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ABSTRACT

IT strategy is often intended to be driven by the organisational vision and strategy to achieve its goals periodically. IT has significant impact on an organisation's success or failure. It therefore does not operate in a vacuum. The issue is not just about information technology. Rather, it is the strategic application of technology, including management, which is about people and the process.

This research applied Structuration Theory to examine the types of structures that exist during the development and implementation of IT strategy, and the structures that actually emerge as a result of human action in the computing environment of the organisation and through that, identify its impact and how they derail IT strategy in the organisation.

Keywords: Structuration Theory, IT Strategy, Non-Technical factors, Structure.

1. INTRODUCTION

Over the years, the need for IT has become increasingly important in the organisations it supports (Scarbrough, 1998; Lederer and Sethi, 1988). Hence it is important to align the IT strategy to the business strategy (Weiss and Anderson 2002). According to Sohal and Lionel (1998), IT strategy has a great impact on the business strategy and some organisations rely completely on their IT strategy to succeed. It has also become a significant resource in enabling business goals and objectives. The roles and expectations of IT and the changing business needs have made it necessary to have a strategy for IT development, execution and use (Walsham and Waema, 1994; Wolff and Sydor, 1999). For example, the growth of web technology has expanded and changed the scope of the applications of IT. Two decades ago the focus of applications was more on internal use. It was largely automation of processes to improve organisational operations. But, during the last decade, not only are people within an organisation increasingly 'connected' but so too are people outside the organisation connected with the organisation through the application of IT.

Understanding the development and implementation of IT strategy within the organisation implies making sense of it in their human and technological contexts. The study focused on the structures that existed, as created by humans and within which they operated, which influence the technology and organisation, groups of individuals and their organisational activities and tasks, their philosophical viewpoints on work as well as the organisation and IT strategy.

Regardless of the degree to which an employee may commit him or herself to the objectives of the organisation, personal interests are likely to be different from those of the employer. Employees seek to satisfy not only the organisational interests, but also their own wants and needs which are driven by self-interest (Markus, 1983). Mintzberg (2000) points out that people apply strategy in several different ways. Also, it is the management of the powerful resources (such as technology and people) and the environment they create that allow a difference to be made. According to Iyamu and Adelakun (2008), People's willingness to accept or reject the IT strategy will therefore be highly influential in the outcome of the IT strategy.

The primary objective was to examine how the interplay between structures and humans derail IT strategy in the organisation. The study focused on technical and non-technical factors in the development and implementation of IT strategy in the organisation. The study adopted qualitative interpretive case study for the research approach including, for the data collection.

2. RESEARCH APPROACH

Qualitative, interpretive case study approaches were adopted in the study. This was due to the nature of the study, which sought to understand the impact of the interplay between the existing structures and humans in the development and

implementation of IT strategy. It was believed that the case study approach was the appropriate research strategy. This was primarily because of the advantages and opportunities it presented to create novel and profound insights and to examine the rich contextual influences (Myers, 1997; Yin, 1994). Other approaches could have been adopted. However, this would not have revealed in detail the unique experiences of individuals in the organisations and the factors influencing their IT strategy.

The organisation used for the case study is an insurance company in South Africa, founded over hundred years ago. It has twelve thousand employees, of which four hundred and twenty are in the computing environment. The data collection was from primary and secondary sources, interviews and documentation, respectively.

The primary data collection sources were structured and semi-structured interviews which were tape recorded. Roode's (1993) description of a process-based research framework for information systems research was used to generate the most appropriate questions for this research. A total of 23 interviewees were carried out in the organisation: 14 white and 9 non-white; 11 senior and 12 junior; 12 female and 11 male employees were interviewed. A set of balanced respondent demographics was formulated and adhered to, as it was a key factor in achieving a true reflection of the situations. The demographics included different races, genders and various levels in the IT organisational hierarchy - senior employees: IT Executives, IT Managers, Business Managers, IT Architects and Project Managers; and junior employees: Programmers, Analyst and Network Administrators. Table 1 contains a breakdown of interviewees in the case study.

The secondary sources included documents about organisational hierarchy, Business and IT strategic alignment and IT strategy materials. The materials were used to develop the background information on the technical and non-technical contexts of the organisation and its hierarchy, which helped to construct the history of the computing environment. This help to understand the organisational hierarchy as presented in the Agent and Structure subsections of the analysis section.

The study applied Structuration Theory (ST) in the analysis. ST was selected primarily because, it holds: that human actions are enabled and constrained by structures, and emphasizes that these structures are the result of previous actions (Orlikowski, 1992); consists of rules and resources, and they do not exist independently of human action, nor are they material entities.

3. METHODOLOGY

The key elements of Structuration Theory are Agency, Structure (which Giddens (1984) argues that they are a duality that cannot be conceived separate from one another) and Duality of Structure. These elements were used in the analysis of the case study.

Agency refers to humans' ability to act. According to Giddens (1984), human agency has the 'capacity to make a difference'. Further, the loss of the capacity to make a difference is powerlessness. Hence, agency is intimately connected to power. In this study, the agency was used to identify actors, activities in the development and implementation of IT strategy.

Structures are described by Giddens (1984) as rules and resources; they only have virtual existence, as 'traces in the mind', and argue that they exist only through the actions of human beings (Jones, 1999). Only through the activities of human actors can structure exist (Orlikowski, 1992). Structures both enable and constrain the daily actions and thought processes of people, but do not wholly determine them (Rose and Hackney, 2002). Individual choices are not independent of the structures within which they take place. This was applied to examine the rules and regulation that existed, and the enactment of the structures enabling or constraining in the development and implementation of IT strategy.

The duality of structure was used to understand the contextual dynamics within which organisational dilemmas interplayed; how structures embodied the organisation's norms, which were influenced by actions; whether these actions by agents led to changes in how rules and resources influence interactions and to the reinforcement of the norms upon which these interactions were based, during the development and implementation of IT strategy in the organisation.

For analytical purposes, Giddens (1984) distinguishes different structurational dimensions, namely, signification, domination and legitimation. Associated with each structural dimension are mediating components, which are interpretative schemes, facilities, and norms, whereby concepts embedded in the structure are given specific by social agents through their actions (see Fig. 1 below), which are at the same time, enabled and constrained by the structural properties. The notion of embodied structure was complemented with that of emergent structure, and the notion of user appropriation with that of enactment.
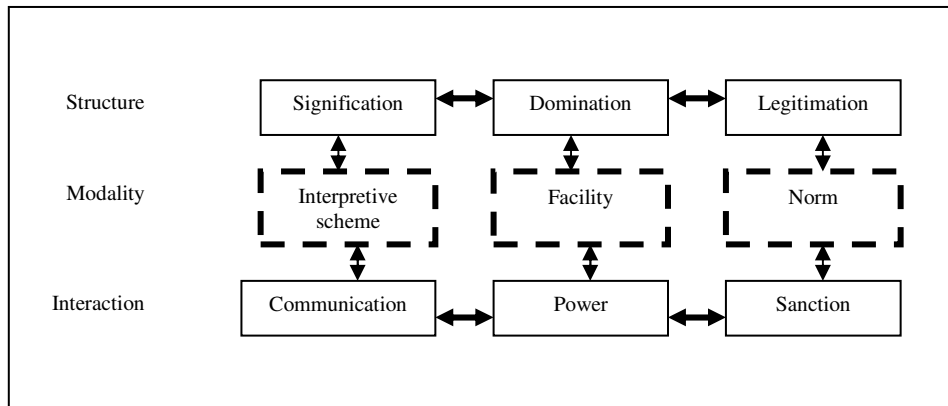
Figure 1: Dimensions of the duality of structure (Giddens, 1984)

Thus, as human actors communicate, they draw on interpretative schemes to help make sense of interactions; at the same time those interactions produce and reproduce structures of signification. Similarly the facility to allocate resources is enacted in the wielding of power, and produces and reproduces social structures of domination. Finally, moral codes (norms) help determine what can be sanctioned in human interaction, which iteratively produces and reproduces structures of legitimation. The dimensions of the duality of structure as shown in Figure 1 above were applied in a vertical and horizontal manner in the analysis of the case study.

4. ANALYSIS

The analysis focuses on the actions within the structures, and how the agents acted and were acted upon during the development and implementation of IT strategy in the organisation. The analysis begin by exploring the agency, thereafter examined the types of structures that existed during the development and implementation of IT in the organisation.

4.1. Agency

The agents were intimately connected with rules and resources. In the organisation, the agents involved in the development were different from those who were responsible for the implementation of IT strategy. The employees involved in the development and implementation of IT strategy had different backgrounds and skills, including managerial and technical skills. Also, the employees were made up of different races and age generations.

The Executive Committee (Exco) of the organisation mandated the IT Director to be responsible and accountable for all IT related activities in the organisation. The IT Director used the mandate to include the IT Executive in the responsibility of IT strategy.

The computing environment of the organisation was hierarchically structured with several teams. Within the hierarchy, roles and responsibilities were respectively accorded and mandated, on the basis of the rules and regulations of the organisation. The IT Executive team delegated responsibilities and authority to their various managers and authorities were wielded primarily by the exploitation of rules and resources in the development and implementation of IT strategy.

4.2. Structure

The resources such as technologies and employees in the computing environment were managed by the IT Director through the rules of the organisation. In the order of hierarchy, the responsibilities were further delegated to the IT Executive team and other IT managers for the development and implementation of IT strategy in the organisation.

The different activities including responsibilities were conducted within rules. The individuals in the computing environment used the resources within their reach to carry out their responsibilities in the development and implementation of IT strategy. The rules were as important as the resources as they depended on each other during the development and implementation of IT strategy. As a result of the dependencies, the manner in which the rules were interpreted and used by the different

employees was critical. This led to the use of the dimensions of the duality of structure in the case study, as discussed in the next section.

4.3. Dimensions of the Duality of Structure

Structure and human interaction in the computing environment was divided into three dimensions for the primary purpose of analysis. The recursive character of these dimensions is illustrated by linking modalities, as described in the methodology section:

4.3.1. Duality of Structure: Signification and Communication

Executive Committee (Exco), the highest decision making body of the organisation, held IT strategy with high significance and as such, assigned it to the IT Director. The relevance of IT strategy to the organisation required it to have a wide range of input and audience within the computing environment of the organisation.

The IT Director and IT Executive team communicated the objectives of the IT strategy to the next level of management, the IT managers. Subsequently, the various IT managers did the same by providing the necessary information to the rest of the employees.

The development of IT strategy was divided into different components. Members of the IT Executive team were responsible and accountable for these components, which included Business Applications, Infrastructure and Architectural components. The main purpose of the components was to assign roles and responsibilities as guided by the rules of the organisation. Another reason was to ensure balanced resources for the different IT Executive team members.

Employees within the computing environment were made aware of the developed IT strategy. Different media such as the company intranet and team meetings were used as communication platforms. According to some of the employees, the most popular and value-adding communication platform was the departmental workshop.

Some of the employees were not satisfied with the level of awareness that was created by the IT Executive team. These employees thought (perspective and perception) that the IT Executive could do more to create awareness about IT strategy in the organisation. On the other hand, some employees felt that there was enough access to information about IT strategy.

The main aim for creating the awareness was for the employees to understand the importance of IT strategy so that they could contribute to the implementation in their various ways. Some employees were also concerned with the flow of information. Those who were concerned say that they would prefer a two-way information flow between the junior and senior employees in the computing environment. Most of the junior employees interviewed emphasized that such flow of information could enhance their understanding of IT strategy.

Some of the senior managers acknowledged that there was a problem with communication in the computing environment. This was attributed by some to the spoken language used in the organisation. In addition to these oral communication problems, there was also a problem of understanding some of the documentation relating to IT strategy. Some of the Afrikaans speaking employees find it difficult to read and understand documents that were written in English, and *vice versa*. According to one of the managers, "*One of the problems in my opinion was that it's an Afrikaans company and our strategy was written in English . . . which creates problems. When I go to speak to my manager to explain or help explain the document, my manager is not able to explain it to me in my own language; he's explaining it to me in his second language, which creates problems*".

4.3.2. Duality of Structure: Legitimation and Sanction

The IT Director was responsible and accountable for IT strategy in the organisation. As such, she strived to ensure that IT strategy was accepted in the organisation, starting with the Exco. The IT Director presents IT strategy to Exco for approval.

Upon approval, the IT Management team then tried to get the buy-in of the IT managers reporting directly to them, and encouraged the various IT managers to get the buy-in of their respective employees.

Even though incentives were offered, some employees were reluctant and others, for various reasons, did not accept the IT strategy. For example, some employees felt that the information shared or communicated to them was either incomplete or was incorrect; as a result, they did not trust the IT Management team.

There was a strained relationship between the IT Management team and the rest of the employees, and both parties realized the extent of the problem. Even though the rules of the organisation mandate the IT Management to allocate tasks, it became difficult to do so as the employees were unwilling or only reluctantly accepted their individual tasks.

The strained relationship between the IT Management team and the rest of the employees led to lack of trust and confidence. This affected the capacity and capability to share, as well as carry out task in the development and implementation of IT strategy. The constant suspiciousness questioned the integrity of the IT managers in the allocation of tasks during implementation.

Many of the employees who did not sanctioned the IT strategy alleged that they could not read or didn't understand the document as it was written in a language they were not fluent in.

4.3.3. Duality of Structure: Domination and Power

The authority to develop and implement IT strategy in the organisation was mandated from the Executive Committee of the organisation to the IT Director and the IT Management team. The IT managers including the rest of the employees were by virtue of their employment supposed to support the IT Director's initiative unreservedly.

To communicate the developed IT strategy, IT Management organized a workshop. Attendance at the workshop was a success in that almost every employee in the computing environment attended.

All IT managers, as instructed by the IT Director, allocated tasks to their employees. This enabled the IT managers to use their authority to coerce employees to implement the IT strategy by allocation of tasks and resources.

Some employees who have been in the organisation for a long time were more knowledgeable and had more information about the organisation and the organisation's businesses and activities than some of their colleagues, particularly those with a fewer number of years of service in the organisation. Their stocks of knowledge created a feeling of superiority toward their colleagues during the implementation of IT strategy in the organisation.

The majority of the employees felt that the rules of the organisation gave them little or no room to negotiate their differences. Their reaction to this differed.

Understanding of the developed IT strategy was critical for successful implementation. There were concerns that if information was not properly shared or communicated in terms of a two-way flow, IT strategy may not be well understood, leading to incorrect implementation. Some of the employees pointed out that incorrect implementation could hamper the business processes and activities that IT strategy was supposed to enable and support.

The implementation of IT strategy in the organisation first of all required the acceptance of the developed IT strategy by employees. The level of acceptance formed the basis for the actions of individuals, teams and groups, and, therefore, their participation, which was essential for successful implementation. However, with a low level of acceptance, and issues of mistrust permeating the ranks of employees, implementation inevitably was bound to be severely hampered. IT Management therefore used its authority to enforce acceptance. Using the performance appraisal approach, IT managers, as instructed by the IT Director, allocated tasks and resources to employees involved in the implementation of IT strategy. Employees accepted instructions or commands with little or no negotiation. It was clear, however, that employees at the lower levels in general did not have a good understanding of the IT strategy they were supposed to be implementing.

5. FINDINGS

The empirical data were analyzed using Structuration Theory, and the interpretation (findings) of the analysis is now presented. Of the factors which impact the structures in the development and implementation of IT strategy, six were most critical:

5.1. Control of Resources

Control of resources was prevalent in the computing environment. This was based on how significant the resources were in the development and implementation of IT strategy.

The structures within the computing environment determined and defined the tasks during the development and implementation of IT strategy, and actors enacted these structures in their daily practice. The mandate allowed the IT

Director and IT Management to make particular operational rules for the various units, and also gave them autonomous control over resources under their auspices. In some instances, the resources were used according to individual interests. IT managers also used their mandate to determine employees' access to facilities in their interactions with colleagues, with authorities, and with technology during implementation of IT strategy. This meant that the participation of individual employees in the implementation of IT strategy was influenced by factors outside their control. At the same time, employees used their individual knowledge such as technical know-how and information within their reach to gain advantage over others.

IT managers were granted the authority over resources, and the authority to allocate tasks to employees under their control. Coupled with the fact that the prevailing culture in the organisation did not allowed for the questioning of any decisions by managers, this meant that managers dominated employees during the implementation of IT strategy. This practice was not sanctioned by many of the employees.

The prerogatives of IT managers as mandated by the structures of the organisation meant that they were vulnerable to favouritism and nepotism towards employees, during allocation, as well as in the assessment of the tasks. This created conflict of interests at the expense of the organisation.

5.2. Human interference

The organisational hierarchy in the computing environment allowed the management team to coerce employees to adhere to instructions. Thus, older employees had to work with a younger generation of employees, which created tension because of differences in approach and understanding. This "generation gap" co-operation was therefore based on a foundation of unwillingness to work together and led to the younger employees not getting enough information from their older colleagues who were more knowledgeable about the organisation and its needs.

Based on the limited information made available to them, some employees could not easily understand how to carry out their individual tasks during the implementation of IT strategy. This was a serious problem for some of the employees within this group and it affected the larger computing environment in terms of collaboration and interdependency of the processes and activities of the implementation of IT strategy.

There was also a growing concern of ownership and control of the available resources between the older and younger generations. Some of the older generation felt insecure and as a result, acted individually in order to achieve and satisfy their own goals and objectives. For example, some of the older employees knew that certain senior managers had more respect for them because of their age, and that whatever they said would carry more weight than the words of a younger employee. They exploited this, and were driven by personal interests in their actions. Also, the older employees were more knowledgeable, and, they used this to maintain job security and to dominate younger employees.

These result to different interest groups being formed. Certain actions were clear manifestations of personal interest. As a result, there was sharp division, which led to serious lack of cooperation between the different groups in the computing environment. This affected the implementation of IT strategy, a great deed.

5.3. Organisational Rules

The prevailing culture of dominance within the computing environment meant that the actions and decisions of IT managers could not be questioned by lower level employees. Consequently, some of the IT managers had a nonchalant attitude towards their subordinates. Preferences were accorded to employees as they wished. The IT managers and their preferred employees became dominant.

Language was one of the issues through which the rules of the organisation became a constraint. This derailed processes and activities in the implementation of IT strategy in the organisation. English and Afrikaans were legitimised as official languages for communication in the computing environment, but unfortunately, some employees were not fluent in Afrikaans and found it difficult to understand and interpret IT strategy related documents. It also made it difficult for them to participate in meetings where the development and implementation of IT strategy were discussed in Afrikaans.

Some of the IT Management team members and the IT managers applied their personal discretion in the way information was shared and how Afrikaans was used as a medium of communication. This obviously affected the actions of some of the employees during the implementation of IT strategy. Some employees felt that they were being dominated and that Afrikaans was used to exclude them from being part of the implementation of IT strategy. Other employees felt that IT managers deliberately accorded preferential treatment to certain employees when they used Afrikaans in meetings. This, the employees

felt, was irrational and as such, they found it difficult to sanction the development and this clearly affected the implementation of IT strategy.

5.4. Cultural Diversities and Conservatism

As evident in the data about the organisation, the organisation was founded over hundred years ago. There was rich cultural diversity in the computing environment of the organisation. Instead of celebrating this diversity, pervasive elements of conservatism counteracted the advantages that could have been gained from the diversity.

The diversity in the computing environment contributed to how tasks for the implementation of IT strategy were allocated in the organisation. The diversity related to age generation gaps, cultural differences and the use of spoken and written languages among the employees. As a result, getting the employees to be interested in the IT strategy was very difficult, with implementation suffering as a result

There was also a cultural conservatism among the employees in the computing environment. This was particularly prevalent among the older generation of employees. The conservatism, which was about "doing things like we always did", created little or no support for transformation in the organisation. This became a dominant factor because those who indulged in the practices of the old culture were more knowledgeable about the organisation and they were not interested in change. As such, they reluctantly enrolled in the implementation of the IT strategy.

The response to these changes was to be unco-operative. Some employees were not contributing their knowledge which had been gained from experience. On the other hand, the new intakes into the environment also had difficulty in performing their individual tasks in the new cultural setting. At the time of this study, the new and old cultures had not found a point of compromise. The non-acceptance of the new culture created considerable barriers, which derailed processes and activities during the implementation of IT strategy in the organisation.

5.5. Historical Effects

The historical shift in the politics of South Africa forced the organisation to amend some of its traditions. Traditionally, non-white people were not employed in the computing environment of the organisation. In the new dispensation, the organisation embarked on transformation in order to align with the government policy of 'Affirmative Action', which was in process during the study. This was to balance the number of employees in the computing environment along racial lines. The transition from the old to the new political dispensation has been a challenge and has affected the development and implementation of IT strategy in the organisation with 'new intakes' having to learn about the organisation while at the same time being allocated tasks.

Between the new and older employees, an antagonism developed. The affirmative action candidates claimed that because of the discrimination, information about IT strategy was not appropriately circulated or shared with them. They felt they were being discriminated against and that their white colleagues had more power as a result of the resources within their reach. In response to this domination, the affirmative action candidates acted in their individual interests and half-heartedly supported the implementation of IT strategy. This led to unco-operative actions and manifestations of defensive behaviour by the affirmative action employees

The reluctance to co-operate, or the complete lack of co-operation from both the affirmative action candidates and other employees, including managers, who had jurisdiction over the resources available to them, was used by these same managers as a source of power to exclude unco-operative employees from the implementation of IT strategy.

5.6. Irregularities caused by personal interests

Employees' actions unfortunately, employees were influenced by different personal interests, which had detrimental effects, especially for the implementation of IT strategy. IT managers' personal interests manifested themselves through irregularities such as favouritism and nepotism, while the rules of the organisation protected them in the execution of these acts.

Personal values, beliefs and attitudes sanctioned the actions of actors and produced and reproduced structures of legitimation. Naturally, these norms were seldom articulated, but nevertheless were used by actors to sanction their actions that then reproduced the structures of legitimation. Similarly, personal interests mediated early decisions about IT strategy in the organisation that eventually wielded their greatest influence during the implementation stage.

The relationships between IT Management and employees revolved around rules, regulations and resources during development and implementation of the IT strategy. Between IT managers and employees, IT strategy was interpreted, tasks were negotiated and allocated, and information was shared and communicated. However, this all happened with varying degrees of outcome. Employees did not believe that the organisation could fairly judge their performances and qualification for salary increases and promotion. Consequently, employees resorted to manoeuvring because they believed that managers had no objective way of differentiating effective people from those who were less effective, and were in fact practicing nepotism and favouritism. As we have seen above, this was indeed the case.

6. THE IMPACT OF NON-TECHNICAL FACTORS ON IT STRATEGY

In presenting the above findings, we necessarily have to move to a higher level. Figure 2 below shows that the various non-technical factors that influence and impact the development and implementation of IT strategy have been accommodated in three main components, namely, organisational culture issues, internal policies and personal issues. This represents a generalization of the results of the case study, and puts forward the proposition that these three main components would also accommodate non-technical factors that would be found in other organisations.
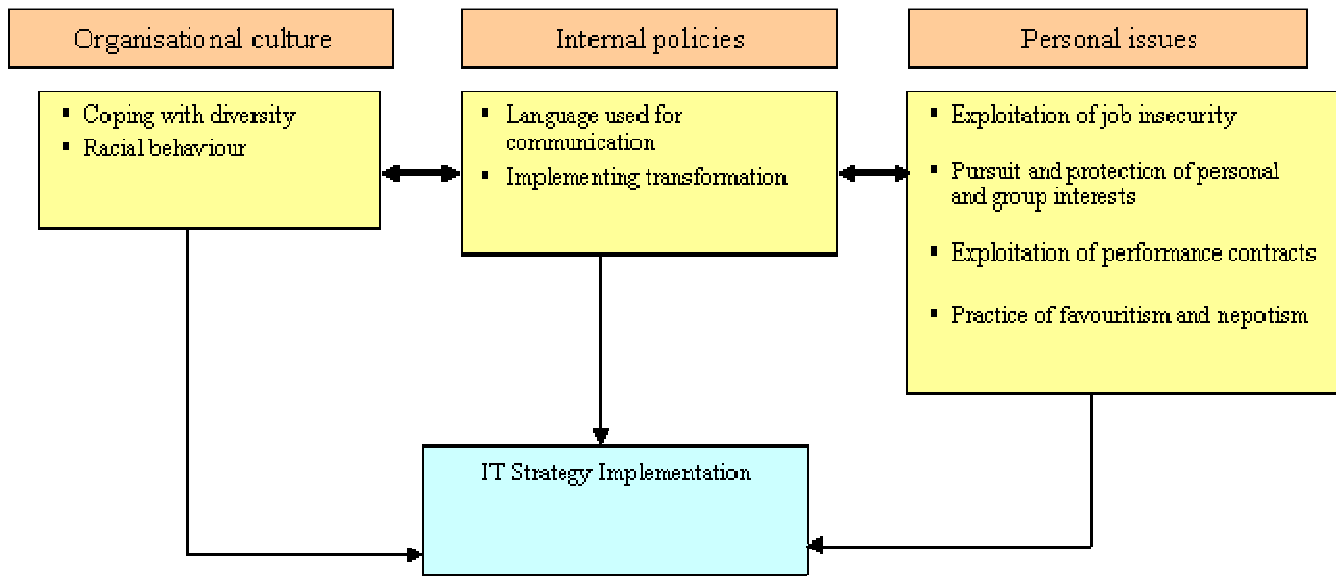

Figure 2: Impact of non-technical factors on IT strategy

The various non-technical factors are, as has been shown, not independent, but deeply inter-dependent. The three main components proposed in Figure 2 are similarly not independent. Certain factors of a personal nature need a particular organisational culture in which to thrive, or would feed on particular internal policies. Similarly, certain internal policies would only be possible within a particular organisational culture. In the case study, the latter was illustrated forcefully: the organisation's policy of acknowledging both Afrikaans and English as official languages had serious consequences – not so much as a result of the policy itself, but as a result of the organisational culture in which this policy was promulgated. The culture coped poorly with diversity, and the additional diversity created through the policy transformed into another divide, linking with existing divides and reinforcing them and itself.

The advantage of a general framework such as shown in Figure 2, is that it enables a greater understanding of how non-technical factors manifest in the implementation of IT strategy. While non-technical factors could never be eradicated, using a framework such as Figure 2 could assist in removing some of the feeding grounds of non-technical factors, or counteracting them with appropriate measures.

CONCLUSION

The study investigates the impact of non-technical factors on IT strategy and probes the interaction between these issues in the development and implementation of IT strategy. It vividly exposed the fact that culture, policy and personal issues enable IT strategy as much as it constrains it, whether consciously, unconsciously or practical unconsciousness.

Some of the findings, such as cultural diversity, of the study are known facts in many organisations. But it was thought to be known by few. As a result, it was easy to turn a blind eye to the practice. Other matters were considered to be too sensitive to address. The findings of the study will instil confidence in IT managers to boldly confront the signs such as language manipulation.

Structuration Theory was identified as suitable theory to underpin the research. As such it provided an ontological and epistemological basis for the research: both an understanding of the essence of what was investigated in the study, and how to obtain knowledge about the phenomena studied.

The empirical findings of this study contribute to the understanding of the impact and influence of people and process both in the development and implementation of IT strategy in the organisation. In addition, the study contributes to a better understanding of human implications, the roles of actors, structures and the individuals and groups of individuals involved in the implementation of IT strategy. Also, the study revealed insights such as use of dominance of race and age groups, and language to align with position of influence, which professionals including IT managers would not have detected or observed.

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