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The Mutual Influence of Organizational Culture and SSM Applied to SISP – An Action Research Study in a Non-Profit Organization

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Abstract

Non-profit organizations provide a large number of services of public interest, and play an important role in Australian society and economy. These organizations can very often improve or expand services to the public through the implementation of appropriate information systems and technologies. Such implementation requires undertaking a strategic information systems planning (SISP) process, and developing a strategic IS plan. This study investigated the use of Soft Systems Methodology (SSM) to conduct a SISP process in a non-profit organization. The study shows that while the existing culture of an organization can influence the SISP process, the process itself can have a significant influence on organizational culture.

Keywords: non-profit organizations, organizational culture, strategic information systems planning, Soft Systems Methodology

1. Introduction

The study examines the effect of organizational culture on strategic information systems planning (SISP) in a non-profit organization. It also explores in detail the effect of SISP using Soft Systems Methodology (SSM) on organizational culture.

Section 2 contains a detailed literature review on organizational culture, non-profit organizations, SISP in the non-profit environment and SSM. Section 3 outlines the research questions and research method. Section 4 describes the organization selected for the study. Section 5 describes the study process briefly. Section 6 details the results from the cultural stream of analysis of SSM. Section 7 outlines the findings from the study followed by the conclusions in section 8.

2. Literature Review

2.1 Organizational Culture
There are several definitions of organizational culture in the literature. Burack (1991 p. 88) defines it as an “organization’s characteristic way of doing things and the philosophies and assumptions underlying these”. Culture is generally expressed through an organization’s mission and values, routines and rituals, organizational structures, power structures, control systems, and stories and myths (Johnson 1992). Schein (1988) characterize organizational culture as comprising of three levels:
- Behaviors and artifacts – the most visible level
- Values – differences may exist between stated and operating ones
- Assumptions and beliefs – arise out of values but may become taken for granted and may be difficult to articulate.

This paper seeks to examine the influence of organizational culture on strategic information systems planning and vice versa, in a non-profit organization, from the point of view of the more visible aspects of organizational culture – behaviors and values. Some of the key characteristics of non-profits are discussed in the next section.

2.2 Characteristics of non-profit organizations
The key characteristics of non-profit organizations are as follows (About 2006, Philanthropy Australia 2003):
- Non-profits are formed for the purpose of serving the public interest and supporting an issue of public concern and not for accumulating profit. Therefore they enjoy tax exempt status.
- They generally fall under the broad classifications of arts, charities, religion, research and education.
- They may have both paid and volunteer staff.
- They may offer products and services and have clients. Therefore, they may need to market themselves.
- They need to generate revenue from donations made by private and public donors in order to fund their operations.
- They must be concerned with the satisfaction of those who are assisted by them.
- They must also be concerned with the satisfaction of those who provide donations.
- The revenue after operating expenses in these organizations is used in serving the public interest.

The next section highlights the importance of the non-profit sector to Australian society and economy.

2.3 The importance of the non-profit sector in Australia
This sector plays a significant role in running disability services, aged care services, hospitals, schools, child-care and information services all across Australia. They tend to be less bureaucratic and costly than government services and more responsive to local needs. There are about 700,000 organizations in the non-profit sector in Australia and their economic contribution is significant. According to the Australian Bureau of Statistics, in 1999/2000, non-profits (Philanthropy Australia 2003):
- Employed 604,000 people (6.8% of those in employment) – the sector’s contribution to employment is similar in size to that of the United States.
- Contributed $21 billion to the economy (3% of the GDP) - this was almost the same as the contribution made by the agriculture industry and larger than that of the communications industry.
- Had $33.5 billion in income (58% of which was from sale of goods and services and 30% from government grants and contracts).

2.4 Strategic information systems planning (SISP) in non-profits

SISP has been defined by Lederer and Sethi (1988, p. 445) as “the process of deciding the objectives of organizational computing and identifying potential computer applications which the organization should implement”. Galliers (1991) extended the concept of SISP to include strategies for information technology, information management, management of change, and human resources management.

As in the case of for-profit organizations, access to necessary information at the right time in a cost-effective manner is of vital importance to non-profit organizations (Went 1995). Reliable information is of particular importance for identifying the requirement of certain services in the local community, determining the 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.

Non-profit organizations can greatly benefit from the use of information systems both internally and externally (Klemz et al. 2003). Internal uses of information systems may include:
  o Tracking donors
  o Managing organizational resources
  o Maintaining financial records and monitoring activities so that efficiency and productivity can be improved.

External uses may include:
  o Providing information about their services to the local community
  o Educating members of the community
  o Soliciting funding
  o Providing transparency of operations to government agencies and donors.

A strategic IS planning process in a non-profit organization would need to take into account all such possible uses of information systems that would contribute to the success of the organization. However, when developing such a plan it is also important to consider the environmental constraints faced by a non-profit. These include funding limitations and the lack of technically qualified staff due to lower salaries offered by these organizations.

The study conducted by Klemz et al. (2003) based on 96 non-profit organizations in the US showed that although 68.1% of these organizations had some formal IS planning framework in place, only 59.6% of all the respondents said that their planning process gave a high degree of consideration to the organization’s future plans. The results of the study suggested that formal IS planning in the non-profit sector was far less extensive than in the for-profit sector possibly due to the lack of adequate resources.
Another study conducted by Sabherwal (1999) in one type of non-profits (academic institutions) in the US, showed the importance of organizational integration (e.g. via the introduction of steering committees, promotion of frequent meetings, the creation of liaison roles and task forces) to improving the sophistication of IS planning.

2.5 Soft Systems Methodology
Soft Systems Methodology (SSM) provides a way for tackling real-world problem situations which require an understanding of an organization’s culture in order to find an appropriate solution (Checkland and Scholes 1990). It is generally applied to situations where there are conflicts among stakeholders or where the goals of a system are debatable (Venable 1999). The methodology is based on systems thinking. This allows it to be well defined while being flexible to use and broad in its scope of application (Checkland & Scholes 1990).

In this 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 cultural stream of enquiry consists of an examination of the intervention itself as well as of the situation as a social and political system. In the logic based stream of enquiry, suitable human activity systems are defined and models based on the root definitions of these systems are compared with the real world situation. The human activity systems proposed are then linked to appropriate computer-based systems that could support the activities. This paper will concentrate on the cultural stream of analysis and discuss how it informs the logic based stream of analysis. However, a detailed discussion on the logic based stream of analysis undertaken in this study will be left to a later paper.
3. Research Question and Method
The primary goal of the project was to understand how strategic information systems planning could be undertaken in a non-profit environment. The expected outcome was a strategic IS plan for the organization. However, due to the fact that non-profit organizations have a unique culture, and the effect of this culture on the planning process could potentially be significant, the following question was also investigated in detail:

*How does organizational culture influence strategic information systems planning in a non-profit organization?*

The converse question was found to be equally of interest:

*How does the undertaking of strategic information systems planning using SSM influence the culture in a non-profit organization?*

The study aimed to investigate multiple perspectives within the organization in the context of information systems needs and bring about cultural changes if necessary so that an appropriate information systems plan could be developed.

The study used an action research approach followed by a survey at the end, making it in effect a mixed method study. Action research 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:

- It is an interventionist form of interpretive research.
- The role of the researcher in an action research study is to facilitate and enable change.
- SSM is based on action research principles. It allows an interventionist and facilitative approach.
- The tools associated with SSM were used for understanding the problem scenario, as will be discussed in the next section.
- Apart from the advancement of knowledge, a practical outcome in the form of a strategic IS plan was expected for the client organization as a result of this study.

The data gathering process conducted by the researcher involved development of a rich organizational 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 documents analyzed included the copies of the organization’s strategic plan, business unit plans, the last annual report, summary of the organization’s IT infrastructure and application portfolio, newsletters and the organizational chart. These were obtained during the course of pre-project interviews with the CEO and the Senior Project Officer. A number of one-on-one interviews were conducted over the period of June through November, 2006 with members of the management team and key operational staff identified by management team members. Seven management team members and five operational team members were interviewed during the process. Additional contact with participant was maintained through phone and email based discussions and informal face-to-face feedback on analysis performed by the researcher based on input provided during interviews. The organization’s IT service provider was also interviewed during this period. The data gathered and analyzed during the initial round of one-on-one interviews between June and August, 2006 was used to identify key issues for discussion during the management team meetings held between September and October 2006. The input obtained during these meetings were used by the researcher to formulate the IS plan. The plan was then sent to the management team and other participants for their approval. The finer details of the plan were ironed out during further one-on-one meetings with management team members between October and November 2006.

Detailed journal notes were maintained by the researcher during the course of the study. The researcher’s interpretations of events and data were noted in the journal and were used to develop the findings of the study. The researcher’s knowledge of SISP and SSM as well as the understanding of the problem situation based on a large number of discussions with staff were used in the interpretation of findings from the study. At the end of the planning process, a survey questionnaire was sent out to all participants to obtain their feedback regarding the planning process, the methodology used, and the final IS plan. The results of this survey will be discussed in a later paper.
4. The non-profit organization selected for the study
The study was undertaken at the Asthma Foundation of Western Australia Inc. (AFWA), a small community based non-profit organization in Australia. The 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). The AFWA also funds local medical and scientific research into asthma. The Foundation is a member of the 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 organization 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.

5. The study undertaken using SSM for conducting SISP
In early 2005, our School 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 almost well timed, since with a new CEO at the helm and the recent review of the organization’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. A number of informal interviews were held with the CEO and the Senior Project Officer before mounting the study. 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 and a number of interviews and group meetings with staff would be conducted during the course of the project. This paper describes the cultural stream of analysis carried out as part of the application of SSM to the SISP study.

6. The cultural stream of analysis in Soft Systems Methodology
The results from analyzing the intervention (Analysis One), the social system (Analysis Two) and the political system (Analysis Three) of the organization are discussed below.
This was done over the first few weeks of undertaking the study and subsequently revisited a number of times during the course of the study.

6.1 Analysis One – Analysis of the intervention
This analysis examines the intervention in terms of roles such as client, problem owner and problem solver as suggested by Checkland and Scholes (1990). The elements of Analysis One are described below:

1.1. Client (those who caused the study to take place):  
The CEO of the Asthma Foundation

1.2. Client’s aspirations: 
To develop an IS plan that would be aligned with the organization’s goals and objectives.

2.1. Problem solvers (those who undertake the enquiry):  
The researcher and members of the Asthma Foundation staff

2.2. Resources available:  
Soft Systems Methodology, Asthma Foundation staff, the Foundation’s annual report, the organization’s strategic plan and business unit plans, newsletters, IT infrastructure report prepared by IT service providers, representative of IT service providers, Curtin library resources, six months project time.

2.3. Constraints: 
The researcher’s six-month schedule for completing the project, availability of management and operational staff, high employee turnover, organizational culture

3.1. Problem owners (roles from which the situation can be viewed):  
Based on initial interviews, the problem owners included the Board, the management team (including the CEO), Community Services asthma education and training staff, local community members (health care workers, people with asthma and their families, etc.) who are clients of the organization, government and corporate sponsors were found to be possible problem owners.

3.2. Implications of the problem owners chosen: 
Since the CEO was looking for an outcome in the form of a strategic IS plan that would be of practical use to the organization, it was very important to include all key stakeholders in the project in order for the plan to be relevant to the overall business. The specific knowledge of individuals, which was not always shared within the organization, was expected to guide the selection of relevant human activity systems when following the logic driven stream of enquiry. Identifying appropriate human activity systems would then result in the identification of information systems that would be well-aligned with the business needs. Given the scope of the study, it was not be possible to include external clients and sponsors directly in the study, but their interests is expected to be represented by staff members in particular areas who deal with them directly.
3.3. Reasons for regarding the problem as a problem:
The organization was dealing with a number of problems with regards to IT infrastructure and application portfolio. These included obsolete hardware, inadequate number of software licenses, incompatible applications (Open Alms, MYOB and Excel spreadsheets) and inadequate staff training. There was also a need recognized by some management team members for making better use of the organization’s website and for investigating whether the existing application portfolio would meet the organization’s growing needs. Figure 2 illustrates this problem situation.

Figure 2: Rich picture of the problem scenario

3.4: Value to problem owner:
The IS planning process was expected to help management prioritize projects that would help improve the effectiveness and efficiency of staff as well as help the organization to achieve its strategic goals. It was also expected that a well developed strategic IS plan will help the organization in its applications to various funding agencies for IT related funding.

4. Problem content:
The problem content would be described by models related to various human activity systems during the logic based stream of analysis and comparison of activities in models would be made to the real world problem scenario.

### 6.2 Analysis Two – Social system analysis

Analysis Two examines social characteristics in terms of roles, norms and values (Checkland and Scholes 1990). The model for this analysis is illustrated in Figure 2.

![Figure 3: Model for Analysis Two (Checkland & Scholes 1990)](image)

Each element of Analysis Two continually defines and is defined by the other two elements (Figure 3). The elements of Analysis Two are discussed below.

1. **Roles (social positions):**
According to Checkland and Scholes (1990) roles may be both institutionally as well as behaviorally defined and recognized as important to the problem situation.

1.1. **Institutionally defined roles:**
The organization consists of three business units overseen by the CEO who provides direction for the entire organization and is responsible for keeping the Board informed about the organization’s activities and achievements. The CEO, all business unit heads, the Education and Training Manager, Community Education Coordinator and Senior Project Officer are members of the senior management team of the organization and their input was expected to be valuable for the success of the IS planning project.

The three business units were Community Services, Community Relations and Finance. Community Services formed the core of the organization and was the largest business unit. It is responsible for most of the organization’s interactions with the local community through a wide range of services. It was headed by the Director of Services and includes the Education and Training Manager and Community Education Coordinator as senior staff. Community Relations is headed by the Community Relations Manager and includes the Database Coordinator (who also served as local IT support) amongst its staff members. The Community Relations Manager was responsible for liaising with corporate sponsors. Finance was the smallest business unit. Both Community Relations and
Finance provided important support for Community Services’ continued ability to provide a vast array of asthma related services to the community.

The cooperation of business unit heads was essential to determine who amongst their staff needed to be included as part of the IS planning process so that all significant interests in the organization received adequate representation.

1.2. **Behaviorally defined roles:**
The study seemed to encounter two kinds of people: the openly optimistic and helpful type, and the cautious, ‘unsure-of-the-project-value’ type. The CEO was very interested in undertaking this study and was very helpful. However it was clear that there were many demands on his time. Therefore it was important to have other champions for the study within the management team. It was clear from the initial interviews that the Community Relations Manager and Community Education Coordinator saw great value in the study and were openly optimistic. The Senior Project Officer seemed to be of the opinion that keeping the project short would be a good idea since the management team as a whole would not want to be included in all stages of the study after the initial interviews. However, as pointed out by one of the management team members, the success of the SISP process would depend on input from and agreement between all key stakeholders in order to create a sense of ownership of the plan. This led to the researcher spending a considerable amount of time in the beginning of the study trying to build support for the planning project amongst important stakeholders.

2. **Norms (expected behavior in roles):**
The CEO sets the direction for the entire organization in consultation with management team members. Therefore, he was expected to ensure that the overall planning process was effective and the choice of systems during the logic driven stream of enquiry was indeed appropriate. It was also expected that he would have the final word in terms of prioritizations of different systems. However, management team members were expected to provide him and the researcher with relevant information that would affect the prioritization. In management team meetings held after the initial interviews and feedbacks, the senior managers of each business unit were expected to ensure that the interests of their staff and external clients were appropriately addressed in the selection of final systems. Given the limited resources of the project and the need for optimizing the value of the IS planning process to the business as a whole, an expected norm would be the balancing of the need for ensuring effectiveness against the need for ensuring efficiency.

3. **Values (by which role-holders are judged):**
The values of the organizational role holders (e.g. CEO, management team) were expected to be the values of the organization itself. As stated in its Annual Report in 2004, the organization values the following:

- The alleviation of suffering of people in the community with asthma and support for their carers in the form of asthma related training
- The welfare of staff, volunteers and members
- Importance of its relationship with other stakeholders such as patrons and government and corporate sponsors
- Maintaining a professional attitude
- Taking an innovative approach to reducing the effects of asthma within the community
- Having a commitment to honesty, integrity, diligence and excellence in all the organization’s functions

While the staff was indeed found to exhibit these values, it was felt that if the perceptions of staff regarding the inadequacy of professional development opportunities were to be addressed, then perhaps the turnover might decrease.

6.3 Analysis Three – Political System Analysis
This analysis involved examining the political aspects of the situation by elucidating the commodities or embodiments of power in the problem situation. The different commodities of power in this study included role-based authority, membership of the management team, personal charisma and access to important information.

These commodities of power are seen to be used in the following way:

1. Role-based authority:
The CEO was expected to have the final word in terms of choice and prioritization of relevant systems resulting from the planning processes by virtue of his roles in setting the direction of the organization. Since the three business unit heads were responsible for setting the directions for their business units and have a good understanding of the needs of their staff they were expected to argue the importance of relevant systems in management team meetings and influence the decisions of the CEO. The participation of all business unit heads was very important since it was not possible to include other staff members during the project prioritization stage of the SISP process.

2. Membership of the management team:
Being part of the management team allowed senior staff members who were not business unit heads to engage in discussion and debate and influence the formulation of the final IS plan.

3. Personal charisma:
Because of his personal charisma, the Community Relations Manager was found to be able to positively influence the course of the study when the CEO and other management team members were unable to give priority to the study because of other issues on their agenda. He was instrumental in convincing management team members regarding the importance of setting aside time at management meetings in order to discuss and debate various aspects of the IS plan. This was very useful for the study as initially the Senior Project Officer had indicated to the researcher that such debate would not be possible.

4. Access to important information:
The Finance Manager was coordinating the online retail page development project and was the only one with detailed information about the same. The Community Relations Manager had extensive information about different fundraising application package options that were currently being considered. Having access to the relevant information made these two managers the respective authorities on what needed to be done in the two cases. The pace of input from them was found to control the duration of the project.

From the researcher’s point of view, the importance of the political system analysis lay in making sure that the IS planning study stayed on track and had adequate support among those with power and influence to determine its success.

7. Findings
While the study resulted in a product, a strategic IS plan, for the non-profit organization, it also produced a number of findings with regards to the research questions outlined in section 3. The following findings are outlined with regards to the research question regarding the influence of organizational culture on SISP:

(1) SSM is a consensus seeking methodology, requiring discussion and debate amongst participants in a project. The initial reluctance on the part of a number of staff members to engage in a process of discussion, due to a general feeling that debates often lead nowhere, served to slow down the study in its early stages.

(2) The lack of confidence in discussing technology related matters also led to some initial hesitance amongst staff with regards to participation in the planning process.

(3) Since the researcher entered the problem situation as an outsider, there was a long process of identifying key stakeholders and building trust in order to ensure success of the planning process.

The following are findings with respect to the effect SISP using SSM on organizational culture:

(1) SISP using SSM requires taking a systemic view rather than an IT centric view of required transformations. This helped lessen the fear that many participants had in expressing their views. The researcher was able to explain to the participants that the procurement or use of any technology would be driven by the organizational context and the interviews and discussions were basically for determining organizational needs and did not need any technical expertise.

(2) Undertaking the SISP process also helped to increase communication and sharing of knowledge between management team members on IS related issues. Prior to the study there was very little discussion on such matters. While the plan was being developed by the researcher, periodic feedback was required from management. This necessitated discussion between management team members even without the presence of the researcher.

(3) A key task as an outsider also 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.
(4) The SISP process also required management to reflect on the strategic plan to ensure the alignment between IS and organizational goals and objectives. This was a very useful exercise, since one senior staff member had mentioned in the early part of the study that the strategic plan is seldom referred back to in most management decision making.

(5) The planning process resulted in the recognition of the need for providing staff with having an adequate IT training program for staff rather than the existing ad-hoc approach to training.

(6) The SISP process also helped to strengthen the customer service focus of the organization 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.

(7) The need to analyze fundraising campaigns in order to focus fundraising efforts was also recognized.

8. Conclusions
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 in the non-profit environment. This paper aims to address this gap. The study aimed to address practical issues in conducting SISP using SSM in a non-profit organization and focused less on theoretical considerations.

The paper illustrates findings about how organizational culture can influence the way in which SISP needs to be undertaken and conversely, how SISP using SSM can have an impact on organizational 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 organizational culture manifested through increased knowledge sharing was the most significant contribution of this study apart from the strategic IS plan required by the client organization. The strategic IS plan identified the IS strategies of the organization and prioritized a number of candidate systems and projects. The results of the survey, which will be discussed in detail in a later paper, showed 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 organization 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, this is only an initial study expected to lead to considerable practical and theoretical work in the future.

9. Future Work
The researcher expects to conduct a number of studies in similar organizations 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 organizational 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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