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Information Systems Implementation, Stakeholder Perceptions and Organisational Change

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Abstract

This research report chronicles an expert system (ES) implementation at a large financial services firm in order to examine how individual stakeholders, party to an information systems (IS) implementation, perceive and experience change. A social constructivist orientation is used in conjunction with an adapted form of Leavitt's (1965) organisational change model in order to deconstruct individual stakeholder perceptions and experiences. The research reveals that stakeholders perceived and experienced the implementation differently - based on their construction of individual and organisational reality. The research suggests that the success of an IS implementation may be enhanced if IS practitioners recognise the significant influence of constructed individual and organisational reality on the progression of an IS implementation, and the consequent impact on organisational performance.

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Glossary

ES	Expert System
FRS	Financial Reporting Solutions
IAS	International Accounting Standards
IS	Information Systems
FINCO	Large South African Retirement Fund Service Provider
SME	Small and Medium Size Enterprises: In this case specifically small and medium size technology companies.
XML	Extensible Mark-up Language

When engaging in information systems implementations: “be open, fear the worst, and honor (sic) the complexity of social and technical change”.

(Lyytinen, Mathiassen & Ropponen, 1996).

Chapter 1: Introduction

1.1) Background to the Study

More than ever, in an increasingly dynamic and competitive global business environment, successful business strategies centre on the aggressive and efficient use of information systems (IS) (McFarlan, 1984; Porter & Millar, 1985; Hammer & Champy, 1993; Nah et al., 2001).

IS are inherently transformative (Zuboff, 1988; Kling & Zmuidzinas, 1991; Orlikowski, 1991; Orlikowski, 1992): implicit in deploying an IS is organisational change. Change caused by the introduction of new technology is characterised by complexity, on an organisational and an individual level, and the change process is frequently difficult for the stakeholders involved (Bridges, 2001; Robbins 2001).

An examination of management and IS literature over the last two decades reveals that an inordinate number of IS projects do not meet the expectations and outcomes defined prior to the initiation of the project (Keen, 1981; Markus, 1983; Markus & Robey, 1988; Hammer & Champy, 1993; Maurer, 1996; Davenport, 1998). The actual success rate of IS implementations is difficult to ascertain since most organisations do not disclose such sensitive information, especially if the IS projects are considered failures; however, it can be inferred from the literature that deploying IS in organisations is difficult and in many instances the organisation fails to realise the anticipated benefits from the IS.

Numerous researchers have examined IS projects in an attempt to understand the causes of IS project failure and although a multitude of reasons have been identified, a large body of current IS research ascribes the failure of IS projects not to the underlying technology but rather to behavioural issues resulting from the interaction between the existing organisational elements and the new IS (Markus, 1983; Orlikowski, 1992; Walsham, 1993; Hart & Whyman, 1999; Mitev, 2003). Unlocking value from IS is therefore not only explicitly linked to

strategically identifying and selecting an appropriate IS solution (based on the organisation's strategic business needs), but also implicitly linked to the organisation's capacity to effectively deploy the IS and manage the associated organisational change.

IS implementation, integration and the associated organisational change need to be better understood if organisations are to fully realise the value (benefits) IS can provide.

1.2) Context of the Study

An opportunity existed to examine the implementation of an expert system (ES) developed by Financial Reporting Solutions (FRS) for a large retirement fund service provider. The retirement fund service provider agreed to participate in this study but requested to remain anonymous, thus for the purposes of this research the retirement fund service provider will be referred to as FINCO.

FINCO is one of South Africa's largest retirement fund service providers.

FRS is a small technology start-up based in Johannesburg. FRS was formed in 1996 with the aim of developing customised IS which would allow large organisations to more effectively manage their financial reporting processes.

FRS developed an IS solution for FINCO which can best be described as an ES: FRS' system captures primary data from FINCO's existing legacy systems and automates the auditing and the production of statutory financial statements. The project commenced in early 2001 and the primary project deliverables were being met by mid 2003, though user adoption and system refinement was still ongoing.

At the time that this research was undertaken FINCO was FRS' principal client and the implementation of the ES was FRS' largest IS deployment to date.

1.3) Importance of the Study

Current research dealing with IS implementation and management is largely drawn from European and North American IS experiences. Multi-national consultancies have developed practical implementation and change management techniques grounded in academic theory and have disseminated these approaches globally. Notwithstanding the value that these global "best practices" bring to the implementation and management of IS projects, it must be acknowledged that IS projects in South Africa take place in a distinctive social, political and economic context and that research examining South African IS projects has the potential to provide unique insights - linked to the South African environment.

On a practical level; it is particularly important for South African managers involved in IS projects to develop an appreciation of the complexities of IS implementations and the mechanics of organisational change if they are to successfully manage IS implementations.

1.4) Research Problem

1.4.1) Aims of the Research

The aims of this research are twofold:

Firstly, the aim of this research is to produce meaningful insights, for interested parties, by providing an enhanced understanding of how individual stakeholders party to an IS implementation perceive and experience change, such that interested parties are more effectively able to deploy IS in organisations.

Secondly, the aim of the research is to record FRS' experiences, so that small and medium size technology companies (SME) may gain practical insights with respect to the challenges of developing, commercialising and deploying, software solutions.

In order to achieve the abovementioned aims the data gathered in this research will be presented as a rich interpretive text in the form of a case study.

1.4.2) Problem Statement

The purpose of this research is to better understand the implementation of IS in organisations by examining how individual stakeholders impacted by IS perceive and experience change, such that organisations are better able to implement and fully realise the value of IS.

The terms “perceive” and “experience,” are used to denote the dialectic between what individuals think and what an individuals do. Argyris and Schon (1978) developed the conceptions of “espoused theories” (what we say and think) and “theories in use” (what we do), in many instances there is a discrepancy between these elements and an important part of understanding constructed stakeholder reality is recognising and dealing with this discrepancy (Orlikowski, 1999).

1.5) Delimitation

Definition of Change

The scope of this research will be delimited to the ES implementation with respect to the two organisations under review, FRS and FINCO. The change examined in this case study is deemed to be second-order change to use Robbins’ (2001: 542) terminology: even though the change was planned, initiated and controlled by the FINCO and FRS, the substance of the change was radical in the sense that it involved the reframing of assumptions and perceptions regarding the role of technology (IS) at FINCO

This research will be less relevant to first–order change (Robbins, 2001: 542), that is linear and continuous.

Theoretical Framework

Walsham (1993: 70) argues that IS researchers should apply an analytical framework to their research, however, they need to be cognisant that the analytical framework is a, "way of seeing and a way of not-seeing" (Walsham, 1993: 70).

It is the researcher's intent to seek to understand and analyse the ES implementation at FINCO by examining stakeholder perceptions and experiences using a theoretical framework which comprises of two elements:

- Leavitt's (1965) "Diamond" or "Change-Equilibrium" organisational change model (Leavitt, 1965), and

- a social constructivist analytic orientation (Berger & Luckmann, 1966; Gergen, 1985; Mitrev, 2003).

The researcher acknowledges that social constructivism represents a very specific lens for seeking to understand IS driven organisational change and that the social constructivist analytic orientation will stress the primacy of the individual stakeholders within an organisational setting.

Researcher's Bias

The refinement of the interpretive text will be an iterative process based on the researcher interacting with the interviewees and potentially influencing their responses and processing their responses based on the researcher's personal bias. The researcher is cognisant of the fact that the output of the research can be affected by the researcher's personal bias (Klein & Myers, 1999).

1.6) Assumptions

Traditional conceptions and practice of change management, as applied to IS projects, are commonly based on the following assumptions:

1) Change is a rational objective process that can be divided into sequential stages and can therefore be controlled (Lewin, 1951; Beckhard & Harris, 1977; Kotter, 1998).

2) Stakeholders are narrowly defined: an examination of management and IS literature and practice, reveals that stakeholders are generally very narrowly defined (based on function) and a large degree a commonality of purpose is inferred between the individual stakeholder and the stakeholder groups (Pouloudi, 1999).

For the purposes of this research the following assumptions will be made:

1) Change is not necessarily a rational objective process that can be divided into sequential stages.

2) The widely referenced stakeholder definition that has been proposed by Freeman (1984) will be used to define "stakeholders" for the purposes of this study: "A stakeholder in an organisation is any group or individual who can affect or is affected by the achievement of the organisation's objectives (or IS project)" (Freeman, 1984: 46).

   Stakeholders will thus specifically be deemed to include "implementers" and "vendors", not just the traditional "users" and "managers".

   Also no degree of commonality of purpose will be inferred for the functional stakeholder groups.

1.7) Definition of Terms

Expert System:

For the purposes of this research the software that FRS developed for the FINCO is deemed to be an ES because FRS' core software engine simulates the judgment and action of a human being that has expert knowledge and experience in accounting and statutory financial reporting. The software engine

contains a knowledge base and a rules base for classifying, processing and rendering financial data to international accounting standards (IAS).

Implementation:

Implementation broadly refers to anticipating and managing all affects stemming from an IS deployment until the IS becomes "organisationally valid" (Markus and Robey, 1983). Sarker (2000: 195) defines “implementation” as, “all that must be done by a specific organisation for it to be able to harness the capabilities of a particular information technology”.

Organisational Change:

For the purposes of this research, “organisational change” will be viewed as all of the consequences that result from the planned introduction of new IS into an organisation, specifically the associated systemic impact on the organisational elements (Robbins, 2001: 546).

Organisational Elements:

Used in the context of this research to broadly describe the core elements that constitute an organisation, i.e. people, structures, tasks and technology (Leavitt, 1965), which are interdependent and re-enforcing (Senge, 1990).

Super-Users (Fund Mangers):

A select group of FINCO’s fund managers that acted as the “test” group for the first roll-out of the ES. The terms “fund managers” and “super-users” are used interchangeably in the case study (chapter 4).

Chapter 2: Literature Review

2.1) Approaches to Understanding IS Implementations and Organisational Change

IS research focused on the implementation of technology broadly explores the complex relationships between human behaviour and technological change, primarily within organisational settings. Over the last three decades scholars have addressed the problems arising from IS implementations and the associated organisational change in different ways, leading to a multitude of diverse insights and prescriptions for successfully implementing IS.

In order to create a basis for understanding IS implementation and organisational change a chronological review of the current IS literature will be undertaken. The overview provides a useful basis to contextualise the research at hand in relation to the current, divergent theoretical approaches for framing, IS implementation and organisational change, research. It is noteworthy that all of the frameworks for understanding IS implementation and organisational change discussed below are interdependent, academically well-founded and continue to be employed in current research efforts.

The Philosophical View:

"Some of the first approaches to analyse IS implementations can be described as "philosophical" in the sense that they focused on broad or high level issues such as the nature of the relationship between the scientist (i.e. the IS practitioner) and the manager (i.e. the user)" (Sarker, 2000: 195). For example, Churchman and Schainblatt (1965) viewed, "implementation and organisational change as a problem of determining what activities of the scientist and the manager are most appropriate to bring about an effective relationship between the two" (Sarker, 2000: 195). They (Churchman & Schainblatt, 1965) conceptualised the relationship as dialectic and recommended a framework of "mutual understanding" (Sarker, 2000:195). Churchman and Schainblatt's

(1965) approach was a novel and useful way of framing implementations from a broadly philosophical perspective (Sarker, 2000: 196).

The Factor View:

The next wave of research (Lucas, 1975; DeSanctis, 1984; Leonard-Barton, 1988) was grounded in the rationalist, functionalist research tradition and focused on identifying a range of factors (normally project dependent with limited scope) that affected implementation outcomes (Sarker, 2000: 195). Substantive, IS "factors" were carefully identified and defined and the research was focused on addressing and understanding the significance of the factors and positing solutions for implementation problems relating to the pre-defined factors. Implicit is this approach is the view that social elements are exogenous from the technology and a presumption that there is a pre-existing "natural" technology trajectory (Mitev, 2003: 4).

Factors that were identified and examined included (Sarker, 2000: 197):

- *"individual variables* such as needs, cognitive style, personality, demographics, decision-style, and expectancy contributions;

- *organisational variables* such as differentiation/ integration, extent of centralisation, autonomy of unit, culture, group norms, reward systems, and power distributions;

- *situational variables* such as user involvement, nature of analyst-user communication, organisational validity, and the existence of critical mass; and

- *technical variables* which defined the type of technology and the characteristics of the technology, such as transferability, complexity, and divisibility".

The factor-based approach to IS implementation research, “has not delivered results in that it has not satisfactorily isolated causes of IS implementation failure in a way that allows them to be eliminated in practice” (Mitev, 2003: 4).

The Process View:

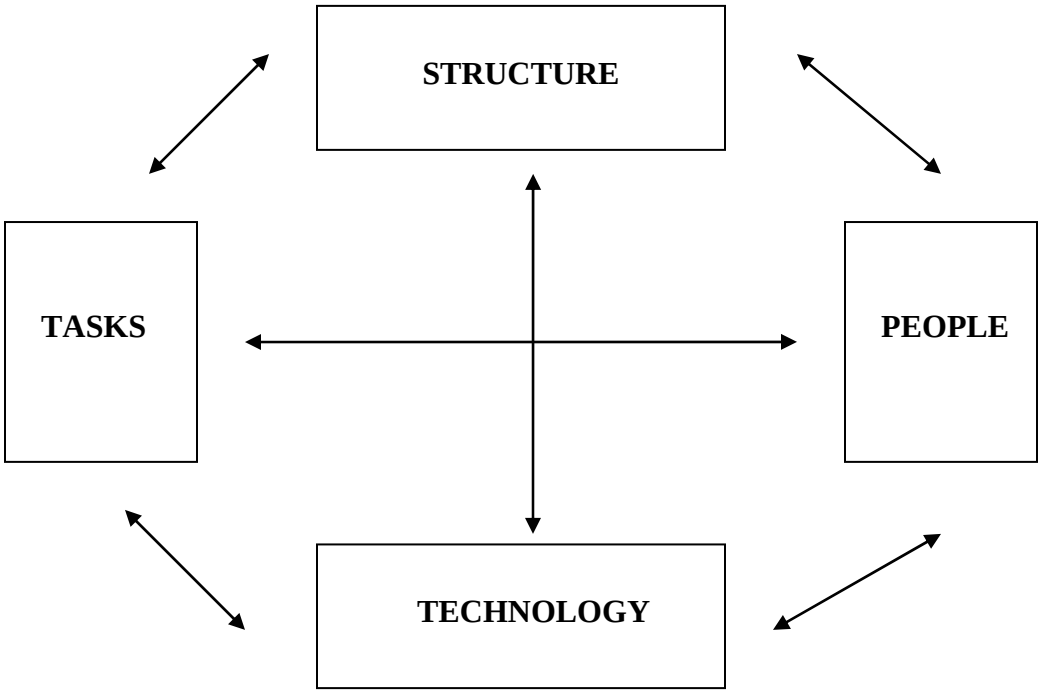
“As scholars started understanding the role of different factors, they came to the realisation that an implementation was not a static phenomenon as implicitly assumed by those conducting factors research, and that implementation would be better understood as a process mediated by certain conditions,” (Sarker, 2000: 197). While some scholars adopting the “process view” saw implementation as diffusion of innovation, most viewed it as a functionalist process of changing the institutionalised way of doing things (Ginzberg, 1978; Galbraith, 1979). Process models of organisational change were used to conceptualise the implementation of IS and thereby “manage” the implementation and organisational change (Sarker, 2000: 198).

Process approaches improve upon the factor-based research but tend to be functionalist in that they attempt to identify generally applicable causal linkages (Mitev, 2003: 4) without recognising the social and political dynamics inherent in any organisational context.

The Socio-Technical Interactionist View:

As early as 1965, Leavitt offered a much cited framework highlighting the systemic nature of organisations and the interconnectedness of various organisational variables or elements. Leavitt recognised the complexity of organisations and identified four organisational elements which are interdependent: task elements, structural elements, technological elements and human (people) elements.

Figure 1: Leavitt's "Diamond" or "Change-Equilibrium" Model representing the "Organisational Elements" (Leavitt, 1965).



For the purposes of this research the organisational elements will be defined as follows:

- *Technology:* "the mechanisms for transforming inputs into outputs" (Scott, 1992: 20): the way in which work is performed, passed between separate units (workflow) and produced in an organisation i.e. work methods, tools and systems.

- *Tasks:* the job performed by the individual stakeholders in the organisation i.e. job descriptions, job design, flexibility, skills and responsibilities.

- *Structure:* the regularised aspects of the relationships that exist among participants in an organisation (Scott, 1992: 19). The relationships can be formal - explicitly specified and defined independently of the personal characteristics of the participants - such as organisation charts, and

informal - the personal characteristics of the participants. The roles and relationships are contingent on the organisational context and subsequent personal characteristics and interactions, such as personal dynamics (Scott, 1992: 19).

- *People:* the actors or people who in return for a variety of inducements make contributions to the organisation (Leavitt, 1965).

The task, structure and people elements can be viewed as the social elements and the technology element as the technical element. Leavitt (1965: 1145 - 1146) suggests that organisational change outcomes stem from the interrelationship or balance between the social and technical elements; changes in the technology element are absorbed, deflected, and potentially nullified by task, structure, and people elements and therefore the only way to bring about change in one organisational element (technology) is to align technical change with the other organisational elements.

Leavitt's organisational change model of organisations gained significant acceptance in organisation theory (Scott, 1992) as well as in information systems (Keen, 1981: 31) and contributed to creating a formative basis for the socio-technical approach to understanding IS - by depicting organisations as comprising of and interacting as interdependent components (Sarker, 2000: 198).

The process view of IS implementation was further enhanced by scholars influenced by the “socio-technical” school of thought (Markus, 1983; Markus & Robey, 1988; Orlikowski, 1992; Walsham, 1993), which principally reinforced the conception of an organisation as a social system; by changing one component within the system, all the other components automatically experience and undergo change and the nature of the organisation as a whole changes (Senge, 1990). The organisational elements are all interdependent and reinforcing (Senge, 1990). IS implementations and the associated organisational change is therefore viewed ideally, as an explicit, creative and contextual

process of linked and mutually sustaining social and technological shaping negotiated within the organisational setting (Kling, 1980; Markus, 1983). This approach arguably remains the dominant one for the study of IS implementations in organisations (Sarker, 2000).

Also central to the socio-technical interactionist view of the organisation is the concept of power and political dynamics within organisations. Markus (1983) identified two distinct variations of the interactionist theories: one, the socio-technical variant, "focuses on the distribution of responsibility for organisational tasks across various roles and on the work-related communication and co-ordination around the division of labour" (Markus, 1983: 431). According to a second, political variant, "change" is explained as a product of the interaction of system design features with the inter-organisational distribution of power, defined objectively, in terms of horizontal or vertical power dimensions. Resistance-generating conditions are therefore mis-matches between the patterns of interaction prescribed by the new IS and the patterns that already exist in the organisation into which the IS is introduced (Markus, 1983: 483). In a further work, Markus and Robey (1988) have elaborated on this view, and argued that power and political dynamics are the prime determinants of implementation outcomes.

More recently *structuration* theory; influenced by the work of Giddens (1984), proposes that the socio-technical interactionist view of implementation can be enhanced by emphasing that change in either organisational or technological properties is a consequence of situated human action (Orlikowski, 1991; Orlikowski, 1992; Orlikowski, 1993; Walsham, 1993). Structuration theory enhances the socio-technical interactionist understanding of technology induced organisational change by suggesting:

1) Technology is created and changed by human action, and that technology is interpretively flexible and its use (consequences and trajectories) is dependant on human agents (Orlikowski 1991, Orlikowski, 1992).

2) Human agents possess the capability to make sense of their surrounding environment (organisational context) and reflect this understanding through behavior and relational processes.

2.2) Social Constructivism

In the academic field of information systems the constructivist approach is not often used explicitly because it goes against the common sense interpretation of the world: social constructivism is based on the understanding that the search for grand narratives and universal foundations has failed; because the traditional social science ontology that there is a “real world out there” that can be known epistemologically through positivist methods, is not valid (Mitev, 2003: 6).

Building upon the socio-technical interactionist view in an IS context, constructivism is epistemologically about social construction and ontologically about the construction of social reality. Constructivism combines a social theory of knowledge developed by Berger and Luckmann (1966) with an inter-subjective theory of action (individual and group behaviour). The analysis of power and politics is central to understanding the reflexive link between the two levels (Mitev, 2003: 2).

Berger and Luckmann, (1966: 147) argue that reality is entirely socially constructed and indicative of individual rather than institutionally defined consciousness. Social constructivism suggests that the mind constructs reality in its relationship to the world and that the mental process is significantly informed by influences arising from social interaction with contextual elements in the individual’s environment (Berger & Luckman, 1966; Gergen, 1985).

A form of constructivism is present in the socio-technical view of interpretive IS research (Orlikowski, 1991; Orlikowski, 1992; Walsham, 1993) in which the pivotal notions of process and context are present (Mitev, 2003; 7), yet constructivism goes a step further and blurs the abovementioned conceptions by stressing that the introduction of the same technology has different meanings

for different stakeholders, based on their individual experiences – and that the IS becomes intertwined in the stakeholder's construction of social meaning (Mitev, 2003: 7).

Individual perceptions and experiences of reality are of utmost importance in organisational analysis because self-determined human action (behaviour) is believed to follow a stage of examination and deliberation (Robbins, 2001: 121-123). Human action, in terms of stakeholder responses to an IS implementation, is thus principally based on the stakeholder's understanding of "constructed" reality. It can therefore be argued that a principal reason for failure of organisations to realise the full value of IS, may not found in the technology itself, nor in the specific implementation processes but rather as a function of the technology or process not aligning with the constructed reality in which individual stakeholders operate. Depending on the nature of that constructed reality, in relation to the organisational context, the reasons for IS implementation success or failure will vary (Ford et al., 2001).

Thus Mitev (2003) argues that a social constructivist orientation can provide a richer and more complex understanding of the application and assimilation of IS in organisations and organisational change, thereby potentially allowing organisations to more fully realise the value of IS.

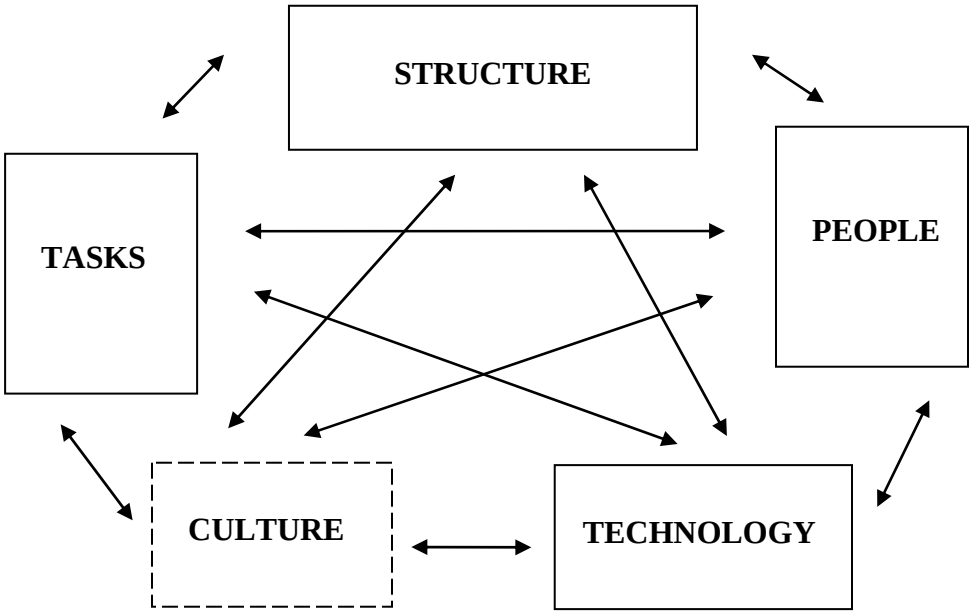
2.3) Conceptual Framework

In order to facilitate the interpretation and understanding of stakeholder constructed reality and to support data analysis (section 3.5), a conceptual analytic framework will be used. The conceptual framework is grounded in the socio-technical view of IS implementations and strongly influenced by a social constructivist orientation. The framework will *not* be utilised by the researcher in a prescriptive manner but rather will be used as a guide to structure the primary data gathered during the course of this research.

Leavitt's "Diamond" model (figure 1) provides a useful starting point for conceptualising the organisation and the elements involved in organisational

change, however, the model fails to reflect sufficiently the political and cultural underpinnings that exist in the minds of the stakeholders involved in IS implementations (Sarker, 2000: 198). Various researchers have attempted to remedy this by adapting Leavitt's model: Galliers (1995: 124) for example added "culture" as a fifth element to Leavitt's model:

Figure 2: Gallier's Adaptation of Leavitt's model.

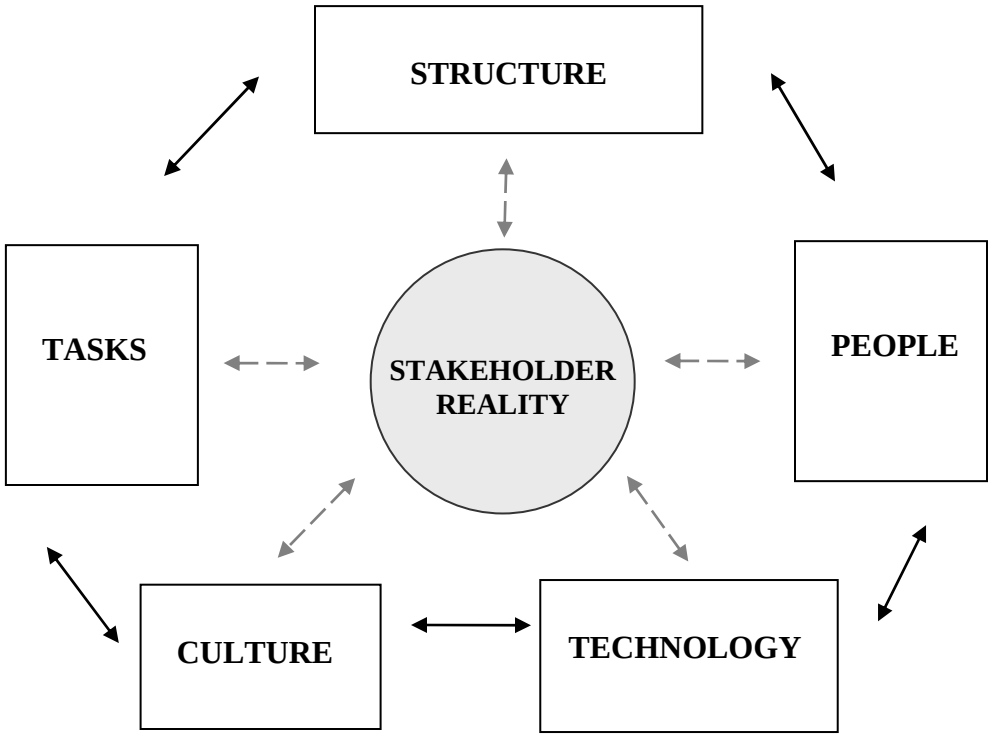


Organisational culture can broadly be defined in terms of institutional and individual values, customs and norms. Robbins (2001: 511) maintains that there seems to be wide agreement that organisational culture refers to a system of shared meaning held by members of the organisation which distinguishes the organisation from other organisations. The researcher recognises that organisational culture is one of key elements that can shape change in organisations; without the inclusion of culture as an independent element within a conceptual framework of the organisation it is difficult to fully appreciate organisational change dynamics.

A social constructivist orientation will be added to the conceptual framework – premised on the theory that members of an organisation ontologically and

socially construct their own unique "reality" (Berger and Luckmann, 1966; Gergen, 1985). The aim of the researcher's conceptual analytic framework is therefore to reconcile the socio-technical "interactionist" organisational elements, including organisational culture, while focusing on the primacy of the individual stakeholder in an effort to potentially provide greater insight into IS driven organisational change.

Figure 3: Proposed analytic framework/ model based on Leavitts (1965) and Gallier's (1995) models with the introduction of constructed stakeholder reality as a locus.



Thus to review; for the purposes of this research organisations are viewed as social systems, the introduction of technology in the form of an IS produces organisational change that is largely dependent on meanings that human agents (stakeholders) assign to it. Besides technology, human agents are influenced by organisational elements (tasks, structure, people) and cultural imperatives. Stakeholder actions (behaviours) are not characterised by uniformity of goals and decisions, but rather by inconsistency, both over time and from one

stakeholder to another (March, 1962). The meaning that human agents assign to the introduction of IS determines whether the IS will be assimilated or rejected by the organisation and to what degree the value of the IS can be realised by the organisation.

Thus the aim of this research is to produce a rich interpretive text based on the aforementioned conceptual analytic framework; the social constructivist lens provides a critical yet academically grounded focal point which gives prominence to individual stakeholder perceptions and experiences. The researcher envisages that the aforementioned conceptual model will assist in developing findings that when contrasted with more techno-managerialist accounts of implementation and organisational change, may provide unique insights for interested parties.

2.4) Research Question

In order to provide the researcher with a degree of investigative flexibility one broad exploratory research question will be tabled:

How do stakeholders: all individuals from both FRS and FINCO that are involved in the implementation of the new ES at FINCO, perceive and experience the change brought about by the implementation of the new ES?

Chapter 3: Research Methodology

3.1) IS Research

3.1.1) Qualitative Case Study

Myers (1999) notes that IS research has "matured" in the last decade in that the war between the qualitative and quantitative is over. Today, IS journal editors are happy to accept articles using any research method or approach, as long as the research itself is of sufficient quality and makes a worthwhile contribution (Myers, 1999). IS research can validly be based on three philosophical assumptions and research epistemologies: positivist, interpretive and critical (Myers, 2003).

Qualitative research is typically grounded in the interpretive epistemology, however, it must be noted that the word interpretive is not a synonym for qualitative - qualitative research may or may not be interpretive, depending upon the underlying philosophical assumptions of the researcher (Myers 2003). IS research can be classified as interpretive if it is assumed that knowledge of reality is gained only through social constructions such a language, consciousness, shared meanings, documents, tools, and other artefacts (Klein & Myers, 1999).

The underlying philosophical base of interpretive research is hermeneutics and phenomenology (Walsham, 1993: 4-8). Interpretive research can help IS researchers to understand human thought and action in social and organisational contexts; it has the potential to produce deep insights into information systems (Walsham, 1993: 4-5; Myers, 1999; Klein & Myers, 1999). Leedy and Ormrod (2001: 101) acknowledge that the qualitative research paradigm allows researchers to "answer questions about the complex nature of the phenomena, with the purpose of describing and understanding the phenomena from the participants' point of view."

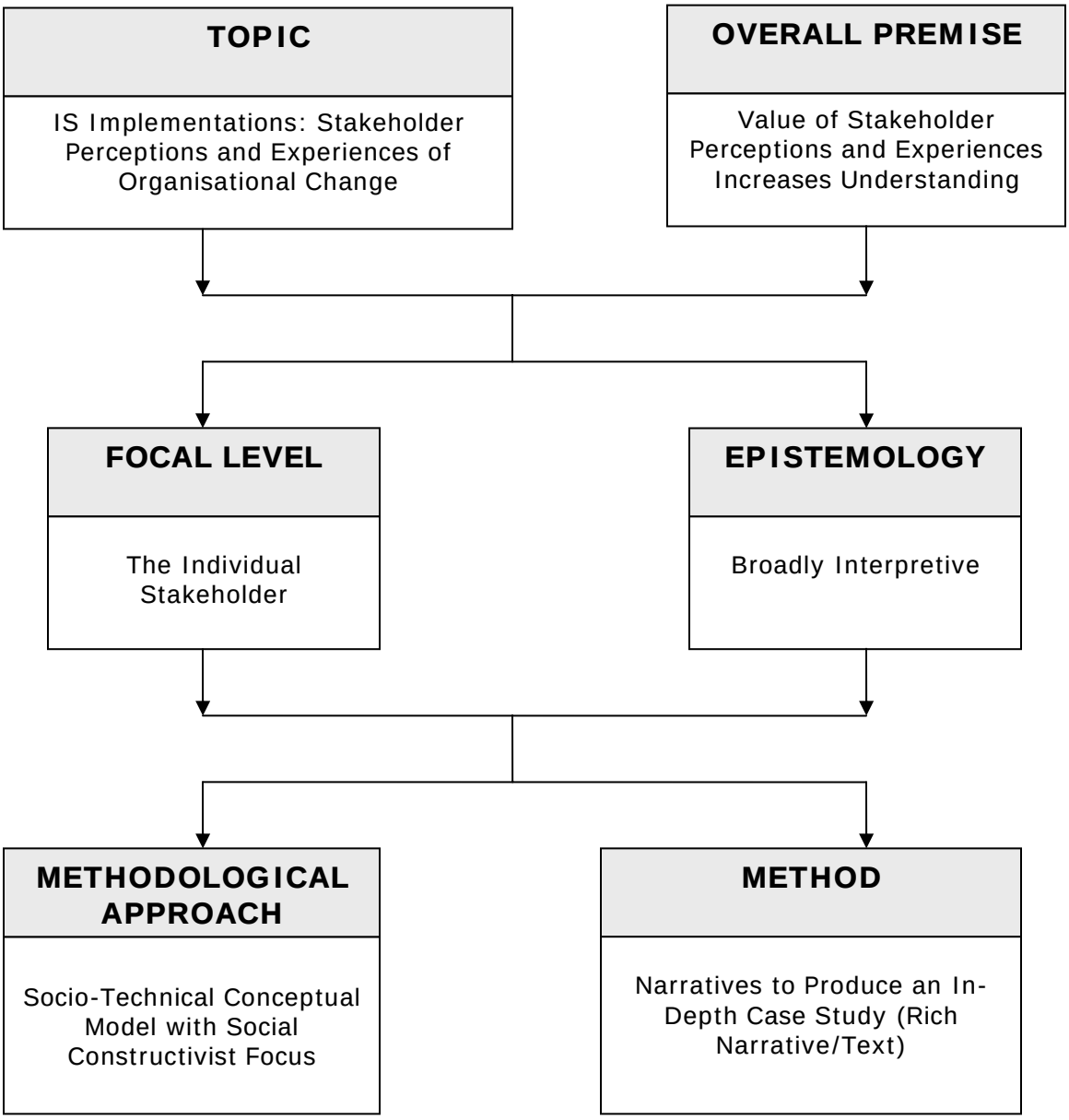
The motivation for doing qualitative research in the interpretive tradition, as opposed to quantitative research, stems from the fact that the aim of this research: to better understand the implementation of an ES and the associated organisational change as perceived and experienced by individual stakeholders, is characterised by complexity and ambiguity. The qualitative research framework enables the researcher to more comprehensively explore the complexity of organisational change from individual stakeholder's perspectives - thereby potentially eliminating a degree of ambiguity.

Case study research is the most common qualitative method used in IS (Myers 2003). According to Myers (2003) a case study research method is an empirical inquiry that investigates a contemporary phenomenon within its real-life context and is particularly well suited to studying organisational rather than technical issues. The case study methodology has been successful utilised in interpretive IS research and is widely accepted (Orlikowski, 1992; Myers, 1999; Myers, 2003).

In accordance with the interpretive research tradition: a case study methodology was applied in this research with the explicit aim of producing a rich interpretive text that is reflective not only of the perceptions and experiences of the stakeholders involved in the ES implementation, but also of the related organisational context.

3.2) Overview of the Research Design

Figure 4: IS Implementation Research Design (Walsham, 1993: 22).



3.3) Population and Sample

The proceeding research is based on an interpretive research epistemology and a social constructivist conceptual framework, the aim of this research is not to produce a statistically representative sample of the population; rather the intention of the researcher is to effectively represent the experiences and

perceptions of the individual stakeholders involved in the IS implementation, such that the full complexity, ambiguity and associated organisational change is better understood.

3.4) Data Collection

Three separate methods were utilised to collect data for this research: in-depth narrative enquiry was utilised to gather data relating to stakeholder perceptions (espoused theories). Artefact collection as well as ethnographic observation and immersion were used to focus on stakeholder experiences and practice (theories in use):

3.4.1) Narrative Enquiry

The primary source of data for this research was 17 in-depth interviews, totalling approximately 22 hours. The in-depth interviews took the form of requesting stakeholders to provide narrative accounts - “tell the story” - of their perceptions and experiences of the IS implementation.

Connelly and Clandinin (1988: 24) state that, "narrative is the study of how humans make meaning of experience by telling and retelling stories about themselves that both refigure the past and create purpose in the future". Narrative enquiry focuses on the experiential, relational, and fluid qualities of experience linked to temporality and it is therefore a viable method of enquiry to examine espoused theories of individuals in relation to their construction of reality (Polkinghorne, 1988).

Using narratives is convenient because they are easy to collect and provide critical insights; rather than directly discussing people’s attitudes and beliefs, stories are said to embody them, stories get to the heart of stakeholder meaning by exposing the true nature of an individual’s reality (Van Buskirk & McGrath, 1992).

It must also be noted that the narrative research technique is consistent with a pluralistic and diverse approach to interpretive organisational research,

specifically social constructivism. Rather than assuming that there is one reality, as expressed by the singular and privileged authorial or managerial voice, narratives taken from a variety of stakeholders provide an opportunity to see the inherent differences in how stakeholders make sense of and construct their reality.

The researcher was cognisant that story-listening skills had to be employed to be able to receive the narratives effectively: these research skills are akin to what is referred to as "active listening" and involve suspending judgments based on stereotypes, empathising with the storyteller, and providing reflective responses to encourage storytellers to tell their stories to the end, and giving feedback to the storyteller to ensure that the story has been received "straight" (Kaye, 1996).

The researcher recognises that using narrative enquiry may seem “foreign” to certain stakeholders and that people generally require time to think about and prepare narratives. Stakeholders were therefore contacted prior to the interviews so that they had time to consider their responses and develop reliable narratives.

The researcher used a simple “mind map” representing the organisational elements, similar to figure 2, to make notes and to guide the flow of the narratives (see appendix).

All narratives were recorded and transcribed to ensure research credibility and dependability.

3.4.2) Artefact Collection

A material source of data for this research was documents, both corporeal and electronic, that related to the ES implementation. Particular attention was paid to electronic communications and minutes of meetings. The artefacts were specifically examined to provide greater insight into stakeholder practices (theories in use).

3.4.3) Ethnographic Observation & Immersion

The researcher's ability to access the ES implementation site and observe the stakeholders' work environment and their interactions with the technology also provided a material source of data.

The ethnographic techniques of immersion and observation were employed in order to allow the researcher to gather data specifically relating to stakeholder experience and practice (theories in use): the researcher recognises that in order to develop a comprehensive and rich interpretive text it is critical to gain an understanding of the social, cultural and technological context in which the ES implementation takes place (Blomberg et al., 2003).

It is important to note that Myers (1999) uses the primary data collection methodology and time frame to distinguish between a case study and ethnography. Since this research's primary data collection methodology will be in-depth interviews in the form of narratives, this research can be defined as a case study - using secondary ethnographic techniques for triangulation purposes.

3.5) Data Analysis

3.5.1) Content Analysis

"In social science, whether qualitative or quantitative, the investigator systematically examines data to discover patterns and, in some cases, identify cause and affect relationships," (Ulin et al., 2002: 153). For the purpose of this research, the content analysis process included (adapted from Miles and Huberman [1994]):

1) *Reading texts*: examining the primary and secondary data in order to identify patterns and establish context.

2) *Coding and re-reading texts*: identifying, classifying and naming themes as they become prominent. Codes were used that closely match the textual data to avoid imposing words or concepts that would reflect the researcher's bias.

3) *Reducing:* re-examining the text and coding scheme in an attempt to unify concepts and avoid the common pitfall of coding too finely (Ulin et al., 2002: 139).

4) *Displaying:* Simple handwritten cognitive summary/maps were developed for each narrative. The cognitive summaries/maps were based on Leavitt's (1965) and Galliers (1995) models and the recurring themes that emerged from the reduced coding. (See appendix for template).

5) *Interpreting:* The cognitive summaries and maps and the salient portions of the narratives were analysed to produce credible findings that were consistent with the data collected. The case study, in a draft form, was made available to study participants to ensure that the understanding of context and findings were reflective of their inputs.

The aforementioned process was iterative.

3.5.2) Triangulation

Triangulation refers to attempts by the researcher to demonstrate convergence or agreement between different measures to support/increase the credibility of the findings (Ulin et al., 48). For this reason the researcher used multiple methods of data collection in order to get a variety of views of the ES implementation. The cognitive summaries and maps developed from the primary narratives were viewed in the context of the transcribed and observed data to ensure that both the "theories in use" and "espoused theories" were aligned when producing the research findings.

3.6) Validity (Credibility)

In quantitative science, validity is the extent to which the measurement corresponds to the concept it intends to measure, credibility is the corresponding criterion in qualitative research and focuses on the confidence in the truth of the findings in relation to the associated context (Ulin et al., 2002: 31). Thus from an interpretive position, the validity of the research relies on the plausibility of the logical reasoning used in describing the results and in drawing conclusions from them (Walsham, 1993; Klein & Myers, 1999; Ulin et al., 2002: 58-59).

To ensure qualitative research credibility:

1) The logic of the underlying reasoning for all findings was reviewed by the researcher's supervisor.

2) The researcher gathered rich and differentiated narrative data from divergent stakeholders of the IS implementation

3) A draft version of the narrative text was distributed to all participants for comment in an effort ensure that the text is a true reflection of the IS implementation. The initial text was amended based on the feedback from participants.

3.7) Reliability (Dependability)

The test of quantitative reliability is the extent to which research methodology and findings can be replicated; for qualitative researchers, the methodological parallel is dependability: is the research process consistent and carried out with careful attention to the rules and conventions of qualitative research paradigm (Ulin et al., 2002: 32). The research methodology employed for this research, the case study, has been utilised and accepted as an appropriate means of examining IS for more than a decade (Pettigrew, 1990; Orlikowski, 1992; Walsham, 1993) and therefore it can be stated that the research purpose and design are congruent.

The researcher conducted all of the data collection personally, therefore comparable collection processes were used.

3.8) Generalisability (Transferability)

Transferability or extensibility is the qualitative analogue to the concept of generalisability. Generalisability of findings to a wider population is the goal of most quantitative research (Ulin et al., 2002), yet for qualitative research the notion of generalisability is more subtle. Walsham (1993) states that there are four types of generalisations that can legitimately be developed from interpretive case studies: the development of concepts, the generation of theory, the drawing of specific implications, and the contribution of rich insight. Thus although generalisability is not relevant to the goals of this research it is important to again re-affirm that the purpose of this research is to produce novel and useful insights thereby enhancing interested parties understanding of an IS implementations. Interested parties may abstract the findings of the research if they consider them valuable (Klein & Myers, 1999), however, the researcher does not actively seek to transfer the conclusions of the research to other IS contexts.

3.9) Ethical Considerations

As stated previously, the aim of this research was to collect in-depth data to produce a rich interpretive text that is representative of the range of experiences, perceptions and behaviours of the stakeholders involved in an ES implementation. Bridges (2000) succinctly points out that change can be a difficult and disruptive experience for individual stakeholders. Ulin et al. (2002: 61) state that when you encourage people to talk openly to you, you incur serious ethical obligations to them; the researcher is cognisant of this fact and therefore the following guidelines were followed to protect the confidentiality of the study participants and to encourage study participants to be forthcoming about their perceptions and experiences:

1) Informed consent: all study participants were provided information relating to the aim and methodology of the research prior to the data collection, participation was voluntary.

2) All primary data collected in the form of narratives was deemed to be confidential and was only utilised by the researcher.

3) No individual names of participants were used in the final aggregated text. Where verbatim quotes were used, the researcher used generic functional job descriptions to reference the quote.

4) The researcher was available to study participants at all stages of the research process and answered all questions or concerns.

Chapter 4: Case Study

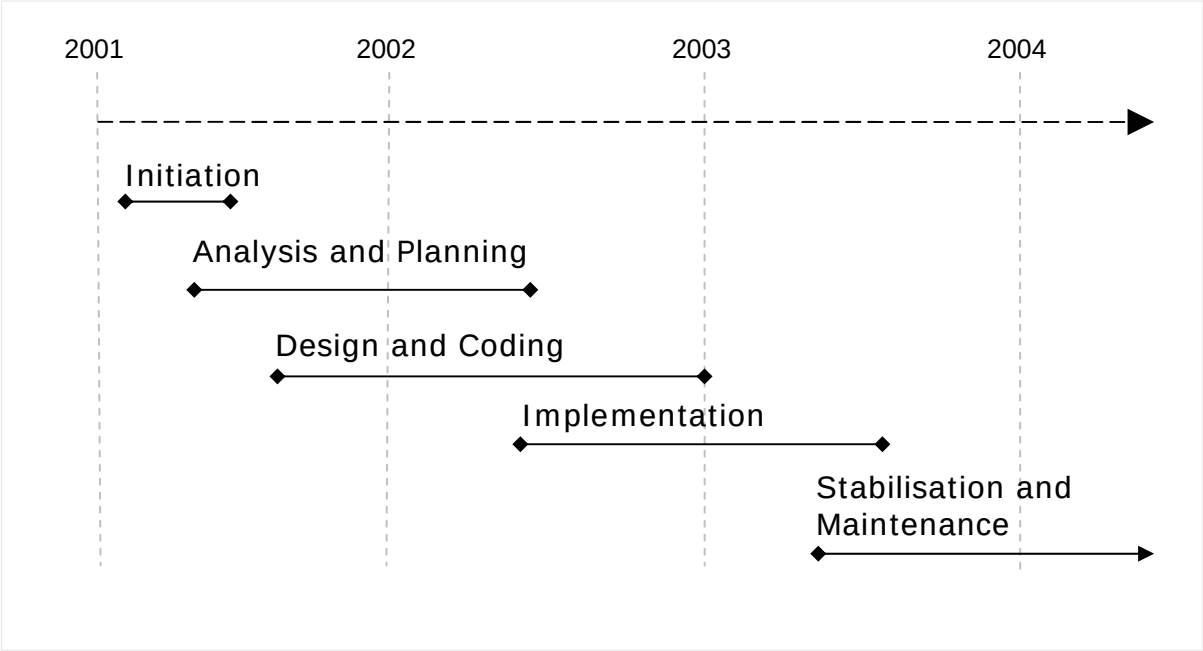
Introduction

This case study chronicles the design and implementation of an ES (Expert System) in a leading South African financial services firm which provides an inclusive range of services to the retirement fund industry, more commonly known in South Africa as the “pension” fund industry. The financial services firm has requested to remain anonymous and for the purposes of this case study will be referred to as FINCO.

It is expected that legislation to be promulgated in 2004 or 2005 will require all retirement fund administrators in South Africa audit the retirement funds under management and produce mandated statutory financial statements - which will then have to be digitally submitted to a regulatory body. Due to the large number of retirement funds under management it is not economically viable for FINCO to manually audit and produce financial statements for the retirement funds it administers. In anticipation of the legislative changes FINCO entered into discussions with FRS, a software start-up which specialises in developing automated financial reporting solutions, in early 2001. FINCO contracted FRS to develop a solution, in effect an ES which would automate auditing and production of statutory financial statements for its retirement funds. Project initiation and planning started in early 2001, in May 2002 the ES was introduced to a select group of users at FINCO and by late 2003 the initial implementation had stabilised and the ES was successfully being rolled-out to a broader user base.

This case study focuses on how all individual stakeholders, involved in and impacted by the new ES at FINCO, perceived and experienced change.

Figure 5: Overview of the Project Timeline.



The Retirement Fund Industry

Drivers of Change

For the last decade the global retirement fund industry has been impacted by two major drivers of change;

- Increasing regulatory requirements, founded on public and government perceptions that retirement fund governance needs be improved to more effectively protect fund members (investors),

- Rising expectations, from a more informed, financially literate client base, of more reliable, flexible service offerings, at lower costs.

In order to remain competitive firms in the retirement fund industry thus have had to introduce systems and process that: add value to their service offerings, enable them to meet escalating, more rigourous, regulatory requirements and at the same time contain the total cost to their clients. It is widely accepted within the retirement fund industry that the only way service providers can deliver

improved services at lower costs and meet increasing regulatory requirements, is to employ technology to re-engineer and automate existing business processes. Thus the challenge for all retirement service providers is the appropriate selection and successful integration of new technology into their business processes to meet the abovementioned deliverables.

Overview of the South African Retirement Fund Industry

The South African retirement fund market is highly competitive and dominated by a handful of large firms all of whom provide inclusive retirement fund management services. Retirement fund management typically involves two distinct yet complimentary elements that together form an integrated service offering; an investment component and an administration component:

- Investment services or asset management services are concerned with actively managing the client's assets over time,

- Administration services manage all of the "client-facing" and regulatory functions. (Retirement fund administration is characterised by the need to be able to process large amounts of data and generate complex views of the data in a reliable and efficient manner.)

It is important to understand the economic relationship between investment and administration elements of the retirement fund business: clients perceive the investment component as adding value and firms can make large profits from investment related fees. The administration component is generally less profitable because "administration" is generally viewed as a direct cost by clients (whom tend to be price sensitive) thus in effect limiting the fees that firms can charge for administrative services. Retirement fund players however recognise that retirement fund administration is a critical part of the integrated service offering and that without the administration component they would have difficulty securing the more profitable investment portion of the business.

FINCO: Administration Services Division

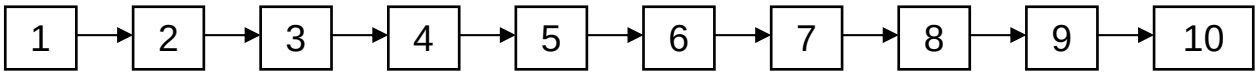
At FINCO, their Administration Services division is responsible for the "administration" component for all of their retirement funds.

Legislation requires that all privately administered retirement funds managed by FINCO (and other service providers) produce an annual set of audited financial statements which have to be approved by the retirement fund's trustees and in future will also have to be digitally submitted to the retirement industry regulators. Delivering financial statements that are reliable and timely to clients and regulators is important to FINCO, and other players in the retirement fund industry, because the financial statements (and associated reports) presented to the trustees are one of the few tangible elements that retirement service providers produce – also the financial statements reflect on the overall service quality and the organisational credibility of the retirement fund service provider.

Senior managers at FINCO's Administrative Services division acknowledge that in the past annual financial statements presented to trustees had problems ranging from minor issues such as spelling and grammatical errors, to serious errors involving the incorrect classification of complex financial instruments which lead to fundamental misrepresentations of the performance of the retirement fund. Each time these problems came to light it undermined FINCO's credibility and put the fund at risk, creating the potential for the client to consider switching service providers.

The traditional process used by FINCO to prepare each fund's financial statements was complex, costly and labour intensive. Also there was no standardised presentation format or formalised review process. (See figure 6 – to follow).

Figure 6: FINCO's Traditional Process for Producing Financial Statements.



Stage	Activity
1	Base level accounting data (from trial balance and journals) manually extracted from the primary retirement fund administration systems.
2	Fund manager manually prepares draft financial statements using previous years output as a template.
3	Draft, hardcopy financial statements and supporting documentation are sent to external auditors.
4	External auditors manually re-examine the draft financial statements and manually prepare draft hardcopy financial statements and supporting documentation.
5	Audited draft hardcopy financial statements and supporting documentation are sent back to the fund manager.
6	Fund manager sends draft hardcopy financial statements to trustees for review.
7	Trustees review draft hardcopy financial statements and if they are acceptable they give the fund manager the go ahead. (Potential for multiple changes.)
8	Final hardcopy financial statements produced by external auditors. Auditors and trustees sign off on the document.
9	Additional supporting documentation (presentation packs) manually produced by FINCO personnel and sent to trustees with final, audited hardcopy financial statements.
10	Final hardcopy financial statements sent to regulator and filed in FINCO client file.

Managers in FINCO's Administration Services division acknowledged that the lack of standardisation in the production process of the financial statements made it difficult to assess the quality of the financial statements being generated.

FRS (Financial Reporting Solutions)

"*FINCO bought into the automation",* FRS project manager.

FRS is a start-up, based in Johannesburg, which was formed in 1996 with the aim of specifically developing technology to make financial reporting more

transparent and efficient. By 2001 FRS had developed a range of software tools that allowed organisations to restructure their financial information supply chain so that financial transactions could be recorded from inception in an International Accounting Standards (IAS) complaint format, or now called an International Financial Reporting Standards (IRFS) format. In early 2001 FRS began to explore the potential of using a software engine they developed to provide retirement fund administrators with a solution which would enable them to automate the production of regulator-compliant financial statements, efficiently and relatively inexpensively, regardless of the retirement fund administrator's current systems or accounting software packages. FRS and FINCO began exploring possible applications of FRS' software which ultimately led to FINCO becoming FRS' first large client in the retirement fund industry.

A Vision for the Future

"For FINCO it's all about cost", FRS project manager.

In early 2001, FRS approached senior managers at FINCO's Administration Services division and developed a vision of the future in which specialised software would fully automate the production of statutory financial statements for all of their retirement funds. Automating the process to generate financial statements was attractive to FINCO's senior managers because automation would enable FINCO's Administration Services division to more effectively meet their client needs by:

- Containing administration costs: a re-engineered, streamlined process and optimised workflow would result in increased productivity, lower external audit fees and reduced reliance on human resources,

- Standardising outputs and introducing automated quality control measures: higher quality, more reliable, standardised financial statements and supporting documents could be produced and delivered to clients in a shorter time period, and lastly

- More efficiently meet existing and future regulatory requirements: talk in the industry was that the regulator would require firms to digitally submit financial statements in the near future and that future statutory reporting requirements would become more onerous.

Figure 7: Envisaged Automated Process for Producing Financial Statements.



Stage	Activity
1	Base level accounting data (from trial balance and journal) is automatically mapped from retirement fund administration systems to FRS' ES by the fund manager. Process only has to be done once (after the initial mapping it can be automated).
2	FRS' ES produces standardised, high quality digital financial statements and supporting documentation (including working papers and presentation packs.)
3	Digital financial statements and supporting documentation are emailed to external auditors and trustees.
4	External auditors examine the draft digital financial statements. (Cursory examination).
5	Trustees review draft digital financial statements and if they are acceptable they give the fund manager the go ahead. (Multiple changes unlikely.)
6	Any changes incorporated into document by fund manager - Auditors and trustees digitally sign off on the document. (This feature is available however not being used yet.)
7	Submit digital financial statements to regulator.

An indirect, yet noteworthy additional benefit of automating the production of retirement fund financial statements is that during the automation process, all of the primary inputs necessary to create the financial statements are classified to a common standard (using extensible mark-up language or XML: a text mark-up language for interchange of structured data.). Standardised data classification would enable FINCO management to easily query and generate different views of the data thereby providing far greater operational visibility across all of the retirement funds that they administer. The increased visibility across their

business would potentially allow FINCO management to dramatically reduce costs.

The Project

FINCO

In the in South African retirement fund industry FINCO is recognised as a progressive, innovative company that is willing to take risks in order to gain a competitive advantage. An FRS project manager described FINCO as an "*early adopter*" in the sense that FINCO is willing to work with technology partners in order to develop customised technology based on their existing and perceived future business needs. It is noteworthy to credit FINCO senior management for the strategic foresight of recognising the potential benefits of successfully developing and implementing a customised ES even though they acknowledged that the project had risks.

Analysis, Design and Coding

Preliminary business analysis for the project was conducted by senior FINCO management (Administration Services Division) and senior FRS' managers who focused on:

- Conceptualising and generating a chart of accounts (based on IAS standards) which would incorporate retirement fund accounting best-practices and meet regulator requirements,

- Creating a formatting specification for financial statements: what the statutory financial statements should look like based on industry standards and best-practices,

- Conducting analyses to examine how the ES could best be integrated into the FINCO's existing workflow.

The end-users of the system were not involved in the abovementioned processes.

An overview of project scope and risk documentation reveals that senior FINCO management and senior FRS managers approached the project from a traditional, technical, system specific manner:

Figure 8: Synopsis of Project Scope and Risk Assessment Documents.

Defined Scope of the Project
Develop disclosure format for retirement fund financial statements using FRS' software engine.
Confirm that ledger account structure is complete and accurate to accommodate required disclosure.
Establish direct integration between FINCO's existing systems and the new ES.
Ensure that appropriate accounting coding is generated for each transaction within existing systems.
Assess the hardware and system requirements for the ES to operate properly, make necessary upgrades.
Identify and train super-users (implementation strategy).
Perceived Project Risks
Time: Duration of tasks or interdependence of tasks underestimated.
Resources: FINCO human resources limited due to other responsibilities.
Hardware requirements: potential technical problems.
Legislative: regulatory reporting requirements change.

The analysis, design and coding for the project took longer then anticipated due to frequent specification changes. Both FINCO and FRS initially anticipated implementing a pilot version of the ES by the end of 2001, yet in practice a workable version of the ES was only ready in July 2002.

The scope creep can largely be attributed to the unanticipated iterative process required to develop a chart of accounts and reporting format for the ES' output

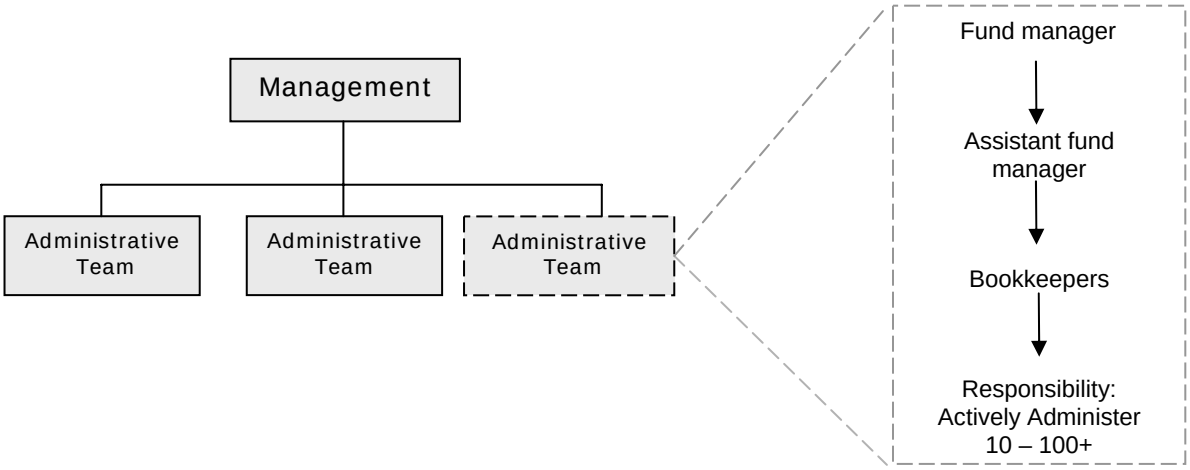
that would satisfy all stakeholder requirements. For example, when a beta version of the ES was presented to senior FINCO managers in early 2002 it became apparent to them that end-users of the system did not have the specialised accounting knowledge to manually map data into the complex IAS supported chart of accounts. FRS thus had to make changes to the ES to automate data processing from FINCO's existing systems (general ledger and journals), thereby minimising but not eliminating the end-user input requirement.

Implementation Strategy

Senior management from FINCO and project managers from FRS agreed that a phased implementation (roll-out) would be appropriate for the ES.

As mentioned, the ES was designed to be used by FINCO's Administration Services Division in order to automate the production of statutory financial statements. The end-users of the ES would be the administrative teams which were responsible for the day-to-day management of the retirement funds. Each administrative team consisted of a fund manager who was supported by a number of bookkeepers. Administrative teams managed a portfolio of approximately 10 to 100 retirement funds depending on the funds' size and complexity.

Figure 9: Overview of FINCO's Administration Services Organisational Structure.



The phased implementation strategy entailed introducing the ES to a select group of super-users; the super-users would all be fund managers who managed large complex retirement funds – to firstly, comprehensively test the ES, and secondly, create internal resources capable of training additional users. The super-user group was made up of approximately 20 individuals, roughly 20% of the total fund manager group at FINCO's Administration Services Division. During this initial period FRS would provide training and support to the super-user group. FINCO management anticipated that the super-user group would respond positively to the ES thereby providing a stable platform for the introduction of the system into the whole division. As the super-user group became proficient with the system and it became clear that the ES was functioning as per the design specifications, senior FINCO management envisaged rolling-out the ES to the full user base (all fund managers). At the time that this strategy was conceived both FINCO and FRS management anticipated that all fund managers would be using the ES by the end of 2002.

Fund Manager Profile

The super-user group was made up entirely of fund managers who were selected, based on their perceived experience and understanding of retirement fund accounting.

Fund managers selected for the super-user group had the following characteristics:

- The super-users had on average worked for FINCO for 9 years.

- Super-users interviewed had retirement fund accounting experience gained primarily while working for FINCO. Tertiary education levels ranged from bookkeeping qualifications to under-graduate majors in accounting.

- Almost all of the super-users interviewed viewed FINCO as an innovative company and considered learning to use new systems as part of their job description.

- 90% of super-users interviewed stated that they were comfortable using new technologies.

- 90% of super-users stated that they considered themselves “flexible” in that they could adapt to a changing work environment.

- It appeared to the researcher that the majority of the super-users interviewed had a positive disposition towards FINCO and had enjoyed working there.

FINCO’s management believed that the ES would substantially assist the fund managers in producing retirement fund financial statements and they anticipated that the super-users would speedily integrate the ES into their day-to-day workings, no resistance was anticipated.

The Implementation

Roll-Out One

In May 2002; FRS project managers/trainers in conjunction with the FINCO project manager conducted the first training session with the super-user group. The purpose of the training was to prepare the super-user group so that they could:

- Load (transfer) the retirement funds that they managed, onto the ES. (Note, the first time the ES was used, the retirement fund had to be loaded onto the ES by the fund manager. “Loading” the retirement fund onto the ES involved automatically pulling data from FINCO’s legacy systems and manually classifying any data that the system could not

identify. Once this process had been completed once, the ES would be able to replicate the process in future) , and

- Use the ES to produce automated financial statements at the next financial year-end; note retirement funds have different financial year-ends.

The training was presented at a high level to provide the participating fund managers with a broad overview of the ES' features and benefits. An attempt was also made to provide fund managers with more in-depth, hands-on use of the system but the effectiveness of this was limited because of limited hardware resources – multiple fund managers had to share computers during the training session. Comments from fund managers who attended the training session were:

- "*the benefits were communicated at the initial presentation but not in detail, I didn't really understand why the ES was important to FINCO, the old way we did things seemed to work fine"*

- *"I think with any new system, management should communicate what their plans are for the future…. then you are more relaxed"*

- *"the ES was very intimidating in the beginning, the first time I saw it I was actually frightened"*

- *"my first thought was it means extra work for me, it is not an easy product to use"*

- *"if I am getting training and its PC based training I want my own computer, so I can follow it through and understand what I am doing, I don't want to share"*

- *"I walked out of initial training feeling I do not have a clue how to do this"*

As mentioned, first time super-users have to load a retirement fund onto the ES, the process can be time consuming and complex because of potential exceptional items in the chart of accounts that need to be manually classified by the fund manager. It is however apparent, that notwithstanding the sophistication of the ES, the initial training did not effectively communicate to the majority of fund managers *why* and *how* they should use the ES.

After the training, additional hardware and software issues emerged when fund managers attempted to make use of the ES on their personal computers, *"in order to work on the ES I had to close all other applications. It was slow and I could not work on anything else.*"

It became apparent that even though super-user computers had been checked and vetted to run the ES, the computers could not run the ES efficiently in conjunction with other applications. Many of the users' computers needed to be upgraded or replaced. This took time since FINCO had outsourced all of its information technology services to a third party service provider.

Fund managers using the ES also experienced opposition from other stakeholders involved in the traditional process of producing financial statements for the retirement funds:

- Prior to implementing the ES, senior FINCO management had been in contact with the auditing community (at a high level) to notify (and educate) them of the impending change in the way FINCO was going to prepare retirement fund financial statements. Up until this time audit firms had generated large revenues from auditing and preparing retirement fund financials for FINCO. Once the ES was up and running it would obviate the need for much of the traditional auditor preparation of the retirement fund financials - therefore theoretically reducing audit costs to FINCO and reducing audit revenues for the audit firms. Fund managers found that many of the junior auditors that actually performed the audits were not aware that the ES had been introduced and it became

incumbent upon them to "sell" the ES to the auditors; "*auditors seemed to be disturbed when they saw the ES produced financial statements, querying things that they would not have queried in the past and requesting multiple formatting changes". "Management should have sorted this out before they implemented the ES*". It must be acknowledged that FINCO management did actively attempt to assist users to resolve these issues.

- Fund managers also had to deal with retirement fund trustees who had become accustomed to the historical formatting of their retirement fund financial statements. The ES standardised output (and formatting) was queried by many trustees and again the first-line personnel who had to deal with issues were the fund managers.

- Fund managers also noted that several FINCO "consultants" and "branch managers" who fulfil the client facing function in the FINCO Administration Services Division, were not aware of the switch to the ES and had to be "educated": "*management maintained that they communicated the change to the consultants but they (the consultants) did not seem to understand it and did not, or were not, able to communicate it to clients in advance."*

Many fund managers expressed frustration stating that explaining and "selling" the ES to auditors, trustees and client facing personnel at FINCO was not part of their job description prompting the question, *"why did management not communicate the change to stakeholders more effectively?"*

Problems with training, delays in getting users to actively engage with the system due to hardware problems as well as stakeholder issues, resulted in low user adoption; "*I just put it off and put it off because I did not really feel comfortable with the system and people's response to it."* Fund manager non-adoption was further legitimised by FINCO's management's inattention due to

their preoccupation with resolving the hardware problems and external stakeholder issues.

By November 2002 it was clear to FINCO management that, even though progress was being made with regard to stakeholder acceptance, system stability and hardware-software alignment, the super-user group had not actively embraced the ES.

The Email

"You will use it," senior FINCO manager.

The post-December period is one of the busier times of the year for FINCO's Administration Services Division because many retirement funds financial year-ends are in December and legislation requires that each fund produce an audited set of financial statements within six months after the funds' year-end; *"it is FINCO's aim to provide clients with reliable, audited financial statements as quickly as possible after the funds year-ends"*.

In early December 2002, senior management at FINCO began to monitor the use of the ES, they expected that because December was a "*high load period"* there would be high volumes of financial statements being processed on the ES, but the actual volumes were well below their expectations. FINCO senior management was faced with the reality that the super-user group was not actively using the ES. The majority of the super-user group was still preparing their retirement funds' financial statements manually.

FINCO's most senior manager responsible for the ES project reacted by sending an email to the super-user group which simply stated, use the ES or face disciplinary action: *"we had given users five months to prepare for the December financial statements. We recognised that they were apathetic and that there was resistance and therefore we had to force them to use the product."*

The super-user group's response to the email can best be summed up as "*angry and confused": "why December? December is our real crunch time, December year-ends are a major issue in our lives. Why not February year-ends?"* The email and subsequent monitoring did however spurn immediate usage of the ES.

Forced to use the system; fund managers, who had disregarded the ES, had to come to grips with the ES rapidly. Because of problems with the initial training and the subsequent time delay most super-users were starting from scratch: *"the only way I learned was using my own test fund and I figured it out on my own, all the other users did the same thing – that was the real training"; "I learned to use the system by trial and error because I had to produce eighteen year-ends for December".* Users also relied on informal social networks; small groups were created spontaneously as super-users found that they were encountering similar challenges. The problem was that this information was not actively distributed to the entire super-user group.

FINCO had assigned one full-time project manager to the project. A result of forcing super-users to use the ES was that the full-time project manager became inundated with questions and queries from users that theoretically should have been addressed over a longer period: *"there wasn't a lot of support, we only had one person and he could not cope."*

In January 2003, FRS attempted to up-grade the ES and had problems with the software conversion. The problems with the software were only resolved in mid-February and this restricted fund manager accesses to the system.

By the end of February, even though adoption had increased, negative user-perceptions and resistance to the ES were very prevalent. Users were not happy: *"at the busiest time of the year; management gives us a new system, tells us we have to use it, gives us no real training and then the system is down, how would you feel?"* Some users even admitted that because of their dissatisfaction with the events surrounding the implementation of the ES they were purposefully obstructive, "*I used the ES but if I had any problems with*

stakeholders or the system itself I made them managements, why should I help them, I didn't even understand why we needed a new way of doing financial statements in the first place." Users also acknowledged a feeling of dislocation between management and the super-user group, *"management is so far removed from what we do, they don't understand".*

During this period FINCO management began to closely examine why fund managers in their super-user group were having problems using the ES, *"we came to realise that our users were struggling with it (the ES), they know how to do retirement funding accounting but the IAS accounting is new to them and they find the IAS chart of accounts and classification difficult".* This sentiment was confirmed by a fund managers in the super-user group: *"the initial classification of the accounts was so different from what we are used to, you have to think all the time when you are working on it, it's not just parrot fashion"; "if you don't think like an accountant you miss things and have problems with the system."*

Whether it was due to reflection or of necessity, senior FINCO management and senior FRS project personnel came to the conclusion in early March 2003 that they needed to address user concerns more seriously:

- *"We needed to market the system to the users. The benefit of the ES was immediately visible to management but we did not initially sell it to the users and perhaps we should have, we just said here's a new product."*

- *"We need to provide more training especially in terms of getting the retirement funds loaded on the ES for the first time"; "users need to be supported especially when classifying accounts for the first time."*

The actions resulting from the abovementioned conclusions can for all intents and purposes be viewed as a second roll-out of the ES.

Roll-Out Two

"We did not do a good enough job the first time"; "we have to do it again," senior FINCO manager.

The second roll-out began with another high level presentation by FRS project personnel and senior FINCO management to the super-user group; the aim of the presentation was not only to re-affirm the features and benefits of the ES but also to create "context" for the ES, in the mind of the users: *"we began to realise that user motivation and the way users understand their role within the organisation, and in relation to change such as the ES, impacts user adoption."* The presentation specifically stressed how legislative requirements, such as the digital submission of financial statements, were compelling FINCO to implement new systems such as the ES, and that it was imperative for FINCO to change to become more competitive. Users responded cautiously; it is noteworthy that individual users took away very different reasons why they should use the ES: *"I began to see the big picture and was a little bit more comfortable, we just had to use the ES, it was important to FINCO"; "it is important to use the ES because it allows FINCO managers to gather more in-depth information about the retirement funds and therefore make us (FINCO) more profitable"; "we have to use the system because we must be able to submit retirement financials digitally".*

In an attempt to address the problems of classifying and loading accounting data onto the ES, FRS decided to pro-actively place two personnel at FINCO for a six week period to assist users with the large volume of financial year-ends in May 2003. Users acknowledged that, *"it helped to have someone to assist with the data entry and who knew how to navigate through the system"* yet users commented that even the FRS personnel struggled at times with the intricacies of the IAS chart of accounts for retirement funds: "*the FRS people helped but they also struggled with some of the classifications".*

FINCO management initiated regular group meetings with the fund managers to allow them to discuss common problems and share knowledge across the group. *"The meetings were useful but could have started earlier; also it's sometimes difficult to ask questions in a big group".*

From March to June 2003 users conceded that FRS project personnel and FINCO management did make a more concerted effort to support them using the ES, however, when asked how they learned how to use the ES, the majority of fund managers still answered that they, "*taught myself"; "because I had to".* "*The only way you learn is by taking initiative and doing it yourself".*

Usage of the ES increased during this period.

Technology Diffusion

During the second roll-out it also became apparent that the ES was changing the way that super-users were using other systems in their day-to-day tasks. Fund managers pro-actively began applying the lessons they learned from classifying accounting data for the ES to other systems which they engaged with, in an effort to make loading the data onto the ES simpler at the financial year-end: *"I have trained my bookkeepers to reclassify the accounting data... it makes it much easier to load the data onto the ES".* FINCO senior management acknowledged that they anticipated that the ES would impact on the way fund managers interact with existing legacy systems, but not to the degree that it did.

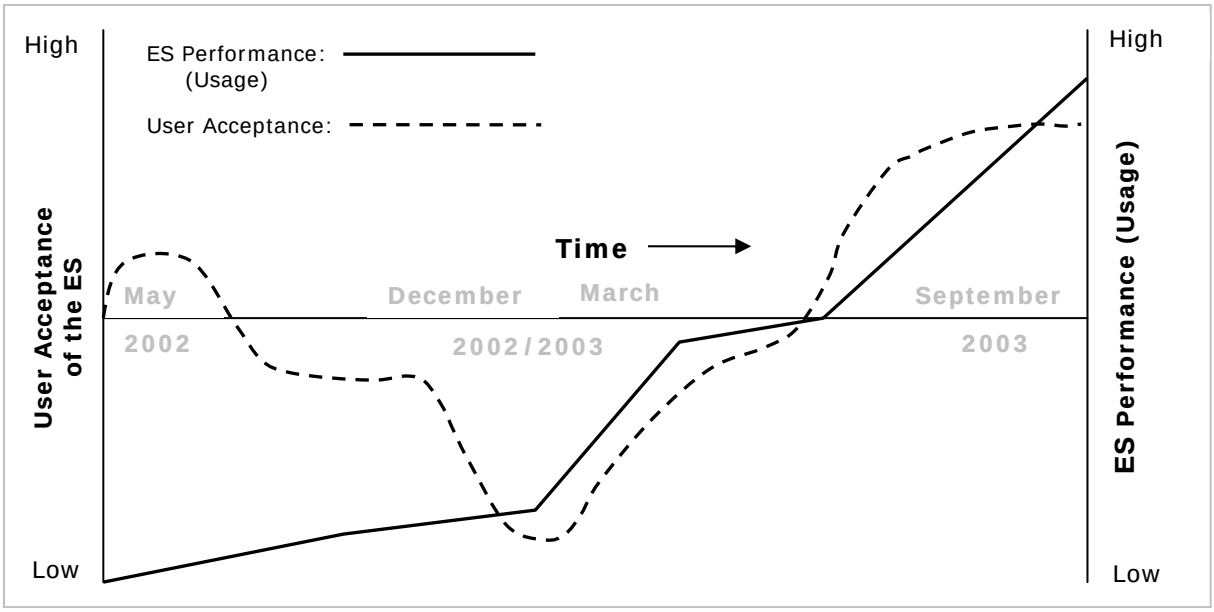
Stabilisation

By mid 2003 the ES implementation began to stabilise, super-users usage of the ES was continually improving and the majority of their retirement fund financials were being produced using the ES. Fund managers also spoke more self-assuredly about the ES and appeared more relaxed when discussing its application: *"the classification system even starts to make sense after a while".*

FINCO management felt comfortable enough with the progress that had been made to increase the fund manager user-base. FINCO and FRS personnel provided training for the new users. A significant benefit for new users was that they had access to the existing super-user base who could readily provide them with support and guidance: *"it's much easier for new users to come to grips with the system because they can just ask us for help"; "if I have a problem now, I know I can ask around and someone will be able to help me".*

Fund managers were also beginning to train their bookkeepers to use the ES without FINCO's management requiring or sanctioning it. The "organic" adoption of the ES facilitated by the existing super-users tangibly demonstrated that they were more comfortable with the ES: "*I didn't tell anyone but I trained my bookkeepers how to use the system, it helps me get the financials done if they (the bookkeepers) know what inputs I need for the system".*

Figure 10: Acceptance/Performance Overview of the ES.



Conclusion

By the September 2003 the ES implementation at FINCO was viewed by both FRS and FINCO management as being successful, based on the required deliverables of the project.

Results: September 2003

The current ES user base is approximately 60: almost 70% of the fund managers at FINCO's Administration Services Division use the ES. Fund managers that have access to the ES use it to produce financial statements for 95% of their retirement funds.

Super-user perceptions of the ES are guardedly positive. Members of the super-user group have multiple retirement funds loaded onto the ES which in effect means that they can now automate the production of financial statements at the next financial year-end by theoretically just running the ES. Adjustments that may be required in terms of reclassifying accounts are anticipated to be minor. It is highly likely that the super-user group will create enormous positive word-of-mouth for the ES once they process their second set of financial statements for each fund, and experience the relative ease of producing retirement fund financials going forward. Some current users even acknowledge that they feel empowered by just being able to actually produce financial statements, "*I did not like the ES at first but now that I understand it I enjoy the fact that I can actually understand enough to speak to auditors about accounting issues and hold my own".*

The ES itself has evolved beyond the initial design specification, based on FINCO's emerging functional needs which came to light during the implementation process. Currently the ES not only produces financial statements, it also produces working papers, disclosures, and presentation packs for trustees. Some of the complex accounting procedures (such as reserve account movements) have been made simpler so that users don't have to understand debits and credits, and errors and consideration reports were introduced to monitor the quality of the statutory financial statements. The ES straight-through processing capabilities have also been enhanced so that it seamlessly pulls data from FINCO's existing accounting systems.

External stakeholders (the auditing community, trustees and legislative agencies) are more comfortable with the standardised output from the ES, most concerns have been dealt with by the fund managers, and where required, senior FINCO management. Fund managers acknowledge, *"it was difficult to understand and explain why the system was good in the beginning but now that I am using it I feel quite comfortable telling auditors why it is a good system".*

Senior FINCO management is very satisfied with the quality and reliability of the financial statements that are being produced by the ES, "*there is no question that the standardisation imposed by the ES has improved the quality of the retirement fund financial statements that FINCO produces for its clients".* Users also acknowledge that the ES has improved the quality of their output, "*in the past, fund managers would draft the financial statements and just focus on the figures"; "they would not even read the trustees report or any of the disclosures, or understand what they are actually producing, I even did it myself and I have been here for more than five years"; "now with the system I am much more aware of why we do things - the quality of the financial statements I produce has improved without a doubt."*

Fund manager productivity is also improving: in the past it took between three to four months post financial year-end for most fund managers to get a copy of the financial statements to the required stakeholders. Fund managers that use the ES are now getting financial statements to clients in less than four weeks, post financial year-end. The ability to transmit the financial statements to stakeholders as a digital file also greatly facilitates the free flow of information between the stakeholders and the fund manager.

As the ES processes each retirement fund it also produces a digital file which is classified to a common XML standard. FINCO management thus has access to an ever increasing database of structured data which provides increasing operational visibility of FINCO's administrative operations, across the organisation. FINCO management is able to monitor and manage operating costs in the Administration Services division more effectively.

Looking Back

"If we had to do it again, we could do it much better because of the experience we have acquired," FINCO project manager.

The Implementation: Senior FINCO management acknowledges that the ES implementation could have been handled better. The majority of users also concur*, "the system is good, but the problem is the way it was implemented, there was no support."* A FRS project manager summed up their learning's succinctly when he stated, "*what we have realised since the implementation is that the users are the customers, even though the managers make the decisions, if the users are unhappy the product it won't fly and it comes down to the way the implementation is managed".* The reason for implementing the ES could also have been communicated more effectively to users; senior FINCO managers confirm, *"if we communicated the benefits (of the ES) more effectively, I do feel that it would have impacted users attitudes and potentially made them more positive about the system,… though they would still have had to go through the learning experience".*

Time and Resources Required: Senior FINCO management and senior FRS personnel candidly admit that they underestimated the amount of time and resources, particularly human resources, it would take to get the ES fully implemented, "*more resources should have been devoted to the project*."

Skills: The ES' complex chart of accounts exposed a knowledge gap within the FINCO fund manager group: FINCO management argue, "*we didn't realise that the fund managers in many cases were not applying their minds to the financial statements but were rather just copying from last year*" to which users have countered, "*classifying requires higher skill levels and an understanding of accounting which I didn't have and was never required as part of my job function up until now, in the past we sent the draft financial statements to the auditors because they have those skills".* FRS project managers also recognised that, "*we did not say to FINCO how skilled are your users prior to the design of*

the system, no survey was done to determine training requirements, training was created based on assumptions from FINCO management which in retrospect were flawed"; "when designing a software system it is easy to become detached from who our real customers are – the users."

Nature of Work – Changing Mindsets: A senior manager at FRS has noted that the introduction of the ES has, *"fundamentally changed the way users of the system, capture information and think about information*," because of the importance of classifying data correctly. The FINCO management and the majority of users agree with this hypothesis, *"since using the ES I look at accounting information differently across all of the systems I use."*

It's About The People: To conclude a quote from an FRS manager (whose words are resonant with FINCO management), *"it's not just about the software, it's about the people, designing and installing the software is easy, getting users to actively engage with the software is the real issue, people are the unknown quantity".*

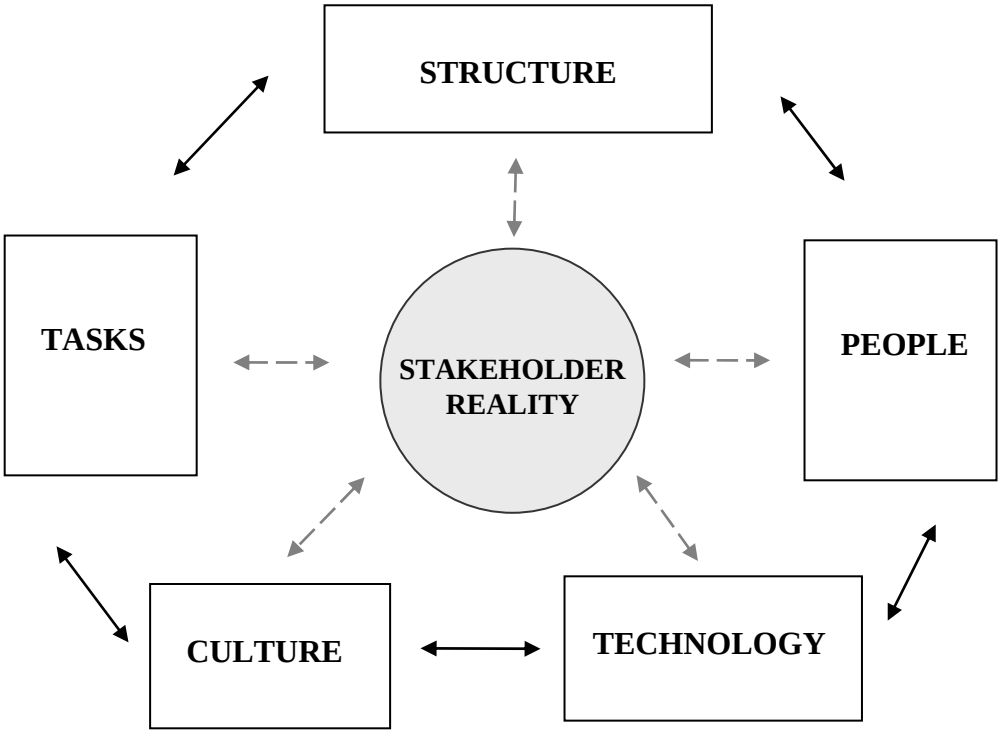
Chapter 5: Analysis

5.1) Introduction

In order to produce meaningful insights and an enhanced understanding of how individual stakeholders party to an IS implementation perceive and experience change, as stated in the aim of this research, the analysis portion of this research will be guided by the conceptual framework derived from the literature review.

To review; the conceptual analytic framework is primarily based on Leavitt's (1965) "Diamond" or "Change-Equilibrium" model which incorporates Gallier's (1995) "culture" component. A social constructivist lens is utilised in order to align the model with the principal aim of this research: to focus on individual stakeholder perceptions and experiences, in an effort to better understand IS implementations.

Figure 11: Conceptual Model - based on Leavitt and Gallier's models with the introduction of individual Stakeholder Reality as the locus.



It is noteworthy that the organisational elements identified in the analytic framework: technology, tasks, structure, people and culture are interdependent; thus even though the researcher attempts to define and discuss each organisational element independently, in practice the organisational elements are intertwined and difficult to deconstruct and isolate.

5.2) Technology

"Technology", for the purposes of this research, is defined as "how work is done in organisations"; "the mechanisms for transforming inputs into outputs" (Scott, 1992: 20), thus any mechanisms which are used to get work done in an organisation, such as work methods, tools and systems.

At FINCO, the introduction of the ES to automate the production of retirement fund financial statements radically alters the "technology" organisational element. The ES changes the way work is performed at FINCO, fund managers in particular are impacted since their function as the primary physical producers of financial statements is invalidated, and the ES now performs their function. Fund managers have to internalise this change and redefine their roles at FINCO.

The change in "technology", the introduction of the ES at FINCO, is relatively straightforward in practice; however, in order to fully understand stakeholder perceptions and experiences, it is important to explore the meaning that individual stakeholders ascribe to the "technology" and the reason for changing the way work is done at FINCO.

The perceptions and experiences of stakeholders party to the ES implementation at FINCO are captured in their own words, to allow the reader to review the primary inputs used in the analysis:

Figure 12: Technology – Stakeholder Perceptions and Experiences ("in their own words").

Users (FINCO)
- *"why are we changing?"* - *"the benefits were communicated at the initial presentation but not in detail, I didn't really understand why the ES was important to FINCO, the old way we did things seemed to work fine"* - *"I still think I can produce financial statements quicker manually"* - *"once the funds are loaded, will they (FINCO) still need us? … I am not sure what my role is…."* - *" I sometimes think that systems like the ES will take my place"*
Managers (FINCO)
- "*the ES makes FINCO more efficient and improves the quality of the financial statements we provide to the trustees".* - *"the ES allows us to standardise outputs and provide more reliable financial statements…..it is important for us (FINCO) to standardise data across platforms in order to better understand and manage the business"* - *"even though we acknowledge that the ES could make certain employees redundant we have no intention of doing so"* - *"if we communicated the benefits (of the ES) more effectively, I do feel that it would have impacted users attitudes and potentially made them more positive about the system"* - *"I think the users may have felt threatened because we did not communicate their exact role in particular"*
Implementers/Vendor (FRS)
- *"FINCO bought into the automation"* - *"For FINCO it's all about cost…..the industry is very competitive, they (FINCO) must keep fees low and are constantly looking at ways of reducing costs of administration…the ES does this for FINCO"* - *"FINCO management are definitely technology focused"*

It is apparent from the comments (in figure 12) that stakeholders party to the ES experienced and understood the introduction of the ES (technology) very differently:

The Users: The majority of fund managers understood the ES in practical terms but did not understand the business rationale for the implementation. The lack of context and concrete information created an environment that led users to speculate about the function of the ES. Some users perceived that the ES was a threat to their role in FINCO and that the ES (and technology in general) would make them redundant over time. Some users also felt that they were more efficient prior to the implementation of the ES.

The Managers/Vendors: FINCO Managers and FRS personnel demonstrated a more analogous understanding of the ES; their primary understanding of the ES was that it was a system or technology that would deliver "business benefits". The ability of the ES to "standardise processes and outputs" and deliver "increased efficiencies at lower costs" created a common basis for understanding and shaped their perceptions.

It is clear that stakeholder's party to the ES implementation experienced and understood the ES (technology) very differently due to the apparent lack of effective communication between the functional stakeholder groups. It also noteworthy that within each stakeholders group, especially the user group, perceptions relating to the use and application of the ES varied.

It is not difficult to appreciate that the "perceptual gaps" between functional groups and individual stakeholders, in relation to the application of the ES, created a basis for the wide range of problems which hampered the ES implementation during roll-out one.

5.3) Tasks

Leavitt (1965) uses the term “task” to broadly signify the function of the organisation in terms of what it produces. For the purposes of this research, “tasks” is primarily used to denote the actual activities performed by individual stakeholders at FINCO.

The change in “tasks” at FINCO as a result of the ES is clear-cut, however, in order to understand stakeholder perceptions and experiences it is important to explore the meaning that individual stakeholders ascribe to the “tasks”.

The change in tasks spurned by the implementation of the ES at FINCO primarily affected the fund managers, since they were the principal stakeholders that interacted with the system on a daily basis. Prior to the implementation of the ES fund manager’s activities involved the manual preparation of the retirement fund financial statements. Once the ES was introduced fund manager’s tasks and responsibilities changed, fund managers now had to:

- ensure that the data required by the ES was correctly classified,
- manually “load” the retirement fund onto the ES, and
- review the ES outputs and make sure that the formatting of the documents was correct.

The ES thus reduced fund managers ability to actively manipulate the content of the retirement fund financial statements. The abovementioned tasks are time consuming and fund managers required a different set of skills to accomplish the tasks.

Stakeholders party to the ES implementation perceived and experienced the new task requirements differently:

Figure 13: Tasks - Stakeholder Perceptions and Experiences ("in their own words").

Users (FINCO)
- *"my first thought was that it means extra work for me, it is not an easy product to use"* - *"the system definitely means more work and responsibility for me"* - *"the ES stressed me a lot at the beginning, the classification was new and difficult to understand"* - *"the ES really frustrated me, it was not only the system but also management not understanding…"* - *"classifying requires higher skill levels and an understanding of accounting which I didn't have and was never required as part of my job function up until now"*
Managers (FINCO)
- *"the ES will enable fund managers to be more efficient, it should actually reduce their workloads"* - *"the introduction of the ES actually means less work and responsibility for fund managers, … the system does the work"* - *"we thought that fund managers understood retirement fund accounting principles"* - *"the training was adequate based on our understanding of the fund manager skill levels at the time"*
Implementers/Vendor (FRS)
- *"the system was designed to assist the fund managers and make their jobs easier"* - *"users should be more empowered since they can now produce retirement fund financials"* - *"the skills requirement was underestimated"*

The primary differences which become apparent with regard to “tasks”, relate to stakeholder conceptions of *work, job satisfaction* and *responsibility.*

The Users: Fund managers perceived and experienced the ES as adding to their workload. The majority of fund managers had to put in overtime to develop the pre-requisite competencies to effectively make use of the ES, and carry out the new tasks required of them. Users confirmed that initially the ES did not add to their job satisfaction, in fact many users commented that the introduction of the ES actively detracted from their job satisfaction. It must be acknowledged that once the implementation began to stabilise after the second roll-out, users did communicate increased job satisfaction once they became adept at using the system, in essence they felt comfortable performing the tasks required of them. Users also felt that the introduction of the ES initiated a process whereby management transferred greater “ownership” of the financial statements to the individual fund managers which in effect, translated into more responsibility.

The Managers/Vendors: FINCO managers and FRS project personnel primarily believed that the ES would reduce the fund manager’s workload, increase their job satisfaction since they now could in theory produce retirement fund financial statements unaided and, that the ES would assuage responsibilities because of its capacity to standardise outputs and automatically monitor quality.

It is the opinion of the researcher that the diametric views expressed above, by users and managers/vendors, stem directly from a gap relating to user skills. It is apparent that the managers at FINCO overestimated the fund managers’ retirement fund accounting knowledge and in turn misrepresented the user’s skill levels to FRS. The result of this strategic oversight is that in the initial phases of the ES implementation users did not receive the correct training and support required to effectively perform the tasks required of them, ultimately producing frustration and reduced job satisfaction amongst users.

User and managers/vendors constructed “reality”, with respect to tasks, did not fundamentally align until the second roll-out.

5.3) Structure

Scott (1992) defines “structure” as the regularised aspects of the relationships that exist among participants in an organisation, linked to the formal and informal characteristics and the context of the organisation. The formal aspect of structure manifests in guidelines, policies and procedures while the informal component of structure becomes visible in the personal interactions between people and participants in the organisation.

In this case it is apparent that the implementation of the ES at FINCO impacted “structure” on multiple levels:

Formally, the ES caused explicit change in terms of whom the fund managers report to. The FINCO project manager’s (assigned to the ES implementation) role changed from a project management to a line management function. Sustained problems with the ES implementation and project creep forced the project manager to adopt a more hands-on supervisory role, a function he fulfilled in September 2003 yet without a formal title.

Although the primary objective of the ES was to automate the production of retirement fund financial statements the ES could also be used to monitor workflow. The ES provided senior managers at FINCO with the ability to track fund manager’s outputs more effectively, which to a degree altered the relationship between users and senior managers.

Informally, the informal changes in “structure” are difficult to uncover yet the character of the interactions between users and managers at FINCO appears to have changed.

Stakeholders involved in the ES implementation perceived and experienced the changes in structure and consequent reshaped organisational information flows in different ways:

Figure 14: Structure - Stakeholder Perceptions and Experiences ("In their own words").

Users (FINCO)
- *"I don't see the senior Managers much anymore, just the project manager"* - *"he (the project manger) is really our (fund managers) manager"* - *"our discussions with senior management have just become so technical…always seems to relate to classifying"* - *"I am sure that the ES allows them (management) to monitor our (fund managers) performance"* - *"I know, but I don't think anyone else knows….the real reason for the purchasing the system is the information they get from it about our business"* - *"after the problems with the implementation…I think I engage with management differently"*
Managers (FINCO)
- *"the ES has not influenced organisational structure at FINCO…it's just a system"* - *"the ES gives us (management) the ability to monitor outputs"* - *"the business intelligence (information) applications of the ES data are huge….we (Benefit Administration Division) will really be able to better understand our business and add value…"*
Implementers/Vendor (FRS)
- *"I don't see the ES changing organisational structure"* - *"the real win for FINCO Managers is the structured information that the ES will provide…. information is power"* - *"the ES supplies managers at FINCO with more operational insight"*

The Users: The majority of fund managers perceived and experienced the ES as formally changing organisational structure in terms of who they engaged with and reported to on a daily basis. The FINCO project manager became the conduit that most fund managers had to go through to communicate with senior FINCO management with regard to the ES. The preferred communication mechanism employed by senior FINCO management, email, reinforced user perceptions that the ES project manager was for all intents and purposes their line manager. Users expressed frustration at not being able to engage with senior FINCO management directly.

The Managers/Vendors: FINCO managers and FRS personnel did not perceive nor consider that ES formally changed organisational structure. The ability of the ES to monitor workflow/outputs gave senior FINCO management far greater insight into the daily actions of the fund managers and provided them with a new mechanism to measure employee performance. It was not explicitly stated but the researcher began to understand that at FINCO, access to and control of information repositories, shapes the patterns of interaction between individuals, groups and even divisions. The researcher believes that senior FINCO managers, in particular, perceived the ES as an initiative which would enable them to assert more control and influence not only within the Benefit Services Division but also within FINCO as a whole, based on access and control of information flows.

Thus users primarily perceived and experienced the more formal aspects of structure while managers and vendors appeared to be more focused on, and had a greater appreciation for the informal structural change - the ES providing access and control of information flows within FINCO.

5.4) People

Leavitt (1965) defines “people” as the actors in the organisation who in return for a variety of inducements make contributions to the organisation. This variable encompasses attitudes, motivation and behaviours of individual stakeholders.

For the purposes of this research, the “people” element in the conceptual framework refers to the perceptions and attitudes of stakeholders that were involved in the ES implementation:

- how they perceive themselves: their motivations, the contribution they make, their roles and their value to the organisation, and
- how they perceive other employees and functional groups: their motivations, their contributions, their roles and their value to FINCO.

Employee perceptions of themselves and of other individuals in an organisation are generally influenced by experience, training programmes, selection procedures, and the application of performance management and reward systems. IS implementations on the scale of ES at FINCO, characterised by non-linear change, impact on the day-to-day experiences of employees and therefore shape employee perceptions and attitudes. It must be acknowledged that it is very difficult to gain an understanding of employee perceptions (espoused theories), and that the proceeding findings are largely based on attempting to deconstruct employee action (theories in use) in order to attempt to understand genuine stakeholder perceptions. It is however evident that stakeholders experienced the ES implementation differently based on their experiences and formulated divergent perceptions about “themselves” and other individuals and groups at FINCO. Perceptions and attitudes influenced behaviour.

The ES implementation impacted employee’s perceptions regarding their contribution, their roles and responsibilities, and their value, at FINCO:

Figure 15: People - Stakeholder Perceptions and Experiences ("In their own words").

Users (FINCO)
- *"they (management) do not think about users"* - *"once the funds are loaded, will they (FINCO) still need us? … I am not sure what my role is…."* - *"things are changing at FINCO…I realise that I have to change.. .and that for now that means learning how to use the ES"* - *"the ES and management's lack of concern about my problems made me feel like I am not important"* - *"the ES just means more work, and what is the gain (sic) for me - nothing"* - *"management is so far removed from what we do, they don't understand"*
Managers (FINCO)
- *"we (management) didn't realise that the fund managers in many cases were not applying their minds to the financial statements….they (fund managers) were rather just copying from last year"* - *"we recognised that there was resistance and therefore we (management) had to force them(fund managers) to use the product"*
Implementers/Vendor (FRS)
- "*the ES has had a huge impact on all stakeholders at FINCO… which was never envisaged"* - *"the ES has prompted FINCO to re-evaluate the nature of the human capital required to run their business"* - *"in retrospect we (FRS) should have done a primary skills audit before rolling out the ES but we deferred to FINCO management"*

The Users: The elevated level of understanding of retirement fund accounting required to operate the ES, which was compounded by inadequate training and hardware problems, put fund managers in a position where management expectations and their competencies did not align - especially in the early stages of the implementation. This experience caused the large majority of fund managers to question their abilities, their role at FINCO and the value that they added to the organisation. Fund managers expressed resentment and hostility at the outset towards the ES itself, but over time the negative perceptions were transferred to FINCO management, which was succinctly captured in the *"management doesn't care"* responses the researcher encountered. User perceptions impacted their performance and effectively translated into resistance and avoidance of the ES in the early stages. As users gained the skills to proficiently operate the ES the overt negative perceptions (resistance and avoidance) dissipated. Whether or not deeper unresolved issues remain, related to user perceptions of their roles and value in an organisational context, is difficult to determine.

The Managers: Problems with the ES led to a change in manager's perceptions of users at FINCO. Managers did not actively articulate their thoughts but it became evident that they were "disappointed" by the fund managers slow adoption of the ES which led to perceptions of users not being capable (qualified and efficient) and not wanting to actively contribute.

Vendors: FRS project managers acknowledge that user performance of the ES negatively impacted senior FINCO manager's perceptions regarding the contribution and motivation of the super-user group at FINCO.

It is clear that the ES implementation experience produced "negative" perceptions which impacted on the motivation and performance of both users and managers at FINCO. Stakeholder attitudes do and will change over time; however, the long term influence of the ES implementation on stakeholder mindsets and by implication behaviour is yet to be determined.

5.5) Culture

Organisational culture has been identified as a major catalyst or a major hindrance to technology driven change. Organisational culture can broadly be defined in terms of institutional and individual values, customs and norms; Robbins (2001: 511) maintains that there seems to be wide agreement that organisational culture refers to a "system of shared meaning" held by members of the organisation - which distinguishes the organisation from other organisations. It is important to note that, the "system of shared meaning" is concerned with how employees perceive common characteristics which make up organisational culture, not whether or not they like them (Robbins, 2001: 511 – 512).

Argyris & Schön, (1978) have noted that even though elements of organisational culture are generally visible to the observer there may be hidden values and norms, especially in situations of stress and uncertainty. In contrast to the espoused organisational culture, these alternate values are rarely acknowledged openly, are difficult to examine and in many instances need to be inferred from patterns of behaviour. Hidden values often conflict with published espoused values and when employees choose to act consistently with these hidden values, their actions potentially undermine the espoused values of the organisation.

The change brought about by the ES implementation at FINCO created uncertainty, ambiguity and stress for all stakeholders, thereby creating an opportunity for the researcher to attempt to explore not only the FINCO's espoused system of shared meaning but also some of the more veiled aspects of organisational culture at FINCO. It must however be noted that organisational culture is very complex and difficult to reduce into findings based on the restricted nature of this study. The proceeding analysis is therefore not decisive but rather is a good starting point to unpack organisational culture at FINCO.

Figure 16: Culture - Stakeholder Perceptions and Experiences ("In their own words").

Users (FINCO)
- *" we (FINCO) are always ahead of our competitors"* - *"FINCO is the market leader….we are much more advanced than other firms"* - *"using technology to do things more efficiently is the way we do things at FINCO"* - *"we (FINCO) are the most advanced retirement fund company in the country"* - *"the industry is changing and therefore we must change….at FINCO new systems and technology is how we change"* - *"at FINCO users are powerless…. technology is more important than we are"*
Managers (FINCO)
- *"our business is changing and we need to adapt"* - *we (FINCO) are an innovative company and as the market leaders have to work to maintain that advantage"* - *"management has a vision…we try to be on the leading edge… adopting new technology forms a central part of who we are"* - *"technology adds value to the our business"* - *"people are an important part of our business"*
Implementers/Vendor (FRS)
- *"FINCO is an early adopter: they (FINCO) are generally the first retirement fund provider in South Africa to implement new technologies and are always exploring ways of becoming more efficient"*

The Users: It became evident to the researcher that fund managers shared common perceptions relating to FINCO and their role at FINCO; users saw themselves (FINCO) as the market leader and appeared to recognise and accept that technology driven change was necessary to maintain that position. All users agreed and appeared to be proud of the fact that FINCO, in their words, "*is an innovative company*" that is more advanced than its competitors and they saw their roles at FINCO as embracing technology and contributing to making FINCO the market leader.

The Managers: Managers at FINCO expressed remarkably similar views to the fund managers interviewed: the shared themes of innovation, embracing technology and focusing on being the market leader were evident. Managers also strongly articulated the idea of valuing people to the same extent as technology.

Vendors: FRS personnel corroborated the FINCO manager and user inputs.

Robbins (2001) states that there is an expectation that individuals at different levels in an organisation will tend to describe an organisation's culture in similar terms and this is apparent at FINCO with respect to innovation, focus on being the market leader and the perception of being "advanced" (adopting and applying new technologies) which can justifiably be viewed as the espoused organisational culture. Of greater interest is the issue of "valuing people" which the managers introduce into the discussion but users do not overtly touch upon. If we use Argyris & Schön's (1978) notion of hidden elements of organisational culture which become apparent through patterns of behaviour one could potentially infer that a "hidden" element of FINCO's culture is an underlying contradiction relating to the organisation (FINCO) valuing people (employees) and/or valuing technology and innovation. Reflection upon the facts of the preceding case study and comments from users such as "*technology is more important than we are"* coupled to the resistance behaviours and antipathy from fund managers during the ES implementation leads the researcher to conclude that FINCO's espoused organisational culture and user behaviour can only be

rationalised if the hidden elements of FINCO's culture include a shared perception among users of not being valued and being less important than technology and innovation. The aforementioned observation is tentative and will require more in-depth research to validate.

Chapter 6: Findings

As stated in section 1.4.1, the aim of this research is to produce meaningful insights, for interested parties, by providing an enhanced understanding of how individual stakeholders involved in an IS implementation perceive and experience change, so that interested parties are more effectively able to deploy IS in organisations.

Secondly, the aim of the research is to record FRS' experiences, so that other small and medium size technology companies may gain practical insights with respect to the challenges of developing, commercialising and deploying software solutions.

Each of these aims will be addressed separately (based on the preceding analysis):

6.1) Examining Stakeholder Perceptions and Experiences

The success of an IS implementation or any change initiative is dependant on the interaction of multiple organisational variables. Leavitt's (1964) model is one of many "lenses" that can be used to better understand and manage organisational change; that said, one must recognise that organisational change is inherently complex and difficult to deconstruct.

For the purposes of this research: Leavitt's (1964) model, as adapted by and Gallier (1995) and coupled to a social constructivist overlay, creates a specific analytic framework for interpreting "stakeholder reality". The five variables: technology, tasks, structure, people and culture were used as the primary focal elements to deconstruct the perceptions and experiences of stakeholders involved in the ES implementation at FINCO. The researcher acknowledges that it is difficult, if not impossible, to fully understand stakeholder perceptions and behaviours, since much of the primary motivation for user action or in-action is not self evident, even when conducting in-depth interviews. The proceeding findings are therefore based on the researcher's use of the analytic framework

and inferences derived from engaging with the individual stakeholders involved in the ES implementation.

Stakeholder Reality and Organisational Performance

It is apparent that stakeholder experiences and perceptions of the ES implementation were markedly different not only between the functional groups: managers, users and vendors, but also between the individual stakeholders within the functional groups themselves (particularly true of the user group). As discussed previously, Leavitt's (1964) model is based on open systems theory; the key conjecture is that model components are strongly interrelated: change in one component will have effects, planned or unplanned, on the others. Leavitt (1965) argues that changes in technology are absorbed, deflected, and defeated by organisational task arrangements, structures, and people.

The implementation of the ES at FINCO changed the technology element of the model and started a process of organisational change. The analysis reveals that managers, users and vendor's constructed realities differed, resulting in dysfunctional/ negative effects across all elements of the model:

- low or delayed system adoption by users - "*I just put it off and put it off* " (task element),

- general user apathy - *"I am not sure what my role is"* (people element) and "*technology is more important than we are (users)"* (culture element),

- user/system skills mismatch, *"classifying requires higher skill levels and an understanding of accounting"* – (task element)

- manager's frustration and consequent "heavy handed" actions, "*users are resisting and not performing"* (people element)

- vendor confusion and misunderstanding, *"we had to re-train users and redesign the system on multiple occasions"* (technology and task elements)

- deterioration in user and manager relationships: *"after the problems with the implementation…I think I engage with management differently"* (structure element).

FINCO management acknowledge that the abovementioned effects ultimately decreased the overall performance of FINCO's Benefit Administration Division and jeopardised the adoption of the ES (as discussed in roll-out 1 in the case study). An additional intervention (roll-out 2 in the case study) was needed at FINCO to counter the dysfunctional effects and re-establish a balance between the elements in the model which ultimately created a basis to improve performance. When stakeholder realities began to re-align after roll-out 2, the elements of the model become more congruent (based on shared understanding) and overall performance at FINCO's Benefit Administration division improved.

The ES implementation at FINCO clearly demonstrates that shared stakeholder "organisational reality" in the broad sense is intrinsically linked to organisational performance: if individuals in an organisation experience, perceive and share a common reality, the ability of the organisation to process change improves and consequently organisational performance also improves.

Communication and Common Context

Multiple sources allude to the importance of effective communication when managing change initiatives in organisations (Cripe, 1996; Sanchez 1997). It is apparent that effective communication between individuals and functional stakeholder groups in an organisation is critical to establish a shared or common understanding of organisational reality.

The social constructivist orientation applied in this research clearly demonstrates that from the outset of the ES implementation, significant gaps existed between users, managers and vendors in relation to comprehending:

- the nature of the ES (specifications for the software changed over time),
- the strategic importance of the ES to FINCO (business requirements),
- the learning curve (time, skills and training) required to effectively deploy the system,
- the potential impact of the ES on business processes and workflow, and
- the role that all stakeholders had to play to make the ES implementation successful.

All of the above mentioned gaps could have been addressed prior to the implementation by creating a "common context": a shared understanding and appreciation of organisational reality amongst all shareholders. Implicit in the concept of a common context is an associated organisational environment which supports stakeholder communication. It was acknowledged by all stakeholders party to the ES implementation at FINCO that a common context (a shared understanding of the what, why and how relating to the ES) would have supported more constructive patterns of behaviour on the part of all stakeholders.

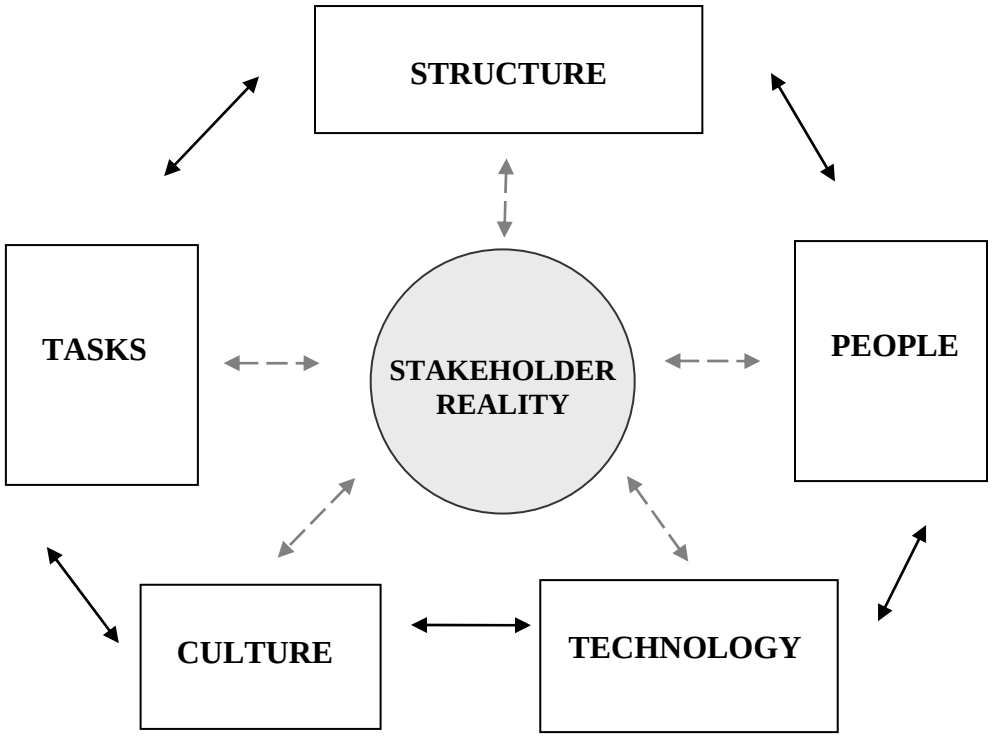
When examining critical success factors for IS implementations, communication is often highlighted and techniques to facilitate communication are generally discussed (Lacity & Hirschheim, 1995; King, 1996; Sanchez, 1997). What is noteworthy in this case is that the analytic framework applied, clearly demonstrates that communication in the context of IS implementations, is a means to an end (to create a common context) and not an end in itself. The actual methodologies which facilitate effective communication amongst stakeholders in organisational settings are generally environment specific, more

importantly though, the focus should be on whether or not a common context exists between stakeholders prior, during and after the IS implementation and if not, why not. By focusing on the end - the common context, the means – communication mechanisms and information flows within the organisation, become more apparent to practitioners and can be more effectively managed during change initiatives.

Thus, in practice, it needs to be recognised that institutions are a collection of individuals and that stakeholders party to change initiatives need to be prepared for the change. The concept of "common context" can potentially be used as a high level construct to evaluate the readiness of divergent stakeholders for change initiatives by employing stakeholder audits.

The Analytic Framework

Figure 17: Analytic framework/ model based on Leavitt's (1965) and Gallier's (1995) models with the introduction of individual Stakeholder Reality locus.



The preceding analysis (chapter 5) demonstrates that Leavitt's (1964) organisational change model, even though arguably dated, provided a valuable

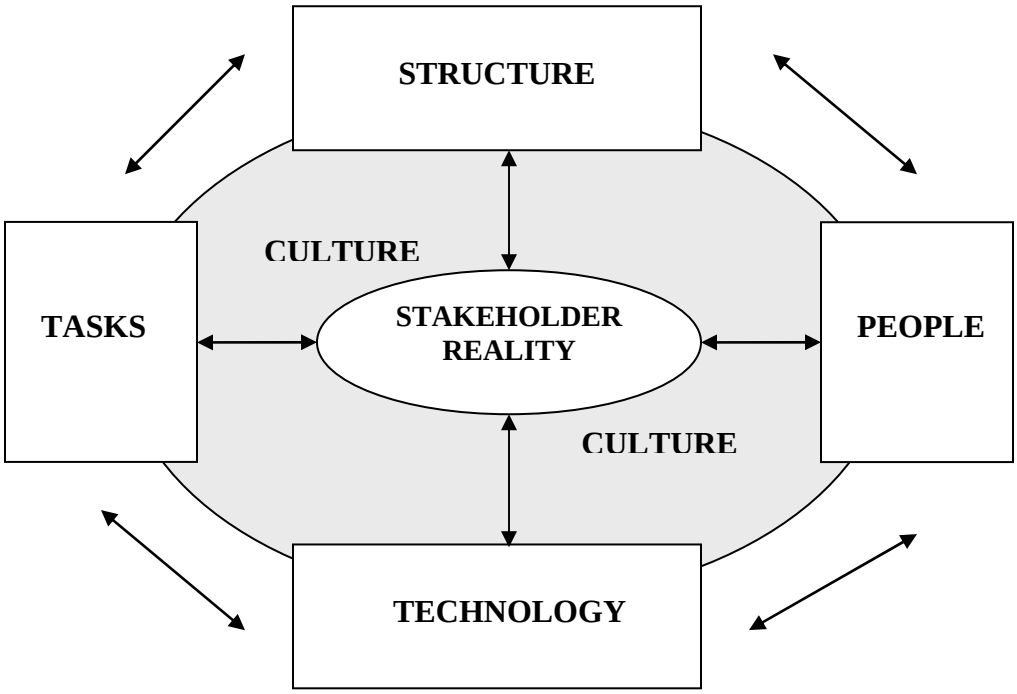
basis to capture the complexity of the ES implementation and the associated organisational change dynamics at FINCO. By adding the culture as a variable to the model (Gallier, 1995) the framework became more comprehensive and robust.

The inclusion of individual stakeholder reality at the centre of the framework allowed the researcher to systematically analyse and unpack individual stakeholder perceptions and experiences and, develop an appreciation for individual stakeholder constructed realities while at the same time not losing sight of the interdependency of the organisational elements (a systems perspective). The framework was useful in highlighting the lack of common or shared understanding amongst stakeholders specifically during roll-out 1 of the ES implementation.

Having applied Leavitt's (1964) and Gallier's (1995) models, the researcher would argue that the analytic framework can be further amended to reinforce the relative importance of the "culture" variable. Based on the researcher's experience at FINCO it has become evident that organisational culture: "the system of shared meaning held by members of the organisation" (Robbins, 2001:511) is extraordinarily pervasive and potentially more significant to understanding and managing organisational change dynamics than the other variables. This conclusion is highlighted in the "valuing people" discussion in the analysis (section 5.5), when users communicate that they feel FINCO values technology more than people. This implicit belief on the part of users, in the researcher's opinion, shapes their (the users) organisational realities to a far greater degree than other variables and contribute significantly to non-performance and dysfunctional behaviour during the ES implementation.

The researcher would thus amend the aforementioned framework to depict organisational culture as an all pervasive component that acts as filter or lens through which stakeholders define their constructed realities in terms of technology, tasks, structure and people.

Figure 18: Amended framework: based on Leavitt's (1965) and Gallier's (1995) models, with the introduction of organisational culture as an all encompassing component which shapes stakeholder realities.



It has also become apparent to the researcher that a framework or analytic model is a prerequisite if organisational change initiatives are to be better understood.

The Social Constructivist Orientation

The social constructivist orientation applied in this research clearly demonstrates that significant gaps existed not only between functional group's (users, managers and vendors) understanding of what constituted organisational reality but also between individuals within the functional groups.

By concentrating on the five organisational components (technology, tasks, structure, people and culture) and focusing on "individual rather than institutionally defined consciousness" (Berger and Luckmann, 1966: 147), the preceding analysis of the ES implementation at FINCO provides a far richer and

more comprehensive view than the traditional positivist approaches to investigating IS implementations.

The social constructivist focus also creates context for interpreting stakeholder behaviour: during the ES implementation at FINCO stakeholders exhibited behaviours that were difficult to comprehend, specifically behaviours which were considered to be dysfunctional or that did not align with the goals of the organisation. By introducing a social constructivist lens which provides insight into individual stakeholder conceptions of organisational reality, functional group and individual behaviour (and consequent performance) becomes more transparent and potentially more manageable.

6.2) Recommendations for SME

The secondary aim of the research is to better understand the vendors/ implementer's (FRS) experience of the ES implementation. The ES project at FINCO was FRS' largest implementation to date and FRS' managers recognise that the experience provided learning which can be useful to other SME with respect to the challenges of developing, commercialising and deploying software products.

On-going dialogue with FRS managers relating to the ES implementation at FINCO produced several valuable insights:

Promote Shared Understanding (Common Context)

Prior to starting a technology driven change initiative, create shared understanding amongst all stakeholders: acquiring user "buy-in" prior to embarking on an implementation emerged as a strong theme and is consistent with the concept of a "common context" as discussed in section 6.1. All users must clearly see the need for the change if they are to support it: *"what I would do in future implementations is spend more time with users and communicate to them …this is what the product will do for you, these are the benefits,… and do that on an ongoing basis every time there is a change in the product".* FRS

personnel recognised that the creation of a "common context" is not only the responsibility of the client but it is also incumbent upon the vendor/ implementer to ensure that the client is taking appropriate actions, "*the success of our product is linked to user adoption, not just supplying a product as per specification….part of our job is to ensure that customers design for, implement and communicate with their user base".*

Delineate Clients Broadly and Validate Client Assumptions

Define clients broadly taking into account all stakeholders: FRS's manager's conception of who their clients are, was called into question. Software design and implementation strategies for the ES project at FINCO were created based solely on the input from FINCO management, yet after the implementation FRS managers recognised that they had not paid adequate attention to user needs, *"when designing software it is easy to become detached from who our real customers are, the users".* The issue of skills mismatch in the FINCO implementation, "*we did not say to FINCO how skilled are your users prior to the design of the system, no survey was done to determine training requirements, training was created based on assumptions from FINCO management that in retrospect were flawed,"* has created an awareness at FRS that they not only need to define who their clients are more holistically, but also that they need to develop mechanisms to verify the information provided by their clients and in some cases challenge client assumptions. Mechanisms could include surveys or audits that FRS administers to ensure that a reliable design specification is in place prior to commencing software development.

Recognise Complexity and Budget Accordingly

Deploying software solutions that involve organisational change involves managing complexity: when allocating time and resources prior to a project, the complexity needs to be accounted for. FRS managers acknowledge, "*more resources should have been devoted to the FINCO project"* and that the ES implementation at FINCO took up far more time and human resources than was budgeted for.

For many SME their primary objective is to secure clients, especially when the firm is in its early growth stages and in the process of developing new products and solutions. This research demonstrates some of the potential pitfalls of an IS deployment. SME should recognise that when providing a product or a solution which necessitates organisational change, it is important to critically evaluate the opportunity and only after reflection enter into agreements with prospective clients. From a practical point of view, the economic and market consequences of entering into high risk projects can almost be as bad as having no business.

Conclusion

Thus in the software development market segment, no matter how good the technology or the product, SME success will be dependent on their ability to manage the organisational change associated with their products and solutions. To quote a FRS manager, "i*t's not just about the software, it's about the people, designing and installing the software is easy, getting users to actively engage with the software is the real issue, people are the unknown quantity".*

Chapter 7: Conclusion

7.1) Research Limitations

During the research process several issues that were not recognised prior to starting the research, emerged, which potentially limit the scope and application of the research:

1) The research had to be completed within the specified timeframe; a more extensive examination of the ES implementation could have been conducted, specifically, follow-up interviews with additional users as the ES roll-out progressed would have been valuable.

2) The time constraint also contributed to the fact that it was difficult for the interviewees (stakeholders) party to the ES implementation to fully comprehend the change caused by the ES implementation. Because the potential benefits of the ES only become apparent one reporting cycle after loading the retirement funds on to the ES, one could argue that it is too soon to be able to interpret whether the ES implementation project has been a success or not - because the full benefits of the system have not yet been experienced.

The researcher acknowledges these limitations yet feels that the research presented is a valid reflection of the FINCO ES implementation based on the timeframe under review.

7.2) Directions for Future Research

This research offers a broad qualitative view of a specific IS implementation and potentially provides valuable insights for practitioners. At the same time it also raises a number of questions. The qualitative research instrument developed in this research, (figure 18) with the social constructivist orientation, provides a tentative starting point for future research which could potentially lead to a more holistic understanding of organisational change. Social constructivist

theory provides a valuable basis for IS implementation research; social constructivism coupled to a systems perspective also creates the potential to develop more robust frameworks and models of individual behaviour, thereby allowing researchers to develop more inclusive views of stakeholder behaviour during IS implementations.

With specific regard to FINCO; the social constructivist orientation applied in this research provided a very specific lens for interpreting the ES implementation. Ideally, a subsequent researcher could engage with FINCO and apply a different theoretical approach and methodology (conceivably a study with statistically generalisable results) when examining the ES implementation. The projects should complement each other thus creating the opportunity to produce normative theory and recommendations. The researcher's findings relating to "common context", "delineating clients broadly" and "recognising complexity" could also be further explored and validated in an effort to develop practical, project based tools to assist FINCO and other firms in future IS implementations.

7.3) Final Comment

This research attempts to convey the practical realities of an IS implementation to interested parties: the research reveals that stakeholders need to recognise that technology driven change initiatives (IS implementations) are complex. The success of introducing technology into organisations is not only determined by strategically identifying and selecting an appropriate technology, (IS solution based on the organisation's strategic business needs) but also intrinsically linked to the organisation's capacity to effectively deploy the technology (IS) and manage any associated organisational change.

The researcher acknowledges that the social constructivist perspective applied in the forgoing research does differ substantially from traditional positivist approaches to understanding IS implementations and may be perceived by certain readers as being overtly theoretical. The researcher however argues that a social constructivist orientation does add value by providing interested parties

with more in-depth insights into the organisational dynamics of technology driven change. A salient question that could be raised at this point is: if the FINCO managers and/ or the FRS project managers, party to the ES implementation at FINCO, were more attuned to social constructivist thinking, whether the thinking was explicit or even just an appreciation of divergent stakeholder perspectives – would the ES at FINCO have proceeded differently? Could performance have been improved? Senior managers at FINCO acknowledge, *"If we had to do it again, we would do it much better because of the experience we have acquired",* the researcher hopes that in reading this case study and reflecting on the preceding analysis FINCO managers and FRS project personnel and any other interested parties will gain a greater appreciation of the concept of individual's constructed reality and its importance in successfully understanding and managing change in organisations.

To conclude, developing theory and frameworks to better understand IS implementations is only half of the challenge, the more significant issue is getting all stakeholders, especially managers and vendors/ implementers, to integrate theory and practice by recognising the importance of all individuals' perceptions, especially users, in shaping organisational reality and the consequent impact that individual stakeholder "reality" has on organisational performance.

Appendix

Demographic/Administrative Data Collection Record:
(Used as for narrative enquiry)

Name:	
Gender:	
Position: Experience:	Profile of user and experience: Position/Profile: Experience: (years)
Freq Use: (Daily, Weekly, Monthly)	How often do you interact with the ES?
Contact Details:	Email: Telephone:
Date:	
About the Researcher:	The Wits Graduate School of Business requires all MBA students to conduct primary research and produce a formal thesis.
Aim of the Research:	Aim of the proposed research is to better understand the implementation of IS in organisations, by examining how individual stakeholders, affected by the IS, perceive and experience change.
Research Question:	How do stakeholders: individuals from both Financial Reporting Solutions and FINCO, that are involved in the implementation of the new expert system (ES) at FINCO, perceive and experience the change brought about by the implementation of ES?
Ethics:	All primary data collected will be confidential and will only be utilised and viewed by the researcher. No individual names of participants will be used in the final aggregated text. If verbatim quotes are used, the researcher will use generic functional job descriptions to reference the quote.
Format:	Ask participants to tell story about ES, then ask generic questions. Limit to 60 minutes (most important). I record the conversation – don't lose any of the data. Can I contact you again if have any follow up questions – email or phone call?

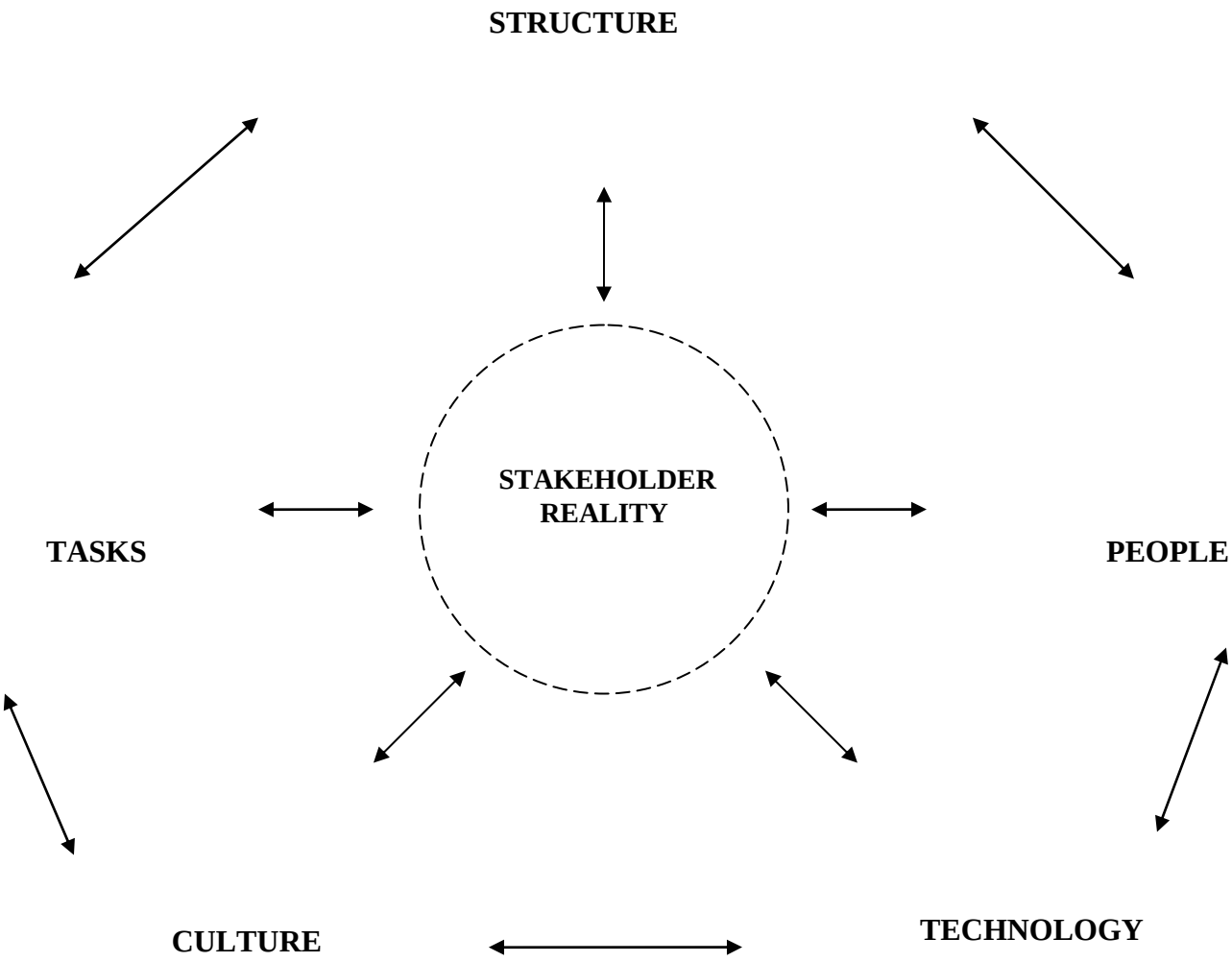
Mind Map:

(Used for taking manual note taking during interviews and basis for cognitive maps.)

TELL ME THE STORY OF THE ES?

HIGHLIGHT "TELL ME MORE" ISSUES – ASK FOR EXAMPLES.

HOW DID YOU FEEL?



Concluding Questions:

(Collected as baseline data and used in limited capacity for triangulation purposes.)

1a) Were you involved in the initial development trials of ES?

1b) If "YES": do you feel your input added value to the development and implementation of the product?

1c) If "No": do you feel that your input could have added value to the development of the product and implementation of the product?

1a) Yes	No

1b)Yes	No

1c) Yes	No

Introduce the statement methodology:

2) I am comfortable using technology (in general). (People)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3) ES (technology) allows me to more efficiently carry out the tasks that are required of me. (Technology and Task linked to Benefit).

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4) FINCO is an innovative company that embraces and supports new technologies/systems. (Culture).

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5) ES (technology) is a tool that empowers me in my work environment. Do you have control, responsibility of your work environment. (Power)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6) ES changes the way I interact with colleagues/managers at FINCO. (Structure and People)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7) Using ES has led to increased job satisfaction. (People)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

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