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A STUDY OF USERS' PERCEPTION OF IT GOVERNANCE DURING INFORMATION TECHNOLOGY ADOPTION IN ORGANISATIONS

Complete Research

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Abstract

Despite several studies on IT adoption on factors influencing IT adoption in organisations, challenges still persist. This has prompted many researchers to question the suitability of existing models and frameworks for this complex phenomenon in IS research. The existing models and frameworks therefore seem to have limitations in addressing adoption problems faced by many organisations, for example, failing to understand how a framework may facilitate IT adoption in organisations. This paper explores user perceptions on IT governance during IT adoption in organisations. The paper is based on two case studies. The study results indicate most users do not agree with the IT governance process in the two organisations. The results suggest the need to improve the IT governance process in the organisation by involving those to be affected by IT adoption. The study also lays a foundation for further research in this complex phenomenon.

Keywords: IT Governance, case study, IT adoption, technology, framework, model

1. Introduction

Bouwman et al. (2005) defined information technology (IT) adoption as the process of introducing a new technology in the organisation. IT adoption governance is defined as the process that describes how the decision of accepting or rejecting new technology from an individual or organisational context is made. IT adoption governance in an organisation context helps to reconcile different stakeholder demands during the process of adoption regarding the acceptance of information technology. The IT adoption process results in a decision about whether or not to implement the new technology. IT adoption takes place at micro (individual), meso (organisational) and macro (societal) levels (Bouwman et al., 2005).

The challenge of IT adoption in organisations is how to understand its effects at the three different levels. Individual user and organisation effects of technology adoption can never be fully understood because of its complexity and uncertainty. Bouwman et al. (2005) add that technology adoption in an organisation is a two stage process, which involves the organisation and the individual user who decides to use the new technology. The first stage involves the decision by the organisation's executives to embrace a new technology (Rogers; 2003; Bouwman et al., 2005). The second stage involves the individual users in the organisation accepting and using the new technology. The adoption of new technology in an organisation is therefore a two stage process where the organisation makes the decision on a strategic level before the individual users make their own technology adoption decision on an operational level.

Rogers (2003) highlights that individual decision on technology adoption, depends on the organisational decision to a large extent. Bouwman et al. (2005) assert that it is therefore difficult to separate the organisational adoption from the individual decision whether or not to adopt the new technology. The technology adoption in an organisation can be either authoritative (where decisions are made by a few top executives) or collective (where decisions are supported by the members of the social system) (Bouwman et al., 2005). The two types of adoption decision making, authoritative and collective, are suitable for different organisational contexts. Authoritative decision making has been found more suitable for bureaucratic organisations, and collective decision making is more suitable for professional adhocracy organisations (Bouwman et al., 2005).

The size, structure and culture of the organisation are also important in determining the suitable type of IT adoption process (Bouwman et al., 2005). Bouwman et al. (2005) challenge the belief in the existence of a rational decision making process during IT adoption in organisations. The higher level of subjectivity, uncertainty and complexity of the adoption process makes rational decision making difficult in organisations. This study focuses on technology adoption in organisations, which also involves an individual's adoption decision. This paper is structured as follows: section, 2, presents a brief literature on IT Governance. This is followed by section 3 which discusses research methodology. Section 4 then presents the research results. This is followed by section 5 which discusses the results. Finally section 6 of the paper presents the conclusion.

2. Brief Literature Review

The importance of understanding the IT adoption process in organisations has been highlighted by many researchers (Benbasat & Barki, 2007; Lawrence, 2010). Information Technology adoption at individual (for example, a personal mobile device) or organisational level (for example, an ERP system) is a highly researched topic in the IT field. Most literature on IT adoption in organisations is often premised on the assumption that IT adoption benefits are always obvious after selecting the particular technology (Bouwman et al., 2005; Mirza, 2010). However, it has become sufficiently clear that the anticipated benefits from IT adoption in organisations are not self-evident as they may be elusive and difficult to achieve. The pervasive nature of IT and the major dependency of business on IT make it difficult for executives to ignore IT governance in organisations (IT Governance 2011). The risks and benefits associated with IT adoption require it to be governed properly for organisations to reap the IT adoption benefits. Calder (2005) contends that there is no one-size-fits-all solution to IT adoption in organisations.

A study by IT Governance (2011) notes that despite much literature on IT governance frameworks and models, IT problems still persist in many organisations. The study highlights that most of the challenges are to do with issues of people. Calder (2005) argues that adoption of IT in an organisation must critically examine relevance and validity of the organisation specific context. IT Governance (2011) states that stakeholder diversity interests are a major challenge to IT governance in organisations. It suggests the need for a decision framework that may help to alleviate IT adoption problems in organisations. Most existing IT adoption models and frameworks have challenges in meeting stakeholders' needs in organisations (Mirza, 2010).

Goosen et al. (2013) define corporate governance as the relationships and structures that determine the business performance standards and direction. Research on IT governance has shown some inconsistency and lack of consensus on its definition (Goosen et al., 2013). IT governance as part of corporate governance ensures the efficient and effective use of IT resources in organisations (Weill, 2004). IT governance helps to determine which decisions are to be made, and can contribute to the organisation objectives (Turel & Bart, 2014). IT governance is responsible for supporting the effective and ef-

efficient use of IT assets to meet business objectives (Goosen et al., 2013). Some of IT governance definitions include:

- “the organisational structures, processes and mechanisms for decision making and management of IT assets in the organisation” (Goosen et al., 2013).
- “the structure of relationships and processes to control the use of IT in the enterprise in order to achieve the enterprise’s goals by adding value while balancing risk versus return over IT and its processes” (IT Governance, 2011).

According to IT Governance (2011), IT governance focuses on five main areas, which are, value delivery, strategic alignment, performance measure, risk management and resource management. Value delivery ensures that IT investments deliver benefits to the organisation. Strategic alignment ensures that IT investments support business objectives. Performance measure ensures that IT performance in the organisation is reported accurately and timeously based on measurable deliverables and matrices. Risk management ensures that IT related risks are regularly assessed and mitigated in the organisation. Resource management ensures that IT assets are effectively and efficiently deployed in the organisation.

The risk management of IT governance focuses on dealing with issues of risk, compliance and standards using frameworks such as COBIT, ITIL and other ISO standards. Several studies reveal that COBIT benefits are associated with aligning IT with business objectives in organisations (IT Governance 2011). Corporate governance ensures that IT is represented at board level in organisations (IT Governance 2011). IT governance is based on corporate governance principles to manage and use IT to achieve corporate performance goals (Coertze & Von Solms, 2013; Turel & Bart, 2014). Nugroho (2014) says that “IT governance is not concerned with the location and distribution of the IT resources themselves, but rather with the distribution of managerial responsibilities and control that ultimately affect how IT resources are utilized in organisations”.

In the IT decision making area, IT governance focuses on the allocation of decision rights and accountabilities in the use of IT in organisations (Weill, 2004; Musson, 2009; Coertze & Von Solms, 2013; Turel & Bart, 2014). Weill (2004) says “IT governance represents the framework for decision rights and accountabilities to encourage desirable behaviour in the use of IT in organisations. Whereas management is about what specific decisions are to be made, governance is about systematically determining who makes each type of decision, who has input to a decision and how these people are held accountable for their role”.

Amongst other things, IT governance is tasked with deciding on how decision rights and accountability are distributed in organisations to avoid ad hoc decision making (IT Governance 2011). In order to improve IT governance in organisations, Weill (2004) proposes the assignment of decision rights to five IT decision areas (architecture, infrastructure, principle, applications and investment) in organisations. The assignment of responsibilities and roles to decision-making domain areas helps to achieve a balanced governance structure for IT adoption in organisations (Kim et al., 2014).

Kim et al., (2014) note that IT adoption decision rights on organisations are becoming increasingly more important and complex due to diversity of stakeholders needs. Many researchers continue to explore the concept of IT governance in an attempt to find appropriate mechanisms to govern IT adoption in organisations, in order to be accountable to shareholders and stakeholders (IT Governance 2011). Although IT governance as a framework may improve controls with respect to the alignment of IT and business objectives, it pays less attention to how IT adoption decisions are made in organisations (Musson, 2009; Kim & Lee, 2014).

A major challenge for IT governance is the lack of understanding of how decisions are made in order to achieve business objectives (Goosen et al., 2013). Organisations need frameworks to address the IT requirements of different business units' stakeholders in organisations (Weill, 2004); hence IT adoption processes need to involve all stakeholders in organisations (Turel & Bart, 2014). An important factor of an IT governance process is determining where in the organisation decisions are made (Musson, 2009). IT governance needs to promote the participation and engagement of stakeholders in IT adoption issues in organisations (Kim et al., 2014).

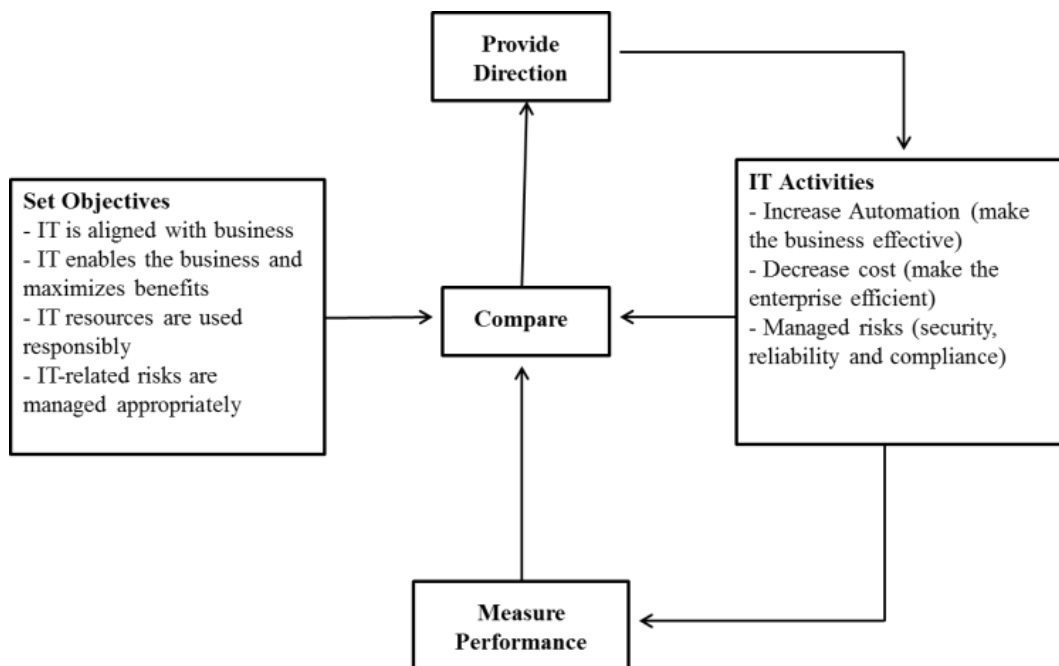


Figure 1. IT Governance Framework (Source: Jokonya 2011:38)

Jokonya (2011) argues that it is important for business leaders (executives) to be fully engaged in IT governance in order for the organisation to achieve business objectives. The biggest challenge in organisations is to reconcile different business units' objectives derived from the nature of their functions. Coertze et al. (2013) note that for an organisation to benefit from IT adoption there is a need for coordination from both IT and the business side of the organisation. The failure to align business and IT strategy will make it difficult to realize value from IT adoption in organisations. IT and business alignment ensures that IT adoption meets the business needs of the organisation (IT Governance, 2011). Turel & Bart (2014) contend that strong IT governance can ensure the proper alignment of business and IT strategy in organisations.

IT Governance Institute (2011) claims that poor IT governance is costing organisations billions of dollars each year after failing to improve business performance as expected. IT governance ensures that IT decisions consider the business objectives and goals as shown in Figure 1. The proper IT governance structure has been credited with better IT related decision in organisations as it helps to get buy-in from business units (Coertze & Von Solms, 2013). The single important predictor of whether an organisation will benefit from IT investment is an effective IT governance structure (IT Governance 2011). Jokonya (2011) suggests that there is a need for new methods to justify IT adoption investment, which identify and quantify the intangible benefits in organisations.

Several researchers found that a balance of IT and business representatives in IT adoption is important to IT governance performance outcomes in organisations (Bowen et al. 2007; IT Governance, 2011).

The same researchers reveal a relationship between project success, business benefits and IT governance. Bowen et al. (2007) point out that the challenge of implementing IT governance in organisations is meeting the needs of multiple stakeholders. Bowen et al. (2007) note that most researchers associate IT governance with the structure for making IT decisions in organisations. Bowen et al. (2007) contend that focusing on the structure aspect only of IT governance ignores other important activities. Jokonya (2011) contends while organisations appreciate the importance of IT governance they realize that it is a complex undertaking as it is difficult to implement. De Haes and Van Grembergen (2008) propose an IT governance framework based on structure (defined roles and responsibilities), processes (strategic decision making, standards and frameworks) and relational mechanisms (dialogue between IT, Stakeholders and business).

Several researchers concede that the challenge of IT adoption is getting agreement from different stakeholders' constituencies who disagree on goals and how to achieve them (Cordoba, 2009, Coertze & Von Solms, 2013). The reductionist approach to IT governance has been seen to pose challenges to complex modern organisations (Jackson, 2010, Cordoba, 2009). The complexities of IT governance mean organisations need to work with different paradigms to offer multiple insights to the complex phenomenon (Turel & Bart, 2014). The systems approach has been credited with acknowledging the complexity and dynamic nature of IT governance in organisations (Cordoba, 2009).

In summary, whilst the literature acknowledges the importance of effective IT governance in organisations, it is still a challenge to many organisations. The major challenge is satisfying different stakeholder constituencies with different worldviews in organisations, to the benefits of IT adoption. The challenges of IT adoption in organisations may require different paradigms to understand the problem context before making decisions. The next section discusses the research methodology.

3. Research Methodology

The case study research strategy in information systems research is accepted because of its suitability to provide understanding of the relationship between organisations and technology (Oates, 2009). Case study research has been found to be a viable research strategy in information systems because of its in-depth approach. The case study research provides an opportunity for the researcher to understand IT governance in a normally inaccessible phenomenon (Oates, 2009). The case study also means that the participants are exposed to the same IT adoption environment, which is useful to understand their perceptions from a single setting.

Most of the contemporary issues dealt with in case study research are common to many organisations. In addition case study research provides an opportunity of first hand evidence on a particular phenomenon. Case study research may adopt a single case or multiple case designs depending on the research objectives (Eisenhardt et al., 2007). One of the contentious questions has been how many cases are sufficient for multiple case studies and there is no simple answer as it depends on the research purpose and question (Rowley, 2002). This research used two case studies, which were sufficient for the research objectives.

3.1 Case study selection

The research site was purposefully selected to help answer the research questions. The researcher used purposive sampling in order to select data collection units that yielded the most relevant and broad range of perspective and information of the research area (Yin, 2009). Two companies agreed to participate in the study from six that were approached by the researcher. The basis for selecting the two

organisations for the research was the diversity and appropriateness of cases. Data was gathered about participants' opinions on the importance of IT Governance during on IT adoption in organisations.

3.2 Data collection

The data collection, using questionnaires, took three months. About two hundred questionnaires were distributed to employees of the two companies. The questionnaires had pre-defined questions seeking participants' perceptions. A five point Likert scale was used to develop the questionnaire. The questionnaire was pre-tested with a few participants to refine the questions.

The questionnaire variables were tested using Cronbach's alpha values to see if they were reliable and acceptable. The questionnaire variables were above 0.80, which is an indication of good reliability at 0.88 (Van Voorhus et al., 2007). About ninety valid questionnaires were returned from the two companies. The returned questionnaires represented a 45 percent response rate. Quantitative data from the questionnaires was captured and analysed using SPSS (Statistical Package for the Social Science) version 21.

3.3 Sample size

Quantitative research offers guidelines on sample sizes needed for different statistical procedures, unlike qualitative research which does not have an agreed sample size (Nunnally, 1978). The sample size of 90 cases was therefore found adequate for the required statistical procedures. The descriptive statistics used include frequency tables, means, T-test and analysis of variance (ANOVA) to provide summarized data for discovering trends, patterns and ease of communication and understanding.

4. Results

This section presents the results from the data collected using questionnaires. The organisations that participated in the study were all using enterprise resource planning (ERP) systems. The selected participants were previously involved in IT adoption in their organisations. The study was, therefore, interested in their perceptions based on previous experience in IT adoption in their organisations. The IT governance construct measures the respondents' perception on the governance process during IT adoption in their organisations. The IT governance variables were adapted from the literature. The questionnaire was pretested as part of refining some of the unclear questions. The variables of IT governance were tested to see their association. This section is organized as follows: section 4.1 presents the demographic data, section 4.2 presents the frequencies of the variables, section 4.3 presents t-test results, and finally section 4.4 presents the analysis of variance results.

4.1 Demographic results

This section presents the respondents' demographic characteristics which were: company type, age, gender, departments, position, education, involvement in IT adoption, number of years in the organisation, and member status. There were equal numbers of respondents from retail and manufacturing companies. In terms of age, 30 percent of the respondents were 30 years and below, 37 percent were between 31 and 40 years, 26 percent were between 41 and 50 years and finally 8 percent were 51 years and older. The majority of the respondents were males - 54 percent - compared to 46 percent for female respondents.

About 24 percent of the respondents were from the finance department, 20 percent from information technology and 66 percent from other departments. In terms of positions of respondents, 28 percent

were clerical, 27 percent were managers, 9 percent were supervisors and 37 percent were from other positions in their organisations. About 42 percent of the respondents had matriculation as their level of education compared to 36 percent of the respondents who had a first degree. The remaining 22 percent of the respondents had a second degree as their level of education.

About 42 percent of the respondents were involved in IT adoption in their organisation compared to 58 percent of respondents who were not involved. In terms of number of years in the organisation, 34 percent of the respondents had two years or less, 26 percent had between three and five years, 20 percent had between six and ten years and 17 percent had more than ten years in the organisation. About half of the respondents were members of a committee in their organisations whilst half were not members of any committee in their organisations.

4.2 IT governance frequencies

Figure 2 below shows frequencies of respondents on the IT governance construct variables. Only a third of the respondents agreed that IT adoption was always transparent compared to those who disagreed or were neutral. Also about a third of the respondents agreed that IT and business objectives always aligned compared to those who disagreed or were neutral. About less than a quarter of the respondents agreed that objectives were always clear to stakeholders compared to those who disagreed or were neutral. Slightly less than a third of the respondents agreed that there was shared responsibility in IT adoption compared to those who disagreed or were neutral. Slightly above a quarter of the respondents agreed that the desired outcomes were always clear compared to those who disagreed or were neutral.

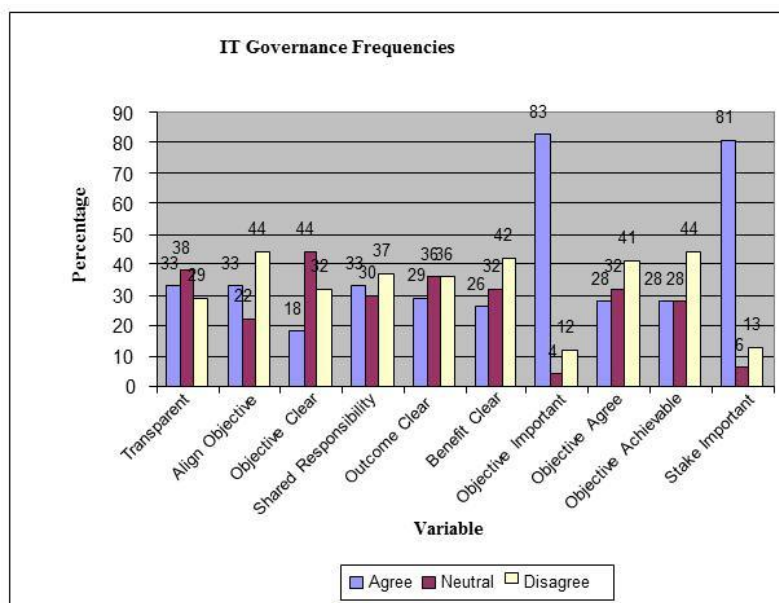


Figure 2. IT Governance Frequencies

Slightly above a quarter of the respondents agreed that benefits were always clear compared to those who disagreed or were neutral. A majority of the respondents, 44 percent, agreed that clear IT objectives were important compared with a few who disagreed or were neutral. Slightly above a quarter of

the respondents agreed that there was always agreement on IT adoption objectives compared to those who disagreed or were neutral. Slightly above a quarter of the respondents agreed that IT adoption objectives were always achieved compared to those who disagreed or were neutral. A majority of the respondents, 81 percent, agreed that stakeholder participation was important compared to those who disagreed or were neutral. The results show only two of IT governance constructs variables that had more than fifty percent in agreement. The respondents agreed that IT objectives and stakeholder involvement were important during IT adoption in organisations. The few who agreed suggested that respondents were not pleased with IT governance in their organisations. The results suggest the need for improvement in IT governance in the organisations. In summary, the results suggest that the organisations have challenges with IT governance issues. The next section presents the t-test results between demographic variables with two categories and IT governance variables.

4.3 T-Test results of demographic variables

The t-test was useful to assess significant differences between the mean constructs of demographic variables with two categories such as company, sex and so forth (Table 1). The T-test conducted showed significant differences between the two companies on users' perception on shared responsibility during IT adoption (.015) and benefits of IT adoption are always clear to stakeholders (.008). The gender demographic variable also showed a significant difference on respondents' perception on shared responsibility during IT adoption in organisations (.020) and the importance of clear IT adoption objectives in organisations (.002). The involved user demographic variable showed significant differences on the importance of clear IT adoption objectives in organisations (.000), the existence of agreements on IT adoption objectives (0.011) and the importance of stakeholder participation during IT adoption in organisations (.007). The committee member demographic variable showed significant differences on the existence of clear IT adoption objectives to stakeholders (.002) and the importance of clear IT adoption objectives in organisations (.000).

Independent Variable	Dependent Variable	F Value	Sig.	Categories
Company	Shared responsibility	6.16	0.015*	Retail and manufacturing
Company	Clear benefits	7.35	0.008**	Retail and manufacturing
Gender	Shared responsibility	5.64	0.020*	Male or Female
Gender	Clear objectives	9.82	0.002**	Male or Female
Involved	Importance of clear objectives	19.18	0.000***	Yes or No
Involved	Agreements on objectives	6.81	0.011*	Yes or No
Involved	Stakeholder participation	7.74	0.007**	Yes or No
Member	Existence of clear objectives	19.16	0.002**	Yes or No
Member	Importance of clear objectives	7.38	0.000***	Yes or No
Company	IT Governance score	2.11	0.038*	Retail and manufacturing

Table 1. T-test for demographic variables, Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, (n=90)

The t-test conducted showed significant differences on IT governance ($p=0.038$) between the two companies' retail and manufacturing respondents in terms of perceptions. The results suggest that there are

significant differences between the respondents from the two companies with regards to their perception on IT governance in their organisations. The results show that manufacturing respondents agreed more on the IT governance construct than did retail respondents (Table 1). The next section presents the analysis of variance between demographic variables with more than two categories and IT governance variables.

4.4 Analysis of variance of demographic variables

The analysis of variance (ANOVA) was used to assess significant differences between demographic variables with more than two categories. In addition multiple post hoc was used to reveal which among the more than two categories differed significantly from one another (Table 2).

Independent Variable	Dependent Variable	F-Value	Sig.
Department	Objectives always clear	2.38	0.046*
Department	Importance of Clear Objectives	4.46	0.001**
Education	Objectives always Achieved	4.50	0.032*
Education	IT Governance Score	3.78	0.028*

Table 2. ANOVA for demographic variables Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ($n=90$)

The analysis of variance (ANOVA) conducted on the department demographic variable showed a significant difference on the existence of clear IT adoption objectives to stakeholders (.046) and the importance of clear IT adoption objectives in organisations (.001). The education demographic variable showed differences on whether IT adoption objectives are always achieved in organisations (.032). The analysis of variance was conducted between people’s education levels and perceptions of IT governance (Table 2). The results suggest that education level had an influence on perceptions about IT governance ($p < .028$). Less educated matriculated respondents were more in agreement with the IT governance than first and second degree respondents. The more educated they were the less likely were respondents to agree with the IT governance. The correlation analysis conduct between demographic variables and IT Governance variables did not show any significant correlation. Having discussed analysis of variance and correlation analysis, the next section presents the discussion of the study.

5. Discussion

The results of the study show that in general most respondents do not agree with the IT governance process in the two organisations as show by statistics (Figure 2). Most of the respondents disagreed with most the variables of IT governance except the two: objectives are important during IT adoption and stakeholders are important during IT adoption. The issues are very important because they help to get buy-in from those to be affected by the IT adoption process. The buy-in is important to have positive outcomes during IT adoption in organisations.

The t-test conducted showed significant differences between demographic variables and four IT governance construct variables with two categories which support the frequency results that there are disagreements on IT governance issues in the two organisations. The demographic variables, which

showed significant differences, include company, gender, involved and committee members. Most of the IT Governance variables showed significant differences in the two organisations which is of major concern to the success of IT adoption in the organisations. This shows that the organisations have challenges with IT governance as most participants did not agree on most of the IT governance variables.

The analysis of variance also supported the frequency and t-test results with regard to significant differences between respondents' perception on IT governance process in the two organisations. Most of the significant differences were based on department and education demographic variables. The analysis of variance results suggest that education level had an influence on perceptions about IT governance process in the organisations. Less educated matriculated respondents had a more positive perception than the more educated respondents with regard to IT governance process in the organisations. This is also the same with department, with some more positive than others with regard to IT governance processes in the two organisations. There was no correlation between nominal demographic variables and IT governance construct variables.

The results suggest that users' perceptions during IT adoption in organisations may be influenced by their involvement and having clear objection during the process as shown by two variables with highest percentage in Figure 2. The results suggest the need for improvement in IT governance processes in the organisations. In summary the results suggest that the organisations have challenges with IT governance processes which call for improvement. Having discussed the results the next section presents the conclusions of the study.

6. Conclusion

The study suggests that it may be worthwhile to consider engaging stakeholders during IT adoption in organisations to improve the governance process and influence positive outcomes. The stakeholders engagement will help to reach consensus, secure buy-in and accommodate different worldviews during IT adoption in organisations. In addition, the study suggests that stakeholder engagement may be important in changing the negative attitudes of users during IT adoption in organisations. The study contributes to our understanding of users' perceptions of IT governance during IT adoption in organisations. In addition, the study adds to our understanding of IT adoption challenges in organisations.

Although the study contributed to the understanding of IT adoption in organisations it has its limitations which need to be acknowledged. One of the major limitations of the study is that it is based on case study research which makes it difficult to generalize the results of the study. However, the limitation provides an opportunity for further research using a survey which can allow the results to be generalized to a large population. In addition, there is a possibility to employ other advanced statistical methods such as factor analysis and structural equation modelling. This study therefore acts as a stimulus and provides avenues for several areas of further research on this topic of IT Governance in organisations.

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