Organizational Structure in IT Governance: A Case Study of an IT Governance Implementation Project

Full paper

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Abstract

The organizations today need to apply proper IT governance for beneficial IT investments. This research focuses on how the organization structure should be done through the IT governance mechanisms application. A case study is done in a large Swedish constructing company using the ISO/IEC 38500:2008 IT governance standard. Several IT governance practices related to the ISO/IEC 38500:2008 standard were identified which were mostly related to "Responsibility", "Strategy" and "Performance" compared to "Conformance" and "Acquisition" principals. The results reveal the importance of the way that the company has chosen to structure its organization around an IT project in their IT Governance mechanisms. This is closely linked to the principle of "Responsibility". Practically the standard can be used in future IT projects and the practices found in this study can be beneficial for analyzing and achieving an effective IT Governance implementation.

Keywords

IT governance, organizational structure, ISO/IEC 38500:2008 standard, responsibility.

Introduction

Information systems and technology provide organizations with many possibilities and it is the interest of most organizations to keep up with these changes and maintain control over current IT operations. To get out value from the IT investments in organizations we need to have an "effective IT governance" that is defined by Weill and Ross (2004) as: "Those with effective governance have actively designed a set of IT governance mechanisms (committees, budgeting processes, approvals, and so on) that encourage behavior consistent with the organization mission, strategy, values, norms and culture" (Weill and Ross 2004, p.2). To have effective IT governance organizations need to have implemented appropriate governance structures. Such structures can for example be different committees and organizational structures that promote the employees to follow the strategic direction and organizational culture (Weill and Ross 2004; Nfuka and Rusu 2011).

Van Grembergen and De Haes (2009) emphasize the movement of the focus on governance from business to IT side and indicate that "It is clear that business value from IT investments cannot be realized by IT, but will always be created at the business side" (Van Grembergen and De Haes 2009, p. 3). As a reaction to these developments there are several frameworks and standards that have been developed and released in later years, such as the ISO/IEC 38500:2008, COBIT, ITIL, Val IT and Risk IT (Wilkin and Campbell 2010). Making the most out of IT investments are often a challenge for organizations and even though there has been research focused on Enterprise Governance of IT and practices many organizations still fail to reach the full potential from their investments. However, more recent generated frameworks and standards need more evaluation in order to determine if they are successful or not

(Wilkin and Campbell 2010). Therefore there is a need to gain a better understanding in the relationship between newer standards such as the ISO/IEC 38500:2008 within the field of Enterprise Governance of IT and the practices applied in organizations. This paper is looking to identify the IT Governance practices in an IT project case by using ISO/IEC 38500:2008 standards and the organization structure around it in one of the leading companies within construction and property development in the North Europe region.

The aim is to further contribute to IT Governance research and and bring a better understanding of organization structure while applying the IT Governance practices. Best practices and useful governance mechanisms are extracted that can be used in later projects. There is a limited amount of studies in regards to the ISO/IEC 38500:2008 and no study has been found in the particular industry or region focusing on the organization structure. This paper is organized as follows: theoretical background, research methodology, the case study description and analysis of the data; and conclusions and future research. For the sake of legal rights, the company selected as case study is called "Company A" and the project is entitled "Project ITP" in this document.

Theoretical Background

Corporate governance is defined as the overall steering mechanism that ensures that stakeholder interests are followed by the organization (ISACA 2012) and can also be described as "the system by which organizations are directed and controlled" (Van Grembergen and De Haes 2009, p. 4). This function is usually run from the top level of an organization and is typically controlled by the board of directors (ISACA 2012). There can often be discrepancies in what should be described as either management or governance and what separates these two concepts. Furthermore, Jewer and McKay (2012) state that a comprehensive understanding of the role of IT in business operations and strategies is required to gain successful corporate governance. IT governance can be defined as specifying the frameworks for decision rights and accountabilities to encourage desirable behavior in the use of IT (Weill and Ross 2004).

A major determinant for how governance functions are established in an organization is the influence from its current setting and history. For example, it's not uncommon that governance functions for new projects are setup similar to already existing projects and these structures may influence the choice of employees for key roles, such as the position of project manager (Mähring 2002). The structure of the organization needs to be fitted with the organization strategy or the strategy will not work (Deresky 2011). Followed by the changes in how the organizations are working globally the structure and the way they organize their IT has also changed (Wade and Hulland 2013). Therefore it is beneficial to assess how the structure of the organization around the IT projects can play a role in application of IT governance practices. The application of the new IT governance practices and standards is presenting the firms with many different options for designing their organizations (Deresky 2011). There may be different levels of support for each practice of IT governance from the organization based on the way it is structured. One of the challenging issues in implementing IT governance is the speed of respond to different technical, environmental and business changes and how to adapt the organizational structure with the new IT practices. The degree to which the organization is successful in making the necessary adjustments aligned with the IT governance practices they use affects the effectiveness of their IT governance (Harison and Boonstra 2009).The research regarding the organizational issues that should be considered while applying IS is scarce specifically with a practical perspective (Leidner and Kayworth 2006; Kingsford et al. 2003; Orllikowski and Barley 2001). In this research the organizational structure and settings role is studied through the application of IT governance in a large IT project.

There are different mechanisms, frameworks and standards for IT governance. For instance COBIT 5 is a mechanism which separates governance from management by describing management as the function that "run" and "monitor" business processes that support the strategic plan set up by the top level decision makers (Governance) (ISACA 2012, p. 31). Wilkin and Chenhall (2010) make the distinction that management has the task of managing the company, while the governing body has the responsibility of overlooking the organization and setting the future strategic plans for the enterprise. Organizational structures around management, governance and IT will be arranged differently depending on the specific organization and its internal and external setting.

In this research the focus will be placed around the ISO/IEC 38500:2008 developed by the International Organization for Standardization (ISO) and the International Electrotechnical

Commission (IEC) (ISO/IEC 2008). Previous research using this standard is quite scarce (Wilkin and Campbell 2010) and this study will therefore add to the validation of this standard. The ISO/IEC 38500:2008 is meant as a tool for upper management when governing IT within their organizations and specifically during the processes of, "evaluating, directing and monitoring IT" (Chaudhuri 2011, p. 5). It aims at being relevant for all types of organizations, this includes governments and private companies. The framework is intended to promote effective use of IT by advising upper management (Chaudhuri 2011). According to Wilkin and Campbell (2010) the ISO/IEC 38500:2008 has three main objectives: 1) Reassuring employees, investors and other stakeholders that the organization follows the framework, with an adequate level of IT Governance should be obtained; 2) The framework provides guidance for higher-level managers when dealing with IT in their organization; and 3) Through the framework organization can evaluate the IT Governance. In order to relate the different processes together with the principles, the ISO/IEC 38500:2008 provides guidance for every IT governance function presented in Table 1.

Table 1. IT Governance Processes and Principles (Adapted From ISO/IEC 2008)

Principle	Evaluate	Direct	Monitor
Responsibility	Evaluate people with responsibility. How are tasks divided between people with responsibility?	Through people with responsibility. Make sure information is passed on.	That governance is working effectively and that people understand their responsibility. Monitor performance of individuals with responsibility.
Strategy	That IT will support future business and objectives. Meet stakeholder needs. Follow an appropriate level of risk.	Share the development of IT so it can be seized by the organization. Take in new suggestions for improvements in IT.	Monitor that IT meets the intended strategic objectives and benefits.
Acquisition	Different options for IT solutions. The value of invested money in IT and risk.	IT related systems and products are procured by the right documentation to ensure business support.	That the investments meet the organizations objectives. The interaction between organization and suppliers.
Performance	That IT supports required targets set. Risk that arises from IT, such as intellectual property. That ITG is effectively run.	Allocate resources so IT meets requirements and direct through appropriate responsibility channels.	That IT supports business. That resources are allocated according to plan and that policies are followed.
Conformance	That IT follows laws, regulations, policies, standards, ethics etc.	Make sure people with responsibility follow laws, regulations, policies, standards, ethics etc.	Monitor IT processes through reports and audits and make sure the follow laws, regulations, policies, standards, ethics etc.
Human Behaviour	How employees act within the organization in relation to IT.	Direct so IT processes and human behaviour match. Any employee should be able to report any identified issues or opportunities.	That attention is always given to people and that human behaviour match with the intended use of IT.

As it is shown in table 1, the principles and the processes described earlier are merged into one matrix. The six principals of ISO/IEC 38500:2008 are at the left column. These principles can be applied through three steps of evaluating, directing and monitoring which are positioned at the top row of Table 1.

Research Methodology

This study aims at studying the organizational structure while applying IT governance practices in the Project ITP at Company A. The IT governance practices applied in this specific project are studied through the lens of ISO/IEC 38500:2008 an IT governance standard to discover how they are related to the principals of this standard and the organizational structure around it. This research will therefore take on an explanatory approach through an interpretive case study. By studying a case closely, there is a chance that we better can understand the human way of thinking and acting in the context of a specific case (Myers and Klein 1999). Furthermore, a well performed interpretive case study can give a better insight into the practical and theoretical side of IS (Walsham 1995). A qualitative research method suits this type of study since the research aims in getting an in-depth understanding and portrayal of the case.

In this study the data was collected through semi-structured interviews with various IT managers involved in the "Project ITP" as well as people that are outside the project ITP but are affected by it. The semi-structured interview questions have let the respondents to talk freely around their experiences (Runeson et al. 2013). The recorded interviews have been analyzed qualitatively with the help of the predetermined codes (template) that are created in relation to the ISO/IEC 38500:2008 matrix and the evidence of IT governance practices and then logged into a matrix. The matrix has a total of 18 fields and by mapping the IT governance practices into the matrix we will get a good overview of the practices that were applied in the "Project ITP". The matrix has also enable us to notice where some practices are missing or if there are practices that lie outside the matrix and hence the standard should be further developed to match this project.

The Project ITP Case Study

The Company A is large construction company that is mostly active in northern Europe. The Company is involved in various projects ranging from construction of buildings to infrastructure. The company has 18 000 employees and has a turnover of approximately 6 billion EUR.

The Project ITP is part of a larger development project which was initiated in 2008, when Company A set a new strategic target for 2012. The goal was to make production processes more effective and as a result lower the production costs. This goal was achieved by increasing the end value for the customers by maximizing the utilization of the company resources and at the same time increasing quality of products. By applying these changes the organization becomes more competitive.

The Organization of the Project ITP

To establish these changes a new temporary organization was setup around the development project to govern all the ongoing processes. The organization is led by the "steering group". Under the steering group is the head of the development project. The project organization is depicted in Figure 1. The development project encompasses several processes that vary in length and size. For each of these processes a leader is appointed called "part project leader". The structure of the steering group, project leader and the reference group stay the same throughout the entire project.
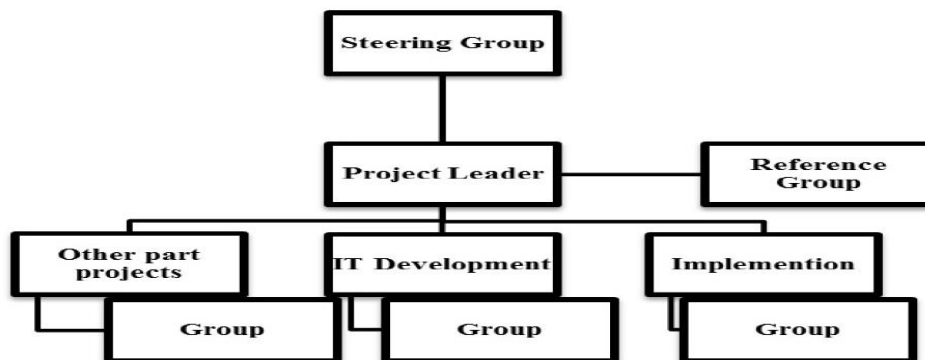

Figure 1. Project ITP Organization in Company A

The steering group is located at the very top of the project organization and it consists of higher-level executives and people in higher managerial roles. Examples of people in the group are the head of process development, financial officer, regional executives and IT managers. In the steering group is also where all the major decisions are made, such as time and budget restraints. The hierarchical distance from the part projects and the steering group is quite far and usually their interaction is maintained through the project leader.

To get an external view of how the development project is coming along a "reference group" is established. The role of the group is to provide on-going feedback around how they think that the project is going. Their focus is not on a "part project level" but rather the development project as a whole. The formation of the group varies over time and depending on what areas of the development project they are focusing on, different people might be more or less involved. On a general level, the group usually consists of employees that are working out in construction projects, such as project leaders and business managers. This group has been helpful in determining what the Project ITP should include and in what way it best can support the on-going construction processes.

Below the project leader there are several processes that run simultaneously to make up the development project. These are known as "part projects" and run for different periods of times; Project ITP is one of them. This project will then be followed by the implementation project. The different groups work tightly together and there is overlap between the different units. One of the factors of success is believed that there was a feeling of unity around the Project P, and that problems where not owned by a single group but rather a responsibility for the project organization as a whole.

The part projects have a high degree of self-control and are often let to make their own decisions.

Project ITP Aligned with Business in Company A

To understand the background of the Project ITP, one should understand what role it plays in the context of the development project. The development project is a large-scale project that aims to make the organization more efficient. As a part of this project it was determined that a new portal should be implemented. The Project ITP is created to make the workflow in processes easier and much more efficient than previous work processes. The goal of the portal is to support business activities through an easy to use portal.

This means that if a customer accepts an offer and Company A wins the contract to build a bridge from the government, the project will easily be transformed from the "offer phase" of the project into a construction project in the portal. In this way, the Project ITP covers the project end-to-end that is depicted in Figure 2.
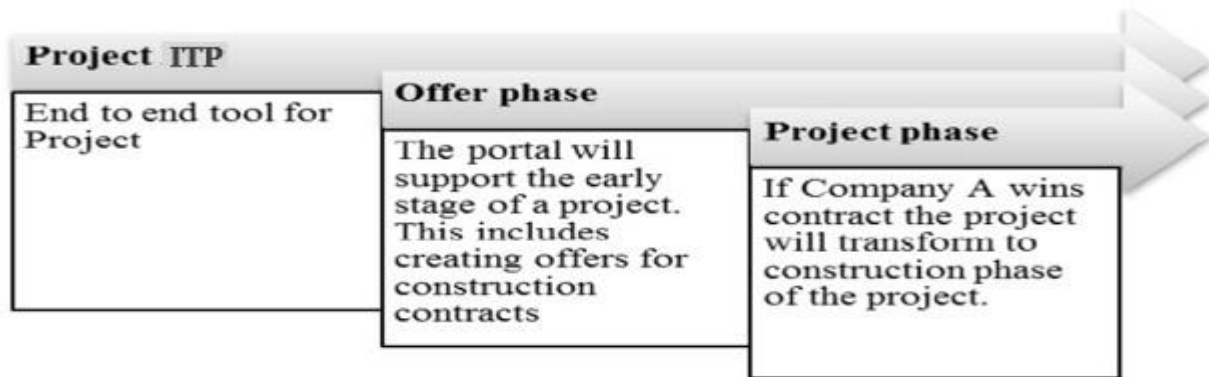

Project ITP

End to end tool for Project	**Offer phase**	
	The portal will support the early stage of a project. This includes creating offers for construction contracts	**Project phase**
		If Company A wins contract the project will transform to construction phase of the project.

Figure 2. Project ITP coverage

With the new portal, a goal is that all the information that is concerning project should be gathered at the same place. Through the platform you should clearly see who is responsible for what task, see daily progress reports and share information that is of concern for people involved in the project. In this way the portal should work as a tool for steering construction projects and the portal is to be built to promote

simplicity and transparency. When deciding what exactly was to be included in the Project ITP it was a twofold question, 1) what business process do we need and want this solution to support. 2) What can be delivered through IT and what is feasible within Company A limitations. It is also an objective that external partners should be able to work in the platform and enhance the function of collaboration with business partners. Additionally it should originate from the way work processes look at Company A and that means the portal should be adapted to business processes. This is depicted in Figure 3.
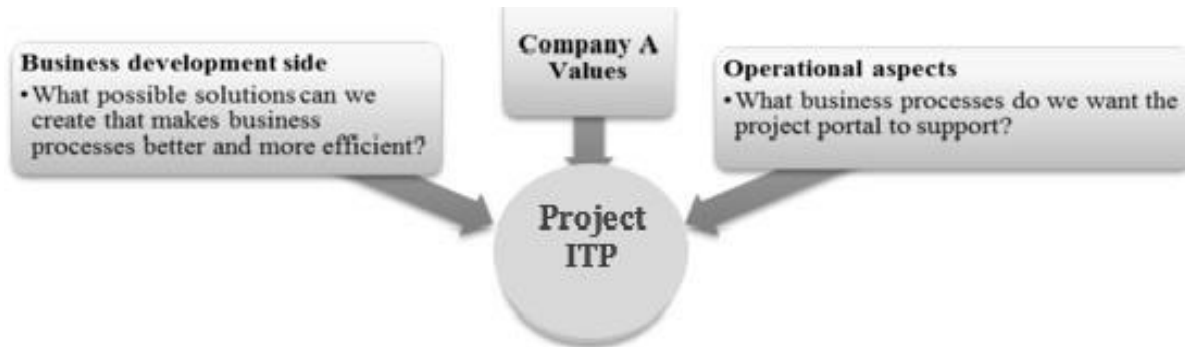

Figure 3. Drivers for Solutions in the Project ITP aligned with Company A Business Processes

The Risks Regarding the Project ITP

One risk with the Project ITP is that the employees of the organization do not accept the new platform and that they see the new portal as a threat to their normal way of working. To prevent this, the project organization has emphasized the communication with internal employees. This has caused an increased belief in the new system and an increased support behind the portal. The internal communication also provided more feedback when creating the Project ITP as well as employees feeling more ownership of the new solution. The input from employees has also increased the alignment between the Project ITP and the work processes and demands that it is supposed to support. Another risk is that the people don't use the portal the way the IT engineers thought they would and therefore IT design and business operations don't match. IT and business needs to be tightly interconnected and there shouldn't be too big of a gap between them. When implementing the Project ITP there is thorough education for the employees, this is later discussed in the research. Another risk is that the steering group, who ordered the portal, are not the ones that in the end will use the system on a day to day basis. It is therefore important that you build a system that works well for the end user as well as the higher management and that there is an alignment between these different parts of the organization.

Since Company A is functioning in the construction industry it is important that they not only follow general rules and regulations but they must as well follow industry standards and praxis. This is however not only a "system" questions but also a consideration that should be incorporated into the business processes. When building the Project ITP it is important that they consider the system needs to support these functions and incorporate the proper solutions and to make sure that an adequate level of standard was followed, consultation was sought from the internal legal department and people working with these questions in projects.

In a technical sense the system is backed up on a remote location by an IT provider every hour. So in the case of an IT crash the system can be restored. The system also keeps unwanted visitors out through various safety mechanism and to access the portal you need to be provided with a user name and password, as well as been invited to the project that you are a part of.

In the end of 2013 the Project ITP was fully implemented and the temporary project organization was dissolved. The implementation is therefore twofold. 1) The new system is supposed to be rolled out into the organization and used in daily operations. 2) The project organization is to hand over the responsibility of the Project ITP to an internal department.

To enhance the feeling of ownership, increase the understanding of the ITP and to provide input, the new department was established in early stages in the beginning of the Project ITP development.

The education amongst employees is done in the course of 1.5-day workshops with 10-15 employees in each group. In these sessions all the applications of the new portal are explained and the employees are given the chance to try the new portal on test projects. There are plans for expanding the Project ITP but it is also a big task to implement according to the local adaption needed for various countries.

The performance of the Project ITP will be measured in the future. Right now Company A measures the number of projects using the portal, users per month (unique users) and customers that are signed up. This is done every quarter at the moment but will later be done monthly. This is currently done manually but will be executed automatically later. At the moment the goals for the Project ITP are established for the fiscal years of 2013, 2014 and 2015. These goals are reviewed and approved by the steering group.

IT Governance Practices at Company A

The ISO/IEC 38500:2008 will help identify IT governance practices. Finding the governance practices in this case is analyzed with the help of the ISO/IEC 38500:2008. By using the framework one can get a better understanding what IT Governance practices were used in this case. In Table 2 there is a summary of the identified IT Governance practices that are found in relation to the ISO/IEC 38500:2008 standard. It should be noted that when referring to the IT group in this section it is strictly referring to the IT group within the project ITP organization, and not to the general organization.

Table 2. Mapping of the IT governance practices of Project ITP to ISO/IEC 38500:2008 principles

Principle	Evaluate	Direct	Monitor
Responsibility	• Steering group leads project organization. • Responsibility is divided throughout the project organization. • Reference group provides feedback on progress of project. • Project leader oversees the different part projects, such as IT group and implementation. • Group leader is responsible for the IT group and development. • Project implementer is responsible for implementation.	• Responsibility in the project organization is directed through the hierarchy. • Decisions of higher importance are taken in the steering group. Less important decisions lower in the hierarchy. • Project leader directs the part projects. • Once the Project ITP is implemented the responsibility and the direct situation will change.	• The steering group together with reference group monitors the development of the Project ITP. • After the portal has being implemented a new monitoring function will be in place and the project organization will be dissolved.
Strategy	• The Project ITP should support new	• Development of the Project ITP is	• Monitor the Project ITP in

	strategic direction. • Strategic fit is evaluated. • Project ITP will be evaluated that it reaches desired effect. • Evaluate that the portal keep up with any strategic changes.	driven by business objectives. • The strategic direction set by the steering group. • Technical solution to support strategic direction is provided by the IT group.	relation to the intended effects that were set out by the steering group. • Some results might not show until years later. • The portal is monitored to keep up with any changes in business strategy or technological development.
Acquisition	• Group leader is responsible for the various IT procurements that are needed for the Project ITP. • Includes hardware, software, human resources.	• Budget is set by steering group. • IT group can make propositions on what resources they need. • Steering group is decision maker.	• Monitor that the IT investments will reach its intended objectives. • Hired IT consultants performance is monitored.
Performance	• Project organization receives feedback from running tests and pilots. • Project organization evaluating potential risks that portal might encounter. • Measure the number of users of the portal and number of projects that are being run through the portal. • Evaluate feedback from users. • What parameters that should be measured.	• Budgetary means to ensure good performance of IT are passed down from the steering group. • The steering group set performance goals.	• Continue to monitor risks. • Monitor acceptance of portal in the organization. • Monitor feedback. • Monitor IT solutions such as backups and security. • More points of performance monitoring will be set in the future.
Conformance	• Evaluate decisions in regards to anonymity and personal names in the portal	• This is not only a Project ITP issue but something that should be built in the entire	• Monitor that the Project ITP lives up to the desired standard. This is not a Project ITP

	• Evaluate that it supports rules, regulations and industry standards and company values. • Evaluate that this is followed in mobile platform.	organization. • IT group is directed to implement functions to support desired conformance standards. • Internal company lawyers are consulted.	issue only but a companywide concern. • This will be monitored by the general organization once the portal has been implemented.
Human Behaviour	• Analysed "How do we work today" and "how will we work in the future"? • Evaluate feedback from users. • Speak and listen to people who work in projects. • Evaluate customer and client feedback • Evaluate yearly IT survey about the portal. • How people work in the portal.	• Employees can log problems/suggestions through a system. The IT group meets every two weeks to follow up on this feedback and to follow up on development. • Training in the Project ITP is done over 1-5 day course. All the employees that are out working in projects will take this course.	• Monitor how people work in the portal. • Monitor feedback. Information can for example be gathered through written feedback or conversations.

The ISO/IEC 38500:2008 helped the study in realizing what IT Governance practices were applied in the Project ITP case at Company A. The framework is very exhaustive and through the study it was realized that some of the practices overlap between the different areas of the framework. For example, something that can be categorized within the "Performance" principle might also be applicable within the "Strategy" principle and vice versa.

The steering group of the project organization is leading the entire development project. To provide ongoing feedback on the progress and development of the project a reference group is also established that contains of various people working in projects. Below the steering group is the head of development project. The head of development oversees all of the ongoing part projects. Responsibility is divided amongst those groups and they report to the head who reports to the steering group. Even though the different parts of project are separate from each other they help each other out for the common good of the project as a whole.

This study demonstrates a business case with a well-developed IT Governance structure in relation to the ISO/IEC 38500:2008 and also shows that the ISO/IEC 38500:2008 is a viable tool for identifying IT Governance practices in projects involving IT.

Conclusions and Future Research

Through a case study at a large construction company in Sweden (Company A), the organization structure changes while applying IT governance practices in a large IT project (Project ITP) were studied. ISO/IEC 38500:2008 IT governance standard is used as the lens for data analysis due to its novelty and lack of empirical research around it.

Expressing the results in one sentence, the organizational structure affected the level of support for each function of IT governance standard. It can be concluded that every IT Governance practice in the ISO/IEC

38500:2008 was identified in the Project ITP as case study. However, in a more extensive discussion one can argue that there are different levels of support for each function and the question that might be raised is "how much support is needed to be done by a practice to qualify it to be counted as an IT Governance practice?" Through the lens of the ISO/IEC 38500:2008 it can be concluded that some of the principles of the framework were more supported than others. Most IT Governance practices were found in relation to the principles of "Responsibility", "Strategy" and "Performance" compared to "Conformance" and "Acquisition" that received less attention. This doesn't necessarily have to be something bad. Depending on the case some principles might be of more or less importance. In the Project ITP case there were not much procurement to be done; this would then explain why the activity in the "Acquisition" principle was lower.

Company A did not use the standard when they created the organization and structures around the Project ITP, but it was greatly helpful to analyze the functions and IT Governance processes in the organization. That is why through the study it was realized that some of the practices overlap between the different areas of ISO/IEC 38500:2008. For example, something that can be categorized within the "Performance" principle might also be applicable within the "Strategy" principle and vice versa. It is a useful tool in investigating any missing pieces in IT Governance structure where more support might be needed. In this study no missing IT Governance practices where found but one can argue that some principles need more support. In the future there is also a possibility that the ISO/IEC 38500:2008 could be further developed based on the organizational structure already existing and the needed changes in it. One IT Governance mechanism that could be useful in future IT projects is the way that Company A has chosen to structure their organization around the project. This is closely linked to the principle of "Responsibility". To manage the development project a completely new project organization was created. Through the project organization a clear hierarchy was developed and responsibility was noticeably divided between units. The comprising parts of the Project ITP had much own individual responsibility but clearly followed the objectives set by the organization (Strategy). The organizational structure seemed to very tough through and inspiration and knowledge were definitely embodied in the organization due to earlier projects and experiences. It is not uncommon that the organizational structure surrounding new projects follows the same configuration as other existing or past projects. This is very evident in this case were an abundant of knowledge was built in to this project from earlier projects at Company A. The Project ITP was clearly driven by business objectives and it was noteworthy to see how tight the relationship between IT and business were. The relationship between IT and strategy became very clear with the help of IT governance practices applied. This study proved that these IT governance practices could be mapped with ISO/IEC 38500:2008 standard and directed IT to keep on supporting business objectives.

Through the IT governance implementation in this case the organizational structure is supporting open communication channels in the organization which provides a great feedback collection process. Therefore it is suggested that the IT Governance practices should not be applied top-down but should follow the value information that streams down-up. When reviewing the Project ITP case it is evident that they have opened up communication channels in the organization. The on-going feedback and dialogue from pilots and intended users enhances the information at hand, which helps when creating and further developing the portal. This way of working leads to a higher degree of transparency. The IT Governance practice of the principle "Performance" is at the moment very interesting. This study also shows that the ISO/IEC 38500:2008 is a viable tool for identifying IT Governance practices in projects involving IT. This study can be seen as another contribution of application to the ISO/IEC 38500:2008 standard as well as providing a case example of an IT project with well-functioning IT Governance. This study was done in a private sector company with specific characteristics of the geographical location, culture and industry and the results might be different in another case. Finally, this research has focused mainly on what IT Governance practices were applied in Project ITP case study and the organizational structure around it, a suggestive next step might be to analyze what potential improvements can be done in the different principles of IT governance frameworks considering the organizational structure issues.

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