REFLECTIONS FROM AN INFORMATION MANAGEMENT PROJECT DEVELOPMENT

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Abstract

This research investigates the process of an information strategy development at a UK university using ethnographic research, which consisted of participant observation at the university's Information Strategy Steering Group meetings, including direct involvement in the decision-making process, and carrying out a range interviews and discussions with staff and students in order to provide a broader view of information management within the university. The main objectives of this research were: to understand the university's needs for developing an information strategy and the benefits expected; to understand the internal and external environments for its information strategy development; to understand the various perspectives of those involved in and affected by such an information strategy; and to identify key issues that need to be addressed. The research uncovered a number of interesting findings from which reflections were made as discussed in the paper.

Keywords*: information, participation, higher education*

1. INTRODUCTION

This paper investigated the process of an information strategy development at a medium-sized UK university using ethnography. The key objectives of the research included: to understand the university's needs to develop an information strategy and the benefits expected from doing so; to understand the internal and external environments for its information strategy development and the various perspectives of those involved in and affected by such a strategy; and to identify key issues that needed to be addressed when considering developing an information strategy.

For this study the researcher participated in the whole process of the information strategy development. This consisted not only of participant observation at meetings, but also of involvement in the decision-making process, and carrying out of a range interviews and discussions to provide a broader view of information management within the university. This investigation had as a main strand the researcher's participation in and analysis of the university's Information Strategy Steering Group (ISSG) meetings, but it also relied on additional information gathered from a wide range of interviews and discussions with staff and students across the university.

Following the introduction, Section 2 outlines the key aspects of literature reviewed for this research and Section 3 describes the research method adopted. This is followed by a summary of the main findings in Section 4 and reflections from the research in Section 5. The paper ends with a brief summary and conclusions.

2. LITERATURE REVIEW

Ideas related to an organisation's strategy were first explored, aiming to understand the different views expressed by various researchers. These views included Mintzberg's debate on 'strategy as a plan' versus 'strategy as a pattern' (Mintzberg, 1987); Quinn's distinction between 'planned strategy' (Quinn, 1980) and 'incremental strategy'; and Johnson and Scholes's planning framework for strategy (Johnson and Scholes, 1993). The review showed that the traditional 'planned' top-down approach to strategy development can be problematic, and has been challenged by an 'emergent', bottom-up approach.

The ideas of three critical social philosophers – Kant (1787), Habermas (1972), and Foucault (1983) – were examined as these contribute to the theoretical base for the development of critical systems thinking, where the latter informs the empirical research of this paper. Kant inquired into the fundamental limits of knowledge, and set the scene for later work on the significance of people's understanding of their world. Habermas maintained that human beings seek to achieve three interests - technical, practical and emancipatory (Habermas, 1972). There has been criticism of Habermas' work, but it is recognised that his views have helped identify the need to examine the issues of power when seeking systems solutions to real-world problems. By contrast, Foucault saw power as necessary for the production of truth, explaining that power is not possessed, but exercised; and that power and 'discourses' work to constrain people.

The literature review then focussed on the change from 'hard' to 'soft' approaches to information systems development. Hard systems thinking (Flood and Jackson, 1991; Checkland, 1981) treats the organisational world as objective, and essentially the same as the natural world. Hard systems approaches are judged appropriate for well-defined technical problems, but often seem unable to deal effectively with complicated ill-structured situations characterised by human activities. Thus, soft systems thinking (Checkland, 1981) came into being, with its argument that the study of human organisations should be based on subjective meaning and interpretation, and hence is different fundamentally from the approach required for studying the natural world. Soft systems thinking (SST) has been developed specifically to deal with people, and their perceptions, values, and interests. SST has many advantages over the hard systems thinking, but it also has limitations. For instance, it is criticised for being unable to help practitioners address the problem of *coercion*. SST is also criticised for its inability to combine multiple methods, which led to the necessity of examining methodologies that incorporate a plurality of approaches which originated from critical systems thinking (Ulrich, 1983; Jackson & Keys, 1984). Critical systems thinking (CST) is based on critical social theories, and developed from critiques of hard and soft systems thinking. It accepts the place of both, but emphasizes the 'oppressing and inequitable' nature of many social systems. CST is characterized by three commitments – to critique, emancipation and pluralism (Jackson, 2003; Mingers and Gill, 1997).

Elements of an institution's information strategy can also be informed from general theories of management. Literature covered here included environment analysis (Porter 1990; Campbell et al, 1999), organisational structure (Morgan, 1986; Mintzberg et al, 1998), organisational culture (White, 1984; Schein, 1996; Wit and Meyer, 1999), resource management (Johnson and Scholes, 1993; Campbell et al, 1999), information needs analysis (Checkland, 1983; Ulrich, 1983; Ward et al, 1996; Clarke, 2001), strategic alignment (Galliers, 1993; Smits and van der Poel, 1997), competitive advantage (Porter, 1980, 1990), and managing strategic change (Mintzberg and Westley,1992; Johnson and Scholes, 1993).

In addition, the literature review examined a range of documents directly related to the development and implementation of information strategies within UK higher education institutions (HEI's), including: Joint Information Systems Committee (JISC) and HEFCE reports (JISC, 1995a, 1995b, 1998a, 1998b), HEFCE (1998); case study documents from JISC's information strategy pilot sites; and reports on the development

of information strategies from a wider group of HEI's. For information strategy development at HEI's, JISC recommended a six-step process - preparing, planning, developing, implementing, monitoring and reviewing, and this has become a classic framework adopted by many HEI's.

A more detailed discussion of the literature used to inform this research is given in Bentley 2004.

3. RESEARCH METHOD

3.1 Defining the term 'Ethnography'

Ethnography, according to Myers (Myers, 1997: 276), "comes from the discipline of social and cultural anthropology where an ethnographer is required to spend a significant amount of time in the field". Bryman (2004) agrees, saying that ethnography is a research method in which "the researcher immerses himself or herself in a social setting for an extended period of time, observing behaviour, listening to what is said in conversations both between others and with the fieldworker, and asking questions" (Bryman, 2004: 539). Thus the goal of ethnographic research is to improve our understanding of human thought and action through interpretation of human actions in context. As implied above, one of its defining features of ethnography is participant observation. The ethnographer "immerses himself in the life of people he studies and seeks to place the phenomena studied in their social and cultural context" (Lewis, 1985: 380). In general, such participant observation is supplemented by formal interviews, and documentary evidence such as reports, minutes of meetings and so forth. Ethnography, as a research method, is well suited to providing information systems researchers with rich insights into the human, social and organizational aspects of information systems development and application (Harvey and Myers, 1995). Myers (1999) points out that ethnography has been discussed as a method whereby multiple perspectives can be incorporated into systems design.

3.2 Design of the Research

Maxwell's model for research design with its five components – purposes, conceptual context, research question, methods and validity (Maxwell, 1996), was used for the design of ethnography for this research. The main ideas for each of the components of this ethnographic research are presented in Table 1.

Table 1 Design Components for Investigating the Process of an Information Strategy Development

Components	Descriptions
Purposes	Observe how a typical HEI develops an information strategy; consider paths to such Strategy implementation and approaches for evaluating such strategies.
Conceptual Context	JISC was working on information strategy development; the research institution had just started such a development.
Research Question	Identify key issues/problems in such strategy development, how decisions are reached and who holds the power.
Methods	Ethnographic research was used: within this the researcher participated in and observed decision-making process at ISSG meetings, conducted in-depth interviews and wrote reports.
Validity	Triangulate data with other investigators/researchers, check results with the people involved.

Of the five components listed in Table 1 above, 'Methods' is the most important to achieve the investigation objectives. The primary methods for conducting this ethnographic research included participant observation in the research 'field' and by informal social contacts with the participants. In this

case, the researcher attended all the university's Information Strategy Steering Group (ISSG) meetings during a period of 18 months. Thus the researcher not only observed much of the process of the university's information strategy development, but also was actively involved in the discussions and decision making process. This was supplemented by relevant documents collected from inside and outside the university.

To gain a broader view on the information situation of the university, the researcher held interviews and discussions on the topic of information needs and information management with a wide range of staff, as well as student representatives, from across the university. Altogether, 43 people were interviewed, with an average of about 25 minutes each in length. The interviews and discussions were mainly used to elicit the 'real' issues relating to the university's information needs and information management. Some of the insights from these discussions were reported back to the ISSG, and adopted to inform the development of the information strategy. The researcher thus not only collected primary data for this research, but also had a positive intervention in the research situation. In addition, the researcher spent a full week working as a data-entry clerk within the university's student records system to gain direct experience of working with users, and understanding their problems.

For this ethnographic research, the researcher was at the research site for a relatively long period (18 months) and observed what people were doing as well as what they said they were doing. Therefore, a deep understanding was obtained of the people, the organisation, and the broader context within which they worked.

4. KEY FINDINGS

This research had many interesting findings and the following are some of the key ones:

4.1 Principles, Drivers and Benefits

As a result of the ISSG meetings, seven key principles and seven drivers were identified for the university's Information Strategy: The principles are:

- To ensure the accuracy and comprehensiveness of internal management information, and information required for external returns and the external quality review.
- To provide management systems and processes that meet the needs of all the university's information provision.
- To establish coordination, authority, ownership and accountability for all university processes.
- To establish the quality standards required to ensure that information is fit-for-purpose.
- To provide support to staff, in the form of training and the provision of written guidance, on the university's management systems and processes.
- To streamline systems and structures to improve efficiency and effectiveness of routine duties.
- To ensure that events, processes and decisions are audited following implementation.

And the seven key drivers for the university's information requirements are: widening participation, meeting quality assurance standards, academic collaboration between HE and FE, skills development, retention rates, employment rates, and lifelong learning agenda.

It was also recognised that having an information strategy fully supported by all staff members should generate five main benefits to the university. These were: elimination of unnecessary duplication of

information and information systems, reduction of bureaucracy, release of time, an informed and knowledgeable community, and recognition and sharing of good practice.

4.2 Information Needs and Priority Issues

Based on the seven principles for the information strategy, the committee agreed that the overriding requirement in the strategy was to determine the information needed to better enable decision-making, and the 'share-ability' of information. This further implied a need to look at what information was needed and why it was needed at different levels of the organisation. It was suggested that information for both internal and external use be reviewed, and stressed that the information strategy must be linked to the vision and goals of the institution.

Ideally an information strategy would encompass all of an institution's information needs, with projects being identified to meet these needs. However in the real world this is not possible within time and resource constraints. Therefore to help realise the information strategy objectives set out above, eleven projects were identified as priorities, of which five were existing ones and six were new. Existing projects included recruitment review, the short-term Student Records System (SRS) solution, the long-term SRS solution, the time-tabling system and the computerised personnel system. New projects included the university archive, information for research, internet support, electronic internal communications, committees/meetings, and project approval.

As a result of the university's consultation process, the ISSG was persuaded that the university's SRS should be given the highest priority. The consultation process had revealed that the system was perceived as having serious flaws, particularly in relation to the requirements for teaching, quality assessments and external returns; while an information needs analysis carried out by this researcher at a JISC workshop showed that three out of the university's seven 'most imperative' information needs were related to the SRS.

4.3 Key Problems with the Student Records System

The following key problems were identified with the SRS as it then existed:

Inconsistency of information provision: This was identified as a serious problem for the university, with the information provided being inaccurate and inconsistent with the information available from HESA. A specific example resulted from changes to the university's marking scheme. The change from percentages to marking on a 16-point scale was not introduced by cohort year, with the result that individual transcripts contained a confusing mixture of percentages, 16-point scale, as well as grades. Nobody had been empowered to look into and solve this problem.

Ignorance of the users' information needs: Ignorance of users' needs for information turned out to be a key explanation of many complaints. For example, one staff member complained: "Things are the wrong way round when the University's central administration designs forms for the academics to use. The users of the information are not the ones that specify the information that is needed and the format of the form." As another example, computer-based assessment results were not provided in a format that suited course team requirements, with a senior lecturer reporting that "students are listed by ID number and the first four letters of their name, which requires extra effort on the part of the course team to produce an alphabetical listing of students by surname."

Poor system management: Within the university, poor management of the SRS was known to have wasted considerable effort. Several examples illustrate this: To get information about their students, a lecturer had to go through the faculty administrator, but not all had obtained authority. Moreover, it was not clear whose decision it was to deny lecturers' access, or if staff had simply not been informed that access was available. Nobody coordinated these requests to say what level of access was allowed. In a second example, failings in the 'human systems' parallel to the SRS were not recognised when courses were re-coded by Quality Assurance without consultation. As a result codes for the same course were duplicated, causing problems when preparing examination board reports. A third example was when a new version of the SRS went live without testing, with consequent problems.

Poor information communication and sharing: Within the university's information about students, communication about the information available, and information sharing, was problematic. There were many local information systems within the university that worked in isolation, and did not feed into the central system. Often the central administration did not hold the basic sets of accurate information. Some people felt that faculties should keep their own statistical information about students as it was not possible to obtain reliable statistics from the central system. Overall, effort was wasted in creating duplicate information at various levels, and this also increases opportunities for inconsistent data.

4.4 Poor system implementation

The university's information strategy document planned for implementing a number of priority projects, as listed above. However, many of these projects were not acted upon. For example, for the short-term SRS solution, implementation of a new system was initially postponed and a significant number of changes required to maintain the existing system. However, little appropriate action was taken to fix the main problems - data quality, sustainability, management reporting, and customer dissatisfaction - that urgently needed addressing at that time. This was partly due to the lack of an overall manager of the SRS within the university, and thus lack of liaison between system users and system administrators. Moreover, the ISSG stressed that to deliver the long-term SRS solution, the university needed to create a project team which should work in parallel to the developmental and maintenance work of the Academic Computing Service. Overall a means of monitoring the implementation of systems was needed. This had been set out in the information strategy document, but only recently it is noted that such a mechanism has been put in place within the university.

5. REFLECTIONS FROM THE RESEARCH

This section summarises some of the broader reflections that were identified from the ethnographic research, set here into the framework of JISC's six-step process for information strategy development.

Regarding '*preparing'* and *'planning'* the information strategy, the researcher's experience showed that it was difficult from the outset for the university to form a strategic view of its information strategy development. There was much uncertainty over what an information strategy was, what it should be comprised of, and how it might be achieved. Moreover, unlike some other universities going through the same process, there was only a fairly modest effort to get all affected staff 'on board' from an early stage.

In terms of *'developing'* the information strategy, some senior managers insisted on developing the strategy in a prescriptive format, using a highly bureaucratic 'hard-systems' approach; while others suggested introducing critical systems thinking ideas to carry out the process as a participative exercise, and employ the output of this to help in formulation of the strategy. The latter group pointed to the

historical failure of many information *systems*, including the university's own SRS, to suggest the need for a more inclusive approach to preparing something as complex as a university-wide information strategy. In practice the actual development process undertaken was very much 'top-down' and directed.

Perhaps not surprisingly, at the ISSG meetings it often appeared that the argument of those with more formal authority carried the day. This evidence of coercion, although politely done, was quite important in terms of how decisions were actually made. In extreme cases, some attendees (normally those who had less power), on seeing that they could not influence the decision of the meeting, left early. In other cases, when technically-based decisions were required, such as about the purchase of particular IT facilities, the decision-making ability of the committee got unbalanced, in the sense that members not particularly knowledgeable in the topic but with power were able to sway the decision despite disagreement from the more technically knowledgeable.

On a broader theme, it was recognised that the resources allocated to the formulation of the information strategy were constrained to be fairly limited. The only information system investigated in any detail as part of the information strategy process was the SRS, and here most of the people involved were senior management staff. There were few academic representatives or other users of the SRS, and no student representatives. Overall, the focus for strategy development appeared to be too narrow to generate a full picture of the information needs of the university. In addition, inadequate attention seemed to be paid to issues of communication and information sharing across the university, as mentioned above.

When discussing the '*implementation'* element of information strategy, the members at the ISSG meetings disagreed about the topic 'responsibilities towards information provision'. Empirical evidence shows that a key requirement under such 'responsibilities' is to motivate users, and to help them understand the importance of information. As a JISC pilot site said: "All [system] users should be encouraged to form the good practice of generating information that is of value to others, and to be accountable for the generation, acquisition, maintenance and provision of cost-effective information. They should also be conscious of the costs associated with a lack of information, unnecessary duplication of information, inaccuracy of information and incompatibilities among systems."

With regard to '*monitoring'* and '*reviewing'* the information strategy once it is in place, the issue of ownership of information is again important. An information strategy is intended, among other things, to help a university increase the accountability of its information; making it clear who generates each piece of information, who responsible for maintaining and updating it, and who has the right to alter or access it. The research showed that ambiguity over ownership of information was often a problem with existing systems, with something of a 'blame culture' developing in some cases. This clearly needed to be addressed solidly in the university's on-going information strategy development.

6. SUMMARY AND CONCLUSIONS

This paper describes an investigation of the information strategy development at a UK university using ethnography as the research method. The key objectives were to identify the real-world mechanisms associated with such information strategy development, to seek to understand the perspectives of those involved and affected by such a strategy, to identify the benefits expected and the key issues to be addressed. For this investigation, the researcher was directly involved in much of the information strategy development process, attending all the key project meetings and having input into the decision-making process. To provide a broader view of the issues, numerous discussions were held outside these meetings, as well as conducting a series of semi-structured interviews with people involved or affected. The key

findings of this research were reported back to the project committee and these assisted the development and implementation of the information strategy. Main findings from this research included:

- The development of the information strategy at the university was generally considered to be a 'good thing', but there was considerable uncertainty over what an information strategy is, what it should be comprised of, and how it might be formulated.
- Some of the people involved in the strategy development insisted on developing the strategy in a prescribed format, while others suggested carrying out this process as an emergent, participative exercise. In the event, the process as undertaken was very much 'top-down' and directed.
- Perhaps not surprisingly, within the university's key Information Strategy Steering Group meetings there was some evidence of coercion and unbalanced decision-making.
- The research indicated that the information strategy needed to get widespread acceptance across the university of the importance of information for the effective functioning of the institution.
- The numbers of participants involved in the strategy consultative process appeared to be too few and too narrow in range to generate a full picture of the university's information needs.
- There was a case for a greater attempt to be made for human-centred approaches to be embedded into the strategy implementation processes.
- It was recognised that to move away from the 'blame culture' associated with some of the legacy information systems, the university needed to make clear the ownership of information.

Finally, one of the most valuable aspects of this research was its depth. Being closely involved in the university's information strategy development process for 18 months allowed observation of much of the process. This included seeing how decisions were taken at senior meetings, talking to the users and prospective users of the systems to be implemented, carrying out detailed interviews with members of the university and liaising via JISC with colleagues from other universities involved with information strategy development at their own universities. These perspectives helped provided a broad understanding of the problem domain.

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