on goals determined within the library related to the needs of the library, library workers, library users, and library's strategic plans. This was not, however, always the case and at times external goals, decisions, events and people were found to have a link with the LMS selection projects. Furthermore, in line with Brunsson's (2007: 6) separation of cause and consequences of decision, this study indicated that the cause and consequences of LMS selection project did not necessarily correspond at all times. Although the consequence of the LMS selection decision process in some cases was the choice of a system, the causes of the decision process were other than choice and tied to external influences. These causes included incentives such as the unification of the wider organization, cost savings, improved image and more.

9.2 The Advent of the LMS Decision Process and LMS Selection Projects

In traditional LMS life cycle models, periodic evaluations of a library's LMS are prescribed. According to these models, at some stage, a gap between the library's needs and what the LMS is capable of becomes identified. This then leads to the decision to replace the existing LMS with an alternative. The LMS change project is thus initiated and the relevant goals are accordingly identified. In what follows, these stages are examined more closely. In this section, the project initiation point is looked into, and in the next section, the goals associated with the LMS decision are looked at.

A milestone in the LMS selection process is the point at which the idea for a potential change of LMS is initiated. The exact timing of the initial utterances of the idea of system change was difficult to pinpoint retrospectively in some of the cases.

In one case, it was possible to identify the time, circumstances, and individuals involved. In that case, a meeting with the vendor and other system users had taken place where the meeting was sold (at a high cost) to the users as a training day, but which was mainly used for marketing purposes by the vendor. Furthermore, the information provided in the meeting by the vendor regarding their future path was seen as unreasonable, strengthening an earlier feeling of dissatisfaction with the vendor. This prompted a library head to

react, to discuss the situation with colleagues, and to instigate a procurement process soon afterwards.

In a second case, a number of events and system developments had taken place and a technical person had initiated some LMS related development work. These local developments had evolved and somewhere along the line, an idea had been born that the existing system could be replaced gradually by an alternative in-house built solution.

In the other two cases, the idea for the system change had been circulating for years, and extended LMS selection efforts, including production of system specification documents, site visits, and system presentations, had taken place at an earlier time before this round of system selection processes.

Many informants associated the advent of the idea of changing their LMS with experienced or projected difficulties related to their exiting systems. However, the dissatisfaction with a system on its own was not the deciding factor for initiating an LMS change process in any of the four cases. Indeed some of the expressed problems and dissatisfaction dated back many years, to the first days of their current system installations. This could be seen, for example, in comments such as:

> "Oh it's --- [the existing LMS] always been dreadful, my understanding was that it wasn't very good when we bought it in the first place."

The evolution of the idea for LMS change generally started in informal discussions. After a time, if the related problems, goals, or conditions persisted, the LMS procurement idea was also discussed formally in related meetings and/or was documented. An informant expressed the process as follows:

> "We [the library staff] discussed this --- amongst ourselves informally whenever we met up and maybe even occasionally formally when it was an agenda item and --- [the wider organization] were paying attention to what's going on with us, listening to us, listen to ---, the system manager, and thinking 'hmm, this isn't really good enough for a university is it? No. Okay maybe we could do better. Can you afford to do it? Maybe. Maybe not this year, maybe more likely next year'. And then, yeah, I think it gathers into a wee snowball until the snowball is worthy of discussion at a formal level. And they say 'right, we'll do it this year we'll make a timetabled project plan for doing it and this is the pot

that the money will come out of and this is the financial year that the money will come out of and we'll go ahead and announce it and put together a team for the procurement process'. So, I think it all starts very informally, and it begins through user experience really I think and then it moves up to the people who hold the purse strings, like when and how can we afford it."

However, the idea of LMS change was not always initiated by the library staff. In one case, although there had been dissatisfaction with the system, the actual idea for LMS change was initiated by the wider organization management. In another case, the idea for the LMS decision process was initiated by management, not due to dissatisfaction with the current system, but rather due to lack of a binding contract with the system vendors. In a third case, the idea of system change was initiated by a technical staff at the wider organization.

In the analysis, only one of the four cases exhibited a stronger link between the staff complaints and the initiation of the LMS decision process. When a more tangible action and directive marked the initiation of the LMS decision process, these could be traced back to management in two cases, a technical member of staff at the wider organization in one case, and a combination of library staff and library management in the final case.

The duration between the early official thoughts about initiating an LMS decision process and the actual project initiation varied in the studied cases.

In one case, the process was initiated shortly after the initial idea was officially expressed and discussed.

In a second case, the process of replacing the existing system was already underway before the idea was officially discussed and accepted. In that case, one could say that a process of system selection, did not take place although a decision about the future LMS used at the library was made.

In the remaining two cases, several years had lapsed between the earlier expressions of intentions and the official start of their recent LMS change project. In these cases, some LMS selection activities had taken place in the previous round, a number of years earlier, without leading to a procurement or change of the systems. These earlier activities could be viewed as LMS decision processes that had not led to an outcome, which was the choice of an alternative system.

It was not easy to pinpoint the exact causes of the dissatisfactions (whether they were solely based on inherent shortcomings of the systems or whether the

dissatisfactions were constructed in social interactions and based on non-system related influences), or the exact nature of the influencing factors that had led to the initiation of the project. In the studied cases, other factors and events (in all four cases) in addition to perceived shortcomings in the existing LMS and projected future problems (in three cases) had led to the initiation of the LMS decision activities. Over time, the perceived problems were coupled with other events, factors, or goals so that eventually a point was reached to officially initiate an LMS change project.

The earlier discontinued LMS selection efforts, and the related discourse among the staff or reflected in some organizational documents, could be explained in terms of decision process 'as a kind of talk' (Brunsson, 2007). The library may not have the means to change the LMS at a given time, or the management may not wish to change the system for whatever reasons. Even so, the management may choose to start the search for an alternative system, get the staff involved in the production of a system specification document, send the staff to related conferences or trade fairs, or invite potential system suppliers to present their systems. Although what is perceived as a main problem is not solved by these efforts, or these activities do not result in an actual system change, the members of staff are reassured that their concerns are taken seriously. These activities could be viewed as participation in a talk regarding 'the problems with the LMS', creating an image of action in support for the members of the staff that are unhappy with their existing LMS.

The data indicated that such efforts (when initiated) were also utilized in creating acceptance and a receptive setting for future actions. The period between the earlier activities and the most recent round of activities provided time for those members that potentially did not wish to move to a new system to get used to the idea. As expressed by a number of informants, a purpose of these efforts was to create acceptance and support for the upcoming changes.

9.3 Goals of the LMS Selection Decision Process

In traditional LMS selection models, 'defining goals' is a central activity. This can be seen for example in the following excerpt:

> "By the time the library manager is ready to look at specific alternatives, those involved should have set goals and objectives and done a preliminary analysis based on current operations and future needs." (Duval & Main, 1992: 38)

In analysing the data, a number of goals for the LMS selection decision process were identified. Some of these goals or objectives were documented. I

have presented these in a section titled official documented goals. In analysing the non-documented goals, specified by informants, a natural grouping of the various goals evolved based on the group to which an informant belonged. A suite of goals was presented by many informants at different organizational levels. These goals were of general nature and were related to common interests. I have presented such findings as general goals. A number of goals were expressed only by the management or only by the staff. In the following sections, the identified goals are presented in these subdivisions.

These headings should not be viewed as a categorization and separation of goals' types. The aim with the divisions that follow is strictly related to finding a structure to facilitate readability of this text. In the sections that follow, the terms *goal*, *aim*, *purpose*, and *objective* are used interchangeably, mainly to remain close to the terms used by the informants or found in the data.

9.3.1 Official Documented Objectives

Although an 'official' goal or objective for the procurement process was not defined in all the four cases, in three of the cases some form of official documents were produced that in some way identified a goal and/or an objective. The length, format, and intended audiences of these documents varied. In one case, a two-page document outlined justification for change, expectations from a new system, and a section on the process including the names of the project team members. In addition to this, a one-page project summary included a line on the project's key objective. These two documents were distributed among the project team members soon before the first project team meeting as the basis for that meeting. These documents set the path and the premises for the project and participants' actions. In the other two cases, the goal and objectives were longer. In one of these, the related document was three pages long while in the other, the length of the document varied from eight to eighteen pages at various times during the process. In these two cases, the documents were mainly directed at the management in order to convince them of the viability of the project and to gain their approval and support.

All three of these documents identified a technical, rationalistic goal. In one case, the objective was specified as wanting to acquire a new-generation LMS "that provides full integration with all methods of resource access". In a second case, the purpose was to acquire a new system that would be as compatible as possible with other systems used by that organization to allow more flexibility and integration. Furthermore, it was a stated objective to reduce dependence on the existing LMS and vendor, as their LMS was seen as unstable, and the service from the vendor was seen as slow and ineffective.

Even in the third case, the objective was stated as a need for change due to problems inherent in the existing system and due to undesirable developmental route that the system was taking.

9.3.2 General Goals

The official documented goals were readily repeated by the informants on initial contact. For example, when the informants were asked about the goal of the system change in the interviews, their 'initial' response mostly specified similar technical rational goals, mainly relating to their exiting system's technical and/or functional shortcomings, and potential advantages of a new system (functional, economical, or service related).

Many of the informants mentioned functional difficulties with their current system. For example, one informant said,

> "It's clear that the functionality is limited, and people don't like the interface. The client server architecture seems to be ill suited to our network. We've had lots of difficulty to resolve the forms problems. Administratively, it's a pain to roll out upgrades. We've not been very happy with the support we've had from --- [the vendor]."

Some mentioned difficulties with their vendor, and lack of adequate support. Others referred to problematic changes either in their system, or in the vendor policy, which would mean a change of direction in future development of the system in ways that would not suit the library. One informant for example expressed this in the following way,

> "Basically --- [the vendor] gave us no choice because they are taking away the --- [some functionality] so it's forced the issue."

Even, in one case, the absence of a proper contract that specified vendor's responsibilities and obligations was an issue that had led to initiating the procurement process.

> "And I can say that one misses this with..; there is an agreement with the supplier, but it is not so clear who is responsible if this happens, or who is responsible if that happens, and that is what is the biggest plus with a procurement - you get someone who answers "yes" to these questions [in the tender document], …"

In that case, the process was used to gain the vendor's commitment to the promises made.

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Some informants, in their initial response to the goal of the process, also identified secondary goals. For example, one informant said,

> "Because our main reasons for getting a new system, you've probably been told this, was that 'we had to!', really. […] Obviously it's a bonus that students will get a better deal out of this, that they'll get federated search and a better standard of OPAC but it's not been our main focus."

Another said:

> "I suppose, you know, sometimes going through these procurement processes is a useful learning exercise and just going through the implementation will be valuable, it'll probably offer us an opportunity to clean up some data, which would be good, and sometimes you don't get to do that unless you roll it into a bigger procurement process."

Most of these goals stemmed from issues related to the actual system, its functionality, future, and support. A number of secondary goals were also identified, including extended level of services, a learning opportunity for the staff, and additional benefits such as cleaning up the database or moving to a new MARC format.

9.3.3 Goals Identified by Management

Whereas many of the responses by library staff identified the purpose of the process to be overcoming problems in the current system and acquiring a technically superior system, a nuanced version of this was found in the responses from members of management where other organizational goals were imbedded in provision of a better system. This could be exemplified by the following response,

> "We've got some customers [members of various units] out there that we want to keep happy, and that's part of any procurement. People are dissatisfied with the current system."

This places the primary importance on keeping the staff happy rather than on what the system can or cannot do.

Further goals and objectives were also identified through the course of the study, some of which were not documented or freely discussed with others in the organization. For example, an initial response to the question regarding the aim of the process was given by a member of management as:

> "The aim of the process of procuring a new library management system is to have the best library management system for the --- [organization]'s needs."

From the outset, this response may seem to be along the same line as the other aims listed above, where the system itself and its merits are central. However, in response to the follow up question, to elaborate on what is meant by this, the informant continued, "one that everybody is involved in, buys into, and feels that they've owned the decision and everyone's happy".

The objective of getting the staff to feel that they 'owned the decision' is a different objective that relates to issues other than the technical superiority of a new system. As this informant further expressed, it was important that the staff felt "that they really have owned the process". *Buying* into the idea or *owning* the decision were aims that were expressed by several members of management at different cases. Other aims identified by this group of informants, included cutting costs, bringing about structural change such as centralization or placing importance on a particular organizational subsections, improving organizational image or being associated with a particular image, unification of various units, and control.

The aim of cutting costs through LMS procurement was achieved in different ways. In some instances, the saving was done directly but in others, it was done in a round about way. For example, in one case it was expressed:

> "Annual maintenance is very expensive."

Therefore, the replacement of the existing system with a system that had a less expensive maintenance cost would immediately cut the annual cost associated with the LMS ownership. While in other cases, a more complicated chain of events, initiated by the LMS procurement process, were set in motion that in the end would cut costs on a wider front. For example, one informant highlighted the financial difficulties, high staff costs, and governmental directives to cut costs. This informant then went on to explain how an LMS that would allow coordination of functions, would lead to more efficient ways of working, which in turn would allow cuts in the number of staff at various levels and hence lead to organization-wide savings. Not only this; a suitable LMS would also dictate ways of working that would enforce centralization of functions and units and facilitate the desired organizational restructurings that the wider organization was planning to implement.

A closely related aim to these was utilization of technology in order to exert control. The choice of a system that would allow central control on how

various functions are performed was seen as facilitating the desired control. In relation to this, an informant explained:

"I felt a need to change the way in which we delivered service because the nature of the environment is such that we cannot control what happens in our ---[various units] …"

The informant further expressed:

"That, to me, was a major problem. Not that it was a problem with things not working, but I think we needed strategic change within ---[the organization] and that project for me was going to drive some serious structural change."

In that case, the selected system was seen to offer possibilities to achieve the desired level of control. In all cases, the LMS selection project reinforced recent structural changes. This was done, for example in one case, by involving people from the IT unit in the LMS procurement process. This involvement ensured placement of some aspects of system ownership in the IT unit. In that way, the status and centrality of the IT unit was strengthened and reinforced. Even when the LMS procurement projects were initiated by the libraries and the library staff, the LMS procurement project was also utilized by the wider organization to achieve alternative goals.

A new LMS can also mean status, better image for the wider organization and the library in some cases. This could be seen, for example, in a statement made by one informant at the wider organization about why they need an improved LMS:

"…because obviously we're working towards this --- [high status] title and we have to get all our systems up to top quality."

Anther informant at the wider organization saw the aim of a new LMS as twofold:

"It's [the aim of acquiring a new LMS] partly *status* and partly *function*."

In another situation, an informant at the wider organization suggested that their LMS would need to be replaced by a system that other high status organizations used. The reasoning given here was that *they had to be like* these other high status organizations in order to be recognized as one. Not having such an LMS was said to be a problem as it *illustrated* that they are *not* an

organization of that type. This informant went on to say that, they *needed* the kind of system that these high status organizations needed, regardless of why the high status organizations needed them. In that instance, the goal was related to uses of the LMS as a marker of status and as a builder of the desirable image rather than what the system could do.

Unification of different organizational sub-sections was also an aim associated with the LMS procurement project in a case where each of the subsections contained a local library. In order to unite these divided subsections, unifying the libraries was seen as a key to bringing the organizational subsections closer to each other. As expressed by an informant at management level "because librarians by their very nature share and collaborate". This informant elaborated further that the new LMS would enforce further coordination and collaboration among the libraries, which in turn would result in taking a further step towards the broader aim of unifying the wider organization as a whole.

These types of goals were removed from inherent technical properties of the systems. Wider aims related to projected images and desired organizational identity, cost savings, strategic change, and organizational re-structuring were expressed. These types of goals were not widely discussed, readily disclosed to the general staff or found in official documents. Such goals could be hard to access by the library staff involved in the LMS selection decision process.

9.3.4 Goals Identified by the Library Staff

Within the library, some staff did not seem aware of any official or personal aims for the LMS procurement project. Others expressed an aim, but it was put in general terms, for example, one informant saw the aim of their procurement as:

> "Just getting a new LMS I think, in the time that we've got. And getting rid of our old system, which isn't useful to us anymore."

Some saw the aim of LMS change as contingent upon time. One person commented:

> "I just think our turn came around to upgrade."

Another mentioned:

> "So I think --- [the library head] was partly kind of looking at it because of the fact that we'd had it [the existing LMS] for --- [a number] years."

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For those members of staff who said that they were aware of the official aim for the LMS change, or specified their own personal aim, the main goal was often stated to be an improved tool to facilitate day-to-day work routines. A runner up to that goal was to provide increased and improved services to the users, which could be exemplified in the following excerpt,

> "Well of course it's for, you know, it's for the users of the system to find the resources that they're looking for and to find them as quickly and easily as possible."

Some aims were inherent, but were not necessarily explicitly specified. Among these one could name the aims to select a system in a way to avoid job losses, to avoid loss of skills and to improve personal careers or reach personal goals. These could be seen in some of the actions, interviews, or informal discussions between the staff. For example, some staff suggested specific ways of working with their future LMS or suggested not to buy particular subsections in a new LMS. One of the informants at the managerial level interpreted these types of suggestions from the staff as being an effort in keeping their jobs intact.

> "You know the fact that.., what you then were talking about people's jobs […], a good example: X [a member of staff] end of the day said, "we don't like to buy the acquisitions module because we can each … [do a particular activity manually] the way we want, the way we always have done"; right? Now, the whole point of this [the LMS procurement project], or singing and dancing LIS [LMS] is so they can have EDI direct --- [and do the time consuming manual function electronically], which means that we can do other things. But inherent in that "we just keep doing it the way we have always done it"; it is because it creates a job."

The concerns for job losses were implied in discussion with a number of different informants. Again, these types of goals were difficult to access or identify, and therefore, were not included in the official definitions of goals. Nevertheless, such goals existed, however, the effects of such goals on the process are not addressed in the typical traditional models.

9.3.5 Goals: Summary and Concluding Remarks

The excerpts above provide just a few examples of some of the goals. These and other goals identified in this study can be grouped together in a number of ways to highlight both the similarities and the differences between different views. One way could be as follows:

Technical: Here, three sub groups could be seen. First, the aim was related to the *actual system* itself. The main issues were related to improved system functionality, ease of use, the 'feel and look' of the system, how the new LMS could help overcome the existing problems, and the additional opportunities that it could offer. The second area related to the relationship between the LMS and other systems. The issues of concern were to improve the way the LMS could *fit* in the organization's technical environment, the way it handled exchanges of data between various systems, and the level of incorporating national and international standards. The third area of interest was improvements in system *support*. The points in that sup-group related to the vendor and who it was, type and level of support that could be expected, whether the support was provided locally or from distance, what the vendor development policy was, what the vendor future plans for the system were, and what could be included in the support.

Financial – Another set of goals were related to financial considerations such as acquiring a system to use the available funds, or to create new funds. When a set budged was defined, the aim was related to buying a system that fell within the defined economical limitations. The issues of interest here included the cost of the system, what could be included or not included in different mixes of modules as compared with the costs, expenses related to the support, investigation of various ways of financing and making the payments for the system.

Social – Some of the aims related to improved social standing of an organization with the use of a new LMS. Issues of interest were related to the identity of other users and the image portrayed by having a particular system. An issue was the way an LMS could improve the status of the library and/or other subsections of the organization. A consideration was whether a new system would lead to win or lose friends and whether association with potential new friends was desirable or not.

Individual – A number of personal or individual goals with the LMS selection were hinted between the lines, such as choosing the path that does not lead to a job loss or diminished roles. To choose a system that one already knows about or not choosing a system that requires a new set of skills.

Political / Organizational – An aim associated to LMS selection process was to use LMS as a driver of change and political agendas. The related issues included selecting a system that allowed setups and fine-tuning that would enforce desired ways of working to suit a strategic goal. Another consideration was to unify different organizational subsections by the virtue of using the same system, and therefore, encouraging the same routine daily operations.

The use of an LMS in order to facilitate or enforce the acceptance of a new organizational structure also falls under this category. A further issue was related to potential added benefits and effects of a new LMS such as counteracting or undermining potential problems and dissatisfaction in other areas or positive effects on organization member's morale.

Some of these goals could easily be listed under a number of different headings. Even alternative groups or ways of grouping different goals together could be found. These groups, therefore, are not to be seen as a division of goals into separate slots. Rather than categorizing the goals in tidy separated boxes, a better mental image of the potential goals would be to think of them in a fuzzy structure. In this way of viewing the goals, some goals can be placed near some other goals in one view but rearranged and placed closer to another set of goals in another view. No clear-cut delimitations are to be drawn. The groups here are therefore, just to demonstrate the diversity of goals that potentially could exist in an LMS decision process. While it may be possible to think along these groupings and identify a few goals, related to each group, many of the LMS decision process goals are hard to identify or get access to. Some of the driving goals are sensitive, undisclosed, or hard to formulate. The LMS project team members do not necessarily get access to the main goals for the process and even if they do, it may not be possible to freely or widely disclose or document the goals.

What can be concluded from this section is that the goals of LMS decision project are often multiple and can vary from person to person or group to group.

At times, the officially formulated goals were readily repeated by the organizational members. Formulation and documentation of official goals could be viewed as the point or a first step in the wide acceptance of the official goals. The official documented formulations seemed to have set the tone for what the general staff expressed as the goal of the process, at least as the first ready thought. That is, at times, the documented goals defined what some individuals accepted and expressed as their own goals.

What became evident in all four cases was the complexity of influences and presence of multiple and at times inconsistent goals. Official documented goals were an under-representation of the full set of goals and objectives. Official documented goals were often accepted as the 'real' goals at individual levels. There were indications that at times the purpose of goal formulation was not simply to set a measure for the process outcome. At times, other purposes underpinned how (and if) the LMS project goals were formulated.

These included persuasion, creating legitimacy, and/or gaining commitment for the activities and the process.

To conclude, identifying the goal of an LMS procurement project, as prescribed by the traditional LMS decision or selection models, is not an easy task (if at all possible). The official documented goals can differ from underlying undisclosed aims. The documentation of a number of goals is a step in constructing shared perceptions of the goals for the project.

9.4 Identifying the Existing Problems

In the previous section, many of the issues that were perceived to be problematic with the existing systems were presented in conjunction with identifying the goals for the LMS change. In this section, the discussion of the existing problems is further examined.

In two of the four cases, various technical problems and shortcomings within the existing systems were mentioned explicitly in relation to the decision to start a procurement process. In one of the remaining two cases, problems with the system or lack of functionality were not the original cause for system change. Support and upgrade problems, local expertise and internally produced solutions were in the end the main issues that gave rise to gradual change of system. In the final case, no mention of technical problems or shortcomings with the LMS was brought up as a reason for initiating a procurement process. In that case, it was rather a lack of a binding viable contract with the existing vendor and the implications of this that had led to the initiation of the process.

Even in those cases where the system shortcomings were one of the main issues, these were not the only issues of concern. Other problems such as the system not being the best fit for the organizational image were of importance. No systematic identification and formal listing of all the problems with an existing system were done in any of the cases. Problems were identified in a social arena by ad hoc members and a general feel for the system was formed in these social informal discussions. Some of the problems that were discussed in this way did not relate to actual problems and shortcomings in the system, rather to the way a system was set up locally or to other factors such as human error or network capacity. The typical manner of discussing the problems with a particular LMS (by the general staff) was by comparing to other systems. However, this was not done in a systematic way, in that not all the features of one system were compared with comparative features of another system. In these, typically a more selective comparison was done to support particular views. Formal documents and reports of the existing problems were not

comprehensive. Systems librarians generally had their understanding or records of the reported problems.

In those cases that system shortcomings, organizational misfit, and lack of support were widely discussed and expressed by the informants as the existing problems and reasons for change, it became evident that these views were not necessarily based on thorough tests of the systems. Some of the views were second hand rather than individuals' own experiences. Some of the problems that were widely accepted as system shortcomings were said by the technical staff (in the interviews) to be misapprehensions, and the actual source of the problems was said to be the problematic infrastructure or human error. The talk about the system problems was at times used in opinion building or in identifying (or creating a consensus regarding) the features that were desired in a new system, i.e. identification of future needs.

The wish to change an LMS implies dissatisfaction with the existing LMS and the need for features that the existing LMS does not offer. It was found in this study, that it is not necessarily the lack of technical features in systems that form the main problem. The problem was at times, a limitation in the possibilities that an LMS offered (e.g. in portraying a desired image, or allowing a better coordination of organization-wide systems).

9.5 Project Team Member Selection

One of the issues less examined in the traditional models is how and why a certain number of people are chosen as the selection team. It was found in this study that the membership in the selection team is a more complex issue than is assumed from the outset. It was also found that the team membership, if desired, could be manipulated in order to influence the whole process. Some of the findings related to the selection of team members are presented in this section.

The project proceeded somewhat differently between the four cases. Although in all cases, a number of people were involved, the number of people, the positions that participants held, the areas of responsibility, definition of tasks, the level of formality, and whether a formal process was set in motion or not, varied from case to case.

A number of reasons were given by management as to why different members were chosen or proposed to be on the LMS selection team.

In one case, where the goals at the wider organization were somewhat in conflict with the goals at the sub-units, initially, in an interview with a member of management, personal traits were given as the reason for the

selections. Examples of this were, "X is very thorough", "Y is sensible", "Z is very conscientious" or for example: "when she is involved in something she does it very, very well", and so on. However, the most important trait (which was said to be common to all the selected members), was then expressed as the selected members' ability to see or understand 'the wider picture'. The selected members did not just focus on their own units rather saw the wider organization's perspective.

In some cases, the inclusion of people from different units was seen as the norm and taken for granted while in other cases, the selection of members could be interpreted as an effort to assign responsibility or to gain commitment. This could be illustrated by the following example:

> "…what was very important, is that people feel involved, […] you don't want to enforce something on them, because they will never run with it, I mean, it's important that they feel that they really have owned the process."

Creating this feeling of ownership was a way of ensuring staff's future commitment to the selected system.

In three of the four cases, an LMS selection group was formed. In all these three cases, it was seen as positive to include representatives from various organizational units and/or user-group types. A true democratic choice was not, however, necessarily the idea behind the inclusion of the members that represented different views in all cases. In some cases, it was more important to be able to document and/or demonstrate that the selection was carried out by democratic representation. This could be seen in a comment by a member of management, who said,

> "The project team's role was very specific, you know, it was to, if you like, just offer the cushioning for it, you know, that the decisions *were seen* as their own democratic decisions.., representative democratic decisions."

Another reason for the inclusion of individuals in the group was to give the decision a higher status.

> "The academic I chose because he is a very senior academic, respected academic, […] to actually have his name on things would have been very good."

From the staff side, the main reason for volunteering or requesting to be part of the team was to safeguard a personal or organizational goal that would not otherwise receive the same attention if they were not included in the team. For example, in one case, when a feature of an LMS was particularly important for one subsection and not the others, a member of staff from that sub-section insisted and was included in the selecting committee.

The choice and selection of team members often involved an interplay or interaction between management and staff, in their efforts to influence the mix of people. This interaction between the two sides (one suggesting a mix for the selection-team and the other accepting or amending) can be described as follows.

On one side (either the management side or the staff side), a desirable mix of people is pre-selected or suggested to suit a particular objective. On the other side (the staff or management), this selection is treated in different ways, including:

(a) The selection of team members goes unnoticed
(b) The suggested mix is accepted passively (e.g. due to the existing pre-understandings and norms)
(c) The suggested mix is accepted actively (e.g. as an action to place the responsibility and commitment on others)
(d) The suggested mix is negotiated and amended accordingly (e.g. those who feel strongly about some aspects of the decision negotiate the mix of members so that their interest is represented or safe-guarded)

These variations are shown in the following table.

Management (or Staff)	Staff (or Management)	
Select the project team members (to suit an objective)	(a) Selection goes unnoticed	
	(b /c) Selection is accepted	(b) Passive (norms, pre-understandings)
		(c) Active (placement of responsibility, commitment)
	(d) Selection is negotiated	

Table 7 – Team member selection

The details of how this is done are presented in the following examples.

9.5.1 Example (a) – Pre-selection Goes Unnoticed

The management has a number of goals for the process in mind. It is important that the right people are involved to reach these goals. A number of people are seen to be suitable for inclusion in the project team. These people are contacted individually and are told informally that the LMS selection project will be coming up, that they would make good candidates for the selection team, and that they should consider participating. Then, later, the upcoming project is presented at a general staff meeting and the members of staff are invited to volunteer if they wish to participate in the project. Those that have been contacted previously, volunteer for participation in the team. The selection of team members appears to be democratic and on voluntary basis and pre-selection goes unnoticed.

Regarding the formation of the LMS selection team, a member of management said:

- People were actually asked to volunteer, […*]. But we had kind of *fingered* them in advance. We had kind of said we think you'd be good, are you, would you like to volunteer, so they in effect had prior knowledge, so when the question was asked, they were able to say well I would quite like to do that, you know.

The informant continued to explain:

- And I think we discussed what would happen if, x-person volunteered for..; we knew that they actually..; it would actually not be a good thing for the project team and I think we discussed every person that, you know, was a possibility for and came up with..; we actually did a risk analysis if you'd like, you know, should this person volunteer, what would we do? And..; but I think, but we felt quite confident, and I think we probably did have plans if a certain person volunteered what would happen and then this other person we thought if they volunteered what would we do, but actually no, the risk of them volunteering was so low, it wouldn't happen. As it happened it worked out exactly as we planned, you know it was..; because, we'd actually had spoken to the individuals in advance.

9.5.2 Example (b) – Pre-selection is Accepted Passively due to the Norms

Due to local and national influences and re-structuring, a number of municipalities are brought together in the same county and their governing

bodies form close links. As part of this alliance, these organizations establish ways of coordinating their efforts. For example, they outsource their ICT related technical services to a newly formed enterprise created for their common use. When some of the libraries that are governed by these governing organizations initiate a procurement process, it is indicated that it would be beneficial that all the related libraries are included in that procurement process. Even if an associated library does not wish to enter the procurement process, supportive arguments for the action are put forward by the governing organization restricting the library's options. The involvement of a member of the newly formed ICT enterprise in the process is seen as evident by the governing bodies and some of the libraries. However, this involvement will incur extra costs for the libraries, as they will have to pay the high hourly rates that are charged for any services by the ICT enterprise members. Those libraries that are not happy with the extra costs, still accept the presence of an ICT enterprise member in the process as this is dictated by the way things are structured and due to organizational norms.

The following excerpt is from an interview with the head of one of the libraries involved in the example (b) mentioned above. When the high costs of the member of the ICT enterprise was mentioned as problematic, the following question and answer were exchanged.

Interviewer: So could you say 'No thanks, we do not want you involved', or..?

Respondent: Well, we cannot well say that, because they are to take care of the system later on. And we .., we have had an idea that perhaps the server should be placed at the vendor company, but I don't know. Still one cannot bypass them, they are our consultants in all IT.

Involvement of the person from the ICT firm in the process was not based on a choice by the libraries; however, it was accepted without any protest. A wish from this particular library was to outsource the support for the system to the LMS vendors. This would mean that there would not be a need for future involvement and reliance on the ICT firm in their LMS related matters. Nevertheless, the role and involvement of this ICT firm were seen as inevitable due to local authorities' directives and local norms.

Alternatively, the members of staff create meanings and social reality within their organizational settings. Due to the circumstances, they come to accept or reject a way of conduct as appropriate, and choose to act accordingly. The social behaviour that they accept as appropriate sets the framework for

whether they see themselves as suitable for a particular task and whether they see the level of their competency as adequate or not.

An interview with an informant in a managerial role, could exemplify how social norms can affect appropriate ways of conduct, in this instance by not volunteering to participate in the LMS selection team. The informant's view was that the social and organizational settings affect people's behaviour. That is, the social and organizational norms set the boundaries that prevent the undesirable members from applying to act as a member in the selection team. This knowledge was used in engineering the make up of the selection team. The informant explained:

- I actually think that things are self-regulating more often, you know, in the work environment. I think people can get hang up on what ifs, but in view of it, what ifs are never going to happen. Because things become self-regulating any way, you know, it's no point in worrying about the scary monster in the corner, because, scary monster is not going to appear in the corner, because the scary monster knows it's not welcome.

This informant discussed how the participation (or not) as a member in the team is regulated by the social norms put in place in the organization. Once members were selected and identified, norms also set the boundaries for the manner and extent of participations in the group. An example of how created meanings set the limits on individuals' behaviour and role could be seen in the following example, where at an initial LMS selection project team meeting (observation data) one of the member's presented herself as,

- My name is […]. I'm just a librarian and I'm here to do what I'm told to do'.

This statement set the tone for this member's involvement in the process.

9.5.3 Example (c) – Pre-selection is Accepted Actively to Allocate Responsibility or to Gain Commitment

In some cases, members are accepted to be included in the LMS selection project team in order to either place the responsibility of the choice on those members and/or to gain support and commitment for the process and the outcome of the process. With the presence of higher-up directives and a need for correct procurement procedures, inclusion of a procurement officer is becoming common in LMS selections. Another obvious choice of a team member for those libraries that rely on others for technical help (rather than having the technical support within the library) is to include a representative

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from the wider organization's technical support unit. Therefore, if members with such positions are suggested for inclusion, they are readily accepted.

> Selection of team members to allocate responsibility or gain commitment could be done in a number of areas and ways. In the following example, the director of a library mentioned,
>
> - It of course became quite clear early on that we needed help from the purchase office. Simply, for the procurement, that is. And that we needed help from ---[the IT centre] also, because it [LMS] is entirely computer-based and it involves a lot of support and so on. And I believe that all who have LMS can testify that one often gets passed over from one to another. The supplier blames technicians and engineers blame the supplier, and there we are in the middle and can not say "no you are wrong, it is you who will have to fix this".
>
> Here the inclusion of the procurement officer was further explained to remove the responsibility for correctly following the official directives from the library and placing it with the university and its procurement office. The inclusion of a member from the IT centre was said to gain the IT centre's commitment for future support of the LMS and assigning the responsibility of selecting a technically sound system (that could not be blamed readily by the IT staff) to the members of the IT staff.

In another case, some extra features to incorporate the LMS with other organizational systems had been developed internally. The person who had developed the extra features subsequently put forward a proposal that suggested that they should develop a local system to replace their existing LMS. This proposal was accepted but several discussions took place between management and the person who was supposed to develop the new system. In these discussions, the merits of the project and the ability of that person were questioned and evidence and supporting arguments were demanded. In those meetings, management accepted the proposed plans but at the same time, the efforts made by that person to defend the proposal and his ability also placed the responsibility for the project on him and secured his commitment to it.

9.5.4 Example (d) – Pre-selection is Negotiated and Amended

An LMS selection project is initiated. An issue is particularly important for a specific unit. A selection-team is suggested by management but no representative from this unit is included. The members of staff in that unit feel strongly that the new LMS should include features to accommodate their needs related to this issue. They are concerned that if this issue is not represented by them, it may be overlooked. A member of staff for whom this

issue is very important forcefully expresses a wish to be on the team and team membership is amended accordingly.

> The involvement of the member of staff, who had a strong view on a particular issue in example four, was commented by a member of management as follows:
>
> - X is very.., [sigh], is always very concerned that the Y [a specific issue] aspect and angle of things is well represented and gets, I think can get concerned that it often gets forgotten about.
>
> Although X was not initially chosen as a member of the selection team, due to her/his specific interest, requests were made and X was included in the team.

The findings of this study indicate that the suggestions for the mix of people in the LMS-selection team could be initiated by either management or staff. Amendments to this proposed mix could be then suggested. There was a difference, however, between how and if the amendments were accepted. The difference concerned whether it was management or staff who made the suggestions for amendments. The top-down suggested amendments were readily accepted while suggestions from the staff required extra efforts and/or a strong personality or role.

> Why requests from some staff members were accepted while other requests were not, seemed to be related to the strength of the members' conviction and their personality or role. In an interview, for example, acceptance of X on the selection team in the previous example was commented as follows:
>
> - The minute that you mention the word Y, you know, it's X's face that pops into my head and --- [s/he] is a very, very strong willed character and I can't imagine X not getting --- [her/his] own way.
>
> This comment highlights X's strong conviction about the issue Y in that s/he was strongly associated with issue Y. It also indicates that X was seen to have a strong personality and a request from her/him would be hard to reject.

9.6 Production of System Specification Documents

In traditional models, system specification documents are seen as a vital point in the selection efforts. The goal of these documents is to define the library's needs as a measure against which potential systems are evaluated. In this

section, a closer look at the formulation and use of these documents in the case libraries is attempted.

System specifications are documents in which the LMS related needs and wants are specified. These documents can be rather lengthy[30]. These documents commonly form a central section of what is known as the tender documents or Request For Proposals (RFP). During the selection process at libraries, the vendors' responses to these documents are compared with each other in order to identify the option that best meets with the needs specified. The items that are included in the system specification part of the tender document typically list hundreds of lines of requirements[31]. The entries are normally sub-divided into sections related to the modules in the system such as, cataloguing, circulations, acquisitions, or other divisions such as general, technical, support, training, and more. Other sections typically included in such documents are related to the vendor company and the demands on, for example, their financial stability, location, level of service and more. The entries in these documents outline both essential (i.e. *must* be included) and desirable features required of a potential LMS. The entries in the specification documents are typically formed in terms of questions or as an instruction to the vendor about how the required information is to be presented. The questions vary so that some of the questions require a yes/no type answer, some allow the vendors to indicate if their particular system meets the specified demand fully, partially, or not at all, while other questions may require a long response.

A system specification document was not formulated in one of the cases. In that case, a course of action (i.e. the choice of their future LMS path) was decided without a typical LMS selection process.

In the other three cases, a system specification document was produced and used. In these cases, the formulation and use of a system specification was seen as an obvious part and a central element of the process. The perceived pivotal role of these documents could be seen in comments such as the following, which was made by a systems librarian, at the initial stages of the process,

> "The specification document is, well I think I see it as my bible for the next eighteen months or so."

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[30] E.g. Tedd (1993: 98-99) reported that the specification documents at Essex County Council Libraries was 80 pages and at Croydon Public Libraries, 150 pages.

[31] E.g. the number of requirements in one of the specification documents in this study was counted to be over five hundred. Similar number of lines (entries/ items) was also included in the other studied specification documents although the exact numbers were not counted.

In traditional LMS decision models, the role of system specification documents as an element of the RFP or tender documents is often defined as a vital part of the process. In the following sections, I briefly examine the formation and role of these documents in the studied cases.

9.6.1 Formulation and Staff Involvement

In some cases, preparation of (or initial work with) such a document predated the LMS selection project and potentially its current goals. For example, a systems librarian explained,

> "I had written a specification document during the previous process that was stopped so I had a lot of documentation so I dug all that out again."

It was common to access either older specification documents from earlier procurements, or specification documents put together by other organizations or libraries as a basis for the formulation of a new such document.

From the outset, in all the three cases in which a decision process took place, the impression given was that wide input from the staff was acceptable and indeed desirable. It was an expressed view by a number of informants that the library staff possessed first hand experiences of potential existing shortcomings and potential future needs. The efforts to involve the general staff in the formulation and/or feedback on the drafted system specification documents, however, varied in the different cases. Involvement of all or a large number of staff in formulating the specification document was not the norm.

In none of the cases, the initial work on the document was done by a large group. In one case, a smaller group was formed within the larger LMS selection group to work with the specification document. The result of this effort was presented and used in the larger group. In a second case, the systems librarian was the main person involved in the compilation of the document. After that initial work, the draft document was amended with the help of two members of management and then some input from other technical experts in the organization. The resulting document was later put before the LMS selection team. In a third case, again, the initial work on the system specification document was started by the systems librarian. The resulting document was then made available more widely to the general staff for comments and feedback. In that case, all members of staff were given the chance (and encouragement) to read and comment on the formulated document. This wide dissemination of the draft specification document to all

the staff and various ways of encouraging their input was not the case in other organizations.

In one case, for example, a meeting between management and the systems librarian was dedicated to discussing the extent to which the general staff should be involved in the process or rather how to avoid their extensive involvement. In that case, it was decided to produce a specification document and then to invite comments from the project team on the drafted document. The purpose of holding that higher up meeting was then explained by a member of management as follows,

> "to ensure that we got the right result which was […] a spec that had been drawn up in the time (in the time-scales that we had to draw up in), and that the project team *felt they owned it.*"

When discussing how the initial drafts were formulated, one of the systems librarians explained that she had formulated a first draft that she had then submitted to her boss who had then suggested ways to take a slightly different approach. The systems librarian explained,

> "I wrote the specification document from the perspective of a librarian and --- [the boss] wanted it to be more from the perspective of the --- [wider organization]."

When the drafted documents were put to the wider staff, the amount of comments and feedback varied somewhat from case to case. In two of the cases, at least, the comments were not many or extensive. A systems librarian who had not received much feedback from the general staff explained,

> "The librarians don't have time for this. […] To be sent a sixty-seven page document, which is library specification, the comments that I did get back from them was, you know, either 'I've not got time to read this', or 'it's all well way over my head', you know, sort of 'we're just sort of relying on you to get a good system basically, it's like 'it's --- [the systems librarian's] job, we'll take what we get'."

During the interviews and in the discussions with the informants regarding the specification documents, it became evident that the staff's level of awareness and/or involvement varied in different cases. In two cases, the level of awareness and involvement was minimal, while in the third case, the general impression was that of being well informed and being given plenty of opportunities to get involved. In all these cases, the general staff saw the job of writing the system specification document to be that of the system librarian

or members of library management. Some of the staff did get involved in reviewing and commenting sections of the specification document. In some instances, some members of staff did not wish to participate and even refused to participate often based on the grade of their job and what was included in their job description. Not all the feedback received from the staff was reflected in reviews of the specification document. Nevertheless, staff's trust in that their inputs were or would be taken into consideration was rather high. Even those who could not see any evidence of this in the final document were of the opinion that their comments have been listened to and taken into consideration in the formulation of the document.

The formulation of system specification documents are often described as vital in traditional models, often promoting the involvement of a wide range of staff members in their formulation. In one case, such a document was not formulated. In the other cases, especially in two of them, the involvement of the general staff was limited where in one case this minimal involvement was based on management's wishes and plans.

9.6.2 Identification of the Needs of the Library

When I discussed the contents of the specification documents with the systems librarians (and other people involved), relevant questions were asked related to the way they had identified the needs of the library in order to include them in the system specification documents. As for the nature of the identified needs, and in examining the related documents, a question of interest was whether the included items were related to their current problems or they were rather based on what they could foresee as their future needs or visionary facilities that an LMS could offer them.

Many of the items included in the documents related to improving their current situation. This included the elimination of the problems that they were experiencing at the time, had experienced in the past, or were expecting to experience in the future (e.g. due to expectations that some of the functions in their existing LMS would be excluded in future upgrades). The items that were not related to these types of concerns were generally inspired by the facilities that they had seen in other more modern systems or in other recent specification documents. A systems librarian expressed this in the following way,

> "I don't know [if it is] so much visionary, because some of the things that I've mentioned in there that we would possibly like to look at are things that are being used day in and day out at a lot of places."

The forward thinking in such cases did not involve a search of unknown technological developments, it rather related to the identification of the facilities available in the more modern systems of the time or facilities that would have been nice to have access to but which the library could not afford at the time. Although all of the included features were up to date, they mostly represented the current state of affairs. In one case, the technical standards that were included in the system specification document were new and related to recent developments in that field. The entry of the related entries in the specification document was due to the involvement of the technical staff from the wider organization in that case in a development project in that area. To have a strategic plan or vision for the future of the library and to identify library's needs based on these foreseen future aims and goals were less common in two of the cases. In the third case, strategic goals and the path that management had in mind for the organization were reflected in some of the entries in the specification document.

When discussing the contents of these documents with the people involved, questions were asked about how the formulation had taken place. One member of management explained,

> "…Well very fortunately there are other people who have been very liberal with their specifications and allowed us to see their specifications; she [the systems librarian] also had the specification from when we procured --- [the existing LMS] as well so she's had quite a bit to work with."

In all three cases, earlier system specification documents that had been used in previous LMS selection projects (by the same or other libraries), or templates provided by others were used as aids or starting points in writing the documents used in this round of system selection. The contents of these had in due course been discussed, evaluated, and changed to suit the local library's needs, although, when comparing the final versions of the specification documents and the underlying initial documents, similarities in the general structure and some contents remained.

For those libraries that utilized system specification documents in their process, the importance and necessity of these documents were seen as obvious, but the aim with these documents was not as unified as the view related to their necessity.

At some point in time, specification documents have started to be used in LMS selections. By the time of this study, use of system specification documents had become a well-established norm. By continuing the use of

such documents, this norm was reinforced. By using existing documents, as a basis for formulation of new documents, the structure and contents of these documents were also being further established. At times, even questionable entries remained, based on the trust put on specification documents' previous user or producer. In at least one case, not all the meanings of various entries in the specification documents had become clarified to the people involved by the time of their finalization. This meant that such criteria, the meaning of which remained rather unknown to the people involved, were used as a measure of evaluating the responses to the tender documents.

From a rational choice perspective, the main function of a system specification document is the definition of future needs (and wants) of the library and use of these identified needs as a measure against which to evaluate the features of potential systems in order to choose the most suitable LMS among the alternatives. What I show above is that formation of the system specification documents does not always involve an incorporation of all the potential needs and wants of the library. At times, this is due to organizational hierarchies where some of the key staff that work (and are most familiar) with various subsections of LMS are in lower organizational levels with duties that do not include participation in formulation of system specification documents. Although welcomed to contribute, some staff with lower grading (and hence lower income) did not wish to accept the invitation. At other times, it was indeed not the wish of management to invite wider input in formulation of these documents. Therefore, one could question whether the system specification documents could be a faithful representation of the library and library workers' needs. Furthermore, many system specification documents and their contents are based on existing and past documents and based on established norms that somewhat define their form and contents rather than being based on thoughts about the future and future needs. This again gives cause to see the role of system specification document to be other than what a rational choice or traditional LMS selection model would assign to it.

9.6.3 Role of the System Specification Documents

Regardless of whether the librarians read the related guidelines or literature, or whether they are aware of the various flavours of rational choice, there is an element of adherence to related norms inherent in some of their views and actions. When discussing the role of the system specification documents with informants, some informants' view of the role of these documents was very much in line with the rational choice guidelines. For example, a library director identified the role of these documents in the following way,

> "Well that is the absolute.., that is the benchmark against which each short-listed supplier will be measured. So they have to meet all of the essential requirements on that document, and the more desirable ones they meet, the better."

This view was not shared by all informants. Even if the test of the systems, based on all the entries in the system specification documents were possible, this was not necessarily desired by all. As one informant in a high managerial position explained,

> "I don't think that it [the specification document] forms part of the test sweep that says 'right now we're thinking of buying this one, we're going to test every bit of functionality.' I'm not even sure that even in an ideal world you would want to do that because you might end up therefore assuming the responsibility, '– well you tested it so..', you know."

That is to say, by basing a contract on the responses that a vendor provides, future responsibility for potential shortcomings is assigned to the vendor. If the choice were to be based on library members' tests of the potential systems, then the responsibility for possible failures and wrong choices is assigned to the library. This way of looking at the system specification document identifies an aim with these documents which is somewhat removed from the goal of identifying one's needs in a rational model or traditional sense.

Along the same line as the view that the specification document is a measure against which different systems are tested, a slightly different function was identified by a number of informants. One aim was to use these documents as a tool in cutting the number of potential systems to a smaller set by excluding those systems that did not meet the essential requirements. Another aim identified in the study related to the role of the specification document as a checklist to ensure nothing is left out. One informant for example said,

> "There's an element of risk management, it should, it should avoid you making a stupid mistake by buying something which, which is pretty much.., actually fails to meet one or more mandatory requirements that you just didn't happen to remember when you had the salesman there."

In all three cases that went through a selection process, vendors' responses to the tender documents were examined to see how the responses to each entry compared, although a comprehensive test of the itemised specified features was not done or fully possible.

The aim with system specification documents was not limited to definition of needs or a measure; other aims also emerged during this study. One function of system specification documents was described by an informant at a managerial level as follows,

> "It gives a common structure for.., a common appropriate structure, appropriate for our needs for people to make proposals to us."

This is not the same as defining a library's future needs, or a measurement tool; this rather explains the system specification documents as an appropriate tool in structuring the responses that were expected from the system suppliers.

Another goal was to meet the set local or international rules. This could be exemplified in the following statement,

> "It would be almost impossible to carry out a tender under --- [the the local procurement rules] without one, and indeed to satisfy our own auditors."

A further view identified a social benefit related to the exercise of writing these. This was expressed in the following way,

> "I think there's a social benefit in the sense of if it is produced as a collaborative document it means that people have had to work together once and think about it, and agree on what their priorities are."

The same informant went on to say,

> "I think what I'm trying to avoid saying is any suggestion that the specification document, however good it is, is any guarantee of getting you the right result. Because I don't believe that it is."

What I have tried to outline in this section is that the production and use of system specification documents formed a central element in the LMS selection processes, as indicated in the mainstream selection models, in three of the four cases. However, the role and uses of these documents did not necessarily fit well with the role assigned to these documents in the mainstream selection models or in the rational choice perspective. The role assigned to these documents is often defined as identification of future needs as a basis for the choice. Another role that was identified (explicitly or implied) was the use of these documents as a measure against which potential systems were to be tested and evaluated. The identification of the features included in these

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documents, did involve some projections of future needs by library members. However, many entries in these documents were based on the existing routines and the way the system currently operated. Some entries reflected others' wishes and formulations (e.g. formulations from other specification documents or the wishes of technical staff who were involved in various projects and therefore, inspired by issues important to those projects). As will be presented in the following sections, the entries in these documents were often formulated in non-specific terms that did not allow the entries in the document to be used as measures against which the capabilities of different systems could be evaluated or rated. Such formulation would not allow the use of these entries as measures as indicated in the traditional models. Instead, other roles were identified for these documents including the creation of desirable appropriate structures (e.g. for potential responses from the vendors), assignment of responsibility, risk management, and creating a social arena for reaching consensus and accord within the organization. Although goal and purpose of the specification documents were at times diffused and not unanimous, the importance of the specification documents and that they had to be used in a selection process were fully accepted and agreed on by the informants in three cases. The data indicated that library members that embark on the LMS selection process often look at the common practices in other libraries to set a path for their process. The system specification documents were often used due to set norms and local, national, and international rules and directives. By following these norms and expected practice, the norms and expectations were enforced.

9.7 Chapter Concluding Remarks

The examination of the elements and practices that are related to the LMS selection process started in this chapter. This part of the discussion was based on the issues that are related to the earlier parts of the process. The main argument put forward here is related to the complexity involved (e.g. in identifying the goals, or production of the specification documents) and the difficulty in gaining access to, and taking into account, all the potential influences.

That is to say, some of the issues such as identifying the LMS decision goals or identifying the LMS-related needs can be too complicated. There are many different dimensions related to these issues, which complicate the matter and the required efforts. In addition to this, the 'behind the scene' influences remain undisclosed and inaccessible. A question is whether, for example, the goals and needs are identified in order to be met, or whether they are documented to fulfil other objectives. An interpretation that emerged through the analysis of data is that these activities fulfil other requirements, such as

showing that the LMS selection process adheres to the rational decision standards. The issue is related to the value and the aim of inclusion of various elements (e.g. documentation, formation of a selection team) in the process. The question, reformulated, is whether the value of these efforts lies in their usefulness in acquiring the best LMS or in fulfilling other objectives, such as legitimizing the process, or facilitating change.

Another aspect outlined in this section related to the duality of influences that emerge during the various elements that are included in the process. The analysis of the data indicates that although one may not get access to the hidden agendas and potential influences, what one chooses to do could somewhat influence the embedding circumstances. In the cases that were studied, influencing the circumstances by the individuals required pro-activity. For example, one member of staff, who managed to change the mix of the selection team members in one case, strongly requested inclusion in the team. Other organizational members perceived that member to have a strong personality. That member also had a special and specific interest in some aspects of a potential LMS. Although, some organizational members managed to influence the outcome of some sub-decisions (e.g. the make up of the selection team) other members, equally strong, did not. It was not enough to have a strong personality, or to have a passionate interest in a specific issue. What the study indicated was that a network of varying issues together determined the level of influences that individuals could exert in the process. There was a fine line between being seen as assertive and influential, or as a troublemaker who should be excluded. From the analysis of the data (not included above), a comparison of two people that each fitted one of these categories, indicated that the one whose views carried through, had a greater command of the language, and a more extended network of contacts, as well as a stronger backing from his/her organizational unit. Furthermore, the organizational unit that this person belonged to was perceived as more important than the unit to which the second person belonged. That is to say, it was not a single factor that led to the position that this member of staff held; multiple issues on various dimensions were involved. In this study, I did not examine the basis of the power afforded to each individual. Why a person (and not the next) is influential was not studied here. Nevertheless, what was indicated strongly in the study was that the individuals in the process could influence the LMS decision process (to some degree) due to their actions while at the same time their actions were constrained by an interrelated network of issues and factors.

10. Elements and Practices Continued – Evaluations

In this chapter, the presentation and discussion of elements and practices is continued with an examination of the *evaluation* stage of the process. I start the chapter by examining the various potential complexities involved in the evaluations. I then conclude the chapter with a summary of the findings related to both the elements and practices.

In this study, three out of four cases went through a selection process and therefore, were involved in evaluation of alternative systems. The evaluation process varied somewhat between different cases. In two cases the interested suppliers had to fill in a pre-qualification questionnaire. The suppliers that were seen as viable based on their responses to these questions were then able to respond to the tender documents. In all the three cases that went through a selection process, the responses to the tender document were compared and evaluated. Based on the outcome of these evaluations, two (in two cases) to three (in one case) system presentations were arranged for the finalist systems and further evaluation of these systems was done based on the presentations. The final stage of the evaluation process involved site visits to libraries that already used the short-listed systems.

The evaluation of the systems was not as straightforward or as clear-cut as suggested in the traditional LMS selection guidelines. There were a number of issues that arose in the case studies. Firstly the evaluation of different systems was a complex process due to the number, form, contents and extent of the documents. Secondly, the knowledge, stance, and roles of the selection team further complicated the matter. Finally, steering and control also entered the process in some cases to add to the complexity of the process.

Here, the evaluation of potential systems is investigated further and a number of examples are included to highlight the potential related complexities that can arise. The examples that are included are not necessarily typical of all cases.

In rational choice theories, future consequences of the potential options are compared with decision makers' preferences in order to choose the best possible alternative (i.e. the option that best meets the preferences). When it comes to the LMS selection and decision process, one could interpret the system specification documents (as part of the more comprehensive tender documents) as a statement of decision-makers' preferences. Therefore, a

comparison of the entries in the system specification document and a test of the possibilities that an LMS offers should lead to a straightforward way of choosing an optimal system for the library in accordance with the traditional models. This way of evaluating and selecting an optimal LMS is in line with the guidelines that can be found in the mainstream LMS related literature and traditional LMS selection models, and are seemingly striven for by the libraries.

In practice, often a true test of the potential systems is not possible or even necessarily desirable, as seen in the previous section. In the studied cases, the initial evaluations were based on an examination of vendors' responses to the pre-qualification questionnaire and tender documents, rather than a true test of the itemised specified features of the systems. The presentations and site visits formed the last steps in reaching the final choice. In one of the three cases, system evaluations were not limited to just these. In that case, the staff were given the opportunity to have hands-on sessions with the short-listed systems for about a week per system. Even in that case, a systematic test of the systems was not conducted based on the entries in the system specification document.

In the following sections, a number of difficulties and complexities with evaluation of potential systems are presented and examined in more details. The issues considered include problems with formulation of the specification documents in terms of both contents and the related praxis, and the implications of these for evaluations of the potential systems. Further complexities related to human aspects as well as complexities involved in systems presentations and site visits are then outlined.

10.1 System Evaluations Based on the Responses to the Tender Documents

In traditional rational choice models, after identification of the needs or preferences, the choice outcomes are projected and compared with the needs in order to identify which outcome will yield the highest utility. If we take the specification documents to be a definition of library's future needs, then the items entered in these documents could be used as a measure against which one could evaluate each system and hence project different potential outcomes.

Evaluation of the options, based on the responses by the vendors is once removed or one-step away from such a projection of future outcomes. That is to say, the projection of potential outcomes are not based on system tests but rather based on a proxy for the system tests (i.e. responses by the vendors).

As the literature on LMS-use can show, and as was the case in a number of instances in the studied cases, positive responses from the vendors do not always mean that their systems are in reality capable of providing the features that are promised. As an informant explained,

> "I think that's always the case. I mean we found that with --- [the existing system], although it, as far as I'm aware, it met all the essentials of the PQQ, of the specifications, sorry; we found in the end that it's..; the acquisitions system was not totally what we've been promised. For instance the claims element for claiming overdue books or journals did not work and never worked and they never managed to get it to work and as a result of that we declined to pay the quarterly maintenance on the serial subsection of the system."

The problem here can be highlighted if one considers the evaluation of two responses by two vendors, one being very honest and the other quite dishonest. A comparison of the responses from these vendors will not lead to identification of the best system. That is to say, although the comparison of responses to the tender documents is typically a central element of systems evaluations, this practice is not unproblematic as the evaluations are not based on a comparison of true capabilities of the systems. An argument could be that evaluation of the responses by the vendors is not the only means of evaluating the potential systems. A good selection is secured based on combination of a number of different methods of evaluation. As will be shown, at least the short-listing process is heavily based on the evaluation of the responses to the pre-qualification and tender documents. A good system by an honest vendor could already be excluded from the race based on a comparison of such responses.

10.2 Complexity Related to Document Formulation - Contents

Even if we accept the evaluation of the systems based on the responses from the vendors, as a viable practice, a number of other related problems can be identified. To begin with the responses to the tender document are based on what is included in these documents.

With the help of data in the study a number of inherent difficulties in formulating system specification documents as a base for evaluations were highlighted. The first two problematic areas were related to (a) the *contents* and the semantics of these documents, and (b) the *praxis* involved in the formulations and revisions of these documents.

In this section the issues related to the contents and substance are outlined. In the following section I will take a closer look at the problems associated with the practice of formulating these documents.

The challenges with formulating the system specification and tender documents begin early on even before their formulation.

(A) Whose aims? – When the aim is to define the needs of a library, a question is 'the needs according to whom'. On one hand, an LMS is a tool for the library workers in their daily work; therefore, it becomes important in that it facilitates their work. On the other hand, an LMS can be utilized as a means to achieve strategic goals. In addition to that, the complexity of organizational structures and the suite of technological solutions that are used within the wider organizations, put demands on inter-operability between a locally used LMS and other organizational systems. Furthermore, the demands on a potential LMS involve consideration of national and international standards and external resource centres. Moreover, an LMS can be an important tool for the library patron in their search for information and use of other services that a library offers. In addition to official documented goals, there are also personal and political goals. At times, some of these goals can conflict with each other. The difficulty therefore, arises in trying to resolve the varying and at times contradictory demands.

(B) Specificity – Not only is it difficult to identify the needs, the formulation of these needs also pose a central problem. In writing the entries in these documents, one can choose to be very specific and ask whether a potential system does a particular task in a specific way. This specificity creates a problem. The specificity facilitates the comparison between the different potential responses, but it may unnecessarily exclude those systems that do the task in a different but comparable and perhaps even better way than specified.

(C) Generality – In some specification documents, this problem is overcome by entries such as *"The supplier should describe their developments in the following areas:..."* followed by a list. Alternatively, one sees entries such as *"Describe how management reports are created and how each library units can create its own reports."* The generality of the items included in these documents, therefore, creates a different problem.

(C1) Use of different terminology – The comparison of responses to these types of entries is not all that easy for several reasons. For example, the terminology used by the suppliers may be different from one to another and to the terminology used locally by the library staff (especially as numerous systems, which originate in different countries around the world, are available

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globally). At times some of this terminology is unknown to the staff conducting the comparison and hence this can lead to difficulties in comparison. This could be exemplified by the internal discussions that went on among some of the selection team members and organizational management at an observed meeting. In that discussion it became evident that a number of obscurities remained even after the system was chosen. The meaning of some of the responses (from the successful vendor) that had been the basis for the selection of the system remained unclear both in terms of their formulation and the terminology used, as well as the implications of those responses.

(C2) Meaningless responses – When some of the entries in these documents need to be general enough to allow for variations in possible solutions, one could, for example, write, *"The system should be able to prevent the creation of duplicate records by allowing pre-searching on control numbers"*. Another example could be, *"Is it possible to send a message out to all users of a particular category, e.g. a message to all part time students?"* The responses to such entries are normally positive, but the given responses do not specify the details. Messages directed to a certain user category, for example, may be possible in a system but a positive response by a vendor regarding this feature will not indicate the ease of operation; i.e. this operation may require many key strokes and screen changes and substantial engagement from the library staff. The information that is missing from such responses is something that cannot be taken into consideration in the evaluations. When studying the system specification documents, one can find questions such as *"Is the OPAC display screen user friendly?"* which typically promotes a very positive subjective response by the suppliers who wish to sell their systems.

(C3) Distance from the source – A problem in formulation of the needs, relates to the possibility of a wider group of participants being involved. When specific intentions of some members of staff who are not a part of the evaluation process are formulated in generic terms, it becomes difficult for the evaluating group to assess the responses according to the original intentions. Therefore, those who originally made the entry in the document may not share the judgments made.

(D) Extent of the features – A challenge, at the time of formulation, relates to the enormity of the functions that are included in a modern LMS. If every single function is to be included in the specification documents, the size of these documents can expand to unmanageable bounds, and if some functions are not included, a risk arises that the chosen system may not accommodate those functions in a desirable way. Therefore, the choice of what should or should not be included forms another challenge.

(E) Variations in responses – The responses to the tender commonly vary in breadth, depth, and structure from vendor to vendor which makes a direct comparison between the responses rather difficult and in some sections not possible. Therefore, the level of detail that the suppliers choose to adopt in their responses can create a further problem. Sometimes the detailed description can be interpreted differently to those that are shorter and more concise.

10.3 Complexity Related to Document Formulation - Praxis

In two cases, a prequalification questionnaire was formulated. The following is a more detailed description of the related events at one of the two cases. This is to examine and discuss the length of time involved and the extent of input from the wider staff in this document and to highlight a potential problem area. In that case, the drafted prequalification questionnaire was sent to the LMS selection team members a total of five times for comments and feedback. This document was seven pages long and except for the title page and instructions or informatory parts, it included 10 different sections on areas such as details of the responding organizations, financial information, references and more. Within each of these ten sections a number of points (between 3 and 20) were included. Spaces were provided for responses that were either in yes/ no format, multiple-choice options, or in the form of text fields.

In the first instance of distribution, the draft prequalification questionnaire was sent to the selection team members after five o'clock in the afternoon of the day before the very first LMS selection meeting took place. That meeting took place, as scheduled, at 15:30 the following day. In the first version of the document a space was provided for relevant dates (the deadline for the responses and a date by which the suppliers would be notified of the outcome), but the actual dates were to be added at a later time.

An amended version of this document was distributed for a second time, three days later, soon after eleven o'clock in the morning, one day before it was to be sent out to the suppliers. The amendments in this version included a slight change in the title of the document, addition of actual dates (i.e. the deadline for the responses and a date by which the suppliers would be notified of the outcome), and a slight reformulation of a couple of sentences. The only section (i.e. one out of ten) of the document that was altered slightly more was related to the features of the LMS (e.g. a reduction from 16 points to 11). This section of the questionnaire listed a number of features required in the potential system. These features were described in more general terms e.g. the standards that the system should comply to and the main subsections that should exist in the system.

The third re-draft was distributed on the same day, almost six hours later. Here a reference number was added to the document and a word in the instructions to the suppliers was highlighted. Again further amendments were made in the one sub-section of the document relating to the LMS features. This time the number of items listed in this section was increased to 19 points.

The only feedback that was shared with the group members was posted after distribution of that version of the document. In that email, one of the team members had two comments on the section regarding the LMS features. The group received a further note, which was the project manager's response to the mentioned email. The response addressed both points raised by (a) arguing for keeping one of the formulations (hence no change in that formulation), and (b) accepting the second point (hence changing the formulation accordingly to the second point). No other feedback or comments on this document were communicated[32].

The fourth distribution of the document was done one day later at around 11:30 and the main changes here again involved the section related to the LMS features. In this version the number of items included in this section was 20.

The final version of this document was sent to the project group on the same day (around six hours later after the fourth version) notifying the team members that this version of the document had been sent out to the system suppliers. The main change in the final version was a change of date for the notification of the outcomes by one week. That is to say that final version shortened the time between the deadline for response from suppliers and notification of the outcomes by one week.

To summarise, the time span between when the first draft of this document was distributed among the team members and the time that it was sent out to the suppliers was four days. Except for some minimal changes (e.g. adding a date or reference number), only one section (out of ten) of this document was amended during the course of those four days. In that time, only one message of feedback from a group member was received[33].

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[32] At the start of the study, the organizational management, the project manager and the informants agreed to include my address on relevant emails and email lists, and to allow me access to all the related information and relevant material. I also periodically questioned the people involved if any communications had taken place that I should know about. My name was for example included in the list of the recipients of LMS project related email communications. If other communication via telephone or otherwise was made in relation to this, I was not informed of it.

[33] If other feedback on individual basis was communicated, that was not shared with the whole group or me. See previous footnote.

Meanwhile work on invitation to tender document continued. The main work on that document was initiated long before the LMS selection team was formed. The people who had worked on the document, up to that point, were the project manager and two members of management. The first time it was distributed widely for feedback it was sent via email to a large group of people including the project team members, heads of various library units, as well as other relevant people among the staff and management. Before the document was finalized, two responses and feedback were received on the group mail list. The finalized document was then shared with the selection team members ten days later, and on the same day it was sent out to the short-listed suppliers. Therefore, the duration between when the document was sent to the wider group and the time it was sent to the short-listed system suppliers was ten days. This document was over 65 pages long and contained almost 500 fields that needed to be responded to by the suppliers.

Both the prequalification questionnaire and the tender document were drafted by the project manager and management. Although, a wider group of staff was invited to comment on these documents, the time allowed for this and their input was rather limited. The question that arises is whether it is the actual input from the staff that was the goal of this exercise or whether the goal with this practice was to construct a correct and positive image of the process.

10.4 Complexity Related to Document Evaluations

In the previous sections I outlined a few issues related to the formulation and practice of producing a prequalification and system specification documents. In this section I look more closely at the actual evaluation of the responses from the vendors. To do this, I continue with the previous example and describe the steps that took place after the formulation of the prequalification document, and then get help from another case to highlight further complexities that may be involved.

Following the example described in the previous section, the final version of the prequalification document, which remained seven pages long, was sent to 14 system suppliers[34] who had shown interest in receiving this document. Of those, three companies did not respond to the questionnaire. Of the remaining

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[34] The information regarding this point differs in formal documents such as minutes of various meetings. In one document (a report of the process), it is said that the prequalification questionnaire was sent to 14 suppliers that had responded to the notice placed in the Official Journal, out of which 3 withdrew or did not respond. In another document, (i.e. minutes of the initial group meeting) it is mentioned that 11 respondents responded to the Official Journal advert. Regardless of the initial responses to the advert, 11 suppliers responded to the prequalification questionnaire.

suppliers, two were tendering a joint bid. Therefore, the number of systems that were considered in the first round of the evaluation by the project team was ten. The prequalification questionnaire was electronic and did not allow for much variation in the format of the responses received. Even so, the number of pages of the responses to the prequalification questionnaire varied from 7 pages to around 300 pages[35]. A number of entries were related to information that could vary from one supplier to the next. These included, for example, a list of sites with installations similar to the one at the case organization, or data on installation, maintenance, support and more, all of which could vary from one vendor to the next. Even disregarding such entries that (in some cases) added many long appendices to the responses, the length of the core responses to the questions varied by a number of pages due to the length of response to the fields that were in free-text format.

A team meeting, to review the responses from eleven organizations, was held two days after the response deadline. The duration of that meeting was 1 hour and 41 minutes long. The initial 12 minutes of the meeting were spent on establishing communication with the members that were attending the meeting remotely, reading the building safety rules, and ad hoc chats. A further four minutes were spent on reading the agenda and discussing the action points from the minutes of the previous meeting. The third item on the agenda was the review of the returned prequalification questionnaires. At that point one of the team members had not yet arrived at the meeting. Another seat in the project team still remained vacant.

Those members of the team that joined the meeting remotely, were sent a copy of the responses that were available electronically. As two of the responses were in paper format only, this meant that the remote members did not get access to these. Some sections of other responses were not supplied to the meeting at all. These were mainly the appendices by one supplier due to length, although they contained information that was requested. In another response by another supplier, only photocopies of one side of some of the double-sided pages were made and distributed to the group.

The decision to disqualify two of the responses and short-list the remaining eight systems was made one hour and four minutes into the meeting. This meant that a total of 48 minutes were spent on reviewing the ten bids. Considering the number of pages that were before the group for review, a

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[35] One response, which was reported to be over 300 pages long, was not distributed in its totality to the group (or me). One response that was distributed was 63 pages long; the next two longest documents were 47 and 27 pages each. The total number of pages was approximately 500.

simple mathematical calculation shows that not much time was spent on evaluating each point or page present in the documents.

When it came to the evaluation of responses to the tender documents similar issues were observed. The number of responses was high, the actual documents were much longer than the prequalification questionnaires, and the documents included many more points to which answers, information, clarification and descriptions were required. Considerable variations in format and the language used in the responses were again observed.

Some of the related issues can be exemplified by another case in which seven responses to the tender document were received. The tender document was around 90 pages long and contained more than 750 points to which responses were solicited. Some of the points required long descriptive answers and some included sub-sections. When it came to the entries related to LMS functionality, the suppliers were asked to specify whether each feature was met (a) totally, (b) partially or (c) was due to be included in future release. The meaning or time span related to *future release* was not defined, i.e. if a supplier had marked the future release option, one would not be able to know whether that option will be available in the next release or a potential future release in a few years time. For each of the items listed under the LMS related section of the document a free text field was attached to each of the points for comments.

That is to say that not only were there many items, the short responses could not necessarily be compared easily (e.g. whether a function would be available in the very next release or in a distant future release). Furthermore, the presence of free text comment fields added to the complexity of comparisons between different responses to the tender document.

Although the contents of the responses from the suppliers were not shared with me, I was shown the physical size of one half of just one of the responses. That document was in A4 format and approximately 5 centimeters thick. That is, the document that was shown to me was the first part of two sections, i.e. half of the full document sent by just one supplier. It was indicated by the informants that all the responses from the various suppliers were of similar sizes. It was also mentioned by the people involved that not only did the variation in responses create difficulties in comparing them, but some of the responses were formulated in a way that made it difficult for the team members to easily follow, understand or analyze. One team member for example expressed this in the following way,

"It was very difficult to read; the --- [a system name] tender, it's extremely badly presented."

Another response was,

"If you have a look here, it's quite difficult to read, they will refer you to something else and something else, ..."

Two hard copies of each of seven responses were used in the evaluations. Access to these documents was limited to the locale at the organization, that is to say people were not allowed to make further copies of these or borrow these to take home for review. When the project manager (not a librarian) was asked about how well each point in the tender document was looked at, the response was,

"Oh very intensely. We had..; the evaluation took weeks to do, there's a team of people that were doing those evaluations."

When talking to the team members and other key people involved in the evaluation, words such as 'skimmed through', 'quick look', and 'read through some sections' would come up. For example, one of the team members said,

"I read through, I *skimmed* through all of it very *quickly* because we couldn't shortlist without it but you do tend to forget, you need to keep on going back to check on details because there's so many product names and things that you forget."

Even so, much effort was dedicated to comparing the responses as closely as possible. This was done with a group of people going through different sections and collectively scoring the responses. The scores were entered in a spreadsheet document where the column headings listed the names of various suppliers and the row headings were numbers corresponding to the points listed in the tender document.

For me, as an outside observer, a number of issues stood out. The sections included in the evaluation (spreadsheet) document were only a fraction (i.e. approximately a third) of the tender document and were mainly related to the supplier organization rather than the functional capability of the system. There were some technical, system-related questions included in this section also, but these were of a more general nature than specific features of various sub-sections.

The procurement route taken in that case was an open tender process, where any supplier would be able to respond to the tender. However, the initial sections of the tender document, in practice acted as a pre-qualification questionnaire. Therefore, the section of the tender document that was evaluated was in practice only this section. That is to say, the spreadsheet evaluation document was an evaluation of the pre-qualification questions and not the system specification section.

In that evaluation exercise, two out of the seven suppliers were eliminated from the short-listed systems. The evaluations of the excluded systems were not included in the spreadsheet (i.e. the produced records of the process). That is to say, one cannot see the reasons for exclusion of those two systems from this document[36]. Even in the interviews, no clear or exact information was provided. For example, the project manager mentioned,

> "Two companies were actually discounted because of their trading figures. *I think it was* trading figure; and their experience, they hadn't got a lot of experience in the actual HE [higher education] marketplace."

Although this interview took place not long after the event, the level of certainty did not seem very high in the response given[37].

For the systems that were included in the evaluation document (i.e. the five short-listed systems) a scoring system had been used with grades 5, 3, and 0 to indicate whether a demand was fully, partially or not at all met. However, in some sections of the tender document the supplier was asked to provide information on various points. This evaluation summary document, only indicated *whether the required information was provided* by the suppliers or not (i.e. by entries of yes or no), but it did not include an *evaluation* of such responses. Another issue of interest was that according to this evaluation document, one of the evaluated systems was ranked the lowest. However, in the interviews, the people involved in the evaluation exercise indicated that that system had scored very high and was a clear favourite.

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[36] I was not given access to the meetings and events related to these system evaluations, however, the mentioned document was provided to me as a record of the activities and efforts that had taken place. If the eliminated systems were evaluated and scored on similar footing to those included in that document, I did not get access to relevant material.

[37] As the evaluation document was not given to me until after the completion of the process, at the time of that interview I did not have a basis to question why the evaluation of the eliminated systems was not recorded (although not actually using this formulation). Soon after the completion of the case the project manager left that organization, therefore, follow up investigations into this matter was not possible.

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One can summarise some of the issues that arose in that case as follows.

- The responses to the tender documents were difficult to compare and analyse. It was not easy to see the logic behind some of the entries in the score sheet.
- The evaluation summary document was used as a tool for short-listing the systems.
- The formal document, which was produced as a result of the tender evaluation process, only included the evaluation of the systems that were short-listed.
- It was not possible, as a researcher, to compare the scores for the short-listed and not-short-listed systems.
- The evaluation of the tender documents was done only partially and evaluation of major sections of the tender documents was missing.
- The section that was evaluated was explained as the prequalification questionnaire part; however, at later stages of the process, the outcomes of this exercise were treated as a full evaluation of the systems.
- People's memory of their evaluation of the systems, soon after the event, did not fully match the recorded data.
- An asymmetry existed both in the criteria used as a basis for evaluations and in the treatment of the responses received from different vendors.

In the study, I came across further issues in other cases. For example, in at least one case, some selection team members chose to focus on only some subsections of the systems in their evaluation of the responses from the vendors. Many systems have stronger and weaker subsections. If the part that was evaluated was not representative of the rest of the system, this partial evaluation could create a skewed view of a system. In some cases there were mathematical problems with the scoring systems used and the way these were analyzed and/or summarized. All of these issues point to the level of complexity and potential problems that can enter into the process and evaluation efforts.

10.5 Complexity Due to Control and Power Issues

In the light of the rational choice model, and traditional LMS selection models, a rational comparison between the projected needs (system specification document) and projected outcomes (responses by the suppliers) is what should lead to a decision. In previous sections, some difficulties that led to deviation from such models were presented. In this section further issues, related to power and control, are examined.

Although an endeavour in all cases was to choose rigorously and meticulously a superior system that met with the organization's needs, the process was influenced in a number of ways. In all the cases studied, numerous forces, goals, and circumstances were at play. There were many examples of practices utilized in achieving desired outcomes related to personal, organizational, or external goals.

The levels of control and influence (by the actors) varied considerably in different cases. The examples provided below are from one of the cases where the process was more steered by management. In that case, some of the team members were chosen by the management.

10.5.1 Pre-Meetings as a Mechanism of Control

Pre-meetings were one way for management to plan and influence the views and decisions of the team members and the direction of the meetings. In these pre-meetings, management could decide about 'what' and 'how' issues and information should be presented in the selection meetings to achieve desired outcomes. A member of management expressed this as follows,

> "Then of course, we start the project team and as you know, --- [names] and I were having meetings, pre-meetings, […] because we wanted to make sure that the project team's been steered. So, we were planning, the way the project team routine was going to operate."

The pre-meetings worked as follows. In one pre-meeting, for instance, a number of suppliers were not seen as suitable to remain in the process by the members of the pre-meeting. The responses by those suppliers were looked at and the aspects that made a good argument for their exclusion were identified. Then the way this information was to be presented at the follow up meeting was discussed and the potential reactions from the selection team meeting were projected and discussed. The conversation among the members of that pre-meeting went as follows:

Member 1	So this is going to be obvious to everyone tomorrow that it's a no, no, so I don't think we've got a problem with this do we..?
Member 2	No.
Member 1	[continued] .. how we actually present to people tomorrow to guide them to reject this one?

> […]

Member 1	So we don't have a problem with what we say to the rest of the project team tomorrow about this one then, no?
Member 3	I would say 'can anybody see any reason why we should keep this one?'
Member 1	Okay, right, smashing, right, next one.

[…]

Member 1	Okay, well that looks really straightforward for tomorrow, what do you think?
Member 2	Mm hmm.
Member 1	I don't think there's anything untoward to help steer the others, do you --- [Member 3], no?

In the follow up LMS selection meeting, the project manager described the aspects identified in the pre-meeting as negative and suggested that any systems with those attributes would not be suitable. Then the project manager asked the team members to see if any responses would meet with the set negative criteria. It did not take the group long to identify the responses that met that criteria and those systems were quickly eliminated from further considerations.

The idea with the pre-meetings for the management, as mentioned above, was to steer the group in a desired path, while seeing to it that the members felt that they *owned* the decision and the process.

One way to achieve this, for example, was to first gain the team members' support for a particular criterion (e.g. not wanting a supplier that did not have a local office). This criterion was established before any of the responses were looked at by the members as a group. Then the team members were asked to check through the documents to decide whether any suppliers should be eliminated. The set measure that were agreed at the beginning of the meeting (and pre-identified in the pre-meeting) set the criteria for judgment. To compare the responses and to identify those that did not meet with the set criteria was not difficult. The identification of those systems or suppliers that did not meet the set criteria, seemingly, was done by the team members, creating a sense of ownership of the decision.

If the objective was to create acceptance for an idea by the members, that idea was presented as a self-evident clarity, as a fact rather than a point for discussion. A member of management explained that if one presents things as

obvious or as facts, "then people accept it as a fact and they follow it". One could call these types of practices framing or *staging*[38].

10.5.2 Timing as a Mechanism of Control

Another way of steering the procession of the selection meetings was by the *timing* and the *extent* of the material that was sent out to the team members before the meeting. Allowing very little time between sending out the material and a meeting, for example, did not allow a careful reading of the distributed material or preparation for potential objections. Distribution of multiple and lengthy documents further added to the difficulty in careful preparations by the team members. Alternatively, if the minutes of a meeting were not fully written by the next meeting, or were presented at a very short notice, then the members did not get a chance to comment on the accuracy and/or the contents. The timing aspect also could be used in the meetings by allowing more (or less) time to different sub-sections of the meeting or topics of discussion. Use of chairing techniques, in general was another way of steering a meeting. Regarding potential chairing techniques a member of management explained,

> "The chair of a meeting often has an idea of the conclusion that he or she wants out of the meeting. You can influence it by the way in which you ask people to speak, you can invite certain people to speak in a certain order. I mean you know, not necessary being particularly manipulative, a lot of this is subconscious stuff isn't it? But it's, it's often very difficult to go against the chair of a meeting. Chair's got too much, you know, too much weaponry."

10.5.3 Imaginative Accounting as a Mechanism of Control

The informants found the financial sections of the responses to the tender documents to be complex. This was for example expressed by an informant in a managerial position by saying, "pricing was very, very complex to work out, very, very complex". As the cost definitions varied considerably from vendor to vendor, it was possible to analyse and interpret the costs in varying ways based on full or partial systems, with or without add-ons, over a short or a long period. For example, based on annual maintenance charges the costs of a system could vary considerably if it was calculated in terms of its immediate purchase cost, or its accumulated costs over a three or five year period. In a number of instances, this therefore, opened the opportunity to choose the most

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[38] Perhaps the concept of *framing* by Kahneman & Tversky (2000) could be extended to include such practices. However, I see a difference between what they called framing and what was the situation here. Therefore, I prefer the term staging for this practice.

favourable calculations in relation to the desired outcomes. For example, in one instance, although a system not endorsed by management seemed to be the cheapest of all the options at the beginning of a pre-meeting, it was possible to recalculate the costs in different ways and choose one interpretation of the costs that placed the price of that system at the most expensive end. This imaginative accounting could help to present a view of different systems to suit a desired outcome.

10.5.4 Present-Retract as a Mechanism of Control

A related practice was to present such somewhat *staged* information to the group, but then to *retract* the information with the explanations such as the information is confidential or not for the group. That is, although a piece of information was presented, the detailed basis for the information was not provided for the members to assess. Furthermore, it was mentioned that the minutes of the meeting should not include that information. This *present-retract* technique would leave the desired impression without enabling the members to enter into a deeper analysis of the presented information.

10.5.5 Divide and Conquer as a Mechanism of Control

Another way, in which the process and group members could be influenced, was discussing various issues with some members on individual basis to *gain* each individual's *support one by one*, away from the group, before the team meetings. This would lead to gaining majority's agreement at the meetings without an appearance of manipulation.

In instances where views of colleagues who were not part of the team were of interest, the communications with those members could take place on an individual basis and then their view was represented to the group in a desired light.

10.5.6 Rumours as a Mechanism of Control

Rumour building and use of *facial and body language* were also observed. For example, the term old fashioned (and other similar words) was used by members of management in association with a particular system (X). At that time, that particular system was ranked among the internationally leading systems by LMS related journals. In one meeting a member of management said, "X isn't a better product than Y [their existing system]". This view and use of similar terminology soon caught on. Others in the organization were repeating these statements when discussing that particular system. For example, in the interviews and informal chats, when the informants were

asked to describe their views of different systems, this system was described as old fashioned and not that different to their existing system. In related meetings, it was observed that such statements were readily accepted as matters of fact. When the route for the origin of these views was followed, it came back to the initial utterances by management. In that case, little interest became directed at that particular system in the selection discussions and agreement on eliminating that system from the process was easily reached.

10.5.7 Conceptual Associations as a Mechanism of Control

To create acceptance, a reverse technique was used. For that, positive *concepts* were *associated* with the idea, or the system and other phenomenon that was being promoted. For example referring to a system as 'very powerful', 'very impressive', 'top of the line', and 'the only one who know what they are doing' and so on constantly and systematically in all types of discourse was a way of promoting a favoured system. This practice did not only relate to positive associations with favoured LMS, but also in gaining acceptance for other organizational ideologies and changes. For example, rather than using the word centralization, alternative positive concepts such as partnership and unification were used consistently in all publications and discourse. By this, the negative connotations of centralization gave way to a positive vision of belonging to a wider whole. Other examples include systematic use of multi-skilling (rather than deskilling), and teams (rather than divisions).

10.5.8 Asymmetrical Rhetoric as a Mechanism of Control

Generally, *use*s *of rhetoric* and arguments were common and many times asymmetries were found in how such arguments were used. For example at a time where a clear favourite system had already been established, discussions continued as to whether or not other systems should also be short-listed. The reasoning put forward as to whether these other systems should or should not be considered at the next round of the process were asymmetrical. Whereas in the case of one system it was argued that taking more than one system forward would be very positive in giving the library negotiation powers, in discussing another system, it was argued against the idea by saying that this was not such a good idea, it would be giving the suppliers 'the run around'. In another example, it was decided that pricing should not be considered in the short-listing process until the final stage. However, the price of just one system (out of several) was revealed to the group, affecting its standing in the short-listing process, with the reasoning that it would be useful to have that information. The costs of other systems were kept out of the process with the argument that the cost should not be a criterion for the short-listing at that stage of the process.

10.5.9 Use of Documentation as a Mechanism of Control

Use of documentation[39] was another way of influencing the process and/or the outcome. For example, some items were left out of the minutes of the meetings to suit. At other times, some documents were produced for a specific objective, while they were used for a very different purpose. For example, the guidelines written to overcome a specific problem could receive an extended use such as becoming the policy related to other issues. Another example was to represent an individual's evaluation of a specific part of an LMS from a particular perspective, as the evaluation of the whole system in other settings. Use of documents was more extensive than this. In one example, groups were set up to report on various issues. If the report written by these experts was in line with management goals, it was used and referred to in persuasive attempts, while if the recommendations of the report were not in line with those goals, they would be put aside. In one instance for example, an external group made up of directors and other top people in information services had done a 'value for money' study that recommended an urgent change of that organization's LMS. That study was done a couple of years prior to the initiation of LMS change project. As the director explained,

> "That was a useful argument in our favour but I mean I wouldn't have..; you know, if I had not agreed with that I wouldn't have considered that to be a driver."

He then explained that the same group had made further recommendations regarding other changes, which he could not accept, "[…] it didn't make sense. So we didn't do that".

10.5.10 Employment of Status as a Mechanism of Control

Appeal to (or *employment of) status* was another practice that was observed to increase the shared acceptance of ideas. This took the form of inviting other members of management (with the same goals and views) to the meetings giving a greater weight to the argument in hand. Alternatively, references were made to higher up management, asserting that they were also of the same view. Employment of status was also attempted by the members at lower organizational levels. This was done by providing supportive documentation, referring to past events that supported their view, and using the channels open to them in the existing organizational structures (e.g. gaining support from other top positions in the organizations or utilizing the support of their trade

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[39] Alternative concepts could be used to refer to this phenomenon such as "Documentizing" (c.f. Woolgar, Coopmans, & Neyland: 22).

union). Increasing the number of people that represented a particular position (or a sub-section of the organization) in meetings was also observed to boost the level of acceptance for their particular position or view.

To get the desired outcome, a member of management explained that diverse tactics could be utilized if needed, including:

> "...making sure that the right people are at the meeting, and the right numbers of people and the right types are at the meeting. If the meeting doesn't come up with the conclusion you want, you don't allow it to come to a conclusion and you.., and you make..; there'll be another meeting."

Not only could one *defer a decision* or point to the next meeting, in one instance, when the risk arose that the selection committee would make what management saw as the wrong decision, the management planned measures to send the decision to a forthcoming committee.

I have argued that although the efforts of the selection team are rigorous, ambitious, and open, if so desired, there are means of influencing the process. This influence and manipulation can take subtle forms that are not immediately visible or known to the selection team members (or others). Potential practices that can be utilized include holding pre-meetings, chairing techniques, alternative interpretations, present-retract method, staging of facts and figures, creating associations with positive or negative concepts (to create or counteract acceptance), employment of status, asymmetrical use of arguments, documentation, and utilizing committee structures.

10.5.11 Other Mechanisms

Many of the examples included in this section (10.5) relate to one of the cases. Some of these practices were also present in other cases. The remaining cases also included other examples that are not included here. For example, committee structures were used as a mechanism to achieve several ends: to delay or stall unwanted outcomes, to legitimise the decisions, to assign responsibility or to gain commitments, and to create or maintain structures.

10.6 Complexity Due to the Roles of Individuals

Research on decision making spans over a wide spectrum (c.f. Simon, 1976: xxvi-xxxi). At one end there are studies in the field of economics, where an individual is seen to be most capable with no limitations in his or her computational abilities and overcoming complexities. At the other end of the

spectrum with a social psychological perspective the focus is on cognitive and affective aspects of decision makers. At this end of the field, there are many studies that show how the decision making process becomes complicated due to human aspects (e.g. framing in Kahneman & Tversky, 2000). Personal and professional goals, personal traits, organizational roles, and social, and power capital of individuals inherently play a role in the interactions that take place and in the way these individuals influence or are influenced by various aspects of the decision process. These issues are not examined in this study. Nevertheless, in what follows, I present a number of issues that were observed during this study that highlight the potential for added complexity of the process due to the nature of the human participants.

The role of different individuals varied in the dynamics of the meetings and the relationships in the process of selection. Some individuals had authority due to their roles in the organization, while others' voices and views carried more weight based on their personality and social abilities. The data gathered in the interviews, corroborated the data gathered in observations regarding the level of authority or influence that were perceived to be associated with different members. How people saw themselves also had a bearing on the way they behaved. For example in a selection team's meetings, I observed that the people at higher organizational levels or individuals representing technical expertise were more influential than other members were. This could be seen in the level of ideas and thoughts presented by different people and the level of acceptance or rejection of these views. In one of the cases, an imbalance in the content-related input by people who held managerial positions and those at lower organizational hierarchy was very visible. In that case, a closer study of one of the LMS selection meetings was done. In that isolated closer look, it was found that the number of utterances by members at lower organizational levels was 123, while those at a higher organizational level made 393 utterances. When the words were counted, the result was 1969 words by the members at lower organizational levels and 9709 words by those at higher organizational levels (i.e. an average of 16 vs. 25 words per utterance).

The input by people at lower organizational levels in this meeting could be subdivided, in ascending order, to the following areas:

- Disagreeing with the view presented by management (5 times)
- Social niceties (8 times)
- Asking clarifying questions (10 times)
- Providing own opinion about matters being decided upon (11 times)
- Responding to direct questions put to them (20 times)
- Other [e.g. "I am sure we can talk beyond four."] (34 times)
- Agreeing with the views presented by management/ echoing (49 times)

This means that only 16 of these talking instances were to present own views or to disagree with the views of management. Even so, an overview of the meeting showed that some of these expressed views changed during the course of the meeting. Disagreements with managements' views were mainly related to issues that were under dispute by different members of management. That is to say, although they disagreed with one member of management, they agreed with another (here only counted as disagreement). Although not a study of the influences of the roles, identity, and personalities, this trivial non-representative analysis of one meeting suggests potential complexities in power relations and level of involvement by different members.

An attempt was made in the interviews to understand how and why views put forward by management were more readily accepted. When discussing the preparation for a meeting with one informant at the library staff level, she explained about the comprehensive investigations that she had done to learn about the systems that were going to be considered. She had used the Internet and the websites of different systems to learn about those systems and to check their sub-sections. She had accessed the websites of libraries that used those different systems as well as talked to colleagues at other libraries. Furthermore, she had always made a point of dropping in, at different libraries during her travels and had formed an understanding of the market in different countries. She was impressed by some systems and was aware of shortcomings with other systems. With this background in mind, in the LMS selection meeting, she was still very open to adopt the views put to her by management (or other group members). For example, when in an earlier meeting management had suggested to eliminate a system, this was quickly accepted by the group members. She explained that her investigation of the systems was a 'quick look', giving her an impression of the systems. If other members had a different opinion to hers, then she would have to agree with them as she might have missed some information. The knowledge she had formed did not lead her to strongly state firm and decided views in the selection team meetings. She saw the role of her knowledge gained from her job and her investigation to equip her to understand and be able to follow the discussions in the meetings. She explained,

> "I'm pleased that I am understanding; I'm on the right wavelength because sometimes you can think I don't know anything about this, this is miles above me but I'm pleased that I'm able to be able..; I'm able to understand and formulate opinions."

Uncertainty related to one's own knowledge was not limited to this informant. Numerous interviews indicated ease in accepting the views of others. A

measure for being on the right track or having the right opinion was said by a number of informants to be of the same view as others. Being far off from others raised questions for some individuals about whether their own view was right, rather than questioning the views of others.

How people saw themselves and the dynamics of the meetings varied from case to case and indications were that some of these issues were related to the country of the study. In two of the countries, a hierarchical organizational structure was more visible. In the interviews in those countries, many informants immediately placed themselves in their organizational structure, and strongly related their role, and their input in the process with their positions in the organization. This was also evident in the roles that members assumed in the meetings. For example, a member of a selection team was a qualified librarian but was employed as a library assistant. This member felt a conflict in whether her involvement should be based on the level of actual expertise as a qualified librarian or based on the level of the position held, which was library assistant. The informant explained,

> "I've got a rather odd post in that I'm actually employed as a library assistant, unqualified. But I am qualified and I am doing a qualified job but I'm still only getting money for library assistant so it's, I mean I suppose a little bit of me feels right down there and, you know, 'why should I be at these things? But I am professional and I am doing a professional job."

In the meetings that followed, the lower position assigned to this informant, influenced the manner of involvement, and the role assumed in the group.

10.7 Complexities Related to Presentations

After the evaluation stages mentioned above, i.e. use of prequalification questionnaires and evaluations based on the responses to tender documents, a number of systems were short-listed as finalists. At that point, the suppliers were invited to present their systems to a wider audience.

Again, rigorous effort was put into organizing fair, further evaluation of systems based on the presentations. The presentation attendees were requested to fill in score sheets or to report on their assessments of the systems. The number of systems viewed, timing of presentations, and organization of the presentations varied somewhat. In two cases, this stage involved only presentation of the system, while in the third case, hands-on possibilities were also included for the staff.

The following section is an attempt to highlight some of the complexities related to this stage of system evaluation. The examples provided below are not necessarily typical of all cases but are chosen as they best outline potential complexities involved.

Regardless of the goal to treat all the involved systems fairly and openly, it was found that if one so wished there were ways of influencing the selection of LMS even at that late stage of the process. This could be seen, for example, in one case where the order of the presentations was said by a member of management to have been a conscious thought. In that case, it had been anticipated that many of the people invited to the system presentations would leave early on the last day of the presentations. Therefore, the presentation of the preferred system was arranged to take place on the first day, giving it some advantage. Indeed, when observing the presentations, the number of attendees at the last presentation was fewer than the first presentation and of those who had attended the last presentation, quite a number left as the day went on. Even in the interviews, the informants indicated that the order of the presentations had worked favourably for the first system as people had felt fresh and the features were 'new and interesting' adding a 'wow factor', while for the last system the viewers had felt tired and the features of different systems all getting mixed up.

Another way in which the presentations were affected was the timing and details of the presentations. In one case, when the favoured system (by the management) was presented, the attendees were told that they could ask questions as the presentation went on. This allowed the presenters to clarify the points that were requested. This also meant that more time was added to the specified schedule. Leading up to the presentation of the least favourite system, the attendees were told (by the project manager) to keep their questions for the end of the day. The reason for this was, according to the project manager, a desire to keep to the timetable. The data, from the follow up interviews, indicated that the fact that the attendees were not allowed to pose questions during the presentation had had a negative effect on their views of that presentation and hence that system. As a number of informants expressed in different ways, the presentation had lost its spontaneity and engagement and had become tiresome, leaving questions unanswered. Furthermore, the unclear issues had engaged their thoughts for a time decreasing the concentration on what had followed. In addition, by the question time, some of the unclear issues had been forgotten or had lost their relevance and were not asked.

Other unequal treatment of the presentations included the way the members of management engaged in the presentations. For example while some members

of management were attentive and showed interest in their favourite system's presentation, the same members were observed to attend to other tasks on their laptop and engage others in conversations. When system failures occurred at the favoured system's presentation, a member of management talked about firewall, saying that it should be sorted and explained to the group that the reason for wanting to sort out the firewall was for them to see the ease of use of the function that the supplier was trying to show. Similar system failures at the non-favoured presentations were met with facial expressions indicating that the presented system is not sound. The informal talks that took place in one case were observed to promote the preferred system and to demote the non-favoured system.

As the people attending the presentations could vary from one day to the next, the evaluations of different systems were not on par. That is, the same people were not assessing the comparable parts of the presented systems. Some would only attend one presentation. Alternatively, some would attend the presentation of one part of one system but attend the presentation for another part of the next system. In at least one of the cases, the presence of a score sheet and collecting attendees' views were mainly a means to get them involved and to create a sense of ownership. Concerning the design and treatment of the responses to the score sheets, in some of the instances, there were a number of shortcomings from a statistical standpoint. If a respondent had been very impressed by a feature on the first day and had given a system top score for that feature, being even further impressed by the same feature in the next system did not allow a higher scoring. A few respondents mentioned that they had filled in the scoring sheets at the end of the presentation days. They expressed that by then they could not keep the features of the different systems apart. A number of respondents did not adhere to the guidelines or the scores provided and used own scoring systems. Some of the questions were compound and not easy to answer. When discussing the presentations with some of the attendees, they indicated that it was hard to keep up with the pace of the presentations or they had difficulties in understanding the terminology used.

Even in the hands on sessions, the data from a number of interviews indicated that although all system suppliers were offered the same possibilities, the way in which some suppliers interacted with the library staff had influenced the library staff's view of the systems. Several informants had experienced a difference in the way different suppliers had influenced the hands on sessions. While some of them sat back and allowed the users to use the system, others had assumed a more active role in guiding the users. One informant explained,

"Even though we had, like, the hands on things, it wasn't purely hands on because some of the people that came in from the suppliers where quite good at saying 'well, we'll just sit at the back and let you get on with it, we'll be here if you need it'. And they'd be going 'oh, right yes, and if you just click on that button there…' so but the people came out [thinking] that they had a proper hands-on and it was easy for them to find their way around by themselves. But in actual fact, it wasn't purely hands on. Because they were kind of guiding them down the right route."

The informants (members of staff) were not as positive about the systems where the suppliers had allowed a purer hands-on trial of the system. It was found in study that in the cases where the staff had been allowed to explore the system more on their own, they had found the system not to be intuitive. The staff had more commonly struggled in their use of the system wondering, as explained by an informant, "how do I use this system, how do I get from this to that?". In the hands-on session where the members of the supplying company had led the library staff in their use of the system (at the same time as creating a sense of hands-on feeling), the library staff's perceptions of the system had become more positive.

The data in this study indicated that the views of the general library staff were very much influenced by the presentation skills of the presenters rather than the features of the systems. Not only did many informants share this view, supportive evidence was found in the scoring results and in the follow-up interviews that took place. The same point was also supported by other data in the study.

10.8 Complexities Related to Site Visits

Site visits were a final stage in forming opinions regarding different systems. In this section, I will discuss a few site visit related issues.

An entry in the tender documents related to accessing a list of reference sites for each of the potential systems. The wording of the entry or the number of requested references varied in the tender documents slightly, but the idea was that the library would receive the contact details of a number of other libraries that already used the potential systems. Visiting libraries that already use an LMS is considered a good practice in learning more about that particular LMS. This assumption makes great sense, as some of the difficulties in systems do not become evident in a presentation or the responses that the vendors have provided to the tender documents. Libraries that have used a

system for a length of time are in a position to discover potential problems or discuss the strengths of a system based on actual experiences.

The complexity related to site visits stems from the complexity of the systems themselves as well as the complexity of system selection process, installation, training, adoption, and organizational context of the libraries that use those systems. Although a library may be very happy with a system, there is no guarantee that the same system would be seen as equally successful by the next library. Just a look at the market should show that although one library moves from a system X to system Y, another library might move from system Y to system X.

Therefore, although a valuable exercise in getting a sense for a system, another library's views about a system does not necessarily have to be of relevance for a selecting library, its particular needs, and its particular context and setting. Another issue is that the level of details and extent of subsections included in the site visits can vary from one visit to the next, therefore, lessening the correspondence between the issues that are being compared. The people that one meets on the site visits and their individual views of a system represent another aspect adding to the complexity of site visits as a means of comparing different systems. As it was observed in the study, the social and presentation skills of the presenter also play a role.

Disregarding all these, there is still a further issue worth highlighting in this section. In practice, a difference in the way visited libraries were selected complicated the issue further. Whereas for some systems only those sites recommended by the vendors were visited, for other systems other non-recommended libraries were considered.

For example in one case, the project manager's view regarding the sites recommended by the vendors was,

> "Obviously they're going to give us their best sites; they're not going to give us any that they consider that they've had a bad input with."

In that case, each of the suppliers for the favoured system (Goya) and the less favoured system (da Vinci) gave the library a list of reference sites. For the Goya system, the recommended site was the library at the Gainsborough University. For the da Vinci system, the recommended site was the library at the Dudley Hall University.

This information is presented in the following table.

Preferred system	Less favoured system
Goya	da Vinci
Non-Recommended site visited: None	Non-Recommended site visited: Valley University Library
Recommended site visited: Gainsborough University Library	Recommended site visited: Dudley Hall University Library

Table 8 – Overview of the site visits in one case

However, for the da Vinci system, a non-recommended close by library (at Valley University) was visited rather than one of the recommended sites. According to the information gathered in the interviews (and confirmed otherwise), the Valley library was known for disliking its system and portraying a very negative view of it. The negative views portrayed in that site visit had a major influence on views formed by the case library's general staff. As one informant put it, after that visit,

"..people had more or less decided that we didn't want to go with --- [da Vinci]".

After a while, even the Dudley Hall library was also visited. One informant reported on that site visit in the following way,

"And the view that came from there was completely different, very positive, they were pleased with the training they got, they were pleased with the implementation, they were pleased with everything really, it's worked really well."

However, the influence of the first site visit had persisted and the same informant's view was,

"Well I think people are still taking the --- [Valley library] views."

This informant's perception was also confirmed in other interviews. The negative view remained and elimination of da Vinci system was easy to carry through.

In discussing the three site visits, some asymmetrical treatments of the two systems could be identified. For example, the members of the case library dedicated the positive views portrayed by the Gainsborough library regarding Goya to the system itself and its superiority. Even in one instance when an

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informant was not quite happy with what was shown at Gainsborough library, this problem was dismissed in the following way,

> "I've since found out that we won't be getting the product that --- [Gainsborough] showed us so I'm relieved; we will be getting this new product…"

However, the negative views of da Vinci system were accepted more readily as shortcomings in the system. The positive views portrayed about the system were instead dismissed by some in saying that the Dudley Hall library had more money and could afford to pay for better services than the Valley library. It was said that the Dudley Hall library's satisfaction must have come at a price. Similar asymmetrical treatment recurred in other instances. For example, regarding Goya, it was accepted that the version of the system that was being offered was a new version (and different to the one at Gainsborough library). However, another leading system had been eliminated earlier in the process just because the version of the system that was being offered was new and not tried and tested. This despite the fact that older versions of that system had been used over the years and that it was one of the world leading systems of the time.

In numerous examples, it was also observed that the library members were happy to accept the widespread view of a system expressed by others in preference to their own views. For example, in discussing the site visit related to Goya, an informant described,

> "They had good things to say about --- [Goya] more or less, there weren't many major issues that came up, they all seemed okay. I was the only person who had issues [laugh] in that I went to see their --- [a sub section of the system] and *I didn't like it at all*."

This informant went on to explain that she had worked with the equivalent subsection in da Vinci and had found that 'far superior' to what was shown in Goya. This informant dismissed her own view in the light of the views of others. The views that she was accepting in preference to her own views were thus gaining further and further acceptance, by her and others and in this way, they were becoming part of the shared perceptions.

In the same case, another informant had expertise in a particular module and was specifically interested in that module. This informant had found da Vinci to be 'the best'. This informant had only attended the first two site visits (Gainsborough and Valley). Even with the negative attitude that was reported

at the Valley library, there had been only 'one or two little problems' reported related to that module. After these site visits, the informant's view had not changed and her/his view was that da Vinci had 'the edge'. Even so, this informant too was happy to go with Goya based on others' views. According to him, '*they* thought it was absolutely superb'.

That is to say, as expected by the project manager, the recommended sites portrayed a positive view of the systems. In this case, an asymmetrical treatment of the two systems happened in two different ways. Firstly, visiting a non-recommended library that had a very negative view of the less favoured system created an advantage for the favoured system. Secondly, an asymmetry existed in the way the positive and negative aspects of the two systems were interpreted.

10.9 Other Complexities

Throughout, there were aspects of the process that were open to potential influences, and which could add to the complexity of the process. In the following section, I try to touch upon just a few of the issues that have not been taken up so far.

Lobbying and social networks - Lobbying and use of personal and professional networks to promote ideas was observed to have an influence on the process, outcomes of various efforts, and events. In the interviews, most informants were asked about their level of involvement in the internal and external activities such as participation in different committees, conferences, associations and such like. They were also asked about their network of contacts within and outside their organizations. Another question related to whether they promoted their LMS related ideas during their contacts with relevant instances. Furthermore, they were asked about their perceptions of others in the organization. These responses were then compared with timing and outcome of different efforts. This comparison indicated that access to a wider social network and influential contacts and use of those connections in promoting their LMS related ideas had a positive effect in reaching desired outcomes and LMS related objectives. That is to say lobbying and strong social networks seemed to have a bearing on the promotion of LMS related ideas. This in itself can be the focus of a closer and more rigorous study. But the indications in this study were that the complexity involved in the LMS selection process goes beyond the inherent qualities of the systems.

Role of evaluation criteria - In the studied cases, it was a common practice to outline a set of criteria, which were to be used in judging the systems. Some of

these criteria (e.g. user friendliness) were difficult to operationalize and would leave room for ranking the systems in a desired order. Not only this, in one case, where the ranking of the systems based on the pre-defined criteria had led to a very marginal difference between the scores for two systems, it was suggested to re-score, or adjust the criteria to increase the gap to allow a stronger argument for the choice of one over the other. Indications were that the scoring practice was utilized more as a justification of the choice rather than a means for the 'right' choice.

Some of the criteria in the tender documents could be seen as what Brunsson (2002, 2007) calls 'talk', to gain the support of some of the people involved. In practice and at the time of implementation, those criteria were ignored. In one case for example, one of the organizational sub-sections had a demand on a specific feature in an LMS. This was seemingly given a high priority. It was written in the system specification document as a 'must have' feature. Some systems were dismissed at an early stage, with the argument that they lacked this feature. The point that this feature is important was openly discussed and the importance of this feature was highlighted. However, in comparing the finalist systems, a system was chosen that at the time did not offer the required facility (although that facility could be offered by the other finalist system). To satisfy those people for whom this issue was crucial, management maintained that the feature is very important and the chosen vendor can develop the desired feature. However, the cost of this development work and source of required funds for it remained unresolved at the point of system selection. Therefore, although in the *talk* that went on during the process this feature was identified as central, in *action* and *decision* outcome this was not the case.

Biased relationships and information leaks - In one case, one of the informants was of the view that personal relationships between management and some of the sales people had influenced the choice of the system. The bounds of the study did not allow for investigation into the basis of such views. However, observed biased treatment of some systems and vendors in some instances, and a few statements by the informants, give rise to the question of the possibility for leaks in information related to the tender process. For example, one informant stated,

> "I know that --- [a sales rep at the chosen system company] has known everything that we've been doing before we've done it, right from the start."

It should be emphasised that in all the three cases that went through the selection process much effort was dedicated to following the confidentiality rules of the tender process. Nevertheless, at least by the time of the

presentations, a larger number of staff, technical personell, and others do become involved. In some instances, it was observed that the sales-pitch used by some vendors was very much in tune with the internal discussions, or at least one presentation was geared towards discrediting only one other system, which in that case was their only competitor. Therefore, influences due to potential personal contacts with vendors, although unlikely, can be listed as an added complexity in the process.

Level of participation by group members - An aspect of the evaluations was that they were presented as a joint effort by the selection team members and other relevant people. In one of the cases, the contribution of some of the members of the selection team was minimal. One member who represented a group of stakeholders only partially attended two of the selection team meetings and otherwise did not contribute to the process. Another member did not attend any of the team meetings but was present at the system presentations and his/her contribution was limited to only one module of the system.

To conclude, in the sections above some of the issues that can contribute to further complexities in the evaluation process have been touched upon. An objective with this section has been to show some of the difficulties that are not addressed by the existing LMS selection models. Although these issues do not necessarily enter every evaluation process, what is being argued is the possibility of these, and similar issues, entering the process, leading to difficulties in evaluation of potential systems in accordance with mainstream LMS selection recommendations.

The following two sections present a concluding overview of the elements and practices.

10.10 Closing Discussion of Elements

In the previous sections, some of the findings of this study in terms of the elements in the LMS selection processes were presented. As I mentioned at the beginning of the previous chapter, the presence or absence of these elements in the process varied from case to case. In my analysis and interpretation of the data, a combination of circumstances and factors influence the role that each element plays in the process and the question of whether a particular element is present or. In this section, I elaborate further on these issues.

The study showed that none of the elements and related activities is as straightforward as is assumed in the traditional models (or by the participants).

For example, as shown above defining the goals for the LMS selection project is not a clear-cut and easily possible endeavour. The extent to which elements were present or absent in the process varied from one case to another. While some of these elements were missing in one case, they were present in others with varying levels of resource and dedication allocated to them. There were indications that the degree of presence of each element was not necessarily related to the goal of finding and selecting the best possible system based on the best match between the system ability and identified needs. Other issues, including availability of resources, various goals with the LMS selection process, people involved, background for the LMS procurement project initiation, organizational structure, norms, past practices, sources of funding, and the people that were to be persuaded by some related aspects, were all instrumental in forming the process and process elements. Based on the combination of these factors and the origin and goal of the LMS procurement idea, one could find different explanations for the purpose and role of these elements.

Some of these are summarized in the following table.

	Top-down views/ considerations	Official talk	Bottom-up views/ considerations
Process initiation	The wider goals and strategic plans give rise to initiating an LMS decision process OR The initiation of an LMS decision process fits well with other wider considerations	The difficulties in the exiting system have reached a point that require the initiation of the LMS decision process and this fits well with other considerations	The difficulties in the exiting system have reached a point that requires the initiation of the LMS decision process
Goals	Achieve strategic goals Deploy technology (e.g. LMS) as a driver for change Cut costs Centralize Achieve organizational unity Social benefit of	To choose a system that: - meets with the strategic org. goals, - fits the environment (financially, technically and otherwise)	To find and choose a system that is an effective, suitable, and user-friendly tool in daily library work. Provide added services to library users. See to it that own

	people working together and agreeing about their priorities Creating a feeling of ownership among the staff	- is a user-friendly and viable tool for the staff - meets the needs of end-users	skills remain valid and jobs are not lost. Choose a system that allows collaboration with other libraries and info centres.
Funding	Make funds available if LMS procurement fits in organizational goals, delay or reduce funds otherwise	Considering the organization's financial situation, make room and find funds to improve the tools and services such as LMS	Find funding sources and seek funding Write business cases Lobby Put forward arguments/ Persuade management and funding bodies
Pre meetings	How to steer the committee procedures, outcome, and members	To prepare material and structure thoughts to make more efficient use of the time allocated to the following meetings	How to persuade the management and funding bodies
System specification	Formulate, then present to selection members and others Useful in bringing staff together in agreeing on priorities Useful in evaluating current position A tool and benchmark in system selection process A tool in member engagement and achieving a sense of ownership To allocate	To ensure that all the needs and wishes of staff are identified and recorded in order to select a system that best meets those needs and wants	Make sure that the desired features are included and that local priorities are not left out A means of affecting the future path of the daily work An expected document and self evident step in the process

	responsibility (staff, vendors)		
Definition of criteria for the selection	To get the staff to move toward desired path	A tool to ensure an equal, fair and rational review of the options	To choose a desired tool Making sure that various issues are not overlooked or forgotten
Documentation	To set the path to be followed To show that things are done right To use in persuasion	Used to inform and provide a recorded and true portrayal of events and actions	To show levels of participation and amount of work done
Meetings	To steer To achieve consensus	A forum to exchange views and achieve a democratic consensus	To make sure needs and wants are met To influence
Networking lobbying	To steer, To gain support To create a sense of involvement, ownership, commitment, responsibility	To gain a sense of potential needs and to inform	To gain support for presented argument or idea
Evaluations	To allocate responsibility (wider-organization's management, staff, vendors) To legitimise decisions/ outcomes An opportunity to involve the staff and create a sense of ownership	To ensure a rational, fair, equal evaluation of options to choose the best LMS	To gain a sense for the 'feel and looks' of various systems

Table 9 – Summary of Elements in the LMS Decision Process

10.11 Closing Discussion of Practices

In the previous sections some of the findings of this study ,in terms of elements and related practices that emerged in the LMS selection processes, were presented. A research question in this study referred to whether any practices that are utilized in the process in order to establish matters of facts or to assign credibility and status to various beliefs or actions could be identified. In the studied cases and in the course of LMS change, a number of practices that were utilized in influencing views and actions in conjunction with the outlined elements emerged. In the following section, based on the findings of the study (which are only partially described above), I present a short outline of the more central of these. These practices were not necessarily present in each of the studied cases, but all of the practices listed below were observed to be instrumental in influencing the views, the process and the outcomes on at least one occasion.

As discussed above, the LMS selection can be lengthy and complex, with many elements and activities involved. Admittedly, the bounds of this thesis do not allow a more thorough presentation of the detailed follow up of the formation of attitudes and views related to each of the systems that were considered or omitted. However, throughout the study, the informants were continually asked about their views about different systems at those particular times, and the changes in attitudes or continuation of similar views were noted for the informants that expressed their view. In one case, for example, the views of staff and management were collected at different stages (e.g. at the start of the study, during the process, and at the end of the process). At the start of the process, those that belonged to the managerial group unanimously ranked a particular system at the top position. That system was not ranked consistently high by others at the staff level. The views of management regarding that system remained the same throughout the process. What was striking was that staff's view changed over time and by the end of the process that particular LMS was ranked number one even by the majority of staff, and was hence selected. The only member of the selection team, that did not rank that system as the top choice, had been involved in the process only partially and had missed the meetings in which the views of other members had been formed. That is to say, that although this work does not demonstrate in detail how and when changes in views and attitudes occurred in relation to different activities that took place, the data collected in this study supports the presence of a number of practices that had noticeable influence on the process and views formed. The following is a brief overview of these.

The data in the study indicated that the *use of committee structure* was instrumental (or could be used as a *mechanism*) in steering various elements and outcomes in the process. Committees were observed to both *legitimise* decision outcomes and to *delay* or *eliminate* undesirable decisions. They could also be used to steer the members to reach a desirable decision.

Steering of the decisions could be done by use of many practices. For example in the committees, to pave the road for control, a method used was *fingering* or *selection of the right committee members*. The fingering refers to a practice where desirable potential members are identified and pre-informed about the upcoming committee or group formation. That is, they are told that they would make suitable candidates, and are encouraged to volunteer for participation. *Pre-meetings* were another practice used to identify the desired path and outcome of the next LMS selection or committee meetings and used to steer them. To steer the actual happenings and outcomes of meetings *chairing techniques* were means to achieve the set objectives. For example, the chair could lead the meeting in such a way that a shorter or a longer time was allocated to each point, or the order and *timing* of expressed views was defined, or *facial expressions and body language* was used to promote or demote different views.

Another practice used was *employment of status,* where extra people with a desired view were brought to the meetings to add support for that particular view, or references were made to high status people or documentation that supported the view that was being promoted.

Another means of influencing the process and outcome was the use of *documentation* (e.g. minutes of the meetings) in a number of different ways. What was included or excluded, people involved or excluded in the production of the documentation, the recipients of the documentation, even the *timing* and the extent of documentation were instruments that could be used at different times to influence some aspects of the process. The timing in this sense refers to the time when the documents were presented to the participants. Short time period between sending the minutes (and/or other documents) did not allow
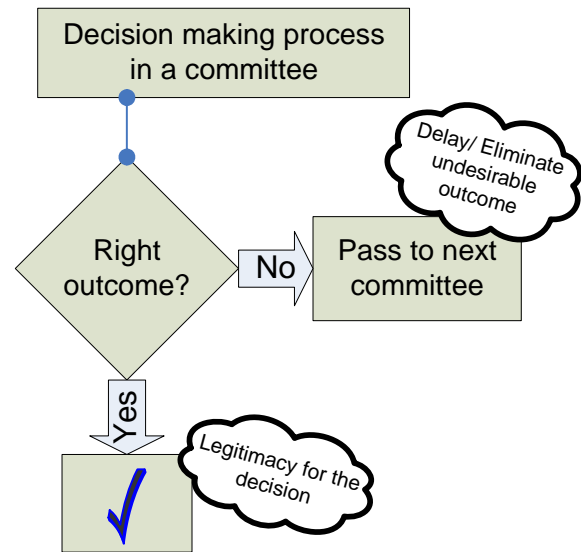

Figure 12 – Graphical representation of the delaying mechanism or legitimizing by the use of committee structure

enough time for careful consideration of the contents and hence eliminated potential debates. Timing was a practice that was used even in conjunction with other happenings such as presentations where the time allowed for each section of the presentation influenced the views and the outcomes.

Division of a major decision to many smaller sub-decisions was another practice that facilitated the launch and acceptance of more complex problematic change. If a larger decision was controversial, it could be subdivided into many smaller steps, where committees (possibly unaware of the final overall goal or outcomes) were employed to make (and therefore, legitimise) smaller less threatening decisions which when brought together would achieve the initial wider objective.

Purpose change or *shift in talk* was also a practice that was utilized to steer towards the desired outcome. This refers to a situation where something is done for a particular purpose, in a particular context but then the outcome is presented in connection with a different purpose or is applied to a different setting. A system can be evaluated only partially or through a particular lens, but the evaluation outcomes can be represented as a full evaluation of the whole system. A view can be expressed within a particular context but later represented by others as the expressed view related to other contexts.

Similarly, *associative rhetoric* was another practice identified in this study. Here, a move towards, and acceptance of a change was facilitated by conscious widespread associations with helpful concepts and terminologies. Rather than terms such as 'divisions' or 'centralization', terms such as 'united teams', 'collaborative efforts' and 'coordination' were systematically used in documentation and organizational discourse to change perceptions of various happenings.

The area of use of the term *framing* could be extended or an alternative concept of *staging* could be introduced to refer to another practice that was used at various phases of the process. Staging refers to purposeful packaging and presentation of information in suitable forms in order to achieve desired effects. The staging observed in this study took different forms including deciding a course of events in the pre-meetings, followed by staging the related information in the follow up meetings, in such a manner as to steer the outcome of the follow up meetings. This could include the manner in which the points and issues were brought up, or the way various options were presented or discussed.

Other closely related practices were also observed in conjunction with or as part of staging. For example, *imaginative accounting* was a way of

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interpreting the cost information related to each system in the most suitable manner to suit a desirable outcome, i.e. favouring one system over another. Another practice observed was what could be called a *present-retract* technique, where some information was presented to the relevant people in order to leave an impression and then retracted from the committee and related documentation. Therefore, although such information could not be interrogated and no traces of it could be observed in retrospect, the effects of it were present in the decisions made, as well as in the outcomes.

In order to drive desired change or to gain support for top-down decisions and directives, *deployment of technology as a driver for change* and *injection of money as lubricant* of change were also two other practices identified. Deployment of technology as driver for change refers to provision of a technological solution that by its adoption will lead to desired organizational change such as centralizing some functions or disallowing diversified local images of the organizational sub-units on the local OPACs or web-interfaces. Injection of money as a lubricant for change refers to financing projects that organizational units cannot quite afford on their own and by doing so, gaining control on the resources that are being made available, and their use in order to drive desirable goals.

To summarise, during the course of this study, a number of practices were invoked by different groups in promoting ideas or gaining support for different endeavours. One can group these practices together, at a higher abstraction level, under *organizational, technical, documentary*, and *social* practices (cf. Shapin and Schaffer, 1985).

Organizational – A number of practices could be listed in this group. Use of committee structures was one way of minimizing undesirable views or legitimizing decision outcomes. Creation and reinforcement of organizational structures that facilitate top-down goals were other tools in setting the boundaries and steering the decision process and outcome.

Technical – Highlighting the technical aspects of the favoured LMS facilitated creation of supportive views of it. Appeals to technical discussions on the inherent attributes of an LMS and the way an LMS and its functionality and technical makeup fitted in the technical environment of the organization were instrumental in promoting or demoting different systems.

Documentary – Production, and work with various documents were a major part of the process and were instrumental in legitimizing and

gaining acceptance and support for some decisions. What could be listed here includes use of minutes of meetings; emails; memos; information bulletins; specification and tender documents; score sheets and score summaries. These were all instrumental in constructing a view of a system as more superior or desirable than the other systems. The contents of these and other documents were widely regarded as factual material and their contents or ways of production were not normally questioned.

Social –   Although a social aspect is inherent in all practices mentioned so far, a number of practices had a more dominant social aspect to them. For example, presenters' presentations and social skills played a major role in the formation of the widespread opinions of the general staff. Other practices that could be included more directly under this heading were employment of status; fingering; one to one and social chats, talks, gossip; social networking; and lobbying, which were all utilized to create and to influence views.

Although this categorization is useful in forming an overview of different types of practices, it has to be emphasised that these categories are not mutually exclusive and do overlap. A large number of practices could be classed as social even though the main components of some of these could also be classed as organizational, documentary, or technical. System presentations and site visits mainly circled around learning more about the technical aspects of the systems, but they also incorporated a strong social aspect. The technical experts discussed and expressed views regarding the technical abilities of different systems. However, their opinions were readily accepted and taken for granted due to their social and organizational roles as technical experts. Documentary practices incorporated organizational social and technical aspects. Nevertheless, the above categorization may be useful to see the multiple dimensions of the practices that were identified.

10.12 A Visualization of Elements and Practices

As discussed above, the practices and the presence and extent of different elements varied from case to case. The following figure may be useful in presenting this.
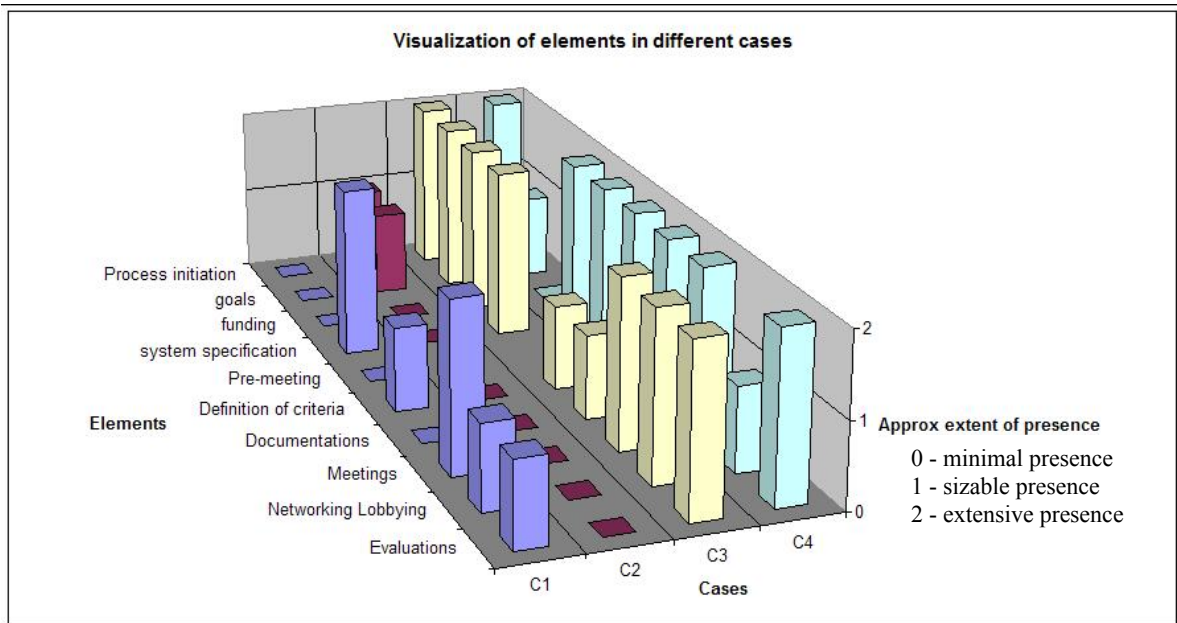
Figure 13 – A potential visualization of elements in different cases

This is not to suggest that it was possible to quantify and measure the extent of presence of different elements. This diagram is just to suggest that while some elements may be present in one case they may be missing from another. For example, in one case a system specification production may be missing, in another case such a document may be only a few pages long, and in a third case it may be a sizable document with substantial resources and efforts dedicated to its formation.

Keeping this in mind and relating back to the presentations above, the relationship between elements and practices can be visualized as in figure 14.
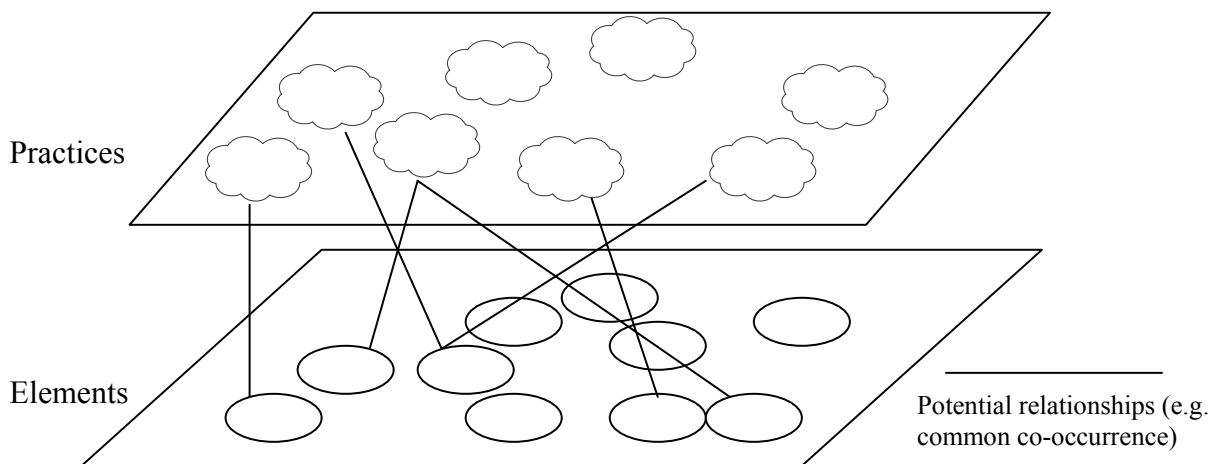
Figure 14 – Elements and Practices

In this figure, the elements and practices are represented by circles and clouds respectively. The lines represent potential relationships between the elements and practices. That is to say, some practices emerge more typically in association with one (or more) particular element(s). In relation to the same element, other practices may not be so typical and may at times emerge, while not emerging at all in other instances.

The separation of the elements and practices *is not to suggest* that each of these operates on a separate plane, this separation is just a pragmatic solution to allow a discussion and analysis of them as identifiable entities.

The way in which elements and practices come together may be better visualized by considering an individual example. The following diagram shows how in a hypothetical case, a number of different elements and practices among all the possible mixes are invoked.
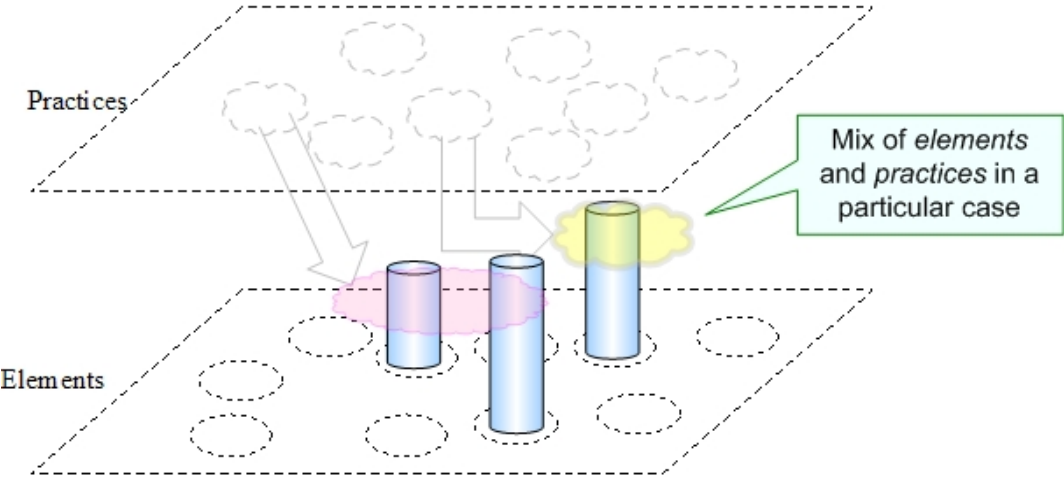
Figure 15 – An example of a potential mix of Elements and Practices in a particular case

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11. The LMS-Decision Process: an Alternative Explanation

In this chapter, I discuss some of the findings of the study in the light of the theoretical framework which was presented in chapter four. A central idea of this study has been the ambition to look at the micro activities in the process of LMS decision in relation to norms and structures, and to examine how these shape and reshape each other. Another idea has been to examine and discuss how shared views and perceptions are established in the interactions that take place. The presentation of examples provided in the previous chapters was a step toward that end. It has already been presented that at times external influences, and organizational specificities enable or set the boundaries for some actions and decisions. Further examples were provided to show that at times local and individual actions were taken either to question and change the boundaries or to accept and follow the directives. A number of practices were presented as means of influencing the process, creating acceptance for ideas, and creating and promoting matters of facts. Examples were provided indicating presence of power issues in the process and a political dimension to the LMS change process. In this chapter, I enter a discussion, in which the issues that were outlined and exemplified with the help of the empirical data are brought together. Here the theoretical lenses presented earlier are utilized in conceptualizing and providing an alternative explanation of the LMS decision process.

What I have introduced in the presentation of the findings and the discussions above is the suggestion that the collective complexities involved in the process suggest that a rational selection is not fully possible or unproblematic. The complexities included:

- multiple, and at times, non-disclosed goals
- numerous people involved, directly or indirectly
- the presence of, and variations in, resources and rules that both enable and set the limits
- the social relationships
- the complexity of library management systems
- the number of potential systems involved
- the presentation skills and social competences of the supplier companies' staff
- difficulties in comparison and evaluation of the systems

This chapter comprises a reexamination of the findings of the study in relation to a number of theoretical views. The discussions that follow relate to LMS

perception formations in the light of views proposed by Collins (1992), causes and consequences of LMS decision as analyzed with the help of views put forward by Brunsson (2000, 2007), and the relationship between the actions and interactions that take place in the LMS decision process in relation to Giddens's (1984) duality of structure.

Based on these discussions, I conclude this chapter by presenting an alternative conceptualization (as compared to the mainstream LMS selection models) of the LMS decision process.

11.1 LMS Perception Formations

In mainstream LMS selection models, it is proposed that in order to reach a successful outcome and selection of an optimal system there is a number of steps to be followed in line with rational models. In the prescriptions of such models, two implied assertions are indicated in various degrees of strength. The first implied assertion is along the lines of the following statement:

> *First statement*: Following a rational process (as prescribed by such models) will lead to the optimal selection procedure and outcome.

In each case, setting, and time, a number of activities take place in a natural and accepted fashion. In each selection instance, a system is chosen that is seen as the best option. But how can we be sure that there exists a causal relationship (as opposed to extended coincidences) between the sequences of activities that take place in an LMS decision process and the selection of a potentially existent best option? If we apply Collins's (1992) views (about how we come to be certain about regularities in practice) to this question then the answer is that we cannot. Not only does Collins's response hold at a philosophical level, the findings of this study provide support for this response at a tangible practical level. After all, the process of identifying the so-called optimal system (or LMS decision process) varies from case to case. Furthermore, in some instances, the same process that leads to a claimed successful outcome at one time, can lead to a reported non-successful outcome at another time. Even an empiricist argument that such a view (statement 1) holds based on past experience, does not apply as the complexities involved in the process do not allow a faithful compliance with the rational model guidelines. Therefore, the validity of such a statement cannot be supported even by that argument.

If the truth of such a statement cannot be established, then one can question why library members strive to achieve the rational standards. The rule of rationality and the conceptualization of individuals as actors are accepted as important cornerstones of our society. The huge amounts of LMS selection

guidelines accord these guidelines high status. The widespread value of applying rationality in actions and decision making have entrenched these societal values in our individual views. For many, to reach the ideal of the individual as a freethinking actor is to legitimise one's action by following the rule of rationality. Therefore, following a rational process in search of an LMS has become an expected entrenched behaviour.

What I argue for, in this study, is that the prescribed optimal processes of LMS selection are not the causes of what is perceived as a successful choice. A choice rather becomes perceived as successful because it follows the prescribed processes, as the high value of those practices is entrenched in our daily lives.

The second implied assertion could be formulated as follows:

> *Second statement:* A rational evaluation of the inherent merits of different options will lead to the identification of the optimal LMS.

An accumulating argument in this study has been that when a library is faced with the choice of one LMS among a number of systems that are all similarly complex, it is hard to choose one or another LMS based on the inherent attributes of the systems. Many LMS related problems become evident after a period of use based on the specificities of the user case and the particular ways of working with the system. A comparison of the rival systems based on the limited demonstration databases does not ensure system suitability for a particular library. In practice, the complexity of the systems makes a thorough test of each system and the comparison of a number of potential systems unmanageable. Even if a comprehensive test of each of the systems were possible, each selection requires a set of goals for the evaluation. The LMS decision goals are also difficult to identify.

Despite these difficulties, systems are chosen and in many instances, some sort of consensus is reached. The people involved come to see a system as the optimal choice and superior, leading to the purchase of one system among a number of others. If the bases of such concerted perceptions and action are not the inherent qualities of a system, the question remains as to how such shared perception of superiority is then formed in the practice of the LMS decision making.

Again, I have utilized Collins's (1992) views regarding conceptual order as an analytical tool in my examination of the LMS decision process in order to find an answer to this question.

The LMS decision process is a social activity and is situated in a social setting. Much of the general uniformities of perception and meanings that are present in an LMS decision process come about in a 'natural unthinking ease' that are common to any society and culture. The question is what happens to change the varying and at times conflicting views of participants at the beginning of the process to become a concerted unified agreement about which system is the best option at the end of the process. One could ask 'what changes the views of the individuals that at the beginning of the process did not agree with the superiority of a system, which is chosen as the best option at the end of the process?' In the interviews, and at different stages of the process, the informants expressed their views about different systems. When the views changed, many informants offered rational explanations as the basis for their views. These explanations often included reasoning such as 'the qualities of a desired system were identified, the inherent values of the systems were compared, and based on system evaluations it became evident that a particular system was superior to the other systems'.

When it comes to the *criteria* of selection/decision, the majority of library staff members enter the process at a late stage when the bases of system measurements are established (often in the form of a system specification document formulated by one or just a few participants). Those members that do not agree with the established criteria are constrained in the extent of change that they can suggest. Whereas small changes may be seen as acceptable, major total changes reverberate through the established system of criteria more than the acceptable levels. Hence, potential major disagreements with the full set of criteria are overridden due to the strength of the already established set. While some may see that library operation functions (including cataloguing, acquisition and so on) ought to be the decisive criteria for choice, they end up agreeing that, for example, technical fit such as having a UNIX operating system and sophisticated networking capabilities are values that are more important and should be the deciding factors. By accepting these and other alternative criteria, they come to accept a system that fulfils the latter criteria as the superior system based on this agreed set of criteria.

Regardless of the way evaluation criteria are formed and what influence they have on the process, if the evaluation details are looked at closely (as outlined in earlier chapters), the evaluation is not based on the actual capabilities of the systems but rather on other people's claims about their capabilities. Furthermore, the shortage of time, the complexity of the vendor responses, the mismatch between the types of responses and so on would not corroborate the superiority of a system based on its inherent qualities. In the study, some participants maintained their earlier views about their favourite system; however, they came to accept the chosen system as superior or on par with

their personal favourite. An examination of the external pressures, personal or organizational goals, the steering mechanisms, and all the other aspects that were touched upon in the earlier chapters, portray a very complex network of interrelated factors. This complex network forms the circumstances in which the shared perception of a system's superiority is created and maintained through the *practices* of *holding meetings, documenting events, visiting other libraries, attending system presentations, distributing LMS related news through memos and organizational newsletters, holding individual conversations, creating rumours and so on.* Although a rational comparative evaluation of different systems (based on identified organizational goals) is seen as the utmost identifier of the superior LMS, in reality a true test of the different LMS is not done. Instead, the perception of a rational evaluation is constructed. The activities that take place during the process create a sense of fair evaluation of the different options. The achievement of the concerted view about the superiority of the final decision goes beyond the inherent qualities of the various systems and limited activities that take place in an evaluation exercise. The shared perception is based on the wide complex network of interrelated practices. By the end of the process, if varying views of different systems remain, the acceptance of the final decision by those members who do not agree with the process outcome is linked to 'the way of goings on' in a network of social practices. In this way, the non-conforming views are overridden due to the strength of the received view.

That is, the conception of what makes an optimal system is interlinked with other social conventions such as 'how far one should argue for a certain issue', 'what a smirk might mean', 'what position one should hold in relation to the opinions expressed by the superiors', and other concepts and conventions that are 'jointly entrenched' within our 'form of life'.

In the LMS selection process, it is not that the inherent qualities of the chosen system meet with the entrenched view of what the qualities of a superior system are. It is rather that in the activities that take place in the LMS decision process, the qualities of the chosen system become well entrenched as the right ones.

11.2 Causes and Consequences of LMS Decisions

Brunsson considers decision as an institution and rationality as only one form of intelligence. In his view, unlike the classical theories, decision is not necessarily synonymous with choice. Brunsson argues that decision processes are social phenomena and have multiple causes and consequences, of which choice is only one. Brunsson identifies action, responsibility, and legitimacy as three additional consequences of decisions.

In the earlier chapters, I have presented an argument in that the assumption of rationality that underpins much of the mainstream LMS selection models is hard to maintain in the practice of the LMS decision. In many instances of LMS decision, rather than a projection of the future needs, past practices events and guidelines define the path for the process. In some instances, where an attempt is made to define the requirements from an LMS, current needs (rather than projection of future needs) are considered. The projection of the future outcome of various LMS options are not based on thorough examinations of all the potential systems but rather based on descriptions from system vendors. At times, the criteria for the selection enter the process on an ad hoc basis and the same criteria are not used equally as the basis for the evaluation of all the potential systems. In some instances, although a particular function or aspect of an LMS is highlighted as central throughout the process and in documentation, this specific issue does not play a vital part in the final choice. Even though some functions and aspects within an LMS are highlighted as central and it is ensured that these functions or aspects are present in the chosen system, these are not utilized after the purchase of the system.

Using Brunsson's views as an analytical tool in this study provides an alternative view of the LMS decision. LMS decision process does not necessarily lead to the choice of an LMS, and in those instances that it does, the choice of an LMS is not necessarily the only cause or consequence of the decision. Shared ideas about the situation of a library and the way the LMS decision related actions should take shape (i.e. organizational ideologies) define the boundaries and produce the rules that govern the LMS decision process. Whether the purchasing officer of the wider organization should be part of the process, whether a system specification document should be drawn up, or whether the formation of a selection team is necessary, are all of these types of rules. Even the question of whether the process of LMS decision should adhere to, or be seen to follow, the norms of rationality is a rule defined by these shared ideas and ideologies.

At times, an LMS is selected first, and then the choice is followed by a process. In such instances, the purpose and outcome of the LMS decision are not an LMS choice. The purpose of the decision process that follows is not to determine which system may be most suitable, or to choose the right option. In such instances, the LMS decision process is utilized to create acceptance for the chosen system and the process. That is, in LMS decision process, the outcome of the process is not necessarily, or only, the choice of an 'optimal' system. Other consequences of the process in this study included:

- legitimising the activities, the decisions, the people involved, and the structures put in place
- creating motivation
- creating acceptance for, and gaining commitment to the LMS decision, and the potential adoption of the chosen LMS
- allocating responsibility for the decision process, and the decision outcomes
- achieving coordinated efforts and directing action path
- creating or reinforcing a desired image for the library or the wider organization
- creating, maintaining or reinforcing organizational structures
- creating organizational order
- constructing perceptions and views that are taken for granted

Accepting responsibility for an LMS outcome is one way of accepting decision ownership and commitment to the decision outcome. By involvement in the decision process and creation of a sense of ownership, staff's acceptance of and commitment to the outcome is sought. To create further acceptance and commitment to a decision, different aspects of the decision process are shown to be rational to legitimize the chosen LMS as the outcome of a rational process. The rationality of the process is made visible, for example, by distributing minutes of meetings and other documents that witness that the decision process has been in line with the rational norms.

To assign the responsibility for an LMS decision outcome, the decision makers are made visible. If the desired outcome is that library staff members assume the responsibility, their involvement in the process is made visible and highlighted. If the responsibility for a decision is not desirable, to remove the burden of responsibility other factors such as presence of an external consultant or imbedded organizational structures and external rules and directives are highlighted.

A paradox that emerged in the study is that at times, those who are assigned the responsibility for the decision and highlighted as the decision makers (e.g. the LMS selection team) are not the real decision makers, as various influences enter the long process of LMS decision that steer the outcome of the process. This could be viewed as a practice in reducing the visibility of the behind the scene (real) decision makers with the aim of placing the responsibility on those that are made visible. The library staff members, who were on the system selection team, expressed responsibility for the selection. The study found that this was the case even in those instances where pre-meetings and other influencing factors were in place steering the process. It should be noted that the determinism that this finding suggests was not due to

social structures as defined in the traditional sense. In the situations where actions of some individuals were steered towards a desired outcome, this was achieved through the actions of other individuals who had a better command of the available resources and manipulation techniques. In other words, it was the actions of human agents that led to steering of the actions others, either by direct influence or through the intended and unintended consequences of actions that had created and reinforced the embedding organizational structures (in forms of established committees and so on).

When a team of library members with a high level of legitimacy accepts the responsibility for an LMS decision (e.g. by being the selection team and either having made the decision or being made to look the part), legitimacy is allocated to the LMS decision. If an aim of the process is to allocate legitimacy to the decision, the tie between the decision maker with high legitimacy and the decision is made visible.

In many organizations, within which libraries operate, there exist conflicting interests, values, ideas, and demands. In such situations, Brunsson conceptualizes a possible relationship between ideas and action as hypocrisy. That is to say, a way to handle these conflicting demands can be to separate talk, decision, and action. Top management may show understanding for the idea of the LMS change. Accordingly, in discussions they may give positive feedback regarding their views on a proposed LMS-change (talk). Meanwhile, the organizational committees may make a decision to delay the purchase of an LMS to a future time (decision). At the same time, an action may be taken by top management to remove some LMS related resources from the library (action). Each of these may be directed at fulfilling separate demands. The *talk*, reassures the library members that their concerns are being heard, the *decision* satisfies the demands for replacing another organizational system that is given priority above the LMS, and *action*, achieves the goal of strengthening the position of a newly formed department within the wider organization.

In LMS decision processes, not all talks are utilized in line with the act of organized hypocrisy. The initiation of LMS decisions that do not lead to an LMS selection or LMS change can be seen as a kind of talk. The purpose with these talks is not always to fulfil a number of conflicting demands. It is sometimes to create a uniformity of expectations and to prepare the members and wider organization for future action. When some library members find it difficult to let go of their existing skills and are not comfortable with altering their routines or learning new skills in order to operate a new LMS, the act of initiating an LMS decision process prepares the members for a change of LMS at a future date. The time between the talk (e.g. a decision process that does

not go beyond viewing a number of systems) and future action (e.g. an actual LMS change) allows adjustment time for the changes to come.

To conclude, by using the views presented by Brunsson, I argue that a useful alternative perspective (as compared to the mainstream LMS selection models) is to regard the LMS decision in the light of action rationality rather than decision rationality.

11.3 Duality of Structure in the LMS Decision Process

In this section, I use Giddens's duality of structure as a lens through which the actions and reproduction of the systems of interaction within the LMS selection process are viewed and interpreted.

The way the organizational members act in the process of LMS decision process could be interpreted in terms of the views put forward by Giddens, who states,

> "Actors draw upon the modalities of structuration in the reproduction of systems of interaction, by the same token reconstituting their structural properties." (Ibid: 28)

Structure, as defined by Giddens, refers to rules and resources. In this study of the LMS decision process, both rules and resources that set the boundaries, and enabled actions were identified.

At times, the change of an LMS is seen as tied to wider organizational goals. In such instances, financial and other resources are made available in order to facilitate change and to mobilize action. Although some of such resources have 'real existence', they could still be seen as what Giddens calls allocative resources because regardless of their 'materiality' they also comprise 'forms of transformative capacity'. The organizational structural changes and formation of committees or selection groups, that were found in the studied cases could be interpreted to represent what Giddens calls as authoritative resource, as these represented "transformative capacity generating command over persons or actors" (Giddens, 1984: 33).

The rules that were identified in the study could be viewed to relate, on one hand, to constitutions of meanings and on the other hand to the sanctioning of modes of social conduct (Giddens 1984: 18).

Some of the identified rules (e.g. the recording of the minutes of meetings) would sanction the related actions (how the events of the meetings are recorded) as well as identify the action (the meetings) as a formal

organizational procedure in making a 'good' decision. This sanctioning aspect is coupled with the constitution of meaning (the interpretation of the recorded accounts of meeting and the meeting outcomes) as legitimate and true representations.

Following Walsham's (1993: 61) interpretation of different dimensions of structuration theory one could analyse the LMS decision process in the following way.

The human communications in the LMS decision process include personal informal contacts, formal and informal meetings, production and distribution of various LMS decision related documents, personal and formal email exchanges between individuals or groups, memos, newsletters and so on. In these communications, the library members draw upon their life long experiences and stocks of knowledge to interpret and make sense of their own actions as well as those of others, and the LMS decision related activities. By choosing to follow the set accepted procedures, norms and rules, the norms and rules are reinforced and structures of meaning are produced and reproduced.

In the process of LMS decision, the individuals involved draw upon facilities and resources in order to utilize power. Material and human resources, for example, are allocated to various LMS decision related activities by both management and staff. Giddens (1984:15-16) does not see power as a resource but rather "resources are media through which power is exercised". That is, the individuals involved in the process of LMS decision making exercise power through the resources that they allocate to the process. In so doing, they also create, reinforce, and change the structures of dominations. Removal of resources from a department and its allocation to another, for example, is a means of reinforcing a newly created structure of domination. The creation of multi-level committee structures to stall some decisions is another example of reinforcing the structure of domination. Even the actions of a lower-level library staff, in standing up for his or her rights by utilizing the available resources in confronting the imposed structure of domination is an example of production and reproduction of social systems but also what Giddens (1984: 16) calls the 'dialectic of control' in social systems.

The actors involved in the studied cases often appealed to norms and received practises and views in legitimizing their actions (and LMS decision related arguments and activities). A way in which this was done was through displaying that their views were in line with the accepted views and practices (e.g. a survey of the placement of the post of systems librarian in academic libraries was an attempt to legitimize opposition to a proposed structural

change, namely moving this post to the IT unit). Another way was to establish associations between accepted norms and their action (e.g. associating positive concepts such as collaboration, unification, and coordination with the act of centralization).

By drawing on these norms and accepted views to sanction the LMS decision related actions, librarians reinforce the social structure of legitimation.

A combination of the existing norms, rules, and resources define the structures within which the LMS decision processes take place. The individuals involved drew upon their knowledge and interpretative schemes to make sense of their own actions as well as the actions of other. By following the existing rules and norms, they reinforced these norms and rules and by acting against said rules and norms, the actors began to reshape them.

That is, the day-to-day microsocial LMS decision related activities influence the related process by creating, maintaining or changing the existing structures of meaning, domination and legitimation.

11.4 An Alternative View – a Re-Conceptualization of the LMS Decision Process

A common view of LMS decision was presented at the start of the thesis (section 2.3) as a process in which the assumption or rationality is a central aspect of the LMS selection activities. In that view, a number of elements in the process are identified, which if followed rationally, are said to lead to the choice of an optimal LMS for a given case. Throughout this study, the assumption of rationality and the role of the LMS decision process as the identifier of the best option have been questioned.

It has been argued that it is not easy to follow the traditional LMS selection models. Even if this were possible, one cannot guarantee (or show) that such a process will necessarily lead to the selection of 'the optimal' LMS. The identification, and even the existence of 'the optimal LMS' have been questioned based on the complexities in library settings; various, and at times conflicting goals; internal and external factors; and complexities of systems and support issues.

If the prescriptions of the traditional models do not fully hold, the question remains as to how the LMS decision process is viewed in this study.

The findings of this study confirm that, similar to common view of LMS selection models, a number of activities and junctures are involved in each LMS decision process. This can be depicted in the following manner.
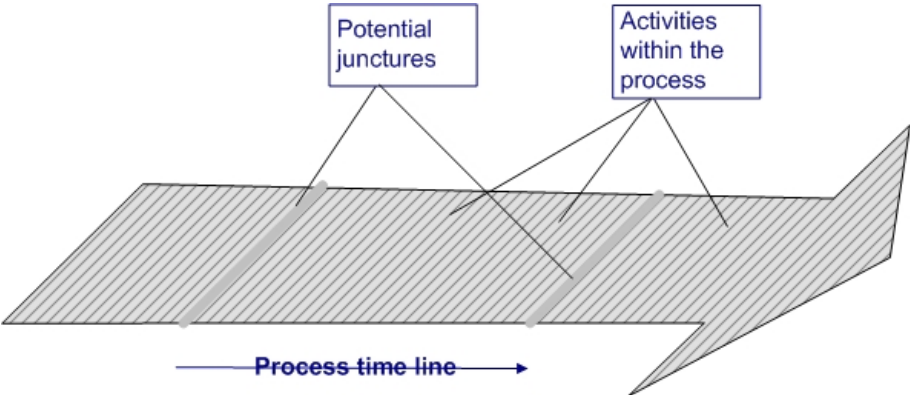
Figure 16 – Activities and junctures within the LMS decision process

Through these activities and junctures, a number of elements emerge and a number of practices are invoked. The relationship between the elements and the practices was depicted in the figure 15. The relationship between the elements and the practices in relation to the activities and the junctures can be shown as follows.
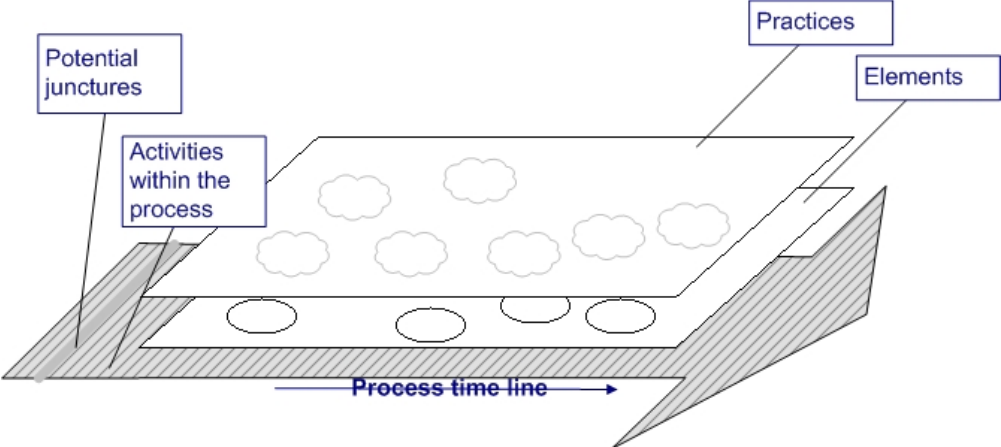
Figure 17 – Elements and practices in relation to activities and junctures

In this process, structures are constituted through the actions of human agents, at the same time they are the medium of this constitution (Giddens, 1984). The dynamic of interaction between activities and structures is added to the diagram as shown in the following figure.
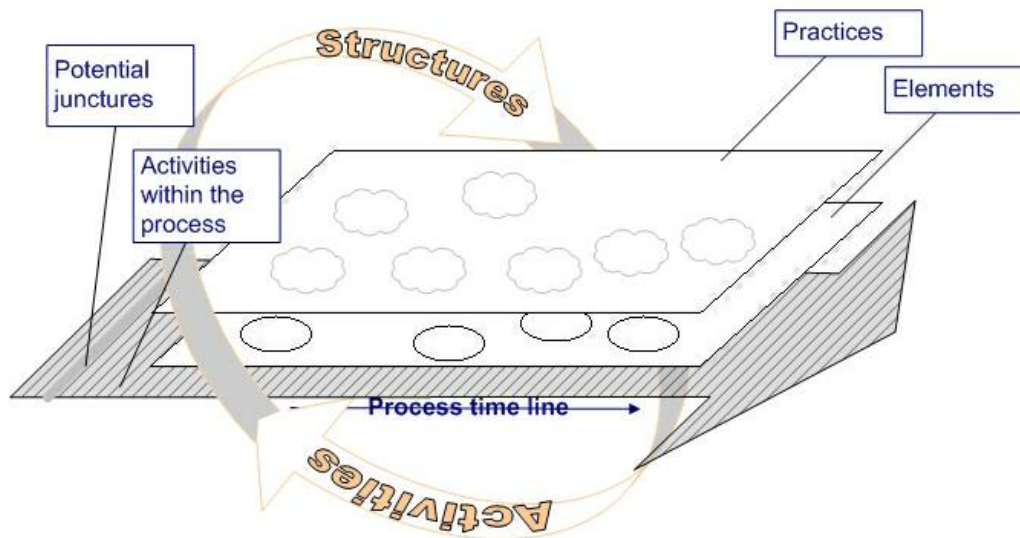
Figure 18 – Duality of action in the LMS decision process

Furthermore, the LMS decision process leads to a number of potential outcomes, the choice of an LMS being only one of these (c.f. Brunsson 2000, 2007). The choice of a system with inferior inherent qualities (e.g. one which does not meet with the basic requirements, or does not fit within the specific environment) may easily lead to dissatisfaction and rejection of that system but not necessarily in all cases. The choice of the best option (even if this were possible to identify), would not necessarily lead to full satisfaction and declaration of the process as 'successful'. What is argued in this study is that the perception of a system, as superior, is constructed through the LMS decision process. That is, *the LMS decision 'process' is as equally important in forming the perceptions of an LMS selection as successful, as are the inherent qualities of the chosen system.*

As an alternative to the traditional views, where the cause and consequence of LMS decision process is seen as choice, the LMS decision could be viewed as a process useful in:

- gaining legitimacy for the LMS decision, process, and outcome(s), and the organization and decision makers.
- construction of LMS-related perceptions (both positive and negative) through the actions and interactions that take place in the process
- creating acceptance
- gaining commitment (of for example top management, library staff members, IT unit members, the system vendors to provision of resources, the project and adoption of the chosen system)
- motivating

- allocating responsibility for the decision to individuals or groups of people
- achieving strategic goals within both the library and the wider organization
- deployment of the LMS decision process as an agent of change
- creating a desirable image of the library or the wider organization
- constructing consensus
- mobilising action
- creating, maintaining, or reinforcing organizational structures
- achieving coordinated actions and setting the path for future action

It is proposed, therefore, that the intended and unintended consequences (c.f. Giddens, 1984:11) of the LMS decision can be multiple and extend beyond the choice of an LMS (c.f. Brunsson 2000, 2007).

Considering the above presentation by adding potential outcomes or consequences of the process, a new alternative model of the LMS decision process is proposed in the following figure. The model helps illustrate the relationship between elements and practices in the context of the LMS decision process and in relation to activities and junctures which together lead to various potential outcomes. What is emphasised in this model is the interactions between the day-to-day activities and the embedding structures, where activities both contribute to reproduction of structures and are shaped by them (c.f. Giddens, 1984).
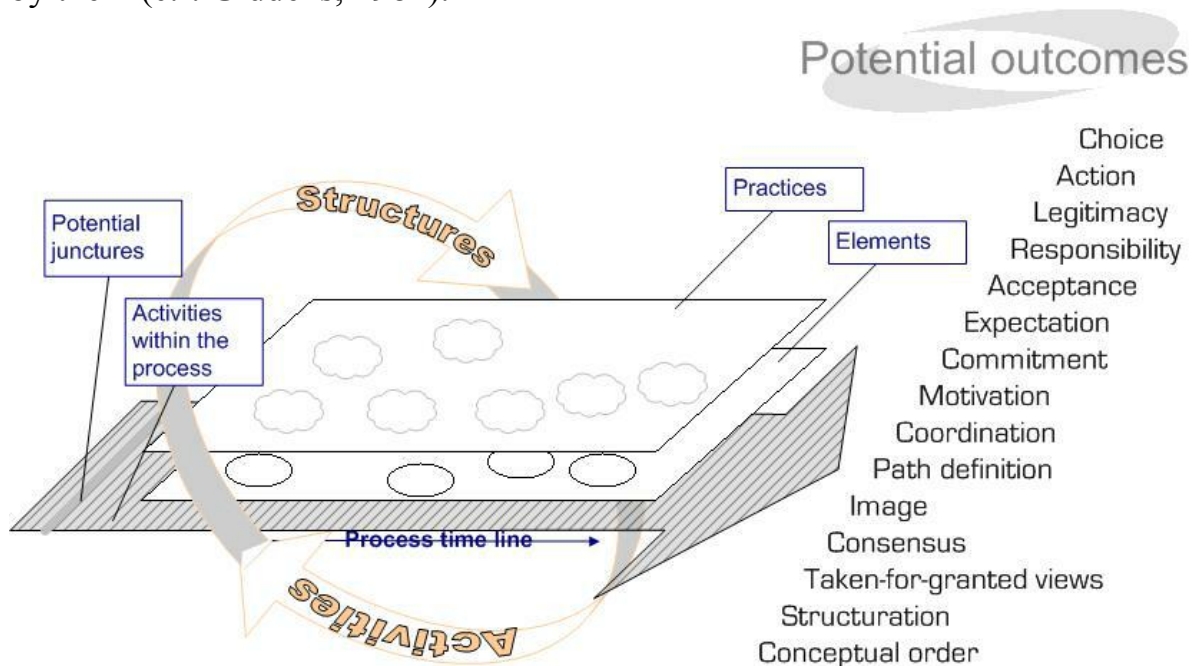
Figure 19 – The LMS Decision Process Model proposed in this study

While various activities, which are time and space bound, take place during the process, elements and practices are invoked. The lines in the bottom arrow-shaped plane depict the *activities* within the *process*. The highlighted lines indicate potential *junctures*. The arrow shape of this plane is to indicate the time-bound nature of the activities in the LMS decision process. The middle and upper planes are to depict the potential *elements* and *practices* respectively at an abstract level. The right hand-side of the diagram presents potential outcomes of the LMS decision process.

It may be easier to see what is meant by this model by looking at a couple of imaginary examples. In the following example, it is shown that various activities take place in a time-bound fashion. A number of junctures are highlighted. During the process in this example, six different elements (E_1-E_6) are present. In conjunction with these elements, four different practices (P_1-P_4) are invoked. In this example, practice P_1 coincides with element E_6; practice P_2 coincides with elements E_2-E_5; practice P_3 coincides with elements E_3 & E_5; and practice P_4 coincides with elements E_1 & E_2. The LMS process outcomes, in this example, include allocation of responsibility, gaining commitment, reaching consensus, re-shaping structures and maintaining conceptual order.
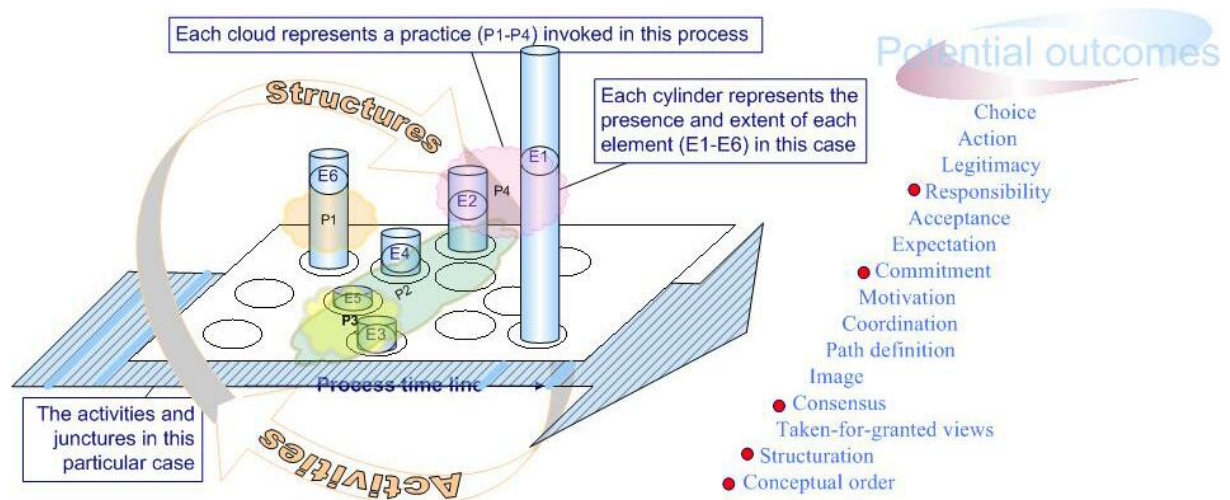
Figure 20 – The application of the LMS Decision Process Model to an example

The length of the process, the activities, the junctures, the elements and practices that are invoked, and the outcomes vary from one case to the next. The situation in a second case, for example, might be as follows.
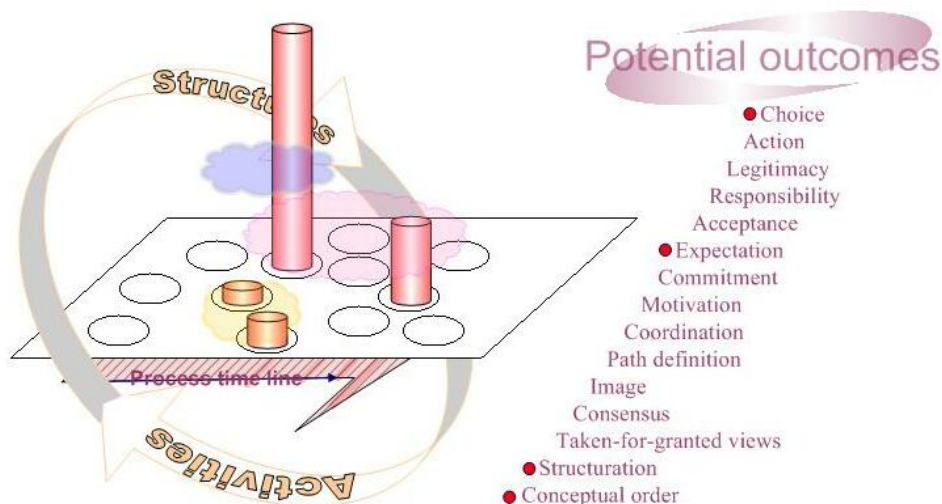
Figure 21 – The application of the LMS Decision Process Model to a second example

In this second example, the length of the process is shorter, the junctures are different to the first example, the number of elements in the process is smaller, and a different set of practices are invoked. While structures are re-enforced and perceptions are changed, in the second example, an LMS is selected (choice) and a number of expectations are created.

Although the data in the study indicated various associations between different elements, practices, and outcomes, the complexity of the aspects did not allow a further specification of the relationships involved. That is, the value of this model is not in its ability to predict process outcomes based on different combinations of activities, elements, and practices. This model, however, is useful in understanding the dynamics between the aspects mentioned and visualising an overview of how they each fit in the process.

<div align="center">***</div>

The elements and outcomes of the LMS decision process are not *given* and can be influenced by the embedding rules and resources. At the same time, through the day-to-day activities the embedding structures are created, maintained, or changed.

In other words, in this *alternative view*, the LMS decision is *conceptualized* as *a process, in which perceptual consensus is constructed (c.f. Collins, 1992), concerted action is mobilized (c.f. Brunsson, 2000, 2007) and social order is maintained (c.f. Giddens, 1984).*

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12. Answers to the Research Questions

In this chapter, the aim of the study is revisited and some of the study findings are brought together in order to answer the research questions. This section may be read in connection to section 1.2, where the aim and objectives of the study were defined. The issues presented in this section closely follow the order of the points and questions raised in section 1.2.

The aim of this study was to investigate the process of LMS decision with an emphasis on examining the activities involved, as well as the social aspects of how and why a particular choice is made among all the possible options. The ambition was to attempt an alternative analysis of the LMS decision process in order to explore and offer a modified conceptualization of this process.

In accordance with this aim, the process of LMS decision making was examined in four different cases and a number of important aspects were identified.

Based on the findings, it has been argued that *the importance of the identified actions, interactions, elements and practices lies not in their power to bring about the choice of the best possible LMS (even if there were such a thing), but rather in their role in forming local or organization-wide acceptance and perceptions of superiority for the selected LMS*. Another central trait of these aspects within the LMS decision process lies in their potential for *legitimizing the selection process, the decision, and the role of the decision makers*. In the thesis, it has been proposed that *in performing the related activities social order and conceptual order are created, maintained, or reshaped within the practice of LMS decision process*. It is argued that the lesser role of the process in bringing about the selection of the 'best system' is mainly due to the complexities involve in defining what a 'best' LMS may be and the complexities involved in identifying and selecting such an LMS among a number of similar complex contenders.

Part of the study's aim was to take a closer look at the people included (and excluded) in the process. A discussion has been presented already (chapters 9 and 10) on the selection of the people who are included in or excluded from the process. Throughout the thesis, it has been proposed that the makeup of the selection team is only one node in a network of interrelated sets of activities and social conventions that in day-to-day human interaction influence the LMS decision process, its outcome and the embedding social structures.

At times, *the choice of the members is dictated by norms, set rules or predefined procedures*. At other times, *members are included in the selection team to bear the responsibility for the decisions, or to gain their commitment to the process and the outcome*. Some members may decline to accept membership in order to refuse the allocated responsibility or as a protest to issues that they do not agree with. *Some members are included in the selection team to add legitimacy to the process and outcomes*. The influence of the lower level staff on the composition of the decision team is smaller than that of the higher up staff. The lower level staff members who were found to exert influence on the makeup of the selection team were identified as having a strong commitment to the issues at hand as well as having strong personalities. At times, some members are excluded from participation in the process due to management's desire to steer the process. What is further argued based on the findings in this study is that one cannot equate the *LMS selection team members* with the *LMS decision makers*. In some cases, although there is a selection team that seemingly carries the decision process through, the members' influence on the bigger decisions may be minimal and restricted by a number of means.

The order and presence of different elements, practices, and activities within the LMS decision process varies from one case to another. Whereas much effort, time, and resources may be dedicated to, for example, production of a specification document (element), steering the process through various types of staging (practice) or attending meetings (activity) in one case, such elements, practices, and activities may be present to a much lesser extent, or be fully missing in another case. The presence or absence of any of the LMS decision elements, practices and activities is closely tied to the received norms, local practices, routines, and goals of the LMS decision process, and the people involved.

12.1 Response to the Research Questions

At the start of the study, four research questions were posed. These questions can be answered as follows.

- **RQ 1**: What practices (if any) are utilized in order to establish 'matters of facts' in negotiations and formation of the final choice(s)?

In this study, a number of practices were identified that had a bearing on the formation of perceptions and establishment of matters of facts. In this investigation, a wide variety of strategies for constructing a "taken for grantedness" was identified. Each of these could easily be allowed a section of

its own in this chapter, or indeed, become the focus of future research. Here, it will suffice to list them as follows:

- Stating things as facts
    i.e. stating otherwise questionable statements as a matter of fact in a confident manner
- Appeal to rules, directives and references to norms
    i.e. by promoting the desired view through suitable arguments based on accepted norms, organizational rules, or existing directives
- Appeal to (employment of) status
    e.g. taking influential people along to the meetings or citing influential people's wishes, views, or directives
- Appeal to documentation
    e.g. promoting or demoting various ideas or views by reference to organizational policies, documented events and past practices
- Use of technical language and appeal to expertise
    e.g. by using arguments based on much technical jargon outside the members' area of expertise
- Use of documentation
    e.g. by deciding what to include in the minutes and how
- Networking (appeal to social relations)
    e.g. by building alliances and social ties to gain the trust and support of individuals
- Use of committee structures
    e.g. delaying undesirable projects and actions; assigning legitimacy to the outcome of a committee and hence establishing a matter of fact status for that outcome; or breaking up bigger issues to a series of seemingly unrelated smaller issues, each of which becomes subjected to a committee decision and by default the bigger decision is made as a natural follow up of the series of smaller sub-decisions
- Conceptual association
    e.g. creating a matter of fact acceptance or rejection of a view or happening by associating that view or event with accepted positive or negative concepts; for example the newly formed *teams*, which have resulted after a sizable cut in staff, are accepted as more positive than the earlier *divisions*
- Various forms of staging
    e.g. conducting different calculations based on immediate costs, or costs over a three and five year period, and choosing to present the cost calculation that meets a particular objective
- Use of social skills, assertiveness, personal influences
    e.g. those with good social skills could be used to convey different views in ways that would give that view a matter of fact status

- Social engineering

    e.g. by instituting a series of activities through which a group of individuals gain a sense of team membership as a first step towards achieving further objectives; in the words of an informant "basically trying to weld them into a team"

- Placing expectation (expecting the right attitude)

    e.g. by creating a code of conduct, which leads to perceiving the expected behaviour as a matter of fact rather than questionable

Although this list is not exhaustive, it provides some of the more notable examples of the practices that were identified as influential in establishing matters of facts. It should be noted that the use of these practices was not general to all the cases. Whereas some of these practices may have been more common, some were isolated in just one case. That is to say, these and other practices can lead to formation of matters of facts but these are not necessarily present in every case.

- **RQ 2**: What type(s) of questions are treated as having a taken for granted answer and which become subjected to a decision making process?

Potential questions were found to fall into one of three categories. (a) Some questions were treated as non-questions in all instances, i.e. the answers to these were typically taken for granted. (b) Other questions were typically subjected to decision making. (c) The third group of questions were treated as non-questions in some instances while they were subjected to decision making at other times.

(a) The taken for granted non-decisions – Some issues were readily accepted without questioning their truth or considering the possibility that even those issues could become subjected to decision making within the LMS decision process. Issues that could have been subjected to decision making, but which were instead accepted as taken for granted without much apparent notice. These issues, (the non-questions or non-decisions), were typically bypassed without being discussed. Examples of these included:

- Top-down decisions, views

    That is to say the instructions put forward by management set the framework for the selection teams without being questioned by the selection team; e.g. 'we are going to opt for the same LMS for all the libraries in the group'; or 'the procurement officer(s) of the wider organization are to be involved in the process'. It should be noted that it was not the topic or area of the decision that determined whether it was questioned and subjected to decision making, but rather who had

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put forth the suggestion. Although whether a point was subjected to decision making or not was related to a network of factors, the source of the view or the direction played a strong role in whether it was taken for granted or not. Whether a chosen system should have a local support, for example, would be discussed (or not) and subjected to decision making (or not) depending on where the directive had come from.

- Routines

If things were done in a certain order or work was structured in a certain way, such existing routines were readily accepted and their viability was not questioned or related issues were not typically raised for decision making.

- Events included in the process

This is an extension of the previous two points. The aspects and events that should be included in the process were not questioned, if these were defined either by management or by established routines.

- Matters of facts

Again, this overlaps with the previous points, as those and any other issues that were presented as matters of facts, whether by the help of documentation or technical expertise, were not questioned or raised as possible sub-decision points.

(b) Decisions/ non-decisions – Some questions had, to some extent, and at times, a taken for granted answer but were subjected to decision making at other times. As an example, one could name the time schedules for different activities. The timing of some events was seen as self-evident while other schedules were subjected to decision making. The question of when one should schedule potential system presentations, for example, was typically subjected to decision making. On the other hand, the question of when the process ought to be concluded could have a taken for granted answer, for example in academic libraries where the summer vacation was seen as a self-evident time for the installation of any new systems.

(c)Questions subjected to decision making – The questions that were not taken for granted and were subjected to decision making in the LMS decision team meetings were typically related to the details such as which line of the specification document should be changed or what weighting should be assigned to different aspects of each system for the purposes of evaluations. These types of decision points were typically included in the instructions that defined the extent of action and authority of the selection teams.

Again, the points raised here, in response to RQ2, are by no means exhaustive. What I could conclude from my analysis of the data is that the received views

and events, which had gained acceptance over a period, typically continued to be accepted in the LMS selection team meetings and were not subjected to decision making. These views or events were questioned only when some doubt was cast on their suitability or viability based on personal or sub-departmental goals. Except for the institutionalized views and practices, the views and guidelines put forward by the members of management were readily taken on board, without much objection. The members of the selection team often accepted the overall suggestions put forward by management as taken for granted but assumed the position of discussing and making decisions at a lower level of detail. One example that adequately illustrates what I am trying to say here is when a member of management presented a questionnaire to the selection team as something that perhaps could be spread among the general staff at the system presentations for evaluation purposes. That member of management in a follow-up interview explained that this suggestion should have been subjected to scrutiny. However, the members of the team did not raise even the slightest question about whether this idea should be taken on board. Instead, they moved directly to the details of the questionnaire, discussing how to improve its contents. The study included many examples of this phenomenon, where higher up bigger views and suggestions were accepted as given while the micro level details of these became subjected to discussions and decision making.

- **RQ 3**: By the means of which mechanisms (if any), do various criteria that are used during the selection process achieve their status?

There is, as evident, a certain overlap between the first and the third of my research questions. There are, however subtle distinctions between the two which were worth investigation. The word mechanism can have a number of meanings. My use of this term is related to actions and procedures that are utilized for achieving a certain outcome – the outcome, here, referring to assigning various positive or negative statuses to different criteria.

As discussed in earlier chapters a number of criteria were used within different cases in evaluating different systems or in making different decisions. Examples included the various entries in the specification documents. Other criteria, which are not much presented in the thesis, were those used in formal and informal discussions that took place when different informants exchanged views. Regardless of the form and type of the criteria, a number of mechanisms were identified related to the way in which various criteria achieved a status of viable or not viable as the basis for judgments. One such mechanism was *promotion by association.* This included associating the proposed criteria with rules and accepted practices at the local organization or

elsewhere, showing that a criterion is used by others, or employing an influential person to advocate the proposed criteria. That is,

- Association with rules, accepted practices
  If a criterion had been used in the organization previously, or it could be shown that the organizational rules and directives supported the use of that criterion, then it received the status of being viable.
- Conformance with others
  Similarly, if a criterion had been used by others in the wider organization or in other relevant organizations then drawing attention to this would raise the status of that criterion as a viable one.
- Promotion of the criteria by a position of status
  If currently not an accepted criterion, then promotion of the criterion by a high status individual or group assigned legitimacy to the criterion.

An ingredient, which was both present in conjunction with the above mechanisms, and at times on its own, was the manner in which management or high status individuals reacted to the proposed criteria. For example if an individual suggested 'provision for cataloguing in non-MARC formats' as a criterion, the facial expressions, smirking smiles or derogatory comments by higher up staff or management, would reduce the status of that criterion as a viable one.

A study of various processes and a number of different specification documents can show that what is set as a criteria in one process is not that important in another or what is seen as positive in one case can be deemed as negative in another case. In other words, the LMS selection criteria cannot be shown to hold an esteemed value based on their objective merits. What was found is that the status given to and the values associated with various criteria emerge in social interactions, not based on the predestined quality of the used criteria as an objective standard of appraisal.

- **RQ 4**: How do various related beliefs achieve credibility?

In this study, this question is not examined from a cognitive or psychological perspective; evidence of credibility afforded to various beliefs is sought in actions and outcomes. In observing formal and informal meetings and in discussions with study informants (informally or in the interviews), I observed that some beliefs became accepted by different individuals. This was seen in the inclusion of these beliefs in their normal conversations as accepted, or in individuals' referral to such beliefs in support of their own arguments, and so on. This was interpreted as the belief gaining credibility.

In analysing the data, various ways of promoting a view or a belief were identified. The following represent a number of ways in which various beliefs achieved acceptance.

- The belief being shown to be held by people of status
    The views that were presented or shown to be held by people of status readily gained acceptance by others. I based this on numerous observations where a high status individual would present a view at a meeting following which others would repeat the same view in other meetings or informal exchanges as accepted.
- The belief being represented in the official documentation
    The documented material were typically assumed as true representations and readily accepted.
- Conformity with rules, past practices, other people's opinion
    If a view was in line with rules, accepted practices or was represented as a shared view by peers, especially those with high status, it readily gained acceptance by others.
- Being allocated resources
    If someone expressed a view to which management allocated some resources, that view was given credibility.
- Being given status
    This is similar to the previous point. But here, rather than tangible resources if status was given to a particular view, e.g. being praised officially, it too became accepted as credible.
- Rumours
    Some beliefs gained credibility and became readily accepted based on being repeated in the grapevine and through rumours.
- Manipulations/ framing
    Some views would gain credibility by means of manipulation, such as the use of present-retract technique referred to in an earlier section.

12.2 Discussion

The research questions raised in this study are all closely related. This close tie has become even more evident as the study has progressed. Based on this study and analysis of the data, I have come to see various intermingled dimensions in the network of interrelated issues, actions, and interactions that together form the complex dynamics of social and conceptual order in the activities that take place in connection to the LMS decision process.

As seen in section 1.2, an ambition with this study was to pay attention to interactions between microsocial activities and potential structural features. These interactions were discussed in the previous chapter and it was proposed

that the members of staff at libraries attend to numerous issues and conduct many activities in the process of LMS decision making. The boundaries and framework for these actions are partially defined by the existing norms, rules, resources, and social conventions. However, by attending to the actions, the premises within which these actions are positioned are constantly re-negotiated and reshaped. That is to say, by participating in such actions, the library members redefine and reshape the circumstances in which the LMS decision process is situated.

Another consideration in this study has been to examine whether the assent reached is a determined outcome of a rational decision making or other explanations are needed. In the presentation of various aspects of the studied cases, I have built an argument that the process of LMS decision making, regardless of all the efforts and resources put in the process cannot guarantee the selection of the best LMS (even if it existed) for a library. This is mainly due to the complexities involved that were presented in earlier chapters. Therefore, the following question remains "If the process of LMS decision process does not necessarily identify 'the best' choice of an LMS, how then is assent reached and why is it that a system is typically declared as the optimal choice?" My answer to this question is that at times full agreement is not reached. In other cases, where assent is reached, a shared perception of superiority of one system as the best option is often formed. However, this perception of superiority, related to the chosen system, is not necessarily based on the merits of the system. It is rather negotiated and reached in a network of interrelated activities, interactions, and social conventions that together have led to the construction of that shared perception.

Another way of putting this is that the elements and activities in the process of LMS decision making, cannot be shown to, and do not necessarily, lead to the selection of a superior system that best meets the demands and needs of a particular library. However, each of the actions included in the process has the potential of persuasion and consensus building. *A successful process is not necessarily one that leads to the choice of the best system (even if such a system existed). A successful process rather leads to the achievement of consensus and acceptance of the chosen system as superior and the outcome as optimal by those involved.*

13. Concluding Remarks

T his thesis is an empirically based, theoretical discussion of the process of LMS decision making. I have argued that although the conceptualization of LMS decisions in rational terms may be useful in many respects, the view of this process as presented in this study may be an instructive re-conceptualization of this phenomenon.

Taking my starting point in a potential criticism of the study, in this chapter, I outline a few potential contributions and a few suggestions for continued research in this area. Finally, a reflection on my theoretical framework concludes the thesis.

13.1 Breadth or Depth?

A potential criticism that could be directed at this study may be the cursory treatment of many wide topics and issues in one work without the space to attend to each of the details in the required depth. What may be seen as a flaw of the study, in not providing an in-depth treatment of all the issues and concepts involved, has been an intentional choice. I have two arguments in support of this choice and as a response to such a potential criticism.

The first argument is that often, and rightly, the researchers concentrate on a very small narrow area of investigation. This is the way to gain in-depth knowledge in a specific area rather than provide a shallow overview of a series of very complex issues. However, from time to time, in my view, it is necessary to bring together a set of related issues to show their interconnectedness and relevance to each other. This is one of the aspects that I believed was missing in relation to the LMS decision process. Theories of decision making are well established, the mechanisms involved in creating or maintaining social and perceptual order are studied by many, and much is written about the LMS selection and change processes. In each of these vast areas, many researchers have zoomed in on smaller areas of focus. Legitimization, evaluation, intended and unintended consequences of action, use of power in organization, role of rumours and so on have all received attention. What I saw was missing was an appropriation of these in the traditional LMS selection models. What was needed was an examination of the LMS decision process from a social perspective that could bring together a collective of some of the complex issues involved in order to argue that the rational selection of 'the best system' as proposed by others is not quite possible and as straightforward as assumed in other models. Getting to this

important but overarching view necessitated a lack of attention and in-depth treatment of each of the many complex issues involved.

My second argument is that, although many of the issues involved are not addressed in any depth in the text of this thesis, a deeper investigation and treatment of these has been attempted throughout this study as the basis for forming this overall view. For example, a more detailed systematic microanalysis of how the shared perceptions of superiority of an LMS emerged during the process of decision making in conjunction with actions and interactions that took place was conducted. That analysis is well worth reporting and capable of providing further useful insights. However, I believe that if any more space were given to presenting and discussing further details of the analyses and findings of this study, this thesis would not have been completed in a foreseeable future. Furthermore, the detailed treatments of various issues in this text would have diverted attention from the main arguments of this thesis.

However, as many of the related analyses and findings are of importance and interest, they can be treated more appropriately in future writings.

13.2 Research Contributions

The findings of this study contribute in a number of ways to our understanding of the LMS decision making and issues in other research areas. First, a re-conceptualization of the LMS decision process is proposed, which extends the discussions of LMS selection beyond the rational choice assumptions. In this study, the importance of the process is highlighted as central in forming the shared perceptions of the LMS decision outcome(s). LMS decision process is seen as a node in a network of interacting elements that together, and by the actions that take place, shape and reshape the circumstances in which they are situated. It is argued that the LMS decision process does not necessarily lead to the selection of the 'best option', and even if it did, the superiority of the selected system cannot be proven. However, the LMS decision process can be utilized in achieving various organizational and personal objectives. Legitimization of the outcome, the process, various views, and the people involved could be, for example, one of the consequences of the process. The actions, interactions and numerous practices within the process could lead to creation of shared beliefs and consensus regarding the superiority of the selected option.

Second, this study may be useful in highlighting the importance of day-to-day actions and interactions in creation and reshaping of the broader circumstances. All actions have intended and unintended consequences. The

study indicated that by adopting a conscious and proactive stance individuals and institutes of libraries could influence the circumstances in which they find themselves towards ends that are more desirable. The day-to-day actions within the process of LMS decision making may seem to be too specific and localized to be in a position of bearing any influence on any other area than the choice of an LMS. However, based on this study it is proposed that even smaller actions and decisions that are local to the LMS decision process may have a bearing on much wider issues.

Third, the findings of this study can serve as a basis for examining theoretical concepts of different fields. For example within the area of decision making a question that could be considered is "who is (are) the decision maker(s)?" or "how can one identify the decision maker(s)?" In at least one of the cases included in this study, the decisions that seemingly were made by the LMS selection team were, to a major part, made by others (or just a minority of the participants). However, in an official view of the process, this was not visible. In such situations, the selection team members are seen, and are referred to, as the decision makers. In related studies, it would be a fallacy to equate, or restrict the concept of decision makers to a formally appointed group.

Fourth, another issue raised in this study related to how hidden agendas and larger controversial decisions could be achieved by breaking these into many smaller, less threatening innocent looking sub-decisions. By making a collection of smaller, non-threatening, seemingly independent, sub-decisions within different groups and committees, wider goals are achieved without participants' full awareness of the collective outcome of their small actions. Although we as human beings are knowledgeable and reflexive as Giddens proposes, at times it is not possible for individuals to gain access to potential hidden agendas that are being deployed through our day-to-day choices and actions.

Fifth, this study also has some implications for the practice of LMS decision making and the library profession. Considering the findings of this study could help library staff members to re-evaluate the role and uses of the LMS decision process. This awareness could help libraries to plan for potential consequences of the process and to use the LMS decision process proactively to achieve goals that go beyond the selection of an 'optimal' system.

13.3 Suggestions for Future Research

This thesis can be a starting point for a number of other studies. Analysis of numerous issues has been initiated and can continue based on existing data. One of these issues relates to the comparative cultural aspects. As mentioned

earlier, the cases in this study were situated in two different types of libraries (academic and public) and three different countries. There were noticeable differences between the cases with regard to these contextual differences. Another area of interest that requires further attention is related to the dominance of female staff in the organizations of libraries; it would be interesting to examine potential implications that this may entail.

In addition to those, many other interesting investigations could follow this study. That includes further studies of the issues that were briefly touched upon here, as part of a whole, but each of which can form a viable study topic of its own. There are also aspects that were missing in this study that may be of interest to investigate. For example, I do not examine the relationships between the LMS decision process on the one hand, and the leadership styles, structural variables (e.g. complexity, centralization, formalization, stratification), or the wider-organizational settings on the other hand.

A further study could examine the various uses of information in LMS decision making process and in organizations in general. Information use within organizations has been studied widely and Daft and Lengel (1986), for example, found the main reasons for information processing to be the reduction of uncertainty and resolving equivocality. An alternative view would be to examine the role of information processing within organizations in the construction of social conventions. Such a study would complement previous research within the LIS field. Finally, as a complement to studies of LMS decision making, it may prove fruitful to extend our understanding of the 'LMS' by adopting varied theoretical perspectives in analysing these systems. A potential perspective, for example, could be to consider these systems as *boundary objects*, which are defined to be "both adaptable to different viewpoints and robust enough to maintain identity across them" (Star & Griesemer, 1989).

That is, I do not consider this thesis to be the end result of my efforts during the past years. In my view, the writing of this thesis has been an exercise in learning the practice of conducting research. In other words, rather than seeing this thesis as a finished endeavour, I view it as the mere beginning of better-informed and more skilled research. Therefore, with the insights and skills that I have acquired through this process I hope to investigate other related pressing issues in times to come.

13.4 Concluding Discussion: Beyond the Taken for Granted

The idea for this study emerged from my practical experiences in various contexts where the existing LMS selection models did not seem to provide an adequate explanation of the LMS decision processes with which I had come in contact. While the handbooks were full of sensible guidelines about how to lead a successful process and how to objectively choose an optimal system, those guidelines were often overlooked or were found irrelevant in real life practice. I initially wondered if the problem could be due to shortcomings in information behaviour of library workers or inadequate educational programmes. However, a closer examination indicated shortcomings in the underlying assumptions in those handbooks. While details were in abundance regarding what to do or what to look for, some aspects of the process were not dealt with at all. These were seemingly taken for granted. After a long period of formulating and reformulating different research questions, it became evident that in order to ask the right questions, one needs to take a step back and question the taken for granted preconceptions. This has been an starting point in this study. Rather than assuming the existence of a rational process and an optimal LMS, the bases of such assumptions are examined.

A number of issues are highlighted in this thesis. First, despite the importance of LMS for libraries and the vast literature on LMS related topics, surprisingly research on LMS decision process is minimal. Second, it is important to question the taken for granted assumptions and to pay closer attention to seemingly innocent steps, such as definition of goals, formulation of a specification document, or selection of team members, each of which could be the source of much complexity. Third, adoption of different theoretical perspectives in analysing this topic is beneficial and provides rich and useful insights. The LMS selection process, which has been viewed traditionally as an objective rational choice, would be better understood if considered from a social constructivist standpoint. Fourth, the complexity of the LMS decision process lends itself well to examining organizational issues that in an intended or unintended way can have broader consequences for the library profession.

I find the mix of the theoretical views (chapter 4) that inform this study particularly enlightening in gaining an understanding of the full complexity of the issues involved.

As presented earlier in the thesis (chapter 3), there are many different decision models, each of which may be used meaningfully to explain different stages and aspects of the LMS selection process. Indeed, evidence was found of the potential of many of these views in analysing the LMS decision process during different stages of the study. At times, the organizations found the

resources (financial, human, and otherwise) to invest in a project. Then this solution was paired off with various problems (LMS related or otherwise) that were in need of attention at the time. The interest and engagement of the people involved in the LMS decision project was seen to vary in some cases based on individuals' simultaneous involvement in other activities. One could find examples of decision by resolution, oversight, or flight at different stages of the process in some of the cases, all as presented in the *garbage can model* of organizational choice. At the same time, in some cases the power issues and political influences on the process would have lent themselves well to an analysis based on a *political bargaining* perspective. There were many instances where, due to a lack of resources and other circumstances, the first good enough options were chosen in the sub-decisions within the process and a *satisfycing* approach was evident. In a number of instances, one could observe how the *framing* and formulation of different sub-options would yield the desired outcomes. That is, due to the complexity, length, and number of processes that were studied, one could form an appreciation for, and see the value of analysing the LMS process from a number of different perspectives. Even so, I found Brunsson's views as an analytical framework in examining the LMS decision process most suitable for the purposes of this study. His views allowed a critical analysis of the process, by stepping away from the taken for granted assumptions of the people involved, the rational choice views, and earlier LMS selection models, providing access to a broader understanding of the LMS decision process. This broader view ties together the day-to-day activities and sub-decisions with the wider outcomes and consequences of the process.

Brunsson's view of decision making provides insights on the institution of decision, rule following, and consequences of the decision making process. Giddens's views, extends this understanding on a broader front by allowing an examination of how the situated activities of human agents in the process of LMS decision making (which are reproduced across time and space) implicate the out of time and space recursively organized sets of rules and resources which in turn enable or constrain action. The foci of analysis in this thesis have mainly been the individual (micro) and organizational (meso) levels. However, considering Giddens's views, one could extend the area of discussion and consider the findings of this study in a broader macro perspective. For example, a number of informants associated the constraints imposed on their actions with the low status of libraries in general. Whether this analysis is viable or not was not studied here (c.f. Butler & Davis, 1992: 397). However, in some of the cases at least, it was observed that the library related projects received lower priority than other projects related to other organizational units. In all four cases featured in this study, the LMS decision making involved participants from the wider organization. In some of the

cases, this was perceived to be necessary, as the library staff members were not perceived to possess the required expertise, for example, in technology related matters. In this study, in numerous examples, library staff members took a back seat in technical discussions and emphasis was given to the decisions and recommendations of the technical staff from the wider organization. The removal of resources from the organization of a case library to be invested in the organization of the IT unit further aggravated the situation in that case.

The question arises whether there is a relationship between the local actions/interactions and local circumstances on one hand and the broader view of the libraries on the other hand. Would it be possible to change the wider perceptions of the libraries by changing the local circumstances and these micro interactions and activities? What would the situation be like, for example, if libraries were a source of knowledge that was perceived to be useful (or required) in decisions made in other organizational units, would this lead to a more positive view of the library, locally and on a wider level? It would be worthwhile to investigate whether an extended level of technical expertise beyond the knowledge of operating various technologies within libraries, would gain a broader status for the libraries in general. If this was shown to be the case, one could investigate further how this could be organized or what the implications would be for information science educational programmes. The discussion could be extended to consider the implications of local happenings for the individual and organizational (even societal) identities of library workers and institution of libraries.

Another aspect of the findings that deserves some reflexive monitoring relates to the functions that are requested from an LMS. The functions expected from these systems have been extended progressively over time to include (a) operations that previously were conducted manually by library staff and today, to a larger extent, (b) even intellectual operations (such as more sophisticated intelligent information retrieval). The replacement of human workers by technological solutions is not just a local aspect of library work. These local happenings have a wider societal implication. We have already witnessed that manual work in many areas has been replaced by the use of technology. A societal trend seems to be the utilization of technology to replace even some intellectual work.

At the same time, the development of LMS has enabled access to the library and much of its services from a distance. That phenomenon could be considered in terms of *disembedding of social relations from local contexts of interaction* (Giddens 1991; -see also Barrett & Walsham, 1999), a consequence that again stretches beyond the micro and meso implications.

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Structuration is very comprehensive and the concept of duality of structure has proven very useful in considering the LMS decision process. Nevertheless, Collins's explanation of how conceptual order is created, maintained and changed offers another dimension in better understanding the network of interrelated concepts that, by being entrenched in our forms of life, sustain stability or build the foundation of the taken-for-granted reality. For Giddens, the human agents are very knowledgeable, and through reflexive monitoring of their actions, they reflect on and choose their actions. What Collins's views shed light upon was the extent of the network of entrenched values that form the basis of the social conventions that are incorporated in this human knowledgability. Although Giddens proposes that human agents are constantly capable of acting 'otherwise', extensive entrenched values and social conventions inform the decisions of individuals on how to act. At the same time, an interrelated network of values and accepted practice forms the milieu in which one individual's action is received, interpreted, and reacted on by other individuals.

Collins's perspective enabled me to understand the relationship between actions and the construction of shared perceptions based on empirical evidence. In this study, many individuals chose to act the way that they perceived to be expected. Others found the expected behaviour unsuitable to their purposes and acted 'otherwise'. At times, the unexpected action was situated in a strongly established complex network of interrelated values and accepted practices and did not "preserve others' socially accepted conceptualization of the natural world", and therefore, their action did not achieve the intended outcomes. At other times, an unexpected action or an unexpected view (or an accumulation of these) "rattled the spider's web" of the socially accepted practice or view. For that view or action to become accepted by others, it either had to fit well enough within the socially acceptable conceptualization of the natural world or much effort and work was needed to establish the validity of the view or action. This was done by legitimizing practices such as presenting seemingly rational evidence, taking help from documentation, appealing to status and so on. In this way, the socially acceptable practice or views could subsequently be changed. Although the concept of structure in terms of "out of time out of space set of *rules and resources"* as defined by Giddens allows for analysis of these happenings, I found it easier to understand why some (re)actions of library staff members achieved results that other actions did not.

In addition to this contribution to my understanding of the LMS decision process, Collins's views were instructive in conducting a sociological (as opposed to psychological or philosophical) study of conceptual order and I

found this very useful in my examination and analysis of the empirical data in this study.

Based on the analysis of the LMS decision process from these different theoretical perspectives, this study highlights a number of issues. These include (a) the importance of a critical, 'from the outside' stance that questions the taken for granted, (b) the presence of many complexities in the LMS decision process that deserve a closer attention, and (c) the importance of the day-to-day actions and their far-reaching implications that go beyond the task at hand.

Adhering to the norm of rationality has been often equated to 'good' decision making, and this has been reflected in much of the LMS selection guidelines. Viewing the LMS decision process from a social constructivist stance, however, could extend our understanding of the network of issues involved and empower us to choose our day-to-day actions in a way to achieve greater outcomes. To that end, each of the theoretical views that informed this study has important contributions to make. Each of them enables us to pose important questions, and stimulate discussions in areas that are of much value, not only for the LMS related issues but also for the wider field of library and information science.
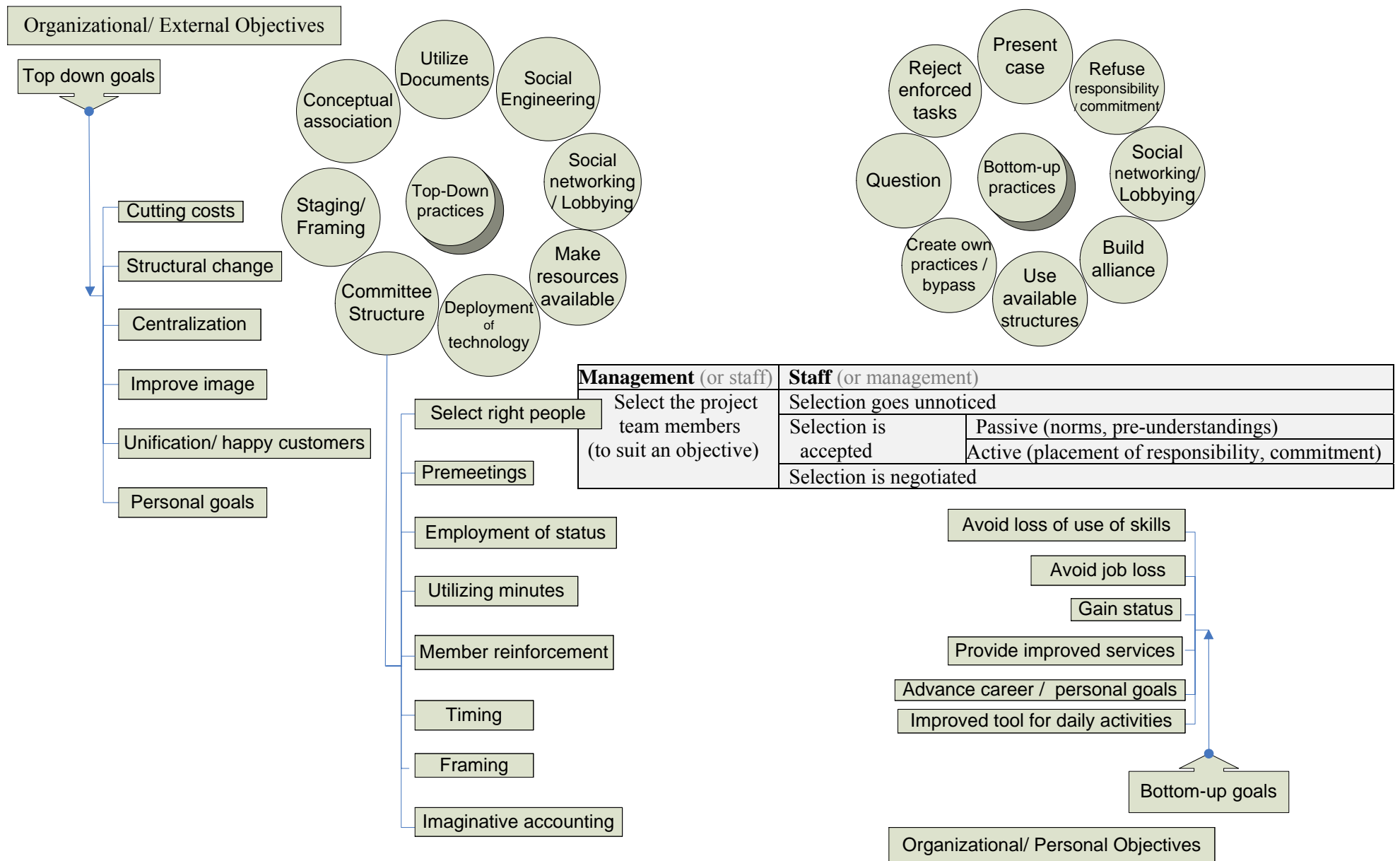
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Figure 22 – An overview summary of some of the findings of the study related to the process of LMS decision making

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14. A short summary in Swedish – Sammanfattning

14.1 Inledning

Denna avhandling utgör en teoretiskt diskussion om anskaffning av stora biblioteksdatorsystem (Library Management Systems, LMS). Studien baseras på ett rikt empiriskt material rörande beslutsprocesser i ett antal systemförvärv.

Library Management Systems (LMS) är komplexa informationssystem och kan inkludera en lång rad funktioner och anpassningar. Med expansionen av nya teknologier med ökande komplexitet, ställs biblioteken vid systemskifte i en osäker situation med ett stort antal produkter att välja på. En stor mängd litteratur i facktidskrifter rapporterar om lyckade val av optimala system. Hur lyckas biblioteken identifiera det mest optimala valet i en samling omfattande och komplexa system? Finns det något sådant som det mest optimala valet? I den här studien undersöks därför hur LMS-relaterade kollektiva uppfattningar tolkas i vardagssituationer.

Avhandlingen tar sin utgångspunkt i presentationen av existerande modeller för urval av LMS. Ett huvud argument är att det traditionellt betonade rationella perspektivet sätter gränser för vilka typer av frågor som det blir möjligt att undersöka. Istället har en konstruktivistisk ansats använts i denna studie för att möjliggöra en rikare belysning och begreppsliggörande av processen i sin helhet. Ambitionen med denna studie har varit att hålla ett kritiskt utifrån-perspektiv och samtidigt uppmärksamma de handlingar och interaktioner som kan finnas mellan mikrosociala aktiviteter och potentiella stukturella egenskaper.

14.2 Frågeställningar

Bibliotek väljer och bevakar kontinuerligt nya system och i många urvalsprocesser ses det valda systemet som ett optimalt val. Det kan emellertid hävdas att på grund av komplexiteten i urvalsprocesserna inför ett potentiellt nytt system är det svårt att hävda att det valda systemet har sådana inneboende objektiva kvalitéer att det tydligt kan utpekas som det optimala valet. I denna studie är därför undersökningen av de gemensamma uppfattningar som konstrueras i vardaglig interaktion i centrum. De forskningsfrågor som ställs är följande:

- Vilka praktiker (om några) används för att etablera för givet tagna "fakta" i förhandlingar och utformning av de slutliga valen?

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- Vilka typer av frågor behandlas som om de har ett självklart svar och vilka frågor underkastas en mer ingående beslutsprocess?
- Genom vilka mekanismer (om några) uppnår olika kriterier som används i beslutsprocessen sin status?
- Hur uppnår olika processrelaterade uppfattningar trovärdighet i beslutsprocessen?

14.3 Teori

Den teoretiska ram som används för att stödja analysen av forskningsfrågorna utgörs av en syntes som bygger på tre olika teoretiska perspektiv. Dessa är:

- Collins (1981, 1992) syn på metodologisk symmetri samt det sätt på vilket begreppsmässig ordning upprätthålls och förändras. Den metodologiska symmetriansatsen innebär att uppfattningar ses som likställda med varandra. Denna ansats har väglett så väll det empiriska arbetet som analysen. Collins föreslår vidare att uppfattningen av sammanlänkade begrepp skapar det begreppsliga strukturer vilka ställer visa tolkningsramar. Denna "begreppsliga ordning" tendera sedan att vägleda positioner, strategier och uppfattningar. Denna undersökning har inte som ambition att värdera olika biblioteksdatorsystems överlägsenhet i jämförelse med andra. I stället undersöks hur de system som föredras uppnår sin status. Effekterna av olika uppfattningar och handlingar under anskaffningsprocessen och beslutsprocessen undersöks också.
- Brunssons (2000, 2007) syn på organisatoriskt beslutsfattande där ett utifrånperspektiv ingår används för att undersöka beslutsfattande som en institution. Detta synsätt är ett alternativ till mer traditionella teorier för rationellt beslutsfattande. I enlighet med detta perspektiv tas i denna undersökning inte för givet att val av handlingsalternativ är orsak till och effekt av beslut; istället är det andra orsaker och konsekvenser som undersöks närmare.
- Giddens (1984) struktureringsteori är den tredje teorin som ingår. Giddens försöker överbrygga dualiteten i handling kontra struktur och mikro kontra makro. Detta beaktas i försöket att se hur strukturer formas och förstärks under anskaffningsprocessen och hur dessa i sin tur påverkar besluten.

14.4 Metod

De empiriska undersökningarna omfattar fyra olika fallstudier som inkluderar såväl folkbibliotek som forskningsbibliotek i tre olika länder. Av dessa ingår

två i ett konsortium-liknande samarbete där införskaffande av biblioteksdatorsystem övervägdes, vilket innebär att ett 20-tal bibliotek var involverade i studien. Fallstudierna sträcker sig över en period som varierar mellan 10 månader och två år. De datainsamlingsmetoder som ingår är såväl intervjuer som observationer och dokumentstudier.

14.5 Resultat

Resultaten visar på en mängd olika faktorer som präglade den långa beslutsprocess som föregick anskaffande av stora biblioteksdatorsystem. Även om det visade sig att man strävade efter att följa rationalitetsprinciper och normer innebar den komplicerade processen att helt rationella val inte var möjliga. I stället framgår hur inslag av rationalitet i olika aktiviteter och händelser bidrog till konstruktion av en gemensam uppfattning om en "framgångsrik process" och ett optimalt beslut. Studiens resultat visar att valet av LMS utgör en av ett flertal olika konsekvenser av beslutsprocessen. Andra observerade utfall var legitimering, handlingar, ansvar och sociala konstruktioner som rör begreppsmässig och social ordning.

Under studiens gång framträdde ett antal nya begrepp som analytiskt fruktbara. Framför allt fokuserades begreppen element och praktiker. Termen element skiljer sig från aktiviteter genom att aktivitet refererar till faktiska handlingar i tid och rum, medan termen element är en abstraktion av de ingredienser som ingår i processen såsom att dokumentera, ha formella möten, definiera mål och så vidare. Elementen och deras grad av närvaro varierar från fall till fall. Termen praktik refererar till mekanismer som används avsiktligt för att påverka uppfattningar och styra inriktningen på handlandet. Sådana praktiker som visade sig förekomma inkluderade dokumentation, användning av olika struktur på kommitteer, kreativ bokföring, användning av status, ordförandeskapstekniker och mer därtill. På en högre abstraktionsnivå kan dessa olika praktiker sammanföras som organisatoriska, tekniska, dokumentinriktade och sociala praktiker.

Genom denna studie kan betydelsen av dagligt handlande och interaktion belysas (mikro-nivå). Deras vidare implikationer för konstruktionen av delade uppfattningar och skapande eller återskapande av sociala strukturer (på mellannivå och makronivå) påvisas också.

Avhandlingen avser att bidra till ett alternativt begreppsliggörande av den omfattande process som föregår anskaffande av stora biblioteksdatorsystem. Den kan också ha implikationer för bibliotekspraktik, forskning som rör biblioteksdatorsystem och utbildningar inom biblioteks- och informationsvetenskap.

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16. APPENDICES

Appendix 1

Study Consent Form

This study is part of a PhD research project titled "Decision making with regards to the Selection of Library Management Systems (LMS) from a Social Constructivist Perspective ". The aim of this study is to investigate the process of selecting an LMS with an emphasis on examining social aspects of how and why a particular choice is made among all the possible options.

This study will be done by the means of a number of case studies including interviews, observations and document studies. This PhD project is funded by the Swedish School of Library and Information Science's internal R&D unit.

As a participant, you will be asked to participate in one (or more) interview(s). During the interview I will ask you questions about the process of system selection at your library and other events and issues that somehow could be of importance in understanding the system selection process. Some of these questions will relate to you and your role and background, others will be related to the process and finally some questions will be related to your views on various topics and questions. The length of these interviews can vary from 10 to 90 minutes.

I would like to take this opportunity to thank you for your willingness to participate in this study. Your participation is very much appreciated. I also would like to assure you that as a participant you have the following rights:

- Your participation is entirely voluntary and you have the right to terminate your participation without any negative consequences at any given time.
- You have the right to decide under what conditions you shall participate.
- All data will be kept strictly confidential.
- The collected data will only be used for research purposes. It will not affect your current or future employment.
- Excerpts of the data may be made part of research reports and presentations but under no circumstances will your name or explicitly identifying characteristic be included in the reports and presentations.

If you have any questions please feel free to contact me.

Nasrine Olson,
Lecturer / PhD student
Swedish School of Library and Information Science,
Göteborg University and University College of Borås,
email: Nasrine.Olson@hb.se
telephone: 033 435 43 18
fax: 033 435 40 05

If results of the project are published, do you wish to receive a copy?

□ No, I do not wish to be informed or contacted after the study

□ Yes, I would like information of publication and a copy or summary of results
     My address is:

Please sign and date this form to show that you have read it. You will receive a copy for your records.

Thank you very much. I appreciate this opportunity to learn from you.

_____

Participant   Date

Please print your name: _____

Appendix 2

CONFIDENTIALITY AGREEMENT

between
[insert organization name], having its registered office at [insert address], hereinafter called "Organization",

and

Nasrine Olsen, Swedish School of Library and Information Science, University College of Borås / University of Göteborg, 501 90 Borås, Sweden, hereinafter called "Student".

FOR THE PURPOSE
Organization and Student (collectively "the Parties") desire to exchange certain information (hereinafter "Confidential Information") related to the of selection of a Library Management System by the organization for the purposes of student's dissertation research focused on social aspects of the decision making process with regards to the selection of Library Management Systems (the Purpose).

The information gathered in the process of this research will be used as the basis for student's PhD dissertation, which will be published in due course. Except for the student, and only if necessary, only her supervisors and the board of examiners will be given access to the full extent of the information gathered by the student. Any related information that will appear in student's dissertation and possible scientific articles written by the student, will be presented in a way that would remove direct identifying links between the material presented and study participants and companies involved in order to safeguard the organization's and study participants' rights. It is possible that third party transcribers will be used in the process but although they would get access to the actual interview material, any link between the interviews and the participants or the organization will be first fully removed.

CONFIDENTIAL INFORMATION
The Student hereto undertakes not to disclose to third parties confidential information received from the Organization under this Agreement. For the purpose of this Agreement confidential information shall mean any and all information - including but not limited to technical, practical and commercial information - which is expressly stated to be confidential by the Organization.

Information disclosed by the Organization to the Student shall not be Confidential Information if:
a) it was already publicly known at the time of its disclosure hereunder, or becomes thereafter publicly known otherwise than through an act of negligence of the Student;
b) it is demonstrably developed at any time by the Student without any connection with the information received hereunder; or
c) it is rightfully obtained at any time by the Student from a third party without restrictions in respect of disclosure or use; or
d) it is required to be disclosed pursuant to the lawful order of a government agency or disclosure is required by operation of the law.

DISCLOSURE

The Student undertakes not to disclose to any third party any Confidential Information or to use it otherwise than for the Purpose set forth above. The Student will disseminate it only to the extent strictly necessary for the Purpose to the university supervisors and others directly involved in the project as specified above.

PUBLICATION

Each publication is required to have obtained the consent of the Organization. To this end, a brief description and the subject of the proposed publication shall be submitted to the Organization. If the Organization does not object to the publication within one (1) week from the date of referral, consent shall be deemed to be given. Any objection shall include,

a) a request for modifications, or
b) a request that the publication shall be postponed if the information contained in the proposed publication or communication is the subject matter of intellectual property protection.

In case the Organization objects to the publication of the data, the Parties shall use all reasonable endeavours to overcome such opposition. The Organization shall not unreasonably continue the opposition if appropriate actions have been taken.

This section shall not prevent the submission, examination, publication and defence of any dissertation or thesis for a degree, which includes Confidential Information of the Organization in case the intention to make such dissertation or thesis has been notified to the Organization in writing promptly as soon as such intention is foreseen. To ensure that the planned date of publication can be met the approval of the Organization shall be sought at least three (3) weeks before the latest date on which the contents of the planned publication can be altered.

MISCELLANEOUS

The laws of Sweden shall govern the construction and interpretation of this Agreement and all related agreements and documents concluded pursuant thereto.

Any dispute, controversy or claim arising out of or in connection with this Agreement, or the breach, termination or invalidity thereof, shall be finally settled by arbitration in accordance with Swedish Act on Arbitration (Sw. lagen (1991:116) om skiljeförfarande). The place of arbitration shall be Göteborg, Sweden, and the language to be used in the arbitral proceedings shall be Swedish. The parties shall not without compelling reason reveal a) the existence of this Agreement or any arbitration award related to this Agreement, b) the contents of this Agreement or any arbitration award related to this Agreement or c) any information regarding negotiations or arbitration or mediation proceedings related to this Agreement.

TERM AND TERMINATION

This Agreement shall become effective when signed by the Parties, but the provisions of this Agreement shall apply retroactively also to any Confidential Information furnished for the Purpose of this Agreement prior to the effective date thereof.
This Agreement shall expire three (3) years from the effective date. Notwithstanding the termination of this Agreement, each Student agrees to treat such Confidential Information

as confidential for a period of three (3) years from the date of receipt of same unless otherwise agreed to in writing by both Parties.

* * * * *

IN WITNESS WHEREOF, the Parties have duly signed this Agreement, in duplicate, at the places and on the days written below.

Place and date: _____   Place and date: _____

Organization   **Student**

Name: _____   Name: _____

Title: _____   Title: _____

Signature:_____   Signature:

_____

Appendix 3

Interview protocol

Make sure that the recorder is recording!!

To keep in mind

- ⇨ Process: junctures, role, order
- ⇨ people included (and excluded)
- ⇨ practices (technical, literary and social) utilized to establish matters of facts
- ⇨ negotiations
- ⇨ how criteria achieve their status
- ⇨ how beliefs achieve credibility
- ⇨ effects

STRUCTURE ⇔ ACTION

Social Production ⇔ Social Reproduction
The way in which life is produced   VS   How social order persist despite the
transformative capacities of individuals   .

Taken for granted: resources 'picked up' during one's life

Before we start, I would like to thank you very much for giving me the time for this. I am here to learn about this process from you as the expert. I really appreciate and value this opportunity.

As mentioned, this interview should take about an hour.

I am going to ask you some questions about the system selection process that is currently going on. What I am interested in is the day-to-day activities, communications, contacts, and discussions that go on regarding the system selection. I am very interested in your personal views and thoughts and how you experience things and your role in it all.

Personal details (education, experience, role (formal, social) (I will also take note of their sex)).

- I understand you work as …! Can you please tell me about your job, what does it involve, what are your responsibilities?

    The type of secondary questions if these did not come up automatically:

    - How long have you been here at this library,
    - How long have you had your current position

- How long have you worked with LMS
- What is your involvement in the systems selection activities (do you attend all the meetings, are you a member of a particular group (system selection related), if so which, what is the groups role/ responsibilities), who else is in your group
- …

Check list (make sure that the following are covered, if not ask!)
- Role (formal, social)
- The respondent's role in the process?
- Experiences (LMS related)
- Education (if not automatically offered, to be included at a suitable place later in the interview).

The type of follow up questions could be:

- You mentioned that you head the project due to many years of relevant IT related experiences; can you please tell me more about these experiences?
- You said that you are not included in any of the working groups due to other commitments; can you elaborate on this?
- …

Description of the process/ activities

– Can you tell me about the system selection activities so far?

Possible secondary questions:

- How did the system selection idea come about or the process get started,
- Who is involved, why; who is not involved, why – what are the roles of these people as perceived by you?
- How are the selection activities working out?
- Do you all generally agree on what you are looking for?
    - If so, did you always have the same vision or has there been some compromises along the line (tell me more about how did this work)?
    - If not, what are the areas that you do not share the same views? How these differences in views are going to be dealt with?
    - Or, when you do not all agree on an issue (e.g. desirable functions in the system) what happens, how is this dealt with?
- What factors do you think affect the choice of the system and the process of choosing the system?
- How would you describe the ideal system?
- If you were to have the most ideal system, ignoring the practical limitations, how do you think one can go about identifying and getting it?
- Is this what is happening here in the actual fact? (If not, can you elaborate?)
- Tell me about your contacts with others with regards to system selection activities.
- Tell me about the meetings, groups, people involved.
    - Who talked the most?

- Did any one have a different perspective?
- How would you characterize …'s role in the project?
- Did you interact with …?
- What did you interact about?
- What was your opinion of that interaction?
- What do you think about the role of system specifications, technical functionality, nature/ extent/ place/ and language of the system support, price
- Does it matter to you which other libraries have (or not have) the same system as you?
- Do you prefer a cutting edge state of the art system or a tested and proven one
- Tell me two things that have worked very well regarding the system selection process.
- Tell me two things that could be improved.

Possible follow up questions:
- You said that there were some unresolved issues that needed consideration, can you elaborate on these?
- You mentioned that X, what effects do you see this has?
- You said you believe X, can you elaborate on this?
- Did I understand you correctly that you think X?
- Or
- You mentioned X, how do you mean?

I just take a moment to check my list to make sure that I have covered all my questions.

…

Thank you Very much for this interview. It was very informative. Thanks again for giving me your time and sharing your thoughts and experiences with me. I have learnt a lot in this interview and I am sure that the information you have provided me will come to great use and forms an important part of my investigation. Very appreciated.

<u>Appendix 4</u>: Short information about the research for potential participants

Why this research

Library Management Systems (LMS) constitute the main information systems used within libraries, and as such, the investments made in such systems form one of the main costs[40] that libraries bear. Not only LMS is shown to have multiple effects on library life, work and organization[41], indications are that uses of such systems and their pivotal role in the operations of libraries are likely to continue[42] even though the trends indicate a move towards more open systems[43]. Furthermore, the LMS marketplace has grown greatly[44], meaning that each library is faced with a large number of products to choose from at each systems migration point. Meanwhile the actual systems have also evolved greatly[45] and even in their simplest forms, they are very complex and perform an enormous number of functions[46] ranging from management of all aspects of library work, to providing user portals and acting as sophisticated gateways to various internal and external resources. Consequently the task of selecting one system, among a number of other similarly complex systems, poses a major challenge for libraries. These factors, in conjunction with the limited investigation of the actual *selection* of an LMS, a complex enterprise system among many equally complex systems necessitate further research in this area. As such, this study will be of much importance in forming a better understanding of the issues involved and paving the road for improved theories and practices.

Aim

The aim of this study is to investigate the process of selecting an LMS with an emphasis on examining socio-political aspects of how and why a particular choice is made among all the possible options.

---

[40] A system budget of £1 million with ownership cost of two to three times the purchase cost over a period of five years is reported to be typical for larger academic libraries (Muirhead, 1997: 21). The overall industry revenues in the North American automation in year 2004 is reported to be $525 million, indicating a growth of 5% as compared to 2003 (April issue of Library Journal 2005).

[41] (Within LIS: e.g. Bichteler, 1986, 1987; Brook, 1978; Cartee, 1990; Connor, 1992; Craghill, Neale, & Wilson, 1989; Crawford & Rice, 1997; Daniels, 1995; Döckel, 1992; Edwards & Walton, 2000; Farley, Broady-Preston, & Hayward, 1998; Fine, 1991; Finer, 1982; Francq, 1984; Goulding, 1996; Howard, 1981; C. P. Johnson, 1996; P. Johnson, 1991; D. E. Jones, 1989, 1999; N. Jones & Jordan, 1987; Jordan & Jones, 1995; Moran, 1989; Morris & Dyer, 1998; Olsgaard, 1989; Pungitore, 1986; Rooks, 1988; Shaughnessy, 1982; Storey, 1992; Sykes, 1991; Winstead 1994?. Similar issued discussed in other fields: e.g. Pfeffer and Leblebici, 1977; Robey, 1977, 1981; Robey and Azevedo, 1994).

[42] For details see e.g. the last chapter in Duval and Main (1992)

[43] E.g. see Felstead (2004) which is based on a literature review of papers published on integrated LMS between 1999 and 2003. A number of writers are of the view that trends indicate that in the future libraries are likely to be able to combine various elements of different systems in an integrated fashion rather than being forced to be limited by the traditional 'monolithic' systems.

[44] For a historical overview see e.g. Duval and Main, 1992 and Tedd, 1993; for periodical assessments see e.g. Leeves 1994; Nordinfo 1997; Thorhauge, Larsen et al. 1997. Furthermore, in the April issue of library journal, 2005, over thirty different vendors are represented just in the North America.

[45] e.g. see Duval and Main, 1992; Tedd, 1993

[46] For an idea about the extent of these please refer to other literature e.g. Leeves 1994.

What is of main interest is to identify various practices that are possibly utilized both in order to establish matters of facts, and also in negotiations and formation of the final choice. Of interest is to examine how different criteria which are identified and used during the selection process achieve their status and how various related beliefs achieve credibility and the effects of these. In other words, I plan to investigate how the assent regarding the process and final choice is negotiated and reached in the social interactions that take place during the LMS selection process.

How

The main method used will be case studies in three or four middle- to large-sized libraries and will include observations of formal and informal meetings related to selection of LMS, document studies of related material from minutes of related meetings to email and letters and other recorded communications related to the automation project at hand, in addition to any other documents that might be found related to this investigation (e.g. articles in local newspapers, electronic discussion lists, etc.) and semi-structured, open-ended interviews with library staff and other people that somehow could be related to the system selection process.

What will be required of you?

Ideally, you will be able to allow me access to all the people and material that I will need in conducting this research. This means ability to attend the relevant meetings as a passive observer, making recordings of these for analysis at a later time, getting access to documentation that are somehow related to the system selection project, and being allowed to interview various members of staff. Of course, according to good research practices, your staff will retain the right to personally decline participation in interviews or even if they choose to participate in interviews, they will still hold the right to refuse to answer any of the questions or avoid disclosing various information as they see fit.

What I can guarantee

Naturally, I will guarantee that all the information disclosed to me will only be used for the purposes of this research and will in no way be used for any other purpose whatsoever. I also guarantee that no to disclose the connection between the information gathered and the actual participants. This will be ensured with the use of a coding system. I also guarantee that the presentation of the final results in my thesis will be done in a manner that would safeguard the anonymity of the participants and the library as far as possible.

Why you should participate

As mentioned above the research in this area is minimal and further research is necessary not only to help better use of the diminishing resources, but also to help improve the dynamics of the LMS marketplace. Furthermore, it is not often that research done within the field of Library and Information Science is exported to other disciplines. However, the results of this particular study may be of value not only for LIS and all types of libraries, but also for other fields such as Information Systems and Decision Making. Therefore, your contribution by allowing your case to be included in this study will have far-reaching implications both for the theoretical development of the field and the practice of LMS selection.

References:

The references attached to this document have been removed, as most of them are included in the references attached to this thesis.

<u>Appendix 5</u>: Empirical Material

Interviews

Name	Duration	Name	Duration
1. Agnes	01:03:32	38. Julia	00:37:55
2. Alex	0:56:23	39. Katie	01:24:43
3. Amy	01:35:50	40. Katie	01:53:24
4. Amy	00:24:19	41. Katie	00:17:47
5. Amy	02:01:55	42. Kent	01:07:10
6. Amy	00:14:24	43. Kim	00:07:30
7. Amy	00:18:08	44. Kim	00:37:40
8. Amy	02:40:23	45. Kim	00:38:30
9. Anne	01:17:21	46. Kim	01:18:59
10. Anne	00:11:07	47. Kim	00:51:20
11. Cliff	01:17:24	48. Kim and Colin	01:30:08
12. Colin	00:44:18	49. Lauren	01:06:37
13. Colin	00:47:48	50. Linda	00:00:23
14. Colin	01:51:20	51. Linda	00:55:53
15. Colin	01:44:13	52. Linda	01:11:01
16. Colin	00:47:48	53. Linda	00:31:54
17. Colin	0:30:52	54. Marianne	01:32:04
18. Colin	00:14:29	55. Brian	00:10:52
19. Colin	01:15:00	56. Brian	02:31:54
20. Colin	00:57:02	57. Martin	02:28:50
21. Colin and Kim	00:14:12	58. Mona	01:41:49
22. Colin, Kim, Sam	01:19:59	59. Nathan	01:11:04
23. Courtney	00:25:59	60. Paul	01:19:21
24. Cynthia	00:55:46	61. Rachel	01:11:23
25. Elizabeth	01:51:37	62. Richard	00:58:51
26. Fiona	00:38:17	63. Sam	01:07:08
27. Fiona	00:53:12	64. Sam	00:29:25
28. Fiona	00:18:16	65. Sarah	01:01:12
29. Fiona	00:07:18	66. Sean	01:22:43
30. Frances	01:05:14	67. Suzanne	00:27:38
31. Geoff	02:08:58	68. Suzanne	00:24:02
32. Harriet	01:04:18	69. Suzanne	00:11:58
33. Henry	00:35:03	70. Tom	00:21:28
34. Julie, Deb, Kiara	01:17:18	71. Toni	01:17:40
35. Josie	01:28:30	72. Tracey	01:20:20
36. Judy	01:01:53	73. Tracey, Josie, Anne	00:34:18
37. Julia	00:25:13		

The interview material consists of 73 recorded interviews with 41 people. Many organizational roles were represented among the informants including library assistant, librarian, systems librarian, head of various subsections in the library, director of library, technical staff at the wider organization, deputy director of finance, procurement officer, and director of organization.

Observations:

1. After presentation discussions   00:30:00
2. Discussions after site visits   00:16:04
3. Informal talks at lunch   01:19:02
4. Library and information services team meeting   01:28:16
5. Library team meeting   02:55:48
6. LMS selection team meeting   01:41:03
7. LMS selection team meeting   01:00:29
8. LMS selection team meeting   01:25:55
9. LMS selection team meeting   00:30:31
10. LMS selection team meeting   00:56:25
11. LMS selection team meeting   02:38:12
12. LMS selection team meeting   00:35:13
13. LMS selection team meeting   01:07:39
14. LMS selection team meeting   00:12:04
15. LMS selection team meeting   01:42:00
16. LMS selection team meeting   03:11:50
17. LMS selection team meeting   00:32:36
18. LMS selection team meeting   01:18:49
19. LMS selection team meeting   01:50:29
20. LMS selection team meeting   01:11:25
21. LMS selection team meeting   00:49:41
22. LMS selection team meeting   01:36:53
23. LMS selection team meeting   03:49:24
24. LMS selection team meeting   02:01:24
25. Management meeting   02:14:16
26. Management meeting   01:41:02
27. Management meeting with a vendor   02:00:00
28. Management evaluation of costing   02:35:23
29. Pre-contract meeting (mngt)   01:22:54
30. Pre-meeting   01:51:48
31. Presentation and after discussions   05:00:00
32. Revision of tender document (lib. & org. management and technical experts)   02:39:17
33. Site visit   01:53:52
34. System presentation   00:53:11
35. System presentation   02:17:17
36. System presentation   01:28:27

In addition to the recorded observations, I attended other meetings (such as discussions with vendors or presentations and site visits) that I was not allowed to record.

Appendix 6

An example of a study with an alternative view

In a work by Shapin and Schaffer (1985), the events related to the birth of experimental practices in scientific research are studied by examining how experimental physics became an accepted practice. Their study relates to Robert Boyle's (1624-1691) research and his promotion of the use of experiments in testing and supporting scientific theories. It also examines Thomas Hobbes' (1588-1679) opposition to Boyle's views. Hobbes, in his time had posed strong arguments about why the experimental programme could not produce the sort of knowledge that Boyle recommended. Although other historians had also addressed this topic, the work by Shapin and Schaffer leads to new insightful and alternative explanations. The difference between the work done by Shapin and Schaffer and earlier studies relates mainly to adoption of a different perspective. According to Shapin and Schaffer (1985: 5), while earlier historians' approach in studying this case does not see own culture's practices as problematic and in need of explanations, in Shapin and Schaffer's study, an informed suspension of own taken for granted perceptions is adopted. While in other studies the success of the experimental programme is treated as its own explanation, in Shapin and Schaffer's work the relationship between experimental facts and explanatory constructs is questioned. Accordingly, some of the other questions that are examined by them include "What are the means by which experiments can be said to produce matters of fact?" and "What recommends the experimental way in science over alternatives to it?" (Shapin and Schaffer, 1985: 3).

By a detailed examination of other accounts of this episode, Shapin and Schaffer highlight the asymmetrical treatment of the rejected (Hobbes' views) and accepted knowledge (Boyle's views) by other historians, where the rejected knowledge is dismissed (as error) and the accepted knowledge is deemed superior by the means of the victorious side's causal explanation of their superiority. In other words, Shapin and Schaffer show that rather than a symmetrical treatment of both sides' arguments, other historians adopt the arguments used by one side of the controversy as their own, in dismissing the validity of the other side's arguments. Shapin and Schaffer, in their re-examination of this case, show that the series of historical judgments that brought about the consensus in favour of the experimental programme were not self-evident; rather, convention, practical agreement, and labour had central roles in the creation of positive evaluation of experimental knowledge. Hence, in their study, they try to "identify those features of the historical setting that bore upon intellectuals' decision that these conventions were appropriate, that such agreement was necessary, and that the labour involved in experimental knowledge-production was worthwhile and to be preferred over alternatives" (Shapin and Schaffer, 1985: 13). As such, they identify three different types of practices by the means of which experimental matters of fact were generated, validated, and formed in order to base the consequent consensus and acceptance of Boyle's experimental programme. Shapin and Schaffer call these practices technologies. The material technology related to the construction and operation of the air pump. The literary technology (or the experimental language-game) was used in disseminating the knowledge of the phenomena produced by the pump to those who did not directly witness the experiments. The social technology comprised of the conventions recommended by Boyle to experimentalists that should be used in interactions between experimental philosophers and in considering knowledge-claims (Shapin and Schaffer, 1985: introduction to these on pages 18-19, 25, further treatment in most sections of the book).

Appendix 7

A glossary of terms

This appendix comprises of two subsections. First, I include a few quotations from Giddens that did not find a logical home in the body of thesis. Second, in the thesis I have used a number of terms that depending on the readers' background can be fully self-explanatory or totally unknown. Throughout the years that I have been working with the thesis, I have had the benefit of feedback from a large number of readers. The words included in the list below are those about which at least one person has required further clarification.

Excerpts from Giddens

There are a number of terms that are integral to Giddens's conceptualization of structuration, which were not included in my limited presentation of his views. As it is important to provide a correct representation of these, I include the following for the interested reader. These excerpts, which define important concepts are directly quoted from Giddens, 1984: 376-7.

Structure	Rules-resource sets, implicated in the institutional articulation of social systems. To study structures, including structural principles, is to study major aspects of the transformation/ mediation relations which influences social and system integration.
Structural properties	Structure features of social systems, especially institutionalized features, stretching across time and space
Structural principles	Principles of organization of societal totalities; factors involved in the overall institutional alignment of a society or type of society
System	The patterning of social relations across time-space, understood as reproduced practices. Social systems should be regarded as widely variable in terms of the degree of 'systemness' they display and rarely have the sort of internal unity which may be found in physical and biological systems

List of terms

The aim of this section is to provide a simple clarification of the terms and not an exact definition of each.

Acquisition
> Acquisition is a subsection of an LMS with the help of which one can attend to tasks such as ordering, receipting, claiming, fund accounting and so on.

Cataloguing
> Cataloguing is a module within an LMS in which registration, amendment, and deletion of bibliographic records are done. Of important features of this module are facilities for MARC cataloguing as well as record import, and authority control.

Circulation

Typical features of a circulation module include setting up various parameters and loan policies, issues (or 'check out' in American), returns, renewals, fines and fees, reservations, production of notices and more.

Data conversion

When a library moves from one system to another, the data from the first system is transferred in suitable formats to the new system. This is called data conversion and is achieved with the help of specially produced software that could be developed by the vendors or produced internally by the internal experts or commissioned from a third party.

Enquiry

The part of an LMS, which is used to retrieve data from its database, is called enquiry. The enquiry module can offer different interfaces and levels of access depending on the type and status of the person who wishes to access the data.

Functional specifications

It is common that libraries produce a document that specifies the functions that they expect a new system to offer. This document is typically subdivided into different sections (e.g. general, technical, circulation, cataloguing, etc). Such a document is referred to as functional (or system) specification or at times the 'specification of requirements' document. This document typically form the central section of other documents that are referred to as the tender documents.

Gateway

What is meant by this term in the context of an LMS is that some LMS are able to connect to others or act as an entrance to other systems and resources.

Loan policy

This refers to matters such as defining the length of loans, presence or absence as well as the amount of charges and fines, the manner in which the reservation queue is managed and much more. Normally in an LMS, this is made possible by assigning different types and status to users and records. Consideration is also paid to the calendar (holidays and so on), library unit, and the opening hours of that unit library. By setting up tables that include various combinations of these ingredients, it becomes possible to define the course of action that the system is to take.

Loan transaction

Activities such as borrowing, returning, renewing and reservation are referred to as loan transactions.

MARC format

Machine-Readable Cataloguing is a set of ISO standards used for representation and communication of bibliographic records.

Migration

When a library moves from one LMS to a new LMS and therefore transfers the existing data from the old to the new system, this is called system migration.

Module

Module is a term commonly used to refer to the different subsections of an LMS such as cataloguing, circulation and so on.

Norms

Norms refer to accepted rules and perspectives that are shared among the members of a social group and which define the boundaries of acceptable behaviour

OPAC

Online Public (or Patron) Access Catalogue is the term used to refer to the online database held by a library which becomes accessible to the library users via a subsection of the enquiry module.

Parameters

    These are a set of value holders within an LMS. These are used in order to define the behaviour of the LMS in different situations.

PQQ: Pre-Qualification Questionnaire

    This document lists a relatively (as compared with the system specification documents) small number of criteria that needs to be fulfilled for a vendor or a system to be considered as a contender in the process LMS selecting.

Procurement

    When the libraries embark on purchasing a new library management system, this can be referred to as the procurement process. In some instances and in some countries there are directives and guidelines as to how one should go about acquiring a system (or product or service) to ensure impartiality and best value for public funds. These are commonly referred to procurement guidelines.

RFI – Request For Information

    This is a relatively informal inquiry about the solutions that a vendor may offer. These are used to gather an initial general information about different systems.

RFP – Request For Proposal

    RFPs are typically lengthy formal documents that are used to gather detailed information about the vendor companies and the features that are offered by different potential systems.

Serials control

    Serials control is a subsection of an LMS designed to manage the ordering, receipting, payment, claiming and so on in relation to publications that are issued in successive parts and are intended to continue. Due to the complexities involved the design of this module is often seen as one of the most difficult parts of and LMS.

Site visits

    When libraries are in the process of acquiring a new LMS (even otherwise), it is common that the people involved visit other libraries to see an LMS in operation and/or hear about the experiences of others that have already used the system. These are commonly referred to as site visits.

System activation

    When a new LMS is installed and the existing data is transferred to a new LMS, there are a number of approaches regarding the activation of the new system. One could go for the total approach where the old system is shut and the new system is put to full use. At the other extreme, one may choose to run both the old and the new system in parallel for a length of time. There are other possibilities in between, for example, the activation of the new system module by module or the use of the full system in different subsection of the library one by one.

System presentations

    At times in the presence of a number of interested library staff members, vendors (and even others), go through various parts of an LMS in order to provide the audience a general overview of the system. These are referred to as system presentations. Although this term is used interchangeably with the term system demonstration in some instances, in other instances it is used to indicate a somewhat more intensive interaction with the system than what is typical of system demonstrations.

System specification document

    See 'functional specifications'.

Tender document

    See RFP

Appendix 8: Brief information related to Case D

Anumber of libraries situated in three closely located cities (Linford, Masterville, and Wellingport), came together in this case to build a consortium in their joint efforts to embark on a system procurement process.

Each of these cities had its own local authority and they were all situated in the same county. The libraries included in this joint effort were mainly the public libraries in these cities but the project was also of interest and relevance for a school and a museum libraries.

The details of this case are not going to be presented here. But since the data from even this case have been used as the basis for the findings of this study, I briefly present the empirical material collected in this case and a very brief overview of the setting.

My follow up of this case spread over a period of 12 months, during which time 19 interviews and 16 observations were conducted. In addition to these, several hundred pages of documents and 141 received emails were also collected. The key people involved in this case included library staff (holding various positions including systems librarians), heads of each of the libraries and the system procurement officers at two of the municipalities. The observations included the LMS selection meetings, system presentations and site visits.

Due to earlier geographical organizations, for a long time all these cities had been part of a county here called Wellingborough (with its centre in Wellingport). Based on this relationship, there had been previous contacts and collaborative efforts between these libraries. A restructuring however, had taken place in the recent years where the earlier smaller county consisting of these three local authorities, had been dismantled. What was previously Wellingborough had now been merged with other previously smaller counties to build a new larger county of Westleigh, with its centre in the city of Westend.

An early agreement between the libraries in this case was that they would all choose the same system based on this joint selection process. As part of the collaborative effort in this LMS re-procurement project, representations from the various libraries and various interested instances (including purchasing officers of different local authorities) formed a larger group, but for some more specific tasks a couple of smaller groups within this larger group were also formed. The smaller groups prepared some of the underlying investigations and or documentation that then were dealt with collectively in the larger group. Some of the more central events in this case include drawing up a system specification document, official advertisement, invitation to tender, evaluation of the responses, site visits and presentations of the finalist systems. The selected system was then adopted by all the libraries involved.
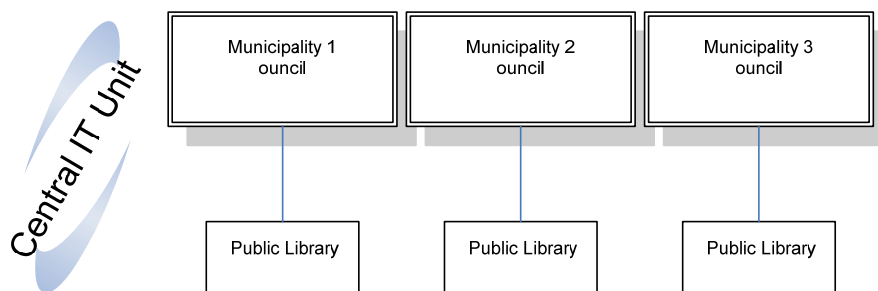
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