THE CHALLENGES OF INFORMATION TECHNOLOGY (IT) GOVERNANCE IN PUBLIC UNIVERSITIES OVER TIME

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Abstract

Using an in-depth case study, this paper examines challenges that the IT Governance of a public university responds to over time. Our findings indicate the traditional model of IT Governance did not enable the organization to manage their IT resources to match their operational IT needs over a 10 year period. A more process orientated model of IT Governance including organizational drift may be more appropriate to explain the changes over time. To be governed responsibly, the organization over time needs to use their information technology in a manner that is consistent with organizational strategy. The study demonstrated that the best way forward for public universities may be to adopt IT and corporate governance models that allow their management to examine their needs to meet the challenges of matching their IT purchases to their operational needs.

Keywords: Information Technology, Corporate Governance, IT Governance, Public University

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1 Introduction

Corporate governance is related to how organizations are managed and governed. Part of corporate governance is the management of the IT resources which is IT governance. IT governance first surfaced in the early 1990's and there are many definitions of it. The main aspects of these definitions are that IT governance is an 'accountability framework' that makes decisions relating to IT purchases among its various stakeholders. These purchasing decisions allow for the alignment between the IT and the objectives of the organization so that IT is used in the most efficient and effective manner.

The aim of this paper is to examine how public university IT governance responds to the challenges of operational needs and the IT unit. We do this through an in-depth case study of a large Australasian public university engaged in teaching and research over a ten year period. Our research interest is not only on how universities reconcile the conflicting tensions between operational activities and management control, but more importantly how IT governance is performed to ensure that the portfolio of IT investments meets the goals of the agents involved. The remainder of the paper is structured as follows. Section two provides a brief overview of the literature on IT governance and university information systems generally. Section three provides a discussion of the senesemaking literature and interpretation of data to help inform the

study. Section four briefly outlines the research method and section five presents the case study findings. Section six provides a discussion of the findings and the final section is devoted to some concluding remarks.

2 Literature Review

The literature review begins with the concepts of corporate governance and IT governance, as well as some IT governance standards and how they fit in with good corporate governance. The viewpoint of IT governance will be covered from the traditional rational agency model which will be used in the case study. Lastly, some comments from studies on public universities show the importance of IT governance issues.

Corporate governance is how an organization is managed and governed and the Organization for Economic Co-operation and Development (OECD) define it as "The set of relationships between a company's management, its board, its shareholders and other stakeholders ... [it] provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined" (OECD, 2004, pg. 11).

If these relationships are not managed properly the chances of business success will be reduced. The OECD also documented eight principles for good

corporate governance. These principles place responsibility on how an organization manages and uses information technology within the business. The issue of IT governance is important as a significant amount is spent on IT investment every year. According to Gartner, worldwide IT spending is forecast to be up 3.7% from 2011 or a total $3.8 trillion in 2012 (Gartner, 2012). Given this importance of IT in organizations, the governance and management of IT is important. Therefore, the IT governance frameworks and standards that an organization uses to assist with their IT management are important.

Within the responsibilities of corporate governance is the issue of IT governance. IT governance is a function of the board of directors and the high-level executives within the organization (Considine et. al., 2012). It centres on making sure that an organization is using information technology in a manner that is consistent with its overall organization strategy (Lainhart, 2000). IT governance issues relate to decisions about how IT is to be implemented and used in the organization as well as the methods used to promote the use of IT consistent with the organization's intentions (Considine et. al., 2012). The IT Governance Institute cites four main objectives of IT governance which are:

1. Ensuring that the IT being used or adopted within an organization is consistent with the organization's goals and meets expectations.

2. Using IT to make the most of existing business opportunities and benefits.

3. Ensuring the organization's IT resources are used responsibly.

4. Ensuring the organization has appropriate management strategies and techniques in place for dealing with IT-related risks (IT Governance Institute, 2003, pp. 11).

Within these four objectives are five specific areas that need to be considered by those with the responsibility of managing IT (IT Governance Institute 2003, pp. 20–31). These five areas are:

Adding value — ensuring that all the IT within the organization is contributing to the organization in an efficient and effective manner. This can be a subjective area to gauge.

Managing risk — making sure that the organization's IT resources are able to provide reliable service and service can be recovered quickly if any IT problems arise.

Matching IT to strategy — this ensures that the strategy of the business currently and where it wants to be in the future can be matched to IT resources to support them. Therefore, we can say that the strategy needs to be aligned to the operational IT. This is important as there is a difference between what the organization says its strategy is versus what it is able to achieve with its IT. Particularly given the increasing role that information technology now plays within organizations, representing the means of implementing strategy and supporting business processes, makes managing IT and ensuring IT supports organizational strategy critical for organizations (IT Governance Institute, 2007; ISACA *COBIT 5*, www.isaca.org; IT Governance Institute 2003).

Measuring performance — this refers to the IT systems measure of performance in terms of financial information or even the much broader performance measuring balanced scorecard (Schrage, 2006).

Managing resources — this ensures that all resources are used to support the business process that they are meant to. This includes people, hardware and software.

IT governance involves being clear on who is involved in IT decisions, who makes the final decision and how the decision makers are accountable for their decision outcomes. IT governance encompasses areas including principles, infrastructure, architecture, and investment and prioritisation (Weill & Woodham, 2002).

Frameworks such as CoBIT (Control Objectives for IT) (ISACA, 2013) and ITIL (IT Infrastructure Library) provide an auditable list of items that should be considered in an IT governance framework.

Other authors describe that IT Governance may be more closely examined by looking at a more process orientated model which includes looking at systems that are not created through management approval but by the users. These shadow systems indicate there are problems with the IT portfolio and this organizational drift into shadow systems is an indication of this problem (Singh, 2010). The shadow systems are systems that are set up by users and these are of different types such as workarounds of the existing systems (Safadi and Faraj, 2010, Azad and King, 2008; Boundreau and Robey, 2005), systems created as the current systems does not provide the functionality needed (Boundreau and Robey, 2005; Safadi and Faraj, 2010) or the user does not realise that the organization's systems contains the functionality that they do. These shadow systems cause extra time and work and drain the resources of supporting the organizations current IT systems.

In relation to university information systems, Oliver et al., (2005, pp. 594) examined eight publicly available university web sites relating to comments used to justify the adoption of a new system by the categories (technology, process, organization and people). They found that dissatisfaction with existing administrative systems was a common theme expressed by all the universities analysed. The themes related to a sense that the systems are reaching or have exceeded their 'use-by-date'. These systems are variously described as: 'aging', 'outdated', 'unworkable, 'costly', 'inadequate', 'inefficient', 'outmoded', 'expensive', 'poorly coordinated', 'inflexible', 'disparate', 'limited', 'old', 'idiosyncratic', 'redundant', 'cumbersome' and 'technologically inferior'.

Exemplifying this attitude is the following statement from the University of Colorado "…equipment is maintained at significant cost past its useful life and costs are incurred in maintaining systems that should be replaced" (University of Colorado, 1988).

"Expressions of dissatisfaction provide one rationale upon which the move to implement new systems is based. They are important in creating a climate of opinion receptive to the introduction of new systems. The following statements from the University of Colorado, California State University, and Central Queensland University use evocative phrases such as 'provide a roadblock', 'limping along' and 'cries or despair' which create powerful images. The current systems prevent new systems from being created as putting more resources into the old systems means there is less money to put into developing new systems. "Putting more scarce resources to keep inadequate legacy systems limping along is a waste" (California State University, 1999)" (Oliver et al., 2005, pp. 594)

"I have probably heard, and indeed contributed to, more cries of despair in relation to the quality of our systems than to any other single matter" (Chipman, 1999). In the following statement, California State University indicates that these legacy system difficulties create a problem that demands a solution. "The CSU is headed for severe problems with current existing (legacy) administrative systems and must do something about it (California State University, 1999).

Sometimes, new initiatives have been difficult to implement because of constraints imposed by legacy systems. This has created a situation of functional and technological deprivation in the minds of university administrators. Central Queensland University expresses this sense of restraint in the following terms "CQU recognised that inefficient and outmoded administrative systems and processes were impacting on its ability to respond to challenges within higher education" (Central Queensland University, 1999).

The Year 2000 issue was, for many of the universities in this study, a motivation for change, as it forced attention on information systems/information technology (IS/IT), possibly raising awareness of other deep-seated problems in this area. Many universities focussed their attention on this issue during the mid to late 1990s. Year 2000 was an example of a change in the environment in which IS/IT is situated that created adaptation problems, albeit one that was foreseeable.

Dissatisfaction with existing systems is a strong rationale for new systems adoption. Most of the universities in this study portrayed existing systems in a poor light. Universities expressed dissatisfaction with the performance of current systems in various ways which left no doubt that they were in urgent need of replacement, basically because they were too old, did not meet the needs of users, were unfriendly, fragmented and incapable of adaptation.

As a result of these discussions we can see that universities are suitable candidates to study. They have corporate governance structures and IT governance structures and their processes are documented and placed on their web sites.

3 Theoretical Perspectives

A theoretical perspective is needed that makes sense of what has happened in the case study university over time. Sensemaking is a suitable method in this study, in that sensemaking looks at the 'sense' in the construction of reality around decisions in the implementation of information systems. Using the stakeholders, the dialectical processes look at the same processes from a promoting to opposing change perspective. The sensemaking method enables an analysis of the outcomes of systems implementations and provides some theoretical explanation as how they have occurred.

Sensemaking is a viable research avenue, to gain an understanding of how an organization makes implementation decisions given its contextual environment. The sensemaking approach has been developed and used extensively in the management literature and therefore the method's use is novel and contributed to the literature in the area. The sensemaking literature is discussed from the construction of sensemaking (Maitlis, 2005, Weick, 1995).

Sensemaking is the process of examining the past to interpret what action to take in the future (Weick et al., 2005). By that the past is turned into a situation that can be used as a 'springboard' for future action. Therefore, sensemaking involves the retrospective analysis of the past and the extraction of relevant cues that are used to make sense of the situation, and turned into a story (a plausible account) that is described in words that serve to guide future actions. Also, sensemaking does not occur at one point in time, it occurs continually with the reinterpretation of the past. Therefore in sensemaking organizational life is turned into words, and this serves as a guide for action (Gioia & Chittipeddi, 1991; Vaivio et al, 2010).

Sensemaking usually occurs when a dramatic event has occurred that you wish to make sense of; this is called a sensemaking trigger (Weick et al., 2005, Weick 1993, Maitlis & Lawrence, 2007). Sensemaking involves the process of noticing and bracketing, which looks at past events and selects events that are worthy of considering together (Jensen & Aanestead, 2007). These past events that have been bracketed are labelled in ways that relate them together. This is done retrospectively. Looking at the past events a pattern is discerned. Then a sequence of accounts is honed to represent a plausible account of what has happened in the organization. The plausible

account does not have to be true; it is a construction of reality that enables action to occur. Sensemaking is not about truth, it is about a story that incorporates most of the data and is resilient to criticism (Weick, 1993). What is plausible for management may not be plausible for employees. It is an account accepted by the organization. Communication is needed to make ongoing sense of a situation through the medium of text, symbols and interaction. It is only through the articulation that a plausible account can be created to establish identity and a course of action (Weick et al., 2005). These retrospective interpretations can be used for future organizational action; they can also be used to benefit from the lessons learnt (Scott & Barrett, 2005; Jensen & Kjaergaard, 2010).

Maitlis (2005) in her study of sensemaking examined the interactions within three symphony orchestras over a two year period and found four differing organizational sensemaking forms - guided, fragmented, restricted and minimal sensemaking. The differing forms depend on the interaction of the organizational actors (leaders and stakeholders) and the level of control and animation which determine whether they were high or low sense giving. The four differing forms of sensemaking were evidenced in all orchestras; the form that manifested depended on the interaction of the leaders and stakeholders regarding a particular issue. Therefore, the issue that is being looked at is critical with regards to the type of sensemaking involved.

The different forms are a result of the amount of sensegiving that each of the leaders and stakeholders engage in relating to an issue. Each of the four forms of sensemaking is also related to particular organizational outcomes in relation to the actions that they enable.

Sensemaking involves the individual making sense of the situation. How users construct knowledge of the situation they are in. Sensegiving occurs in circumstances in which one party (leader or stakeholder) tries to influence the other party's understanding (sense) relating to an issue, you are giving sense in relation to an issue. Sensetaking is when you are influenced by the sense (construction of meanings) that someone else is giving you in regards to an issue. A sensetaker in the organizational sensemaking process they accept the accounts of the sensegivers but do not contribute a perspective of their own.

4 Research Method

A ten year in-depth case study was conducted of an Australasian university with approximately 1,000 staff (the faculty studied had 350 staff). The data analysis method used sensemaking. The methods of data collection involved the use of participant observation, interviews, examination of strategic and regular memoranda, intranet documents, advertising material, published documents and internal newsletters, as well

as the researcher's knowledge of the organization. Complementary data about the organization was obtained from internal archival records to ensure accuracy of the data. Unstructured interviews were conducted with all senior management, several IT development people and academic staff groups both at the start of the research period and during the following years. Informal meetings were held after this point to clarify issues. Notes were taken for all meetings. All administrative paper documents from emails, memoranda, reports, meeting and external marketing information were read and scanned electronically for most years.

Data collected was archived in year folders identified by day, month, individual initiating the document, subject matter and page number. Data which had original file names given to it by the author were left named as such, as their naming indicated how they viewed a particular topic. Approximately 15 GB of file space was used which was written onto 81 CD ROMs for backup storage. All written works were scanned and converted to text files and archived in the correct year from 1993 to 2003.

Klein and Myers (1999) suggest a set of seven principles for how interpretive research such as this sensemaking should be assessed. The first principle of Klein and Myers (1999) discusses the fundamental principle of the hermeneutic circle which has been used in the write up of the individual systems practices and then the write up of all systems. The differing development of each of the systems (the parts) enabled us to interpret the use of technology in the organization (the whole). Principle 2 – the principle of contextualisation has been used extensively throughout, giving the context in which the information systems are situated and the changes to these systems as well as strategic changes in the organization over time. This is particularly interesting in that a long period of context (10 years) has been given so that any changes can be explained in relation to the contexts in which the systems have been situated. The story of the organization is shown as producing the culture of the organization in way they interact rather than just being there and being observed. The organization is a cultural work in progress in the way the social practices produce and reproduce culture in an everyday work situation.

Principle 3 – the principle of interaction between the researcher and the subjects has been considered in relation to the particularly long time in the field. This has given more of an understanding of how to construct meaning from the data from the perspectives of the various discourses. Principle 4 – the principle of abstraction and generalization has been used in that sensemaking has been used as a lens to look at the changes in information technology use within the organization. The use of one organization and analyzing it in depth gives us valuable insights that can be abstracted, generalised and applied in other organizations.

Principle 5 – the principle of dialogical reasoning has been considered in the selection of the research methods and their consistent philosophical bases, i.e. in-depth case study and sensemaking. Principles 6 and 7, the principle of multiple interpretations and suspicion respectively, are considered together. Corroborations from multiple sources of information using principle 2 --- the principle of contextualisation --- were used. In particular, to understand events, actions and outcomes that had occurred within the organization, the influences on the discourses of the historical background are needed to aid in interpretation of any contrary actions and well as re-questioning participants in the study. Finally, the study was given to the head of the organization for checking and comment.

5 Case Findings

The changes in the organization over the 10 years will be discussed first. Then an overview of the four different technology evolutions will be discussed next, followed by the practices of management and users sensemaking in relation to the technologies.

The senior management stayed the same over this period of 10 years with the Dean and Deputy Dean maintaining all budgetary control. The faculty is one of the largest of several faculties within the university. It contains approximately 350 staff. The faculty provides business education in the form of certificates, diplomas and degrees. It covers subject areas such as accounting, law, economics, information technology, tourism, management and marketing. It has a Dean as its head who is responsible for the overall administration of the faculty and is accountable to the university for its learning outcomes.

The technologies were classified into four main groups- email communication systems, internet/intranet, on-line courses and networks hardware and software. There were more systems but for presentation purposes only four are discussed here. A description of each of these main groups follows.

5.1 Email communication systems

The original email system from 1993 till 1999 was PMail, a system that had been developed by a staff member of another university within the country. Its use was free to the university (which included the faculty). The problem with the system is that updates occurred at irregular intervals and the number of users and the number of emails kept were far greater than the capacity of the system. Once a user had over about 10 folders and 500 emails the system would crash for them. Given that more and more information was sent over email and staff members wanted to keep electronic copies, the system needed to change to a more robust system. In 1997 senior management participated in the Lotus Notes Groupware trial in

which they all used Notes Mail. This was suggested at the time as a mail package to replace PMail; however, at $50 US per person funding was not forthcoming as it was considered too expensive. The price did include the email package plus all the groupware products. The movement to GroupWise began in 2000 for all staff within the faculty – this product was provided free with the Novell Groupware operating system and was more robust with industrial strength than what had previously been used. The IT group mandated the movement to GroupWise.

5.2 Internet/Intranet

Internet usage began with Netscape/Mosaic/Archie browsers with 8 users in 1995 and progressed to cover all computer account users by 2000. The use of an Intranet for the whole university began in 2000. The pages were subsequently redesigned and all strategic plan information in 1996 was placed on the Intranet along with other channels such as voicemail and email. Email memoranda were used to indicate the Intranet page on which data would be kept and updated. In 2001 only one set of meetings notes were kept on the Intranet pages by the faculty; its full use as an internal document repository was not utilised. On-line purchasing was possible for authorised users in 2002.

5.3 On-line courses

On-line courses were funded in 1998 when the new research head for the university was hired. In 2000, staff of the faculty were shown an on-line curriculum in the new on-line course product and various staff used the product as part of their teaching. Staff were encouraged by management to learn how to use the product in 2001 for on-line discussion and sharing of information. In 2003 it was decided that the on-line course product would not be re-launched until staff had time to learn the system. Also, the positive benefits of the system needed to be communicated so that students understood that the product was a learning tool and not a substitute for teaching. The other issue was the constant changing of the on-line course product each semester as programmers upgraded it. No data from previous semesters' use was made available in the current version as it was all archived. No statistical data such as the number of logins and when logged was recorded, nor could it be used as a forum for posting messages. As a result the university mandated a change to a commercial product, called Blackboard, in 2002.

5.4 Networks, hardware and software

In the late 1990's when most staff received a new leased computer, the main problem was their inability to utilise it without time for training. Staff simply used fairly basic features of computer technologies to

get the job done. The pressure on staff to complete higher qualifications (one-third of staff were currently involved in these) as well as to develop new courses and produce research meant that computer training provided by the professional development group and by an electronic training discs company (CBT) was not utilised to the extent it could have been. An internal study on the use of "CBT" clearly indicated this. However, from 2000 onwards, the network was relatively stable with fewer problems.

5.5 Earlier year's management decisions

The information technology division was accountable in the earlier years to the Associate Director of Planning and then in the late 1990's to the Director of Information Technology. The IT group in total received funds from the facilities that they could use as they felt fit to satisfy the universities IT requirements. The faculty had three staff accommodated in its building that were from the IT group and were the main technicians that worked on the faculty's information technology job requests. This consisted of a site technician for the faculty who supervised 2 technicians. However, if the job related to web services or network maintenance they would be allocated to the staff member in the central IT group that performed those services for the whole university. If helpdesk jobs were not performed you generally contacted the helpdesk to find out the status or your job and who could be contacted in relation to the job. This could mean contact with network technicians, web developers and/or the Operations Manager depending on the type of job request.

In the earlier years it was the IT group that made the decisions and there were problems with not being enough and adequate hardware in the organization. When more machines were added, the network was unable to cope as the quote below shows.

There have been considerable problems in 1994 as workstations have been added on an almost ad hoc basis. Faculty networks were at the point of collapse. Recent changes to the ownership and location of fileservers should also help in the rationalization of the system in the near future (Vision statement in 1995).

There were also issues relating to the quality and level of service provided by the IT group. Emails and letters were sent to the Head of the IT group as well as to upper of both the faculty and the whole organization's management. These emails related to the services provided by IT to faculty users in desktop support, network outages and change management.

The quality and level of service provided from IT group is vital if we are to offer our courses at all. But increasingly the scope and importance of computing facilities to the organization is growing. … Simply put if the system is down, or if key products are not working or components missing, the teaching activity is disrupted. … the evidence of sound change

and problem management, performance and service level monitoring, capacity planning and other class I.T. skills is simply lacking. ...the group also seems to lack skilled senior technical staff, who can cope with the more complex software or networking problems. We understand that there are no plans to deal with this issue (Letter to General Manager of organization, Academic staff manager faculty, 26 July 1994).

In particular the issues relating to the IT group were communicated by faculty staff to the IT group management, their own faculty management and the management of the organization.

The above group wishes to table a critique of the service that your department now appears to offer this faculty. It has become apparent that the IT Group can no longer meet the basic service needs of '(X)'. Over the last twelve months there have many reports to the committee about lack of service from the IT Group (Faculty Computer Chairperson letter to IT Group head in May 1994 copied to General Manager of the organization).

Communicating with the staff on the issue raised or management of the faculty was slow or non-existent.

The IT Group no longer gives explanation or data about delays, expected time for completion of work or information to give to frustrated staff who need to use the equipment … We would urge you to consider our appraisal. We do not wish to be surveyed, asked to supply further data etc. This appears to have all been done before and with no increase in efficiency or service. This is not an appraisal of your services for 1994 only but is in reference to an ongoing long standing chronic situation (Faculty Computer Chairperson letter to IT Group head in May 1994 copied to General Manager of the organization).

IT group goals appeared to be to keep the main infrastructure of the network going. It had tried to develop software but given its lack of expertise in that area it had spent time and resources on this area and had not produced satisfactory results.

Application programming is an area that the IT group has provided in the past with differing levels of success. For network usage such as finding users on a network etc this has been useful but for sophisticated programs such as a contracts database, placements systems this was not found to be a viable method (IT Audit response, to IT group from faculty, 1998).

The primary goal of the IT group, as they believed it, was to keep those networks and computers operational.

Our primary role is operational, keeping things running and helping the faculty staff [across the organization] use IT efficiently. The little development work we do is mainly in the Intranet or Internet area and this is dependent on the availability of staff (IT Group Manager, Email to faculty, 1998).

5.6 Faculties find their own solutions

One of issues was that the IT group was focused on providing the network infrastructure and had admitted that it was not useful at producing the software that the faculty wanted. Therefore, the faculty was left to satisfy its own IT requirements. They did this by selecting the software they thought would meet their needs. Once they had purchased the software they asked the IT group to integrate it into the other systems on the network. Even though the IT group did not have time or wished to select the software that the different groups wanted to use. They were not happy with the time they then had to spend to try to get these disparate systems to integrate on the network as the below quote shows.

Our issues have increased problems in these areas recently – particularly as certain departments have tried to fix their own information requirements and have installed differing communication systems such as Admission – Optica, the Library's intranet, IT's GroupWise, faculty's Lotus Notes. With each department is trying to find their own solution there are problems when each Faculty wants these systems to communicate with each other in that additional time is spent trying to make this happen" (Faculty's IT audit response 1998).

5.7 IT group fights back

The IT group then decided to not support the groups in providing their software requirements. They did this through charging for all their services by connections, by software. In particular they excluded from their service agreement these systems that departments purchased to satisfy their information requirements.

With the exception of the Lotus Notes and Oracle server all of the services the IT Group provides are used by most of the university or needed to run the universities business (IT Group Manager, IT Charter, 1998).

In this way, through the Charter, the IT group controlled the ongoing development of the isolated systems introduced by individual faculties to solve their problems, charging separately for servicing these systems. Regarding the faculty's Notes service system, the IT group took the view that if the faculty wanted the service they needed to enter into a SLA [service level agreement] for it: "Other configurations with less common software will be given a lower priority unless a separate service level agreement has been entered into" (IT Group Manager, Email, 1998).

The IT group concentrated on network infrastructure and machine implementations and varying groups that needed software was not part of this. The three years prior to 1999, the IT group concentrated on network and servers. This is important to the sensemaking because to make sense of the future we need to make sense of what has occurred previously.

During the three years prior to 1999 the IT group concentrated its efforts on the network infrastructure and fileservers. This was necessary to provide a stable and easily expandable foundation on which to build our future. Before this work started it was not uncommon for some of the busiest fileservers to fail twice a day. Each failure would take minimum of 45 minutes to recover (Network Infrastructure, IT Group, 1999 Annual report).

5.8 Management and new purchases

In the year 2001 there was a stand-off between the IT group and the facilities over the software the facilities required and the reluctance of the IT group to set-up and maintain it. Management of the university at this point nominated that they were going to buy various products as this was an effective way to get the software immediately and the IT group would set up the software. In essence the management of the university was taking back control of the IT governance. The only issue with this would be would the products purchased satisfy the needs of the end users. The quotes below show the decisions to purchase various products.

New purchases in information systems included the 'Blackboard' system for learning management, a system for managing Alumni and Development contacts, a web-based system for procurement, and the 'Valumax' system for project accounting (2002 University annual report).

The 'X' student administration system enables 'Y' to adopt best management practices. This system developed within 'Y' by Registry staff takes advantage of the latest and emerging technologies in a most cost effective manner. Its usability and sound business methodology has resulted in its sale to another Tertiary Education Institution (2002 University annual report).

New information systems implemented in 2003 were the Library system, the online procurement system for computers, the Human Resources self-service system, an online enrolment system and a programme costing system. Development continued on a web-based portal system for students (2003 University annual report).

6 Discussion

IT Governance looks how IT is going to be used in the organization to meet the stakeholders' needs. The IT infrastructure appeared to be the IT group's responsibility and in the earlier years did seem to be underfunded and uncoordinated. Once substantial issues occurred in the business, the IT group focused on providing the IT infrastructure on which all other services such as software and networked desktops would work on. The IT group were the sensemakers in this period; they made sense of the IT system and used the resources they had to set up the

infrastructure. They decided on the IT investment and prioritisation. Therefore, in the first phase, the IT group seemed to be responsible for the IT governance for the university.

In the second phase, the users groups were not able to have their software needs satisfied as the IT group was focused on infrastructure and their attempts at developing software was not satisfactory. IT users groups then became sensemakers and decided on what software they needed and had the resources in their budgets to purchase these products. They did not have the technical IT skills so required the IT group to assist them. The IT group resented spending time on this.

In the third phase, the IT group came up with a charging scheme for managing their resources so that facilities paid for what they used rather than just contributing a lump sum to the IT group to spend as the IT group sought fit. This was a higher level of accountability to the faculties relating to how resources were managed. However, the IT group excluded the software that the groups had bought to satisfy their information needs.

In the last phase, the management of the organization took control. They decided that the users had information needs that needed to be satisfied and the IT group would be in charge of setting up and maintaining this software. Therefore the management of the university decided on the software to match the organizations strategy and what they believed that the users' needs were. The management of the organization became the sensemakers and imposed their sense on the IT group and the user stakeholders in the faculties in the university. The only issue with the management's choice on the software is that it may not suit what the users wanted. Therefore, despite these four phases and 10 years, this organization was still limping along without an effective IT Governance system. The ability of the IT system to add value, match the IT to strategy and manage resources was still an issue.

7 Conclusion

IT governance is an important part of the corporate governance in an organization as the IT spend in an organization can be large. Generally their does appear to be problems with the IT Governance in universities as evidenced from prior literature.

The study has demonstrated how a public university had governed across a ten year period. Good governance models must serve different purposes in different contexts. The traditional model did not seem to be useful as it did not assist the organization in meeting its IT governance needs when the organizational changes were looked at historically. A model incorporating some sort of process or organizational drift may be more superior in explaining what has happened and why.

The results of this study suggest that universities critical dependency on IT calls for a specific focus on IT governance. Governing bodies of public universities should develop good governance practices that helps them understand and take advantage of information technology opportunities. The study provides some useful guidance to support public universities to design frameworks for responsive and accountable governance to meet the dual challenges of information technology needs and the IT governance.

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