

Adapting Soft Systems Methodology for Strategic Information Systems Planning: An Action Research Study in a Non-Profit Organisation in Australia

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Abstract

Non-profit organisations provide a large number of services of public interest and play an important role in the Australian society and economy. These organisations can very often improve or expand the services they provide to the public through the implementation of appropriate information systems and technologies. Effective choice and implementation of IS and IT benefits from undertaking strategic information systems planning (SISP). This study investigates the adaptation and use of Soft Systems Methodology (SSM) to conduct an SISP process in a non-profit organisation. SSM is a flexible methodology, based on systems thinking, which can be adapted to a particular organisational situation and is capable of taking into account the internal and external social and political contexts of an organisation. The study shows that SSM can be successfully adapted to suit the culture and situation of a non-profit organisation. Adaptations made included ways in which the IS planner interacted with organisational stakeholders and the addition of CSF, SWOT, problematiques, use cases, and a specialised form of CATWOE and Root Definitions. The study showed that the adapted form of the SSM for SISP process can be utilised effectively for SISP, was found to be valuable by organisational stakeholders, and provided help in renewing the focus on improving services to the community through the use of technology.

Keywords

Soft Systems Methodology (SSM), Strategic Information Systems Planning (SISP), non-profit organisation (NPO)

INTRODUCTION

Strategic Information Systems Planning (SISP) has been studied widely by researchers in the past two decades (Lederer & Sethi 1988; Galliers 1991; Lederer & Sethi 1992; Earl 1993; Falconer & Hodgett 1996a,1996b; Brown 2004). However, most of the research literature that addresses SISP issues concerns large, for-profit organisations, overlooking small-medium businesses and non-profit organisations. Furthermore, there has been very little attempt made in the literature to distinguish between for-profit and non-profit organisations in the context of strategic information systems planning. Even though non-profit organisations form an important sector of the Australian economy and provide important services to the community, studies of SISP in non-profit organisations in Australia are particularly scarce. The present study addresses this gap in the literature.

Soft Systems Methodology (SSM) was used for conducting this SISP study in a small non-profit organization. The selection of SSM was based on the fact that the methodology can assist a researcher in gaining a better understanding of the problem situation and the nature of the intervention required to address the needs of the client organization (Checkland & Poulter 2006). SSM was also useful in helping participants arrive at a common understanding of the IS needs and priorities for the organization. Another factor that favoured the selection of SSM for this study was that the organization had never undertaken any IS planning prior to this study and the staff members seemed to be apprehensive of their abilities in discussing technical issues. More technical and resource intensive methodologies like Business Systems Planning and Information Engineering (Pant & Hsut 1995) that are suitable for larger organizations would not have been appropriate in this case.

The next section reviews literature on the non-profit sector in Australia, SISP, and SSM. The paper then briefly discusses the Action Research (AR) methodology used and the AR case study context. Next the conduct of the

case study and the process of adapting SSM to the case are discussed. Then the research findings on the adaptation and benefits achieved are summarised, before concluding with limitations and suggestions for further research.

LITERATURE REVIEW

The characteristics and significance of the non-profit sector in Australia

Non-profit organisations (NPOs) are formed for the purpose of serving the public interest and supporting an issue of public concern and not for accumulating profit (About 2006, Philanthropy Australia 2003, 2006). Therefore they enjoy tax exempt status. NPOs need to generate revenue in order to fund their operations. While NPOs often rely on donations from private and public donors, they may also offer products and services and have clients and therefore may need to market themselves. NPOs commonly have both paid and volunteer staff.

The NPO sector plays a significant role in providing disability services, aged care services, hospitals, schools, child-care and information services all across Australia. NPOs tend to be less bureaucratic and costly than government services and more responsive to local needs. There are about 700,000 organisations in the non-profit sector in Australia and their economic contribution is significant. According to the Australian Bureau of Statistics, in 1999/2000, NPOs employed 604,000 people, contributed \$21 billion to the economy and had 33.5 billion in income (Philanthropy Australia 2003, 2006).

Strategic information systems planning in non-profit organisations

Lederer and Sethi (1988 p. 445) define SISP as “the process of deciding the objectives of organisational computing and identifying potential computer applications which the organisation should implement.” SISP has been found to rank high on the agenda for senior IS and business executives in the for-profit sector, both in advanced and newly industrialised countries (Palvia & Palvia 2003). The process of SISP, however, is generally quite challenging and resource intensive. Based on their survey of small, medium and large businesses in Australia, Falconer and Hodgett (1996a, p. 95) found that “although many recognize the value and importance of information in their organisation, a large number do not formally undertake information systems planning. The quality of information systems planning, where it is done, is questionable, with most organisations failing to produce a portfolio of projects.”

As in the case of for-profit organisations, access to necessary information at the right time in a cost-effective manner is of vital importance to NPOs (Went 1995). Reliable information is of particular importance to non-profits for identifying the requirement for certain services in the local community, determining optimal service delivery mechanisms and evaluating outcomes. The specific information requirements of different customers (e.g., the population served, donors and sponsors, internal management) need to be addressed while formulating an appropriate information systems plan and it is important that information is viewed as a corporate asset. While internal uses of IS by NPOs may include the tracking of donors, management of organisational resources and financial recordkeeping, external uses may include providing information about services to the local community, educating members of the community, soliciting funding and making operations transparent to government agencies and donors (Klemz et al. 2003).

Soft Systems Methodology

Checkland and Poulter (2006) describe SSM as “an organized way of tackling perceived problematical (social) situations. It is action-oriented. It organizes thinking about such situations so that action to bring about improvements can be taken.” Although SSM is not specific to IS it can be used to address IS issues. Information may be embedded in organisational structures, routines and procedure, attitudes of groups or individuals, informal social networks and organisational stories. Some individuals have more power than others, so final system choices may not be optimal or efficient. Therefore more attention should be given to the informal, social and political nature of an organisation during IS planning or development processes and a soft approach to these issues is desirable (Abrahamson 1991; Galliers & Swan 1997). SSM is generally applied to situations where there are conflicts among stakeholders or where the goals of a system are debatable (Venable 1999). It is based on systems thinking, which allows it to be well defined, yet being flexible to use and broad in its scope of application (Checkland & Scholes 1990).

A number of tools are associated with SSM (Checkland & Scholes 1990; Checkland & Poulter 2006). These include rich pictures, the mnemonic CATWOE (C – customers, A – actors, T – transformation, W – worldview, O – owners, and, E – environmental constraints), root definitions, and conceptual models. These tools can be used within the two-stream process model of SSM described by Checkland and Sholes (1990) for identifying appropriate activity systems for the problem situation.

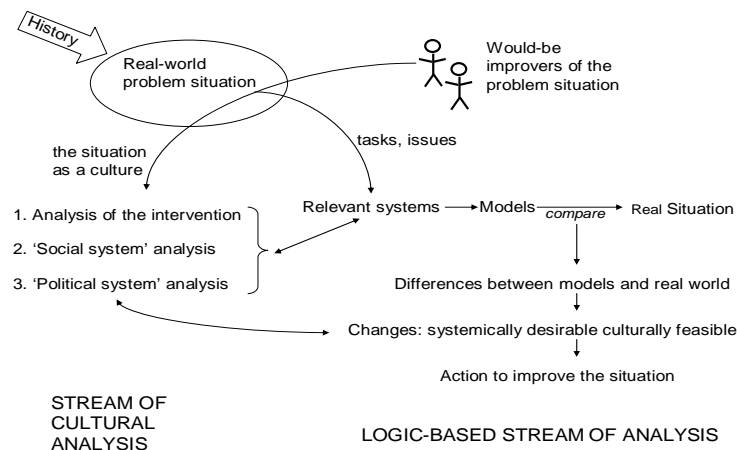


Figure 1: The two-stream enquiry process of SSM (Source: Checkland and Scholes 1990 p.29)

In the two-stream process model (Figure 1) the would-be improvers of a problem situation enter the situation because the history of the situation suggests that there are conflicting issues that need examining in order to improve the situation (Checkland and Scholes 1990; Jackson and Sulaksono 1998). Two streams of enquiry that interact with each other are undertaken to debate issues and seek meaningful changes. The stream of cultural analysis consists of an examination of the intervention itself as well as of the situation as a social and political system. The logic-based stream of analysis defines suitable human activity systems, models needed activities based on these ‘root’ definitions, and compares the models with the real world situation. Appropriate human activity systems (possibly including computer-based systems) are then proposed that could support the activities.

RESEARCH METHOD

The aim of this research is to explore the use of Soft Systems Methodology as a planning framework for SISP at a community based non-profit organisation in Australia. The overall research question is:

How can SSM be adapted as a framework for strategic information systems planning in a non-profit organisation?

This study used Action Research (AR) as its research method. AR has been described by Susman and Evered (1978, p.586) as “a pioneering approach toward social research which combined generation of theory with changing the social system through the researcher acting on or in the social system. The act itself is presented as the means of both changing the system and generating critical knowledge about it.” It was ideal for our study for the following reasons:

- The problem outlined by the research question can best be learned about in a real situation.
- The study involved intervening in a problem situation and researching a way to act and bring about improvement in that situation. This was done through the process of facilitating SISP using SSM in the NPO
- Apart from the advancement of knowledge, a practical outcome in the form of a strategic IS plan was expected for the client organisation as a result of this study.

The data gathering process conducted by the researcher involved development of a rich organisational text suitable for interpretive analysis, including the analysis of documents, a number of one-on-one interviews with management and operational staff, and group discussions with management. The actual timeline of key events in the data gathering and analysis process will be discussed in a later section describing the SISP study using SSM.

THE NON-PROFIT ORGANISATION SELECTED FOR THE STUDY

The study was undertaken at the Asthma Foundation of Western Australia Inc. (AFWA), a small community-based non-profit organisation in Australia. AFWA was founded in 1964 and has been providing quality asthma education and support services to Western Australians with asthma, their carers and families (AFWA, 2004). AFWA also funds local medical and scientific research into asthma. The Foundation is a member of Asthma

Foundations of Australia and plays a significant role in the development of strategies and implementation plans for the treatment of asthma on a national level. It collaborates with various national bodies and government agencies on important issues to ensure the delivery of services in a cohesive but state-specific manner. It has 26 staff members and also relies on the support of over 200 community volunteers.

The organisation supports the 220,000 Western Australians with asthma and provides various services including individual education and information services for people with asthma and their families, free education courses for people with asthma, asthma friendly schools program, on-site education for community groups, professional training in asthma education and emergency management for health professionals, activity programs (e.g. a learn-to-swim program for children with asthma), promotion of healthy messages in the community, management of a national grants scheme for increasing knowledge and active community participation in the management of asthma, and a GP referral program for patients with asthma (AFWA, 2004). It dedicates about \$200,000 annually to research in asthma. It has a number of major corporate and government sponsors.

THE SISP STUDY USING AND ADAPTING SSM

In early 2005, the school of IS at the authors' university approached the Asthma Foundation with the possibility of a student researcher at the school undertaking an IS planning project under the co-supervision of the Asthma Foundation management and a faculty member at the School. The project was well timed since, with a new CEO at the helm and a recent review of the organisation's strategic plan and existing IT infrastructure, it was becoming fairly obvious to the management that their existing information systems were not meeting their business needs. Furthermore, an SISP process had recently been conducted by a vendor, but the results were unsatisfactory in that (1) the result was only a simple list of recommended technical purchases, identified without rationale, and (2) this outcome was deemed insufficient by a funding agency to justify funding support.

Two pre-project informal interviews were held with the CEO and the Senior Project Officer before mounting the study. At the first informal interview, held in April 2005, it was agreed that the CEO and the Senior Project Officer (who reports directly to the CEO and was responsible for various supporting activities such as brochure development) would jointly supervise the project. The interview was also useful for the researcher to explain her background and gain an initial understanding about the scope of the study. It was agreed that the study would commence in mid-June 2005.

An examination of the real-world problem situation

The study proper commenced with a second informal interview with the CEO and the Senior Project Officer in mid-June 2005. The interview was used to discuss the planning methodology with the CEO and the Senior Project Officer. The researcher broadly outlined the planning methodology (SSM) using simple language and explained that the methodology was flexible and allowed discussion and debate amongst staff. This was thought to be particularly useful in this situation as the CEO felt that the staff's perception of IS issues in the organisation may be different from his own and these perceptions needed to be brought out during the planning process.

An initial plan was agreed as follows. (1) The problem situation would be investigated through interviews with management team members, followed by interviews with other key staff as recommended by business unit heads (who were also members of the management team). (2) The researcher would undertake a preliminary analysis of the problem situation based on the documents provided and the interviews. (3) The results of this analysis would be forwarded to the CEO and the Senior Project Officer for feedback. (4) A decision would be made regarding who amongst the interviewed staff needed to participate in workshops facilitated by the researcher to undertake the logic based stream of analysis, and discuss and develop IS strategies and plan and prioritise appropriate systems. (5) The final plan would be created based on the discussions at the workshops.

However, a short one-on-one discussion between the researcher and the Senior Project Officer immediately after the joint interview, gave the researcher the first indication that the project might not go according to plan. The Senior Project Officer seemed to be of the opinion that staff members might not be willing to participate in workshops due to other commitments and would want only limited involvement with the project. She felt that the project would be best conducted through one-on-one interviews with each staff member to be involved with the project. An excerpt from the researcher's journal in this context noted that:

"It was unclear whether the Senior Project Officer's lack of enthusiasm for a facilitative process was because of her own lack of desire to be too involved with the project or because of her lack of influence with other senior staff members or a combination of both."

The interviews with staff members were each approximately half an hour long and carried out between 22 June and August 31 2005. The reason for spreading out the interviews over this period was the lack of availability of staff members. A set of interview questions were emailed to each interviewee a couple of days prior to each

interview. The reason for mailing the questions to the participants was to put them at ease regarding the non-technical nature of the interviews as well as to allow some preparation. Based on the participants' responses during the interviews, the researcher was able to ask a wide range of other relevant questions. The questions were open-ended and aimed at getting to know the staff members and getting a broad understanding of who needed to be actively involved during the course of the project. The interviews were taped, but the interviewees were told that the contents would be kept confidential.

It was found that the one-on-one interviews were useful for three reasons:

- The assurance of confidentiality allowed the interviewees to be able to express their opinions and concerns frankly.
- The researcher was able to explain the IS planning methodology (SSM) in fairly simple language and provide assurance that no technical knowledge would be necessary for participating in the planning process. This also helped to boost participant confidence.
- It allowed the researcher to identify the Community Relations Manager, who was a senior member of the management team, as someone who could see the value of workshops and might be able to influence other staff members regarding the importance of such workshops.

Overall, the interviews revealed that there was a general agreement among management that this study was essential for aligning the organisation's information systems with its business needs, but, there was also an initial reluctance on the part of most interviewees to commit to a close involvement with the project due to a number of other demands on their time. It was clear to the researcher that to ensure continued engagement of all participating staff with the IS planning process, it would be essential to:

- Demonstrate to participants the usefulness of their input
- Build trust among participants in the researcher's ability to lead the study in the right direction.

The researcher's approach to building confidence amongst participants was firstly to provide them (via email) with summaries of key issues raised in their interviews and request confirmation regarding these issues. Secondly, based on the interviews and other data, the researcher constructed problem situation expressions, using common SSM/systems thinking diagrams/techniques (an overall rich picture and a problematique) and augmenting SSM with common/traditional strategic planning analyses (SWOT, CSFs at the organisational, management and operational staff level, Value Chain, and Porter's Five Forces). The results of these analyses and visual representations were sent out to interviewees towards the end of August 2005 and feedback was requested. The feedback was compiled and emailed back to participants along with a preliminary list of suggested IS goals and strategies that might be appropriate for the organisation's needs.

The stream of cultural analysis

An SSM cultural stream analysis was carried out by the researcher based on the pre-project informal interviews, the documents provided, and the subsequent interviews with staff. The purpose of the social and political system analysis was to help the researcher understand the culture within which the project was being undertaken, in order that the study maybe suitably guided. Although the first complete version of the cultural analysis was developed at the end of August 2005, it was continuously refined throughout the duration of the study. This analysis and its outcomes are described in detail elsewhere. One of the outcomes of the analysis was to identify senior members of the management team who could clearly see the long term value of the study and motivate their colleagues to engage in the study and join in management workshops, which were still needed to discuss and decide upon the suggested IS goals and strategies and to pull together the final Strategic IS Plan.

The logic based stream of analysis

A logic-based stream of analysis was carried out between August and November 2005 through a combination of individual staff feedback, two management workshops and follow-up one-on-one meetings with management team members to finalise details of the strategic IS plan. As noted earlier, this deviated from the original plan by the researcher to carry out the entire logic-based stream of analysis during group workshops, due to time constraints of the participants.

As stated earlier, the researcher's preliminary suggestions for IS mission, vision, goals and strategies were emailed to the management team and other participating staff for their feedback towards the end of August and feedback was received up to the mid-September. The feedback obtained was compiled and presented at the first management workshop held at the end of September 2005. While space limitations prevent inclusion of other analyses in this paper, the overall decision-making scenario at AFWA going into the first workshop is presented with the help of a cognitive map in Figure 2 below.

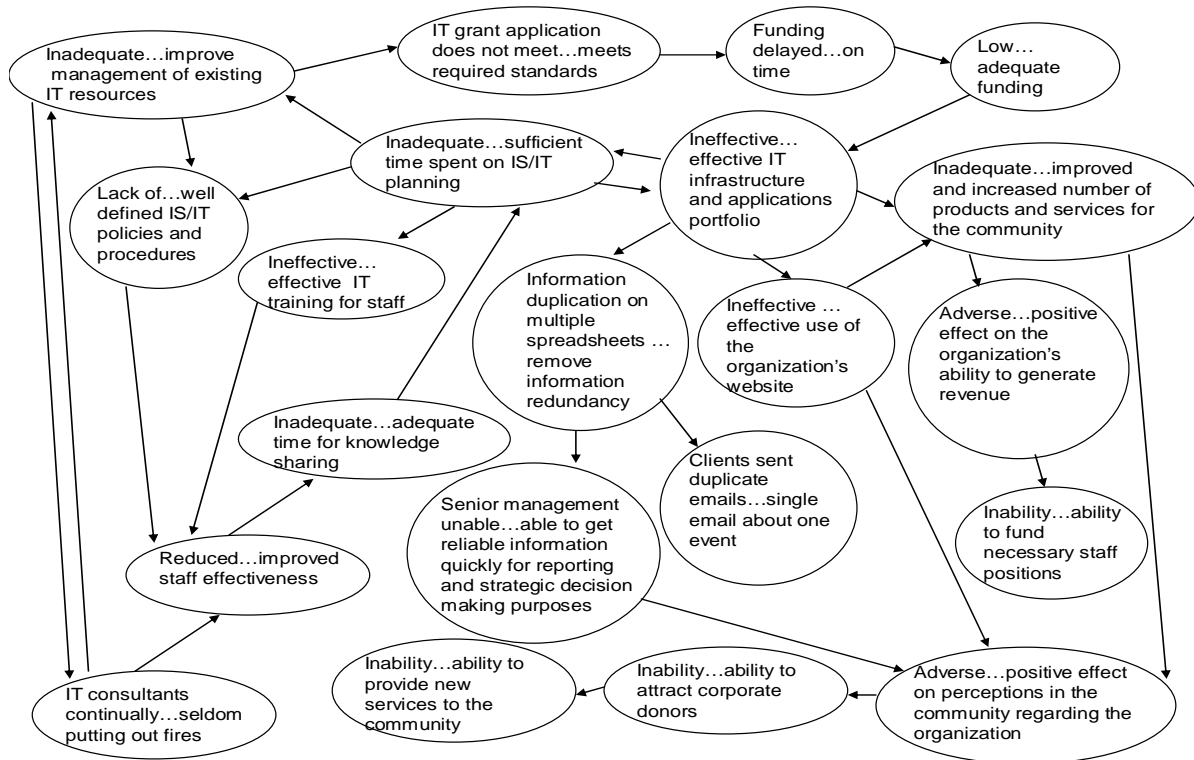


Figure 2: A cognitive map representation of the decision contexts for the SISP project

At the first management workshop, a list of possible human activity systems and corresponding application systems based on the proposed IS strategies were discussed. Participants also discussed skills available internally and standard IS solutions available in the market. Preliminary decisions regarding benefits of candidate systems and prioritization of these systems were also undertaken by the management team at the meeting.

At the second management workshop, held in mid October 2005, participants further discussed the prioritisation of the systems and set timelines for individual projects.

The IS plan was compiled from the information obtained from the management workshops and the subsequent one-on-one meetings held in November 2005 with the CEO and the two business unit managers. The plan was emailed to the management team and other non-management staff for feedback. The feedback was incorporated into the final IS plan and this was emailed to the management team and other non-management staff for their use and feedback to the researcher.

The outcome of the study was a three-year strategic IS plan for the organisation that outlined the mission, goals, objectives and strategies for IS in the organisation. A number of candidate systems were identified for development or procurement over the next couple of years. These included an activity reporting system, a web-based learning and teaching system for providing asthma education, a web-based retail system for asthma related products and a system for performing detailed analysis of fundraising campaigns. The use of SSM in the study also allowed the identification of two non-computerized systems - a decision making system for developing IS policies and procedures for AFWA staff and a system for providing staff with adequate IS training for them to be able to perform their jobs more effectively and efficiently.

RESEARCH FINDINGS OF THE STUDY

Adapting SSM to the study

The two-stream process model of SSM was adapted for this study in the following ways:

First, the researcher simplified the language of SSM in order to explain the SSM process to the participants during the initial one-on-one interviews, since only one participant had prior experience with SSM. This was done in order to allow staff and management to have a framework with which to conduct a similar SISP study in the future. In describing SSM to participants in the beginning of the study, the language of SSM was not used. When SSM terms were used, they were sometimes modified. The mnemonic CATWOE was described as BATROE with C (Customers) in the original mnemonic being replaced by B (Beneficiaries), as it was deemed

culturally more appropriate for an NPO, and W (Weltanschauung) being replaced by R (Reasons for wanting to make the transformation). Also the term/technique 'system definition' (Mathiassen et al, 2000) was used instead of 'root definition' in initial working documents as participants were found to relate better to the former.

Second, it had initially been planned to conduct the entire SISP process in a series of workshops involving management and staff after a round-of one-on-one interviews, but this was not possible due to the lack of staff availability (or confidence or willingness). Instead, the planning process relied heavily on one-on-one interviews, phone conversations and email exchanges.

This one-on-one approach had a some advantages: (1) It allowed those who would have had trouble expressing their views during a group process to speak more freely; (2) It allowed the researcher to build the participants' trust in her ability to guide the planning process and thus increased their willingness to participate in the process; (3) It allowed the participants the flexibility of providing essential input according to their own schedules without feeling any additional burden on their already full list of weekly responsibilities.

The one-on-one interviews were followed by a few informal meetings with the CEO and senior management team members to present initial findings and garner support for further discussions in the management workshops. Following the management workshops, which allowed group discussions on the IS plan, most of the discussions for finalising the plan were again carried out by email or telephone conversations with individual management team members. The input of non-management staff members was sought via email throughout the process by providing them with updated versions of the working document of the IS plan. The time spent by participants (other than the researcher) in different stages of the study is shown in Table 1 below. No individual member of the staff or management team had to spend more than four hours on the project over the entire period of the study.

Stages of the study	Time spent
The initial informal interviews with CEO and Chief project Officer in order to figure out how to mount the study	1 hour (total)
Individual interviews conducted with management and staff members to identify the needs of various stakeholders	½ hour (each)
Management meetings for developing a consensus on IS goals and strategies and associated system priorities	2 hours (total)
Follow up individual meetings with CEO and some management team members to work out some final details of the plan	1½ hours (total)

Table 1: Time spent in different stages of the SISP study using SSM

The above table does not reflect the time spent by the researcher on the project. This was considerably higher than would have been expected if the project had proceeded only on the basis of workshops or management meetings after the initial one-on-one interviews. The researcher spent considerable amount of time obtaining and compiling individual feedback received via email or in informal discussions between the beginning of July and the end of November 2005. Had AFWA engaged a professional consultant for this period, the financial cost to the organisation would have been considerable. It may be speculated here that such costs might (or might not) have motivated participants to provide their feedback much faster than they did during the course of this project or made them more willing to participate in workshops to help increase the efficiency of the planning process.

Third, SSM is a flexible methodology and a number of tools and techniques may be used within the process depending on the nature of the project. The tools and techniques used within the SSM process for conducting the SISP study are listed in Table 2 below.

Tools	Application
Porter's Five Forces, Value Chain, Critical Success Factors, SWOT	Tools used for understanding the organisational context in order to guide the development of IS goals and strategies
Rich pictures and problematique	Tools used for visual representation of the problem situation based on interviews with staff
BATROE (modified CATWOE), root definitions,	Tools used for defining possible human activity systems based on IS strategies

conceptual models, comparison tables	
UML use case diagrams, FACTOR analysis, system definitions	Tools for defining very high level requirements for computerized systems associated with the human activity systems

Table 2: Tools used within the SSM process

The tools used for understanding the organisational context were fairly commonly used tools in management and staff members did not seem to have any problem in providing input on the analyses done by the researcher using these tools. Of the two diagrammatic tools used for representing the problem situation, rich pictures were found to have a greater appeal for participants because of the use of a variety of symbols rather than just text and arrows in these diagrams. As one of the first figures presented at the first management team meeting, the rich picture had the rather unexpected effect of setting a lighter tone to the meeting when the CEO joked about how he liked the fact that the clipart depicting him in the figure made him look taller. With regards to the problematique, however, some participants indicated to the researcher that the diagram seemed a little more difficult to grasp initially. Informal discussions with management team members prior to the meetings revealed that CATWOE/BATROEs (which were presented in tabular form) would be easier to read and present at the meetings than root definitions. The CATWOE/BATROEs proved to be very useful as discussion tools. The comparison tables showing a comparison between proposed activities in conceptual models and existing activities also appealed to participants better than the graphical conceptual models themselves. In general, diagrammatic techniques that did not rely on text and arrows alone, and tabular representation of information were found to be preferred by participants. The tables of proposed activities were ultimately used to set timelines and responsibilities. The FACTOR criteria (Mathiassen et al, 2000) for computerized systems presented in tabular form during the first management team meeting and in subsequent working documents, helped to further discussion on system requirements. The UML use case diagrams were easy to sketch during intermediate discussions prior to the management team meetings and helped in defining the FACTOR criteria. Figure 3 shows a modified version of figure 1, including some of the modified activities and techniques used for SISP.

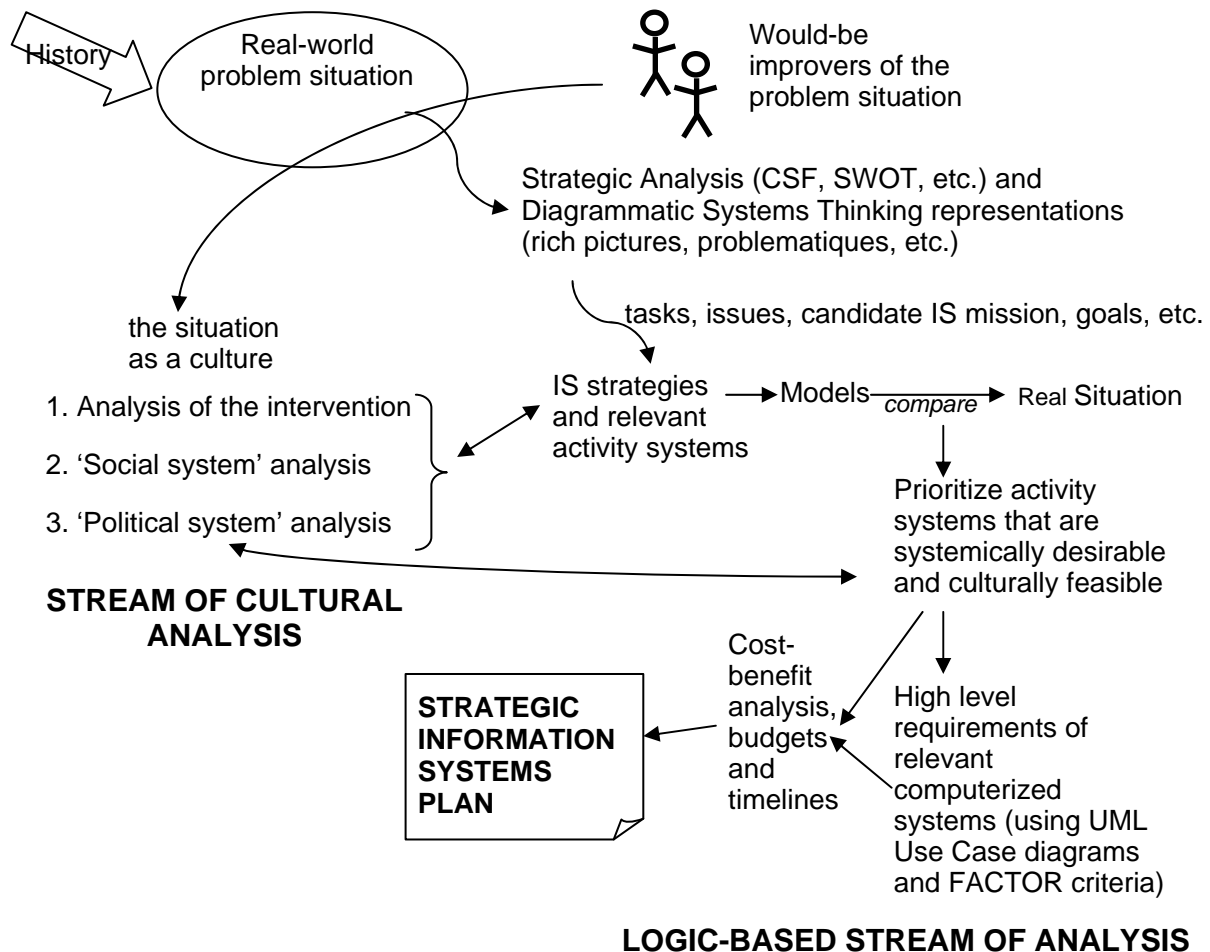


Figure 3: Adapted Two Stream Enquiry Process of SSM for SISP (cf. Figure 1)

Finally, the three types of analysis (analysis of the intervention, social system analysis, and political system analysis) were used as techniques within the cultural stream of analysis in SSM. The results of the three analyses gave the researcher a better understanding of the organisational culture, helping to keep the study on track. The main problem with the cultural stream of analysis was the lack of a well defined structure (equivalent to CATWOE in the logic based stream of analysis) for carrying out the three types of analysis. While Checkland and Scholes (1990) provide one worked example incorporating the three analyses, they do not actually provide a generalized framework for carrying out these analyses. There is clearly room for further work in this area.

Benefits of conducting SISP using SSM

SSM is a consensus seeking methodology, requiring discussion and debate amongst participants in a project. Undertaking the SISP study using SSM benefited the project, the organisation and its culture in the following ways: First, undertaking SISP using SSM requires taking a systemic view, rather than an IT-centric view of required transformations, which helped lessen the fear and lack of confidence in expressing their views that many participants had, due to their lack of technological knowledge. Second, the SISP process undertaken helped to increase communication and sharing of knowledge between management team members on IS related issues, even without the presence of the researcher. Third, a key task as an outsider involved building trust amongst participants through interviews and feedback within the flexible and adaptive framework of SSM. The initial culture of wariness was gradually transformed into confidence in the researcher's empathy for the problem situation. Fourth, the SISP process also required management to reflect on the strategic plan to ensure the alignment between IS and organisational goals and objectives. One senior staff members had mentioned in the early part of the study that the strategic plan is seldom referred back to in most management decision making. Fifth, the process resulted in the recognition of new organisational priorities and the value of key activities, including the need for providing staff with having an adequate IT training program for staff, rather than the existing, ad-hoc approach to training, the need to strengthen the customer service focus of the organisation through the identification of the need to develop a web based teaching and learning system for health professionals in the remote regions of Western Australia, and the need to analyse fundraising campaigns in order to focus fundraising efforts was also recognized.

CONCLUSIONS AND FUTURE WORK

While there is a significant volume of literature on SSM and SISP, there is a gap in the literature regarding the use of SSM to conduct SISP, especially in a non-profit environment. This study aimed to address practical issues in conducting SISP using SSM in a non-profit organisation and focused less on theoretical considerations.

The paper illustrates some ideas and findings about how SSM can be adapted for SISP in a non-profit organisation as well as how SISP using SSM can have an impact on an organisation and its culture. The use of SSM for generating discussion and debate was instrumental in improving communication and knowledge sharing amongst management team members and in reaching consensus on system priorities. The change of organisational culture manifested through increased knowledge sharing was the most significant contribution of this study apart from the strategic IS plan required by the client organisation. The strategic IS plan identified the IS strategies of the organisation and prioritised a number of candidate systems and projects. The results of the survey, which will be discussed in detail in another paper, show that the planning process was considered to have been very useful by all participants.

Although the results of the study are encouraging, it is important to note that the study was conducted within a narrow domain – a single non-profit organisation in Australia. Another limitation of the study was the fact that the way in which this study was conducted and the findings from it were specific to the researcher's set of skills, as is the case in any SSM study.

However, a benefit of this SSM based AR study was the rich insight that it provided to IS planning in a non-profit environment. Walsham (1995) identified 'rich insight' as an important category of generalization for interpretive case studies. In our detailed case study it was possible to get a rich understanding of the culture in a non-profit organization and its implications for SISP. A deeper understanding of how the two-stream model of SSM could be adapted for SISP was also an important outcome of this study.

The researcher expects to conduct a number of studies in similar organisations in order to further consolidate the findings in the context of SSM-based SISP in non-profit environments. It is expected that such studies may provide insight on how SSM may be strengthened by the application of social theories to the cultural stream of analysis. There is also very little work available in the research literature with regard to theory development in the context of SISP. SSM does not offer any explicit logic for constructing theories. However, strengthening SSM by providing it with a strong basis in social theory may ultimately facilitate the construction of a theory for

SISP and the effect of SSM based SISP on organisational culture. On the practical side, such studies may also help to develop a toolset for use within the SSM framework and provide guidance for practitioners who use SSM in their consulting work.

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