

Exploring barriers to effective organisational change using combined approach: Soft Systems Methodology (SSM) and ETHICS (a socio-technical design approach)

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Abstract

This paper aims to show how systems thinking can be used to investigate barriers to organisational change management. The case study described in this paper would be useful to managers who want to implement change in their own organisations. Soft Systems Methodology and ETHICS were used due to their flexible, responsive, and emergent nature. Also, soft systems methodology (SSM) and ETHICS (Effective Technical and Human Implementation of Computer-supported Systems) were used as a sense-making process while carrying out the investigation.

Findings – SSM and ETHICS can help in addressing ill-structured problems faced by managers, in collaboration with stakeholders using questioning and reflection. The approaches lead to an increased understanding of the problem situation exploring barriers to organizational change. The difference is that SSM uses a more structured approach while ETHICS is emergent in its application. SSM practitioners advocate that researchers would benefit by declaring in advance an intellectual framework to guide their research. These methodologies are appropriate for studying and investigating human activities as they create ways through which the complexity of human interaction and dealings can be examined, described, and made sense of. The adopted methodologies are interpretative, with an emphasis on the participants. The lack of employee ownership and involvement in change management procedures has long been a concern and it has been disregarded or only partially addressed by organisations. Actors need to take ownership and control over their own change process. This paper would be useful to managers interested in a rigorous methodology to implement organisational change. It demonstrates ways of combining SSM and ETHICS, resulting in a powerful research tool to carry out rigorous research.

Keywords

Organisational change management, soft systems methodology, ETHICS, socio-technical design, systems thinking.

1. Introduction

The inquiry incorporated soft systems methodology (SSM) and ETHICS (a socio-technical design approach, STD) into investigating the barriers to achieving effective organisational change. SSM and ETHICS (a social-technical approach) to understand and explore change management. These approaches are all applied in a social setting and are participative and reflective and these are important, in organisational change design.

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The author of this paper feels that this research would help other researchers and practitioners who plan to solve real problems in their workplace using SSM and ETHICS. The author has a background and responsibility in developing and managing systems for change management in her present and past careers. Hence, she had an interest in finding ways to use systems thinking [14] in the research as well. The author believes that using systems thinking, particularly soft systems thinking, shouldn't be limited and should be integrated with different approaches. The investigation was guided by the two main questions below:

- What are the barriers to achieving effective organisational change management?
- How can human activity systems (HAS) sustain effective Change Management processes in an ever-changing environment?

The foundation of this investigation was built on Soft Systems Methodology (SSM) and Socio-Technical Design (STD), and the empirical material was obtained through a jointly acceptable ethical framework. SSM and STD involve the collaboration of the researcher and the participants. This approach is useful for understanding any system – particularly those systems that involve human activities which lead to complexity and result in multiple perspectives of how a problem is viewed. SSM and STD approaches could be practical and effective for researchers or project managers who desire to do research in their own organisations or projects [17].

The success of applying SSM and ETHICS to real-world problems is acknowledged in this paper.

1.1. Background - Change Management in organisations

Scholars describe change in organisations in a variety of ways, according to their perspectives, for example, Burnes [4] defined change as a constant feature of organisational life and managing it is regarded as a core competency of successful organisations. Another definition states that change in an organisation can refer to any alteration in activities [13]. This study believes that change is an ongoing and never-ending process of organisational life and considering the purpose of this study, the researcher paid attention to change management and its issues. Many researchers have suggested that organisations are complex systems and to survive must respond to changes. Organisations are continually faced with change challenges [3], thus, organisations must be more prepared to adapt their organisational environments to those changes if they are to remain in the business. Mumford [19] argues that change is more likely to be difficult than easy [2][8].

To study organisational change, this study looks into soft systems methodology (SSM), and ETHICS (a social-technical approach) to understand and explore change management in the organisation. These approaches are all applied in a social setting and are participative and reflective and these are important, in organisational change design. There is not much clear empirical evidence that supports a chosen change management approach [15][25]. Research on organisational change has attempted to demonstrate the difficulties that come with both planned and unplanned changes, but not completely. The planned change model has come under increasing criticism since the early 1980s, [27]. Critics raised concerns about how it is executed (simplistically, [5]) and how change occurs in an organisation. Schein criticises planned change for focusing on isolated change and failing to incorporate radical change [1]. The planned approach [8] is much more problematic for human systems because it frequently comes off as a huge imposition "from on high" and appears to take little account of workplace complexities. The planned approach according to Bamford and Forrester is based on the notion that everyone in the organisation agrees to work together. Todnem, claims [27]) that this assumes that issues can be resolved quickly, thereby ignoring organisational politics and conflicts. Mumford [19] argues that just because a group of employees agrees to participate in the design process does not mean they are convinced of the management's intentions. SSM in this case takes into account the political aspects of the organisation during a change [10, 12] and also considers employees at all levels.

Change management combines organisational norms, tools, and techniques to assist employees in making successful personal progressions that result in change implementation and realisation. The socio-technical (ETHICS) approach focuses on incorporating the organisational technical and human

structure with the view to achieving effective change management. Mumford [21] provides a historical overview of socio-technical design, she highlighted that the world of socio-technical design is democratic, humanistic and provides both freedom and knowledge to those who are part of it [20]. The socio-technical design had an important democratic component, employees' involvement and participation in determining the required quality of working life improvements.

In exploring the barriers to achieving effective organizational change, Bednar & Welch [2] remind us that organisational change is complex and that individual roles change as a business system changes, these changes must be discussed and looked into in ways that are both agile and adaptive: agile because tasks and systems are complicated, and adaptive because boundaries are changing.

2. Approach and research method

This section summarises the research protocol adopted for this study. Described in the subsection below are the case study and the specific theoretical propositions used to develop data collection processes. In the second subsection, we report the semi-structured interview, including information on the data collection.

2.1. Case study design and data collection description

This case study focuses on a project in a multinational telecommunication company in Switzerland. Their solutions serve the network requirements of a wide range of organisations, including start-ups, medium businesses, major corporations and the public sector.

The study used SSM and ETHICS to study the challenges of change management that stakeholders face in real-world problematic situations. No single approach could possibly capture the depth and complexity of organisational reality, different methodologies and ideas will be required [22]. Drawing from the chosen approaches provides a process of creatively exploring problematic situations, and implementing them. This study also draws on the approaches to understanding human complexity, providing guidelines for implementation, intervention, evaluation of the processes, and studying different stakeholders' worldviews. The investigation was iterative and consisted of different stages which were made up of planning, recruiting participants, introducing the research approach, and collaborating and defining the situation together with the participants. SSM and ETHICS recognize that participants view the same situation differently and provide tools (for example interviews, rich pictures, CATWOE, etc.) to explore the different views of the situation. Sixteen employees at different levels and different roles were interviewed. The semi-structured interview form was chosen as it enables a broader understanding of the thoughts and experiences of each participant on change management. This allows participants to talk freely, where the interviewer is responsive and listens actively to ask relevant follow-up questions, and new information and new perspectives can thus be brought up. The interviews were used to understand the problem situation as richly as possible. The researcher got to know who was involved and identified roles, boundaries, relationships, authorities (formal and informal), and influences (e.g. policies).

The study was a real-world investigation where the information collected was based on human perceptions, feelings, and opinions, therefore, ethics issues were crucial. Ethics refers to rules of conduct; typically to conformity to a code or set of principles according to Isreal cited by Robson and McCartan [26]. For this investigation, examples of ethical issues were pressure, time issues, and worry. Ethics provided guidelines for addressing these problems and for the responsible conduct of the investigation. Aspects like consent, anonymity, data storage, and confidentiality played an important role during the investigation and when the findings of the investigation were circulated. The organisation and the participants were asked for consent, and both parties granted it, protecting the participants' and the organization's identity and confidentiality.

2.2. Incorporating Soft Systems Methodology and ETHICS

SSM was used in this research as an initial approach to understand the problem situation based on the work of Checkland and Scholes [12] and Checkland [6, 11]. To intervene in the real-world complexity of change management, SSM is one suitable methodological framework for planning change. It is a powerful sense-making tool for gaining an understanding of human complexity. SSM is built on system models, which leads to the choice of purposeful action. In SSM, the (social) world is taken to be very complex and the participant's worldviews are created and recreated by their thinking, talking and taking action.

Firstly, the seven-step version proposed by Checkland [12] was adopted and adapted to fit the investigation. These involve an inquiry-based process through social learning that works its way to taking action to improve and help the participants make sense of their experiences through interaction and dialoguing. SSM was also used in the sense-making mode (Mode 2, as an internalized model) in this study, see Checkland [19], and the value is that the researcher has become an insider.

This development was the emergence of what became known as Mode 1 and Mode 2 usage of SSM [9, 12]. See Fig 1 below for SSM in use in Mode 1 (intervention) and SSM in use in Mode 2 (interaction).

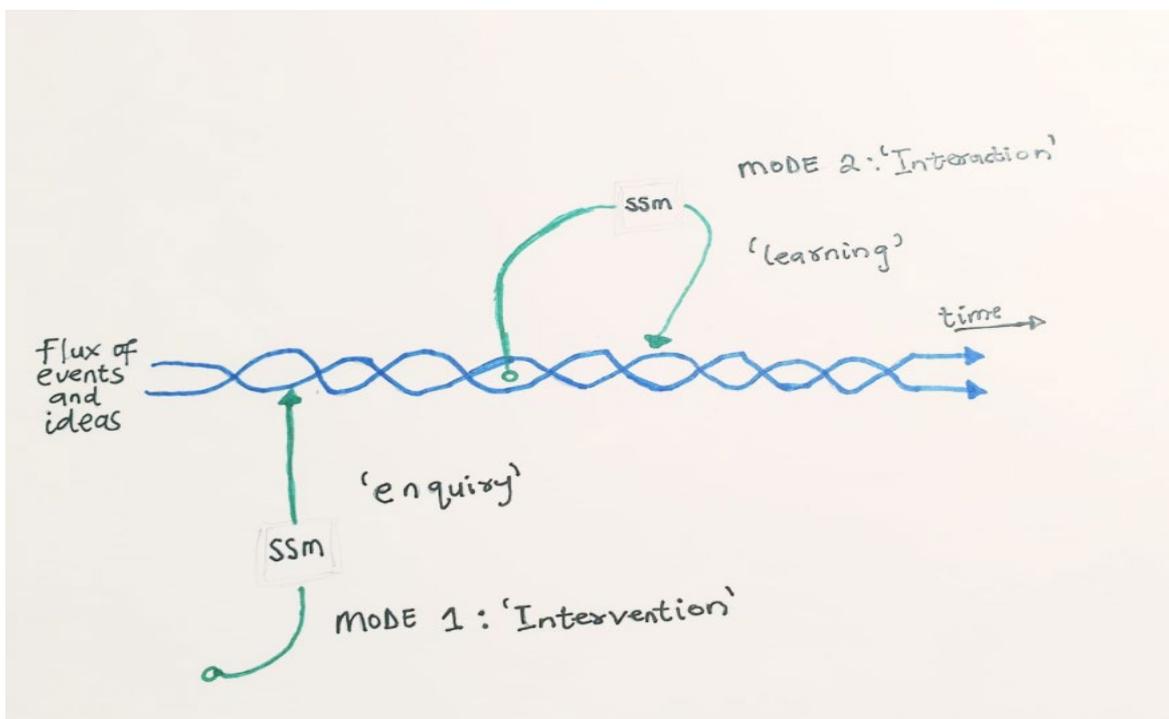


Figure 1: Mode 1 and Mode 2 of SSM (adapted from Checkland and Scholes, [12])

Figure 2 below shows how the inquiry process was developed and applied. Although some setbacks (described later) were encountered. This process was then applied several times as required, for example, the first cycle of application of the inquiry process shown in Fig 2 was understanding the problem situation. The second application was understanding participants' worldviews and analyzing setbacks, the third application was decision-making and recording lessons learned, etc. The key concepts of an SSM intervention are drawing rich pictures, context analysis using CATWOE (a mnemonic for a checklist for problem definition), and root definition. Rich pictures representing the problem were created to help understand the problem situation. Using the CATWOE mnemonic (customers, actors, Weltanschauung (worldview), transformation, ownership and environmental constraints) a root definition was formulated. Creating rich pictures enabled the researcher and the participants to form an impression of the state of the situation by analysing the intervention and the situation as a social system and as a political system.

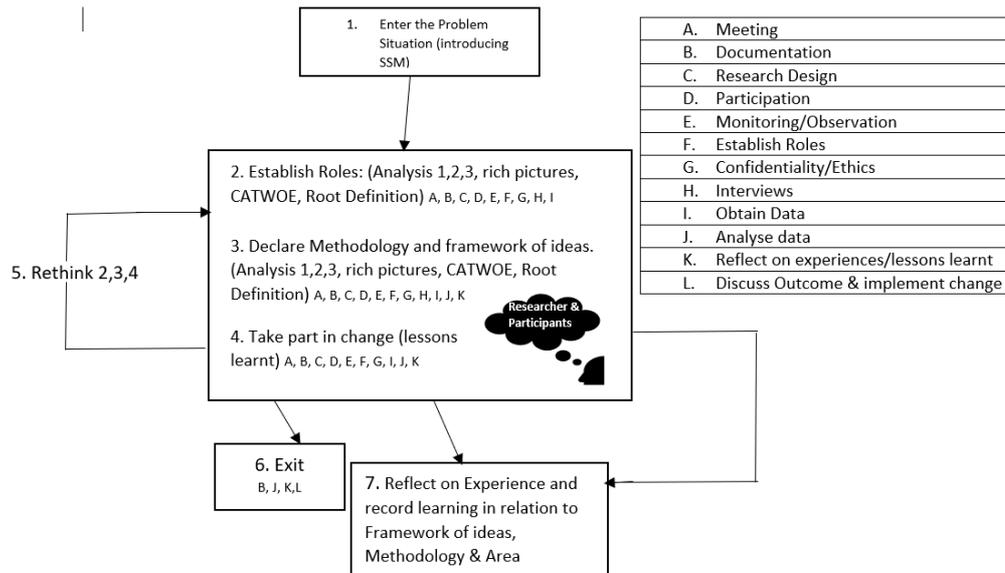


Figure 2 - SSM application in practice (source: adopted and adapted from Checkland (1989))

Data were also explored through interviews, observations, documentation, etc. as shown in Figure 2. The justification for adopting SSM was based on SSM being used for problem structuring in messy, ill-defined problem situations, it provides a set of principles for intervening in human problem situations in order to bring about improvement. Checkland's SSM is used to provide an organized, planned, and rigorous approach to real-world messy situations [8].

Steve Clarke (an independent consultant in Checkland) [7] explains one of the greatest, if not the greatest wants of human beings is to be heard. People in a changing environment frequently believe that they have not been heard adequately, if at all. Through participation and collaboration, SSM and ETHICS encourage actors to express themselves clearly and to hear what others are saying without unnecessary conflict. This study also agrees that by participation, all those affected by the change will be able to play some part in its definition, design and in agreeing with plans for its execution [23].

ETHICS method followed the socio-technical approach of user participation which is an important feature of the design. The socio-technical design has an important democratic component, this component encourages employees' involvement and participation, and thus, influencing their decision making [20]. The socio-technical approach focuses on incorporating the organisational technical and human structure in the view to achieve effective change management.

ETHICS in this study encouraged participants to be able to influence the design of their own environment. The ETHICS step-by-step stages as described by Mumford [19] and Jayaratna [16] were adopted and adapted to enable all participants to participate and contribute to the investigation (see Table 1 below). These steps were achieved through interviews and meetings.

Steps	Methodology steps	Applied through interviews and meetings
1	Why change?	Questions to determine whether the participants are informed why there is a need for change
2	Systems Boundaries	Are the participants aware of those to be affected or will be affected during and after the change is implemented?
3	Description of the existing system	Questions to find out the issues in challenges that they are currently facing in the current work system.
4	Definition of key objectives	What is the mission of the department? What are the key tasks?
5	Diagnosis of job satisfaction needs in regard to change management	Diagnosis of job satisfaction needs: Determine users' perception of the current system regarding job satisfaction. This would be carried out via the use of questionnaires. The results of the questionnaire would be drawn into the actual system design
6	Future analysis	An analysis of the future requirements of the system is undertaken, this is to ensure that the system design covers possible areas of potential change. The new system must meet future needs as well as the present. The researcher asked questions in meetings and interviews to find out what the participants wants or lacked.

7	The organisational design of the new system	Develop a design of the system that focuses upon the issues identified relating to efficiency, job satisfaction, etc.
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Table 1 ETHICS Step by Step approach: Adopted and adapted from (Jayaratna, 1994, p. 152; Mumford, 2003, p. 269-273)

The interview also served as a reflective exercise for the participants, the participants reflected and thought about their answers. The interview protocol was flexible and adaptable. The major areas of questioning were organisational change management (and its challenges), participation, and collaboration. Table 2 below shows participants and examples of interview questions.

Participants	Semi-structured interview	Age	Interview Time
A	Face-to-face	25-30	60 mins
B	Face-to-face	25-30	60 mins
C	Face-to-face	25-30	55 mins
D	Face-to-face	25-30	60 mins
E	Face-to-face	25-30	45 mins
F	Face-to-face	31-40	50 mins
G	Face-to-face	31-40	50 mins
H	Face-to-face	31-40	60 mins
I	Face-to-face	31-40	60 mins
J	Face-to-face	31-40	60 mins
K	Face-to-face	41-50	60 mins
L	Face-to-face	41-50	50 mins
M	Face-to-face	41-50	45 mins
N	Face-to-face	41-50	55 mins
O	Face-to-face	51-60	60 mins
R	Face-to-face	51-60	60 mins
Examples of interview questions			
Are you informed clearly and on time about changes that will affect your work?			
Does your job provide you with the opportunity to make decisions during a change?			
Can you tell me how changes (project and organizational) are communicated to the employees?			
How do changes affect your job?			
Why would you not be willing to agree to a change?			
Are you trained before or after a change or both?			
How do you know about the organisational changes or any type of change?			
Are you informed before a change or after a change?			
How do you feel when changes are implemented?			
Has there been any time you resisted a change? (If yes, why?)			

Table 2 Participants interviewed and example of interview questions

At the start of the investigation, the researcher's initial expectation was that the inquiry processes developed (SSM and ETHICS approaches) would form the key stages and would somehow be separated from the daily work of the participants. However, as the investigation progressed, the focus of the approaches narrowed to deal with ethical/process issues and capability development. In the process, SSM and ETHICS gradually became integrated daily into the activities of the participants to aid reflective practice. Checkland's SSM evolved to focus on human interactions, relations, needs, aspirations, perceptions and assumptions to bring about the process of the participants accommodating each other's views. ETHICS helped in the formulation of the interviews and meetings exposing different participants' worldviews and roles. This was achieved by using the iterative nature of the research process in their current reality, this is to facilitate the improvement of the world they live in. Reviews were conducted on the data collected by the researcher and it became evident that information was missing, for example, after a review, the rich picture and root definitions were updated.

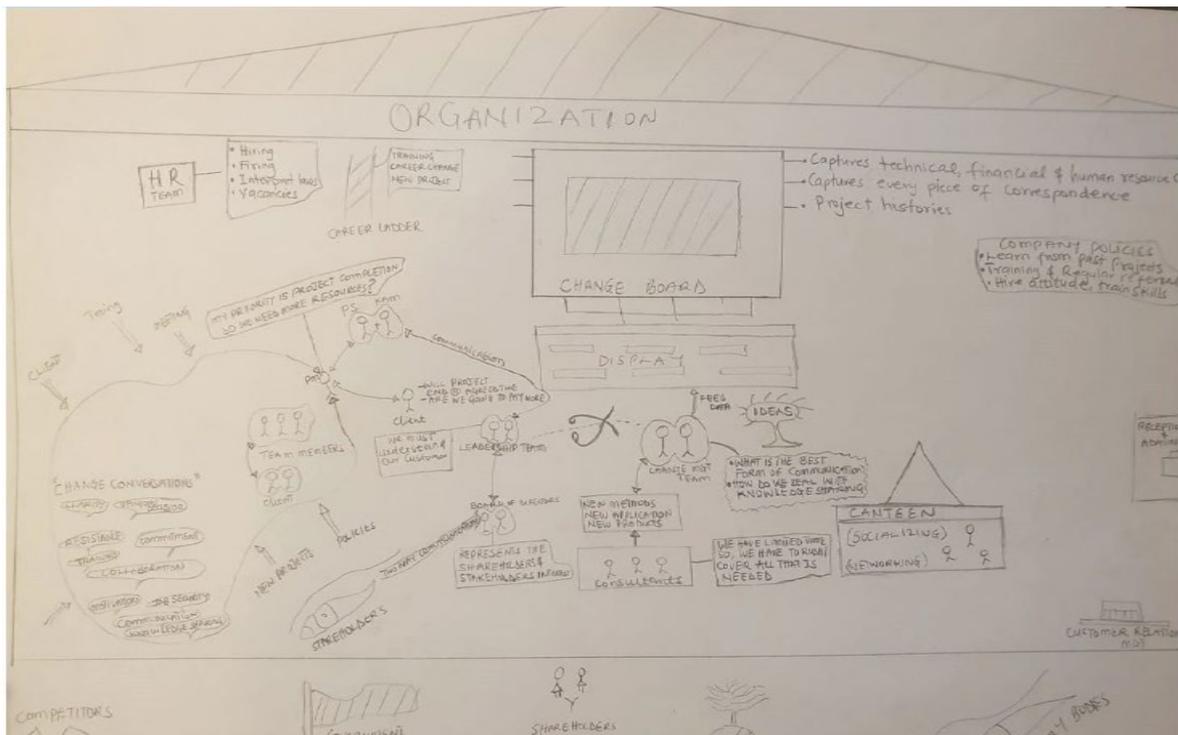


Figure 3 – Sample of Rich Picture

The researcher also discussed the CATWOE and root definition with the participants and corrections were made. The researcher, together with the participants carried out a role analysis, social system analysis, and political analysis. The role analysis clarified the roles of the client, problem solver and problem owner, see Table 3 below.

Roles	As described by Checkland and Scholes (1990, p.47)	Project Alpha (Real World)
The role 'client'	The person who caused the study to take place	(Main) The Researcher (Secondary) Case study organisation
The role 'would-be problem solver'	Whoever wishes to do something about the situation in question	The Researcher Case study organisation (participants)
The role 'problem owner'	No one is intrinsically a problem owner	The Researcher Case study organisation (participants)

Table 3 – Sample of Analysis One: Types of Roles

The social analysis established the norms and values. The political analysis identified formal authority, intellectual authority, personal charisma (or lack of) and reputation.

This experience caused the researcher based on the analysis, to reflect on the process of investigation and realize that

- The frequent reviews and verifications of the process establish coherence among participants and the researcher.
- Achieving a sense of understanding of the problem situation is based on several cycles of application of the inquiry process.
- Participation of the team members contributes to the identification of change management issues and probably solutions – by sharing their worldviews and exploring solutions.

As the investigation progressed, it became more obvious the philosophical similarities between SSM and ETHICS as applied in a real-world environment, even though at the start the approaches were chosen because they were developed from Action Research. It is interesting that the researcher first thought of SSM as a process to implement an information systems project but realized during the

investigation that it is a process that promotes a better understanding of the situation. ETHICS, like SSM, was also used to help reflect on the research problem.

3. Findings and Discussions

The research findings provided a better understanding of the participants' use of SSM and ETHICS for real-world investigation of change management and how participants accommodated each other's perspectives and interpreted their problems [23]. So, using soft systems approach, the participants gained insights into their situation, learning how to use the soft systems approach for further inquiry (i.e. for the future).

In the investigation, the (social) world is taken to be very complex and the people's worldviews are created and recreated by their thinking, talking, and taking action. The research methodologies facilitated changes by employing the iterative creation of shared frameworks concerning participants' perceived and everyday reality. The study draws on the work of Mumford [19] which explains that successful effective change involves understanding the real-world situation into which change is being introduced and identifying the factors in it that will either help or hinder success. SSM provided a set of principles for the intervention into the problematic situation (as shown in Fig 1) in order to bring about what would be judged to be improvements and sustain it.

While conducting this study from an information systems perspective, the findings are linked to participants' problems of change management. It is vital to note that the processes highlighted acted as a catalyst for identifying organisation's change management issues and processes. ETHICS recognises that different individuals and groups have various needs, interests, and values and that these must be satisfied if employees are to readily and enthusiastically accept change [25, 26]. Sixteen employees were interviewed, and all participated in the investigation and each participant has different view on how change is managed, how they want it to be managed and how they feel about change in the organisation. Also, this study shows that all participants want to be heard in one way or the other.

The rich picture and interviews conducted illustrated poor communication of change. It also shows that leadership characteristics or politics may affect the process. Trust, job security, participation, and motivation were seen as critical issues. Participants emphasised the importance of change awareness; they believe that raising awareness and training participants (before, during and after a change implementation) will help in the achievement of successful change management. They revealed that face-to-face communication would be more effective when introducing a change. Also, this study revealed that participants would like to get involved in decision-making during a change. An important finding of this study is that individuals and their sense-making activities should be included in the change management processes for decision-making in order for human activity systems to sustain effective change management. During the investigation, the researcher used strategic thinking and various communication techniques while keeping in mind the influence of organisational politics in systems involving human activity. This helped to reach various participants of different roles and levels. The research findings address the research questions in section 1.

According to the study, soft systems helped the participants fully understand their current situation and guided them while also giving them access to a variety of tools to ensure that their efforts to manage change were successful. The study relied on multiple sources of data collection techniques to provide a complete and detailed picture of the problem situation. This allowed for reflection on each technique and also analysed daily experiences. It provided good tools for communication and interaction; it also gave a complete holistic view of the environment. Combining the approaches, helped to keep track of participants' concerns and suggestions, for example, the use of rich pictures was used to capture the researcher's and the participant's concerns pictorially for discussions and the use of ETHICS step-by-step for structuring the interviews allows for further probing.

4. Conclusion

Checkland and Mumford provided much evidence that SSM or ETHICS can be used successfully in organisations for change management and information systems work, but in this study, both are combined. However, the participants' acceptance in the first place and commitment took some time due to a lack of confidence or knowledge.

In regard to this research, the contribution of this paper lies mainly in deepening participants' understanding of organisational change. It focuses on all aspects of human sense-making as the situation develops in the context of information systems. ETHICS and SSM in this study identify structure, task, technology, and participants to explain how to improve the effectiveness of organisational change. Tasks refer to organisational services, missions, and other work done to achieve organisational goals, whereas structure refers to both organisational structures and norms. Employees are the participants; technology provides the tools for participants to complete their tasks. Change management combines organisational norms, tools, and techniques to assist employees in making successful personal progressions that result in change implementation and realisation.

The research design and interventions demonstrated that SSM and ETHICS require engagement and involvement of the participants during the investigation. This study shows that participant's *weltanschauungen* change (as they participate and contribute in the investigation), and this involves reflection and sense-making resulting to decision making. The process of sense-making was embodied in meetings, conversations, and interpretations through the research methodology.

Even though SSM enables the researcher to understand the participants, and can guide managers in managing the ever-changing environments, the process was complex and time-consuming. The process of record-keeping was a significant lesson learned in this study because it was used for reflection, for example, for making rich pictures. These were regularly brought back to the participants for discussion and revision. Having in mind that socio-technical approach recommends the participants of all level groups get involved in decision-making.

The insights of this paper have encouraged the researcher to further discussions about the renewed importance of systems thinking in investigation of change management issues and how to overcome these issues. An important lesson learned in the process of the investigation is that the participants needed to understand the methodology, in order to evolve from theory to practice.

Future planning for the researcher might involve involving more participants and trying with other methodologies, as this could aid in the discovery of more perspectives.

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