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1 Introduction

This is the introductory section and it provides the reader with background information to the field of research and where the focus lies on. After gaining knowledge on the field of research, the reader will be exposed to the problem discussion and the research questions that arise from it. Further information that will be presented for the reader is the perspective from which the research is conducted upon and which delimitations apply to this research. Also, a section with the most significant definitions used throughout the research is presented in this chapter.

1.1 Background

1.1.1 IT Governance

When Corporate Governance is dedicated to Information Technology/Systems, and administers the risk-management, performance measure, accountability and business-IT alignment of an enterprise, the phenomena of this particular administration is termed as IT Governance, which first emerged in 1993. It is the term used to define how the processes and authority for resources, risk, conflict resolution, and responsibility for IT is divided amongst business partners, IT management, and service providers (Luftman, 2003). IT Governance gives an organizational structure which clearly defines the roles of access and control over information, business processes, technical infrastructure, etc. IT governance allocates the power of decision making, highlights the significance of reasons behind the decision making & strategic alignment and defines the decision processes.

The main aims for IT governance are to align the IT resources of an enterprise in a way that it fast-tracks the business priorities of the enterprise and assures that the investments in IT generate business value, and secondly the risks escorting IT activities are dealt with and diminished. Other goals of IT governance include the accountability of the Business-IT activities and the monitoring of the performance measurement of these activities. Ideally, these goals can be achieved when business and IT management make these decisions on mutual grounds and for this to be possible there is a need for effective and proficient communication among IT and business departments. To realize the goals and to achieve the aims mentioned, IT governance follows a model which has 5 domains. Value creation and Performance measurement are two of these five domains which will be discussed in an extensive manner as we move forward with this research.

1.1.2 Value Creation

Value creation is the goal for every enterprise. Every business management anticipates that the investments made in IT results in some progress of provision of service to its customers/clients, reduction in the manufacture costs, or abbreviate the time of production cycle of any new merchandise or service. This, in short, states that the expectation is to create business value through effective governance of the IT investments.

1.1.3 Performance Measurement

There is no doubt that a practical and effective way to measure IT performance is an essential part of any IT Governance programme. Performance measurement is significant as it verifies the accomplishment of tactical IT objectives and enables to examine IT performance and the share of IT resources to the business value. Transparent evaluation of ITs' ability and a forewarning system for risks is also of great importance in IT governance. Performance measurement provides transparency of IT related costs, which increasingly account for a very significant proportion of most organisations' operating expenses.

1.1.4 Small and Medium Enterprises

Small and medium enterprises or small and medium-sized are firms whose revenue falls short of certain limits or have a certain profile that is demarcated in terms of number of employees/financial profile. SMEs lead to a more favorable balance of economic power, mutually beneficial small/large firm relations, and a significant source of employment (Rothwell & Zegveld, 2009).

The European standard states the three general parameters which state the different SMEs in Europe. The smallest in size are the micro-entities which are the companies with up to 10 employees. Companies that employ up to 50 workers are termed as small, while the ones that employ up to 250 employees are medium-sized (European Commission, 2003). Besides this we can also define SMEs in terms of their financial profiles for instance if the turnover is of €10-50 million or a balance sheet total of €10-43 million, the company would be considered SME.

Enterprises using IT Governance as a strategy have now placed information technology (IT) and information systems (IS) as one of their major agenda. Without a doubt IT governance is a necessity in enterprises of all sizes, even in the smaller ones but the limitations have to be considered. Previously the research done on the IT/IS value proposition is elaborate and strongly focused on large firms (Devos, 2010) and this is why by this research we want to highlight the significance of IT governance in SMEs.

1.2 Problem discussion

During the past couple of years, it has been established that many organisations depend on using information technology effectively in other to boost their performance. This has given the governance of IT a status of outmost importance. 'Organisations need to obtain a better understanding of the value delivered by IT, both internally and from external suppliers. Measures are required in business (the customer's) terms to achieve this end.' (The National Computing Centre, 2005).

Failure to govern IT adequately can result in insufficient financial return of IT investments, large financial losses, and an increased risk profile of the organization (Burtscher, Manwani & Remenyi, 2009).

Looking at the performance of IT, it's clear that it has played a significant role in enterprises. It has allowed enterprises to have the probability to foresee and anticipate plausible failures beforehand. Mahmood (1993) points out that; Strategic managers clearly need a better understanding of the impact of IT investment on organizational strategic and economic performance. Clearer understanding of the factors that drive such performance could help a firm better utilise resources dedicated to the relevant delivery process, and increase the firm's position vis-a-vis its competitors.

While most research on IT governance has been conducted within large enterprises, the organisational (i.e., institutional and managerial) structures of large enterprises tend to be quite distinct from those of small- and medium-sized enterprises (SMEs) (Meyer, 1972).
In relation to this, it could also be considered that relative to larger enterprises, SMEs tend to be constrained regarding their endowments of financial resources and IT capabilities,

prompting many SMEs to make extensive use of packaged solutions, third party service providers and external consultants (Keasey & Watson, 1993).

It has been discussed in many IS literatures that Information technology investment comes with both tangible and intangible benefits, but Tallon, Kraemer and Gurbaxani (2000) noted , the inability of traditional firm-level economic analysis to account fully for the intangible impacts of IT has led to calls for a more inclusive and comprehensive approach to measuring IT business value.

Considering the essentiality of IT governance, difficulties attached to the accountability of IT business value faced by enterprises, insufficiency of rich data on IT payoffs, and the fact that most research studies done have been made on large companies, we have decided to focus this research on how SMEs can use IT governance to create value and measure IT performance.

1.3 Research Objective

The governance of IT requires much attention and expertise for it to be maintained. Organisations use IT to make their lives, not only easier, but also more efficient. Large, small, and medium enterprises use different ways to governance their IT. Since much research has already been conducted on the larger enterprises, our research focuses more on the smaller and medium enterprises. The question that is central in our research is:

- How can IT governance create value and IT performance be measured in SMEs?

The end result of our research showcases what the different driving forces and challenges in creating value in IT governance in a SME are. Furthermore, we identify the benefits and challenges of IT performance measurement in a SME. To help us reach our goal, we answer the following sub questions:

- ✓ What are the driving forces and challenges in creating value through IT governance in a SME?
- ✓ What are the benefits and challenges of IT performance measurement in a SME?

Since not much academic research has been conducted on IT governance in SMEs; it is rather a new and undeveloped area and we strongly believe that our research will make a contribution to this matter.

1.4 Perspective

There are many perspectives available to our disposal when it comes to constructing a research paper; the reason for this being that there are different points of views, because each topic/area field requires different expertise and/or skills.

This research paper is aimed at the field of information technology and therefore the perspective from which we have written our research on was from the point of view of the IT management. By IT management it is meant with whoever is in charge or has a leading role within the IT department; this person could be the CIO, CEO, or a manager in the IT department.

To get the best possible outcome for our research, we feel like that the chosen perspective of IT management fits our research the best. Furthermore, we believe that someone from the IT management would provide us a better knowledge of understanding rather than someone from another department, thus making it better for us, as well as our research, that we take their point of view.

1.5 Delimitation

IT governance consists out of five components: risk management, resource management, strategic alignment, value creation, and performance measurement. This research addresses value creation and performance measurement of the IT governance.

The research area field lies in SMEs in Småland, for taking the whole of Sweden and larger enterprises requires more time and resources that we don't possess at the moment. The SMEs used during the research have 70-250 employees and have an annual turnover of 100-400 million SEK.

We identify the driving forces and challenges to IT value creation in the SMEs in Småland. Furthermore, we also identify the benefits and challenges of measuring IT performance within SMEs in Småland.

The reason behind these delimitations has to do with the timeframe; for an in depth research with all components of IT governance a lot of time is required, time we don't possess at the moment. Furthermore, we have chosen to delimit ourselves to the area of Småland; this had to do not only with the timeframe, but also with the available resources (mainly capital) that we currently don't have to perform a research on a wider area scale.

1.6 Definitions

In the following section you will get to see the definitions that have played a crucial role in the formulation of this research paper.

IT governance

- How those persons entrusted with governance of an entity will consider IT in their supervision, monitoring, control, and direction of the entity. How IT is applied will have an immense impact on whether the entity will attain its vision, mission, or strategic goals (Brisebois, Boyd & Shadid, 2001).

Value delivery

- Executing the value proposition throughout the delivery cycle, ensuring that IT delivers the promised benefits against the strategy, concentrating on optimizing costs and proving the intrinsic value of IT (IT Governance Institute, 2005).

Performance measurement

- The tracking and monitoring of resource usage, process performance and service delivery, strategy implementation, and project completion (IT Governance Institute, 2007). Performance measurement is part of performance management.

Small-and-Medium Enterprise (SME)

- For an enterprise to be qualified as a Small and medium enterprise it needs to have less than 250 employees and an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro (European Commission, 2003).

COBIT

- COBIT is a process oriented framework which encompasses four interrelated domain, these domains are carved in accordance to the traditional IT responsibility areas of plan, build, run and monitor. (IT Governance Institute, 2007).

Information System (IS)

- Any combination of information technology and the activities of the individuals using that technology to support the operations, management, and decision-making process (Ellison & Moore, 2002).

Value life cycle

- A virtuous cycle which companies invest in to derive value from IT resources by following the best practices of the enterprise. The life cycle has three critical stages namely; Value Discovery, Value Realization and Value Optimization (Bouhdary & Comes, 2008).

2 Methodology

Chapter 2 is dedicated to the methodology of the research. In this section the reader will gain in-depth knowledge on how the authors have conducted the research. Information such as which research philosophy and approach have been used as well as the design of the research and the way the data of the research has been collected and how it's analysed will all be visible in this chapter. Furthermore, an explanation will be provided to the reader on why the authors have decided to go with a particular method. A verification of the credibility of the research is presented for the reader

2.1 Research philosophy

A research philosophy serves as guidance on how we view event occurring in the world around us. The figure below shows the positioning of various philosophies, in relation to how they can inform the choice of approach we take and the content of our research strategy;

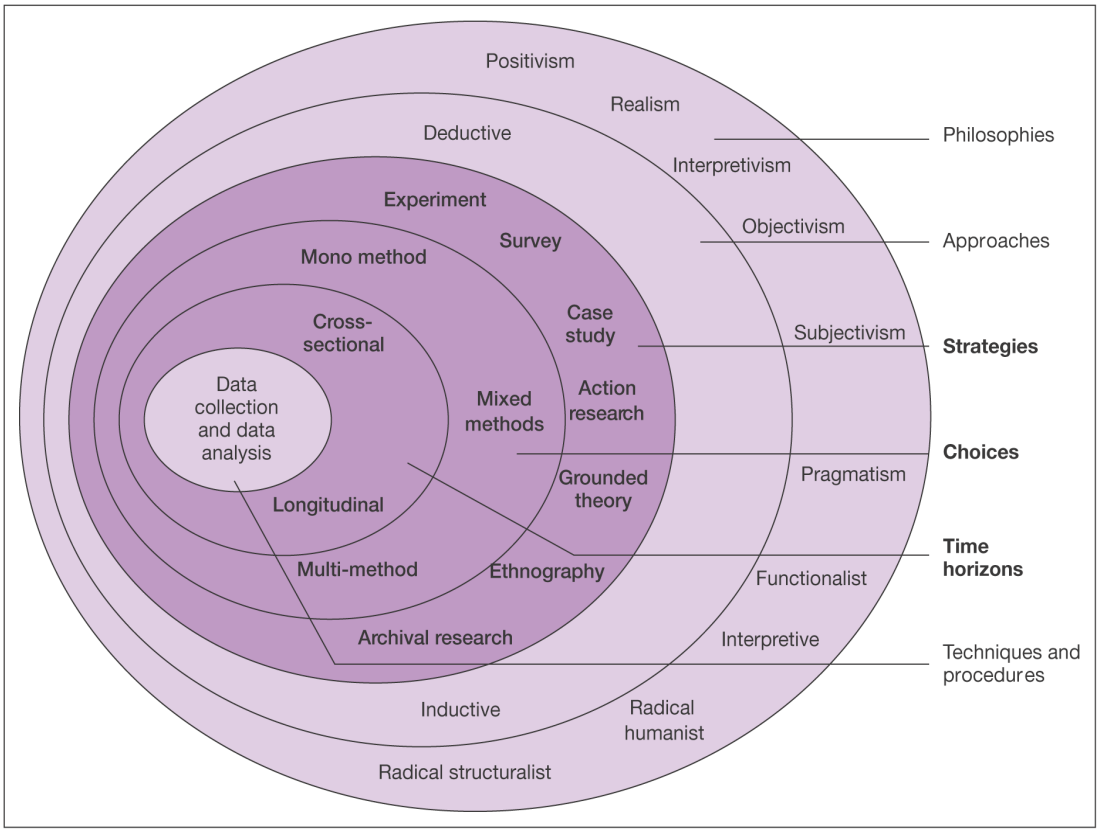

Figure 2-1 Research Onion (Saunders, Lewis and Thornhill, 2007, pp. 106)

2.1.1 Interpretive philosophy

The proposed research philosophy for this research is from an interpretive perspective. This philosophy matches the exploratory studies being conducted and more so, it enables proper insight into issues such as the governance of IT in SMEs. We would like to understand issue by gaining access to meanings placed on them by participants from organisations who are part of this research. We acknowledge that some organisations might govern IT, not under the umbrella or term 'IT governance' considering whatever the nature of SME we are looking at but the fact would remain that one way or the other except IT is not used at all, IT must be govern either through certain guidelines, resource allocations, IT requirement specification etc.

2.2 Research Approach

On deciding the design of this scientific research, two standard approaches exist to choose from. These are namely;

1. Inductive and
2. Deductive

According to Saunders, Lewis and Thornhill (2009, pp. 124), it is useful to attach these research approaches to the different research philosophies, deduction owes more to positivism and induction to interpretivism. Both approaches help us to determine the starting point for our research. First, the inductive approach begins with the collection of empirical data, which are then used in developing a theory after thorough data analyses have been carried out. Second, one might choose to start by developing a hypothesis or using an existing theory, and then employ a suitable strategy to test such a theory or hypothesis.

The figure below helps to visualize the different steps in both approaches;

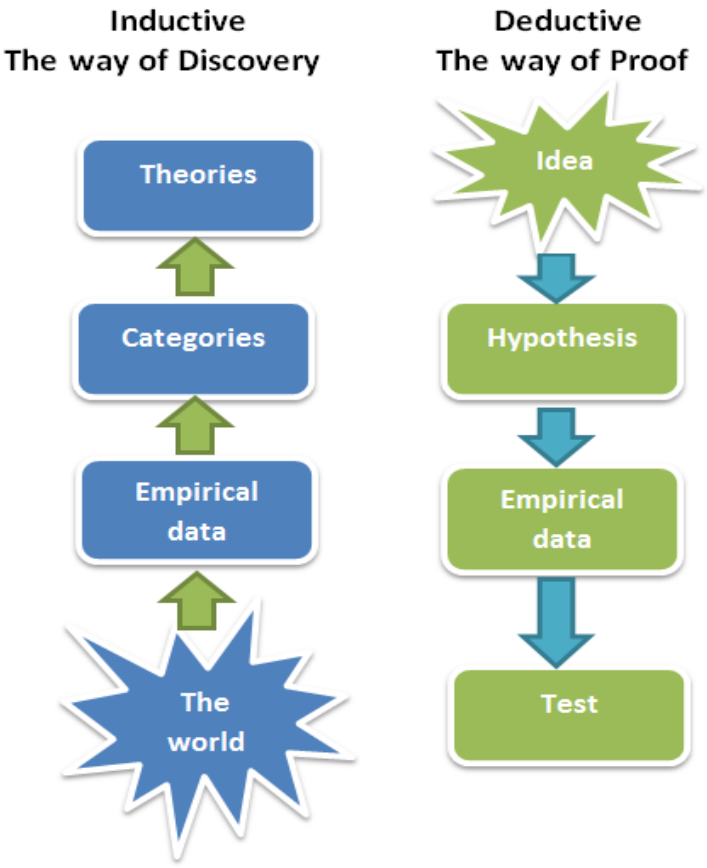

Figure 2-2 Research Approaches (created by the authors)

2.2.1 Use of the Inductive Approach

The inductive approach towards this research was achieved by starting from 'The world' as depicted by figure 2-2. The world in the context of the research has been delimited to the province of Småland in Sweden and one reason for this is because there is a great deal of SMEs in this region (Linder, 2005). Companies were selected to participate in this research from Småland based on certain criteria's which would be discussed in subsequent section. After the selection of companies, we proceed to the next stage of collecting empirical data

in a qualitative manner. By qualitative, we refer to using the selected companies as case studies and interviewing individuals at management level with relevant qualifications and substantial knowledge in the subject matter. The qualitative method is favoured at this stage because experience of the interviewee matters in understanding the phenomenon of IT governance in SMEs, also we consider having a face to face discussion which enables us to ask and clarify critical points and grey areas as paramount.

For the categories stage in figure 2-2 , data collected were categorized according to the structure of chapter 3 (Frame of reference) excluding section 3.4, because this is considered helpful in tracing the relationships between the huge amount of data collected from the participant companies and categorizing also aid in the analysis of empirical data. How data is analyzed would be discussed in section 2.3.2.4.

Finally, the results of the analysis are used to make a theoretical conclusion.

2.2.2 Combined Approaches

Having understood the available approaches, this research would be carried out using a combination of the inductive and deductive approaches. The reason behind the combination is due to the exploratory nature of our topic. The inductive approach shall be mainly used in this research because it would help gain in-depth understanding of the subject matter. After the interpretation and extraction of meaning out of the collected data, then the deductive approach will be applied to compare what has been already done, (i.e. existing theories) and make sure that the data collected is pointing in the right direction. Section 2.3.2.4 (IT governance framework) is applied in a deductive manner in order to develop a theory. We use the COBIT framework as the guiding block to inform the formation of theory. The part used in COBIT has also been limited to the delivery and support, as well as monitor and evaluate domain.

2.3 Research design and data collection

2.3.1 Exploratory Studies

According to Saunders et al. (2007), the classification of research purpose most often used in the research methods" literature is the threefold one of exploratory, descriptive and explanatory.

An exploratory studies shall be carried out in this research in other to get better understanding of how SMEs in Sweden are leveraging IT governance to create value and measure the performance of IT. The exploratory research is flexible and allows the researcher to change direction on the light of new data (Saunders et al., 2007, p. 133).

These are the two principal ways in which we carried out this exploratory research;

- literature search was conducted;
- Carry out interviews with individuals who are enlightened in the subject area.

2.3.2 Research Strategy

A research strategy helps the researcher to devise a means by which their research questions can be answered, and this strategy is normally informed by the nature of the question which it is intended to answer.

2.3.2.1 Case study

The strategy that is used in this research is a case study with a cross-sectional time horizon due to the time available to undertake the research. Selected SMEs in Småland province of Sweden were contacted and used as cases. The number of participants was expected to between five to ten SMEs but only four participants were used for various reasons. Therefore the research strategy used was a multiple case study. Robson (2002, p. 178) defines case study as a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence. Also, multiple case studies help to come about more general findings (Eisenhardt, 1989). A case study was chosen over the other available strategies because the authors had in mind the reliability of the research outcome and using a case study allows for an in-depth understanding of issues where a face to face interview and discussion were held with experts in the study area. One technique of the case study was the interview technique which provided us the opportunity to further ask follow up questions related to the research topic. Saunders et al.(2009) claims that case studies are often used in explanatory and exploratory research because of the considerable ability of the case study to provide answers to the 'why', 'what' and 'how' questions.

The names of participant companies used as case studies for the research can be found below;

Company Name	**Numbers of employees**	**Annual turnover (Approximately)**
Flintab AB	71	11,3 million Euros (2011)
Gislaved Folie AB	130	250 million SEK (2011)
Pallco AB	200	40 million Euros (2011)
Uppåkra Mekaniska AB	235	340 million SEK (2011)

2.3.2.1.1 Selection of participants

The selection of participant companies was based on the following criteria;

1. The size of the company: having the credibility of the research in mind, it is important to set a range because size of a company could be a factor that determines the perception of IT. In this research, a participant company must have between 50 to 250 employees. Note that these figures are set by the authors as a guiding frame.
2. Size of IT architecture and infrastructure within the enterprise.
3. Annual turnover: the range used in this research falls between 100 million to 400 million SEK
4. The company must have either an IT manager or CIO. This criterion was particularly important during the selection because interviewing experts in the study area was necessary to understand how IT value is delivered and its performance meas-

ured. We do not want to fall into the trap of having to interview management members who barely understand the study area.

5. Location: location of the company must also fall within the Småland province of Sweden as this research is focused on this area.

2.3.2.2 Data collection

Data was collected mainly from primary and secondary sources, and of course tertiary sources were put into consideration too.

Primary data was collected through interview sessions and collaboration with participating companies. Interviews were the main source of data in this research because it is used to collect data specifically for the purpose of answering the research questions posed in this thesis. The use of interviews can help you to gather valid and reliable data that are relevant to your research question(s) and objectives (Saunders et al. 2007).

Interview

Semi structured interview was employed as a technique for collecting primary data. This is due to the open ended nature of the questions which the authors have designed to collect data. Unlike a structured interview which is usually formal and have limited numbers of questions, The semi structured interview held by the authors were used to encourage interviewee's, in the sense that it gave room for interviewee's to share their knowledge and experience about specific open ended questions. During the interview, the flexibility of the semi structure interview allowed the interviewers to spring up additional questions based on the responses received from the interviewee. This was very helpful in understanding the way that IT governance creates value and IT performance measured in SMEs.

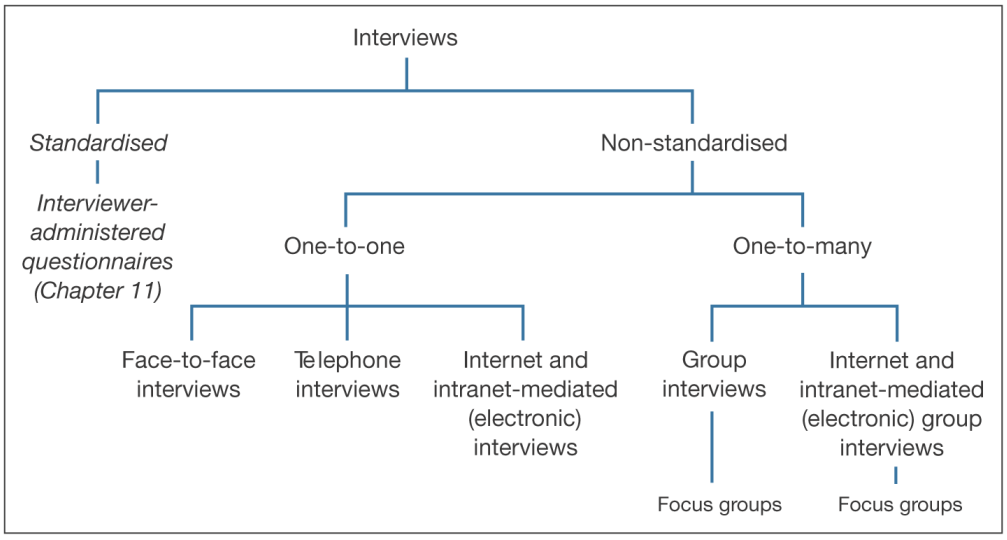

Figure 2-3 Forms of Interviews (Mark Saunders, Philip Lewis and Adrian Thornhill, 2007, pp.313)

The figure above shows the different forms by which an interview can be carried out. In this research four individuals were interviewed from four different companies and all the interviews were non-standardised and face to face. Duration of each interview vary between 30 to 60minutes.

Secondary data source used in this thesis came from literatures, scientific journals and company reports. Here we used the secondary data collected to structure the frame of reference in chapter 3 of this thesis. This was in turn the basis of the interview questions used.

It also informed us about the topic being studied and helped in validating the conclusion reached.

2.3.2.3 Data Analysis

In this research, data has been collected qualitatively and Saunders et al. (2007) describes qualitative data as all non-numeric data or data that have not been quantified and can be a product of all research strategies. The qualitative data in this research was collected through interviews and in order to make this data meaningful and useful, data analysis is required.

Elo and Kyngäs (2007) define qualitative data analysis as the process of bringing order, structure and meaning to a mass of collected data. A mass of data could be agreeably derived from quantitative data as well; therefore the table below is used to show the differences between qualitative and quantitative data.

Quantitative data	Qualitative data
• Based on meanings derived from numbers	• Based on meanings expressed through words
• Collection results in numerical and standardised data	• Collection results in non-standardised data requiring classification into categories
• Analysis conducted through the use of diagrams and statistics	• Analysis conducted through the use of conceptualisation

Figure 2-4 Distinctions between quantitative and qualitative data (Mark Saunders, Philip Lewis and Adrian Thornhill, 2009, pp.482)

Inductive based analytical procedures and deductive based analytical procedures are two major approaches to qualitatative data analysis. In this research paper, the inductive based analytical procedure is used for data analysis mainly because the research approach used in this paper was the inductive approach. The inductive – based analytical procedure suits when using a hypothesis generating approach, and it is deemed very useful for an exploratory study. Adopting the inductive – based analytical procedure led us to do a template analysis; here we created categories according to the structure of the frame of reference. Data which have been collected were sorted into the categories they fit, an example of such category was 'The challenges of IT performance measurement' and the categories were later reframed to form sub-heading underneath the analysis chapter. Afterwards, an analytic induction was carried out. The analytic induction was used to iteratively scrutinise all the selected cases with the aim of identifying and exploring events and finally, a narrative analysis was adopted. Saunders et al. *(*2007) noted that narrative analysis preserves the integrity and narrative value of data collected. This analysis method assisted in outlining and demonstrates what we have understood by the data we have in our possession.

2.4 Choice of Method

The method we have employed in this research is strictly informed by the nature of our research questions. Firstly, we restate that the research objective is to see how IT governance can create value and IT performance be measured in SMEs and we have also discussed in the problem discussion section that most research in this area have been carried out in large companies therefore we consult figure 2-1 for guidance on the most suitable perspective on which we should approach the topic from the view of SMEs. Also, it was discussed in section 2.1 that a research philosophy guides the way we view events happening in the

world around and after carefully observing the meanings of the numerous philosophies, we decide to adhere to an interpretive perspective. Orlikowski and Baroudi (1991) noted that the criteria adopted in classifying interpretive studies were evidence of a nondeterministic perspective where the intent of the research was to increase understanding of the phenomenon within cultural and contextual situations; where the phenomenon of interest was examined in its natural settings and from the perspective of the participants; and where researchers did not impose their outsiders' priori understanding on the situation.

Secondly, we considered quality rather than quantity since we intend to explore and gain a rich insight into the subject matter. Research choices comprise of the mono and multiple methods. The mono method is sub-divided into quantitative mono and qualitative mono methods whereas the multiple method comprise of multi-methods and mixed method. Detailed explanation of the various methods is beyond the scope of this study. We adopt the qualitative mono method in this research since we would only be using case studies and conducting semi structured interviews with the top management members of companies.

2.5 Research Credibility

The research credibility has to do with how accurate or correct the data collected and analysed is. Therefore, the Authors take this seriously at every point in the research process. The next two sections discuss how reliable and valid the research paper is perceived and these would help reduce the possibility of getting the answers wrong.

2.5.1 Reliability

Research reliability was explained by Saunders et al. (2007), as the extent to which data collection techniques will yield consistent findings, similar observations would be made or conclusions reached by other researchers or there is transparency in how sense was made from the raw data.

The four threats to reliability as claimed by Robson (2002) namely; subject or participant error, subject or participant bias, observer error and observer bias were all taken care of by the authors.

Firstly, participant error is basically looking at the conditions at which the research was conducted, more specific towards how conducive the atmosphere was for all participants to give required and necessary information to the researchers. The authors handled this situation by giving the participants the freedom to decide when was best for them to be interviewed and more to this, the research topic and general discussion questions were sent ahead via emails to all participant. This made all parties involved more aware and prepared to provide anything that could aid the data collection sessions.

Secondly, participant bias has to do with making sure the participants are honestly giving accurate responses because it is common to get answers of how it should be rather than how it really is? The authors, proposed to present the participants with the outcome of the research in return for the participation in the research. This was particularly interesting because this research tends to seek understanding of how IT governance is or can be done within SMEs. This gives the participants first class knowledge contribution to the industry.

Thirdly, Observer error is considering the different ways in which different people may use to extract information from participants. This threat is common when there is more than one researcher. To overcome this threat, the authors created a structure whereby the three researchers attended the interview sessions together, stick to the semi structure pattern de-

signed for the interview with one researcher leading the interview session while the other two supports and check that everything goes as planned.

Finally, Observer bias is something that happens due to the facts that there may be more than one way of interpreting the collected data or responses from participants. The authors overcome this threat by sticking together right from the onset, did the literature reviews together, discussing about the topic to make sure we all have equal understanding and as one of the set guidelines, the authors specifically clarified the unclear areas with participants.

2.5.2 Validity

The validity of a research is judged by checking that the results of a research are actually what they should be. Validity is concerned about the relationship between variables and whether it is a causal relationship (Saunders et al., 2007). The methodology in this thesis paper was designed to capture answers to the research questions, and empirical data were collected as accurate as possible while the data analysis geared towards the interpretation of the data. Therefore, the results are simply a reflection of the analysed data.

The authors used the external validity and construct validity test to validate this research. The construct validity as supposed by Ghauri and Gronhaug (2005) requires the researcher to develop satisfactory measures intended to capture what the authors intend to capture. The frame of reference in this paper was structured to serve exactly this purpose and according to Yin (1988), it is possible to obtain external validity by using replication logic in multiple-case studies. This was the situation in this research as four cases were used during the empirical finding, this type of selection helps to envisage similar results. For these reasons, the authors are certain that this study satisfy the validity mentioned.

2.5.3 Generalization

This research could not be considered for generalisation even though the authors have used multiple case studies and several factors contribute to this fact of generalization. Kolberg (2008) discusses the issue of case study approaches in relation to complexity and generality and noted that solving the complexity that engulfs case studies is more valued than its generality. In the course of the research which is limited to SMEs, it has been noticed that SMEs vary a lot, in terms of size, annual turn-over, business area of concentration etc. It was observed also that experiences and abilities of IT managers vary in SMEs, while some SMEs have IT managers other do not. Same applies while some heavily depend on IT resources, some outsource their IT and others don't subscribe to anything mentioned above. Hence, this thesis paper is not aim towards generalisation outside the study scope.

3 Frame of Reference

This chapter is intended to serve as a basis for understanding the study field and some key concept related to this field such as the different domains of IT Governance and what IT governance really means. This chapter also provides the basis for interview question development, at the same time provides guidance during the analysis of the empirical data.

3.1 IT Governance

IT governance is amongst those models that precipitously appeared on the scene and became an important issue in IT. It was initially defined as the organizational capacity exercised by the board, executive management and IT management, to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT (van Grembergen, 2010). IT governance is also a considered as a subcategory of Corporate Governance. Although it is sometimes mistaken as a field of study on its own, IT Governance is actually a part of the overall Corporate Governance Strategy of an organization (Brisebois, Boyd & Shadid, 2001). IT governance is one of those fields which has been defined in various different manners by different researchers.

3.1.1 Different definitions of IT governance

Over the years, since IT governance first arrived on to the scene, numbers of different definitions have emerged. Some call it a management tool while others term it as accountability framework; some call it a tool to allocate responsibilities while others dub it as instrumental to creating value (Brisebois, Boyd & Shadid, 2001). None of these various definitions can be ignored as all of them are veracious depending on the situation being faced. It is important to discuss all of them for the sake of thorough understanding for our readers. With these various definitions being mentioned, it would be easy for us to explain the idea of IT governance as a strategic tool as well as a field of research.

Various Definitions of IT Governance

- The structure, oversight and management processes which ensure the delivery of the expected benefits of IT in a controlled way to help enhance the long term sustainable success of the enterprise.
- IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's strategies and objectives.
- A structure of relationships and processes to direct and control the enterprise in order to achieve the enterprise's goals by adding value while balancing risk versus return over IT and its processes.
- Specifying the decision rights and accountability framework to encourage desirable behaviours in the use of IT.
- Governance is not about what decisions get made – that is management – but it is about who makes the decisions and how they are made.
- IT governance is the term used to describe how those persons entrusted with governance of an entity will consider IT in their supervision, monitoring, control and direction of the entity. How IT is applied will have an immense impact on whether the entity will attain its vision, mission or strategic goals.

Figure 3-1 Various Definitions of IT Governance (Brisebois, Boyd & Shadid, 2001)

3.1.2 Essential domains of IT Governance

As mentioned earlier, IT governance follows a model which has 5 domains. Every one of these domains plays a vital role to achieve the main aims for IT governance which are to align the IT resources of an enterprise in a way that fast-tracks the business priorities of the enterprise and assures that the investments in IT generate business value, and secondly the risks escorting IT activities are dealt with and diminished. Other goals of IT governance include the accountability of the Business-IT activities and the monitoring of the performance measurement of these activities (Luftman, 2003). Even though our research is based upon two of these five domains, we wish to elaborate upon the idea known as IT governance and for that it is necessary to briefly discuss all five domains of the IT governance.

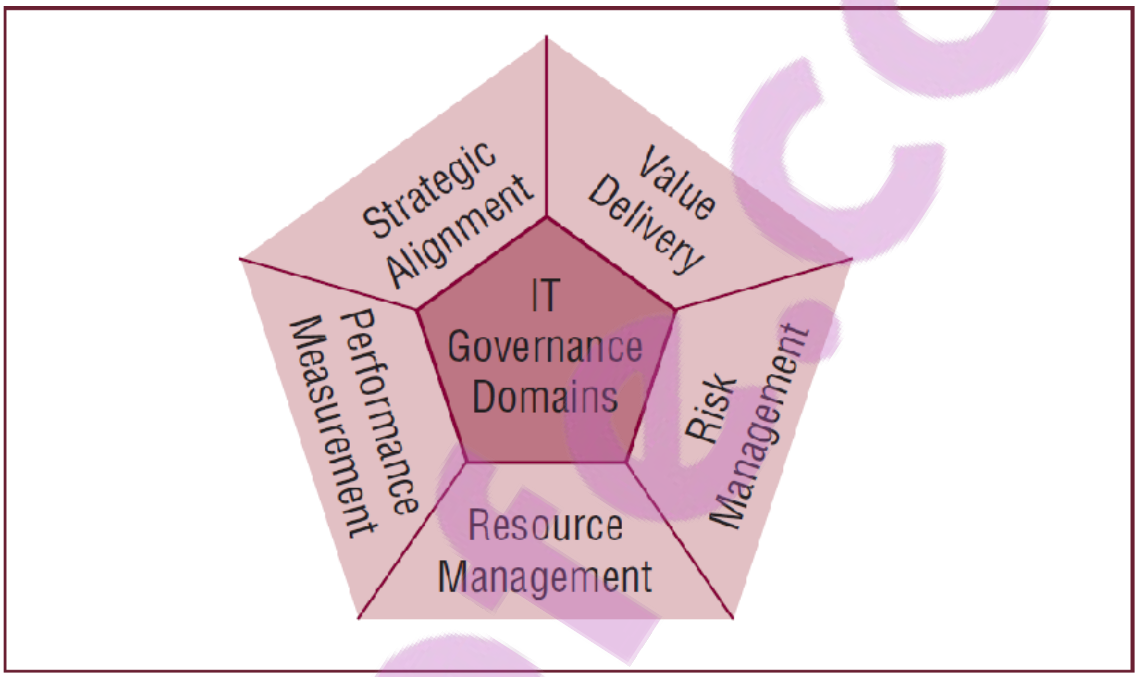

Figure 3-2 Five Domains of IT Governance (IT Governance Institute, 2005)

Strategic alignment

This domain of IT governance deals with answering the question that whether the IT resources of the company are in coherence with the strategic business objectives of the enterprise such as goals, business strategy, intent of the company, etc. This coherence is termed as 'alignment' in the language of IT Governance. It is a very multidimensional phenomena and not easy to achieve completely and the main significance is to push the enterprise into the right direction and ensuring that the enterprise is better aligned than the rivals.

Value delivery

The value delivery concentrates on the optimization of the expenditure done and proves the value of IT in the enterprise. It can be defined as any competitive advantage that enterprises can have over their rivals in terms of customer satisfaction, employee efficiency, business profitability, service satisfaction, etc. It is about accomplishing the value plans of the enterprise during the course of the delivery process cycle. The aim is to ensure that IT realizes the expected profits/benefits in relevance of the enterprise business strategy, and is dedicated to prove the essential value of IT.

Risk management

This particular domain has been the highlight of enterprise governance, as it is clear that for demonstrating a good performance in governance, risk management becomes a signifi-

cant requirement. Same is the case with the IT governance. It deals with the operational and systematic risks of the enterprise where the risks related to the technology and information security issues are noticeable. So risk management aims to address these risks and safeguard the IT assets of the enterprise.

Resource management
Enhancing the knowledge management and IT structure of the enterprise is the resource management. The key to an effective IT performance is the right use and allocation of the IT resources at hand. This type of management deals with the kind of situations when enterprises require answer to questions such as how to outsource, whom to outsource, and last but not the least, how to manage the outsourced services.

Performance measurement
Performance management verifies the accomplishment of tactical IT objectives and allows to examine IT performance and the share of IT resources to the business value. Transparent evaluation of ITs' ability and a forewarning system for risks is also of great importance in IT governance. Performance measurement provides transparency of IT related costs, which increasingly account for a very significant proportion of most organisations' operating expenses.

**All definitions are according to the IT Governance Institute*

3.1.3 Choice of domains

The domains selected for the research to be carried out are Value Delivery and Performance Measurement. The value delivery concentrates on the optimization of the expenditure done and proves the value of IT in the enterprise while the performance measurement is all about tracing project delivery and observing IT services in order to keep transparency.

The main reason to choose value delivery was that value creation has been the focus of every enterprise and to create value and gain competitive advantage over the competitors is one of the prime priorities for every business. Using IT as an asset to create value is also the aim of IT governance so whenever any organization, small or large, uses IT governance model, the main goal is to create value and because of this value delivery is considered to be one of the most important domains.

Performance measurement provides the transparency throughout the processes of IT governance and without it none of the domains can be managed appropriately. Through performance measurement, it is known that which function is performing and which is not, where should the focus be, what should be improved. Etc. So with this high level of significance, this domain was hard to ignore as it was also closely related to measuring the value of an enterprise.

The reason that our focus would only be the two domains mentioned above and not the remaining three is due to the lack of time and resources. We think that the chosen part of the model would cover our research in much better way. So the first in line for our research discussion is Value creation which is then followed by the performance measurement.

3.2 Value creation

Value creation with relevance to IT governance is also no different and the aim again is to create value by optimizing costs and delivering the expected goals with effective use of IT as an 'asset' to the enterprise. Value delivery being one of the domains of IT governance is about performing the value plan during the course of the delivery cycle, guaranteeing that IT delivers the assured benefits with relevance to the strategy, focusing on optimizing costs

and proving the essential value of IT. The focus is to ensure the interests of the stake holders by providing the promised benefits and profitability.

In strict commerce expressions Value Creation is often deciphered as the competitive advantage that any enterprise would gain over there competitors, the lapsed time for any order or a service to be fulfilled, satisfaction of the customer, employee productivity and the profitability of the business. Value creation is the goal for every enterprise. Every business management anticipates that the investments made result in some evolvement of provision of service to its customers, reduction in the manufacture costs, or abbreviate the time of production cycle of any new merchandise or service (Van Grembergen, 2010). This, in short, states that the business value is expected to be created through effective governance and significant measures taken.

Deriving business value depends upon the kind of practices taken up by the enterprise to derive business value. Using IT and information systems to facilitate the access to information and knowledge which in return assists in accomplishing tasks, meeting objectives and realizing goals is another way of how business value is derived from IT. The internal organizational tactical thinking processes and activities are key elements of the delivery of value from IT investments also.

3.2.1 Relevance of Value Creation to IT Governance

Value Delivery has been one of the most highlighted domains of IT governance since the time it emerged and still remains the primary goal. The aim of IT governance is to manage IT endeavours in order to ensure that the performance of IT delivers the desired goals of value creation (IT Governance Institute, 2005). The value delivery concentrates on the optimization of the expenditure done and proves the value of IT in the enterprise. The IT Governance Institute (2005) defines the value creation in relevance to IT governance in the following words: *Value delivery is about executing the value proposition throughout the delivery cycle, ensuring that IT delivers the promised benefits against the strategy, concentrating on optimizing costs and proving the intrinsic value of IT.*

IT governance ensures that the investments on IT are paid off in form of the value delivered by the IT function. This is not carried out just like that as it involves the careful selection of investments and their management throughout the business life cycle. It is very significant in IT governance that the promised benefits are delivered and the costs are optimized in order to benefit the business priorities and ensuring the interests of the stake holders and investors (IT Governance Institute, 2005). Commenting on the creation and delivery of value, Andy Blumenthal in his blog 'The total CIO' (Andyblumenthal's blog, 2008) writes:

"IT governance is about balancing the interests of investors and stakeholders by focusing resources on the creation of value…if the mission of IT is to provide systems the business wants, it is equally important to provide systems the business actually needs."

Van Grembergen (2010) emphasizes the relevance of value creation to IT when in one of his publications clarifies the need for the business to take more of a driving role. He argues that the business should manage the IT as an 'asset' to create value rather than managing as a 'cost'. In doing so, van Grembergen (2010) prompts a shift in the definition of IT governance because of the prime aim of creating value, towards "enterprise governance of IT" accounting for the amplified business focus.

For the value delivery in order to be efficacious, significant allocation of the resources, initial scrutiny and monitoring the investments of IT like any other type of investment, holds the key (IT Governance Institute, 2005). Companies derive value from IT by using the

'best practices' while others follow the value cycle which comprises of three main processes: value discovery, value realization and value optimization. The delivery of value is not always a success story and its drive force does not always come to the rescue. Previous researches have shown the evidence that the higher management reviews the IT investments with less vigour and the main reason for that is the lack of confidence by non-IT specialists and the complex nature of IT itself. Due to this, the possible opportunities and risks are discounted. So the success and failure of the value is delivered depends upon how well the value is derived from IT.

3.2.2 Deriving business value from IT

With the main idea of creating value with relevance to IT governance elaborated earlier, we move to the important question of how business value is derived from IT. Creating and deriving business value from IT is the main concerns of IT governance as it refers to the variety of mechanisms that any organization would implement and institutionalize to guarantee that business value is derived from IT investments (Korac-Kakabadse and Kakabadse 2001). Deriving business value would depend upon the kind of practices taken up by the enterprise. The IT investments made by the enterprise would be prosperous for the business cause in terms of organizational efficiency and a business competitive advantage only if the steps taken in this process are in the 'right direction'.

The right direction would be the dead-on selection of the IT investment initially and then following the selection making sure that the investment is linked to the precise mishmash of redesign, individuals' expertise and commitments. It is significant that the combination is then well managed to ensure the emergence of an effective organizational system. So the business value is derived from IT investments when linked to the right human and business resources, their realization as a working system is managed well (Marshall, McKay & Prananto, 2004).

Using IT and information systems to facilitate the access to information and knowledge which in return assists in accomplishing tasks, meeting objectives and realizing goals is another way of how business value is derived from IT. This signifies that if IT is utilized in the race to accomplish the organizational goals resulting in business value created, thinking is to be done from organizational perspective (Marshall et al., 2004). There is a view, however, that internal organizational strategic thinking, processes and activities are key determinants of the delivery of value from IT investments, rather than the technology itself (Tallon et al. 2000).

Soh and Markus (1995) researched the previous works on business value creation using IT and considering the frameworks and models suggested in the past synthesized a model of their own. This model explained the chain of events of how IT delivers value to an enterprise. The model is shown below:

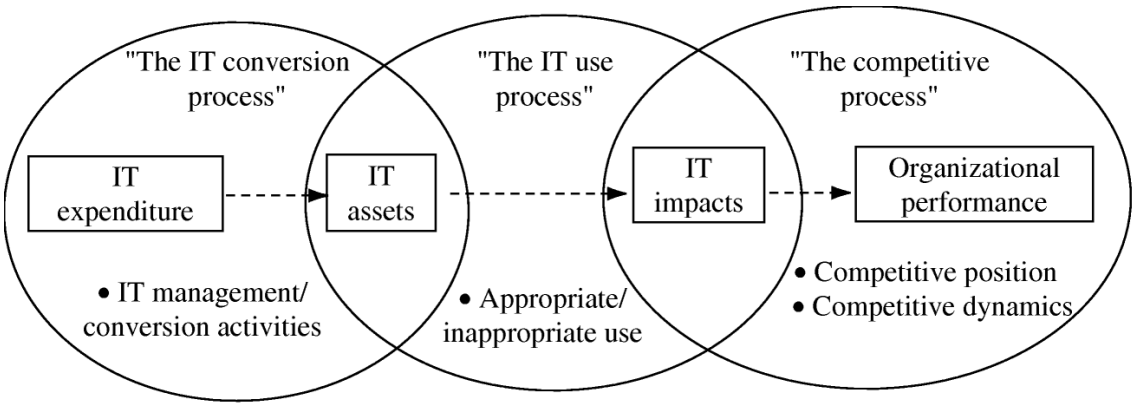

Figure 3-3 Model to Derive Value (Soh and Markus, 1995)

The model articulates the chain of creation of value in IT governance. Initially the IT investments create the 'IT Assets' by converting the capital and other organizational resources into organizational assets. This first process is called the 'IT conversion Process' which depends profoundly of IT management activities, effective IT spending, and other conversion activities. The second stage is the 'The IT use processes'. This process signifies that the IT assets only have the desired impact on the organization only if they are managed appropriately. The last stage is termed 'the competitive process' which shows whether the IT impact has the desired effects on the performance of the organization. This however, depends upon some external factors such as competitive position and dynamics of the organizational business conditions. So it is quite evident creation of value by impacts of IT also depends upon the favourable business conditions (Soh & Markus, 1995).

3.2.2.1 Best practices for creating value

Making investments in IT is just the first step towards creating business value and to maximize the derived business value it is necessary that analogous improvements in the management practices around IT are made. Without these improved practices the increase in productivity would only be minimal and the maximized business value cannot be derived. Agility in management practices combined with flexible business processes drive the increased value creation for your project (Bouhdary & Comes, 2008). Once these changes are enabled as the best practices of the enterprise, the speed of business also tends to amplify.

Enterprises make sure of delivering solutions with proper quality, on time and on budget using the best practices for value delivery in IT governance. Reputation of enterprise is enhanced along with the cost efficiency and customer trust is provided by applying these best practices which helps derive the most out of value. Some of these best practices adapted are listed below:

- Standardizing technology by making technology councils and architecture review boards.
- The project management is motivated to be more disciplined and value of IT is illuminated.
- Enterprises tend to set clear expectations relative to ability of their structure of IT resources (resiliency, quantity, reaction times, tractability, ease of use, accuracy etc.)
- Exploiting the industry trends and capitalizing on them.
- Making significant changed to the business model with changing trends.
- Giving extra input to the accurate selection of the specific type and time of IT investments.
- Harmonized investments in human capital and organizational change management are made along with investments on new business process and other organizational activities.
- Enhancements in business processes made through adaptability to support the new changes and investments in IT.

3.2.2.2 Value life cycle

Value life cycle is a virtuous cycle which companies invest in to derive value from IT resources by following the best practices of the enterprise. The life cycle has three critical stages namely; Value Discovery, Value Realization and Value Optimization. Key benefit opportunities are hunted and exploited in the first phase of discovery of value. The companies identify these value areas and analyse whether this would allow them a competitive advantage with comparable firms. The next two phases, value realization and value optimization, deal with the fact that IT projects and investments need to should be on time, on budget and most importantly on desired value. By tracing the value realization and leveraging methods such as benchmarking and organizational best practices, firms can optimize the value-creation potential and further drive the virtuous cycle (Bouhdary & Comes, 2008).

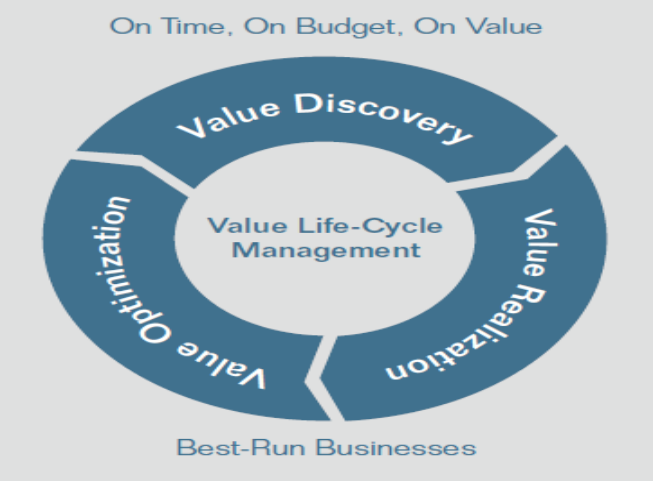

Figure 3-4 Value Life Cycle (Bouhdary and Comes, 2008)

Value Discovery

The value delivery stage comprises of answering questions regarding the IT investments. The main issue is to ask yourself that how the IT resources can on hand help your enterprise. Secondly, there is a need to determine that what are the solutions that will back the business strategy of the enterprise in the best manner. The solutions that toe the business strategy while creating the maximum value are identified and possible returns on the investments are anticipated. Analysis is done on the expected risks is carried out and challenges are deployed (Bouhdary and Comes, 2008). The best practices are mapped and the desired 'TO-BE' state is devised. External and internal benchmarking of the business processes is also one of the critical processes.

Value Realization

One of the supreme priorities of a company is to realize value from the IT investments. Many enterprises tend to emphasize on going live with their IT ventures and there is lack of focus on value delivery which results in actual value achieved falling short of projected benefits (Bouhdary & Comes, 2008). Identification of the value of best practices, transformation of processes, and measurement approaches are critical in realizing value. These comprise of:

1. Amalgamation of business case goals during the course of the project life cycle.
2. Documentation of process objectives and project success criteria and their smooth communication
3. Using the appropriate financial and operational performance indicators in relevance with business case objectives to ensure measurement of project success.

Value Optimization

In this particular phase the structure and processes are developed to align actors ad resources involved with the main aim of maximizing the value derived from business-driven

IT investments. Enterprises must also analyse how the implementation and processes compare to best practices (Bouhdary & Comes, 2008). Customer services are increased and the organizational effectiveness is enhanced by companies besides reducing costs. These actions are carried out by identifying opportunities and result in derived value from current investments. After the IT projects go live, there is dire need for ability to adapt and make changes to infrastructure to drive your investments at full throttle and for this to be done successfully additional funds are needed sometimes to maximize value.

3.2.3 Challenges of IT Value Creation

After discussing the relevance and the driving forces of value creation and its delivery earlier, we now look upon to the hindrances that may be faced by enterprises while going through the due process. It's a well-known fact that nothing is achieved without facing any hurdles. Same has the case been found with creating value and then delivering it to the point of success. Budget allocation and the approval of this budget are the main problems that come to the attention along with the over-spending by most organizations and another challenge that may possibly be confronted by the enterprises is the lack of support to innovation by IT (Pricewaterhousecoopers, June 2008). With the IT resources of the organizations having an increasing trend, the complexity has also raised which also comes out as a problem for the delivery of value.

Budget allocation and approval is always complicated. The IT department and its head do not always make decisions on the investments as a soul authority and they need to take the senior management on board. This usually creates problems in allocation and approval. Sometimes the budget allocated to IT becomes a hindrance as not all investments can be covered up while in some situations the senior management does not agree to the proposals given by the IT department. Due to these situations, opportunities of having valuable assets are lost.

It's a well-known fact that the consumption of IT has increased. With this increase we have seen a great deal of changes and advancements in technologies which has left the businesses to cobble together disparate software and hardware systems and tools (Pricewaterhousecoopers, June 2008). As a result we now have unbridled IT spending, unwanted complexity, unused systems, the need for expensive IT security, and, predictably, shrinking returns from IT.

The level of productivity has fallen whereas the IT costs have risen. So in short, with the increased use of IT the value management has gone astray and not been prioritized. The companies spend on investments without scrutinizing and end up spending in areas which are not in line with the business strategy. With more and more investments, there is increased complexity. If one element is changed in a complex IT infrastructure, it originates wrinkles all through the system, negating the local, short term value of the new technology by imposing long-term maintenance costs.

3.2.4 Summary Value Creation

The IT Governance Institute (2005) defines the value creation in relevance to IT governance in the following words: *Value delivery is about executing the value proposition throughout the delivery cycle, ensuring that IT delivers the promised benefits against the strategy, concentrating on optimizing costs and proving the intrinsic value of IT.*

Value creation with relevance to IT governance is often deciphered as the competitive advantage that any enterprise would gain over there competitors. Deriving business value depends upon the kind of practices taken up by the enterprise to derive business value. Using

IT and information systems to facilitate the access to information and knowledge which in return assists in accomplishing tasks, meeting objectives and realizing goals is another way of how business value is derived from IT.

For the value delivery in order to be efficacious, significant allocation of the resources, initial scrutiny and monitoring the investments of IT like any other type of investment, holds the key (IT Governance Institute, 2005). Using IT and information systems to facilitate the access to information and knowledge which in return assists in accomplishing tasks, meeting objectives and realizing goals is another way of how business value is derived from IT.

Making investments in IT is just the first step towards creating business value and to maximize the derived business value it is necessary that analogous improvements in the management practices around IT are made. Enterprises make sure of delivering solutions with proper quality, on time and on budget using the best practices for value delivery in IT governance.

3.3 Performance measurement

3.3.1 What is performance measurement?

According to the IT Governance Institute (2007), performance measurement is the tracking and monitoring of resource usage, process performance and service delivery, strategy implementation, and project completion. With performance measurement, we analyse the successfulness of a group, program, or organization's efforts by taking the collected data on what actually happened and seeing if it was what was planned or intended upon from the beginning on.

The aim of performance measurement in any organisation is to track how the work is performing and with this information the organisation can make improvements where it's necessary. The people that are the most interested in this are the stakeholders – A stakeholder is any person, group, or organization that can place a claim on or influence your resources or services; is affected by your activities or services; or has an interest in or expectation of you – for they are investing in the organisation and want to see that it's performing to their standards.

Performance measurement is part of performance management. Performance management is what you do with the actual information that has been developed from measuring the performance.

The measurement of performance in IT is of great importance to any organisation that uses IT; these organisations need to know how well their IT is performing and the measuring of it can determine what actions need to be taken.

3.3.2 Why use performance measurement?

There are many reasons why an enterprise uses performance measurement; these all depend on what type of an enterprise we are talking about and where their preferences and importance lies.

With the help of Patricia Lichiello's Guidebook for Performance Measurement (1999), we list some of these reasons here:

- Finding new goals and objectives

When performing measurement, you look at where and what to improve in a particular process, whether it is human interrelated or technology based. By reassessing the work you might see things in a different perspective and this might lead you to new (short term and long term) goals and objectives. Furthermore, this process might result to the development of a new strategic plan.

- Improve work quality

  If you identify a problem, you can address it. With performance measurement an enterprise looks at how efficiently their IT are performing and if there is an issue that arises, it can be dealt with (right away) so that it won't occur anymore, this will help improve the quality of the end result.

- Collaborating

  During performance measuring, you do a lot of overseeing. Technology helps a great deal in this process. Sometimes the collaboration between multiple programs might eliminate duplication that a single program can oversee.

- Keep track of progress

  Of course, performance measurement isn't always about looking at what's wrong, it's also about keeping track of what is going right and keeping that up as well as improving at where you are lacking at. This is more or less what performance measurement is all about, keeping track of what's going on and optimizing it to its' extend. Furthermore, this is essential to the stakeholders, for they want to know how the progress of their investment is going.

- Reporting out

  When having all the information, you need to know what to do with it; what aspect to keep the way they are and which aspect to make improvements to. We have touched upon the stakeholders in the previous point (keep track of progress), however they are not the only ones that need to be up to date with what's going on, the managers and other high level executives need to know what is going on as well.

Now that we have looked at some of the reasons why an enterprise uses performance measurement, we will identify, once again with the help of Patricia Lichiello's Guidebook for Performance Measurement (1999), some key elements to be taken into consideration by an enterprise before measuring performance.

- Time and resources

  You cannot decide to use performance measurement without having done any investigation on what and where of the IT you want to measure the performance from. After having identified the what and where, an enterprise will have a clear overview on how they will use this process. An outcome can also be that the enterprise does not proceed with performance measurement at a specific moment due to lack of time and/or resources.

- Knowing how to explain

  Communication between the ones working with the performance measurement and upper level managers and stakeholders is crucial; one has to be able to not only know what he/she is doing, but also be able to explain to the other(s) in a way that they will understand.

- Stakeholders

  In the end, an enterprise has to meet the needs of the stakeholders. The stakeholders need to be satisfied with the progress. You will have to be able to let them know that their investments are been taken care of. The information gathered and being gathered are of great interest to the stakeholders, so these need to be taking into consideration when applying performance measurement.

In order for performance measurement to be effective in an enterprise it should provide valuable and credible information on the work capacity to undertake, the quality of the work, and the outcome of the work. The effectiveness of the performance measurement within an enterprise can be achieved once the necessary considerations have been taken into account and the necessary steps have been taken to ensure it all.

3.3.3 Process steps for measuring performance

In the following section, we identify the process steps for measuring performance for SMEs. We list these process steps with the help of the model *Continuous Strategic Improvement Process for SMEs* (Hudson, Lean, & Smart, 2001).

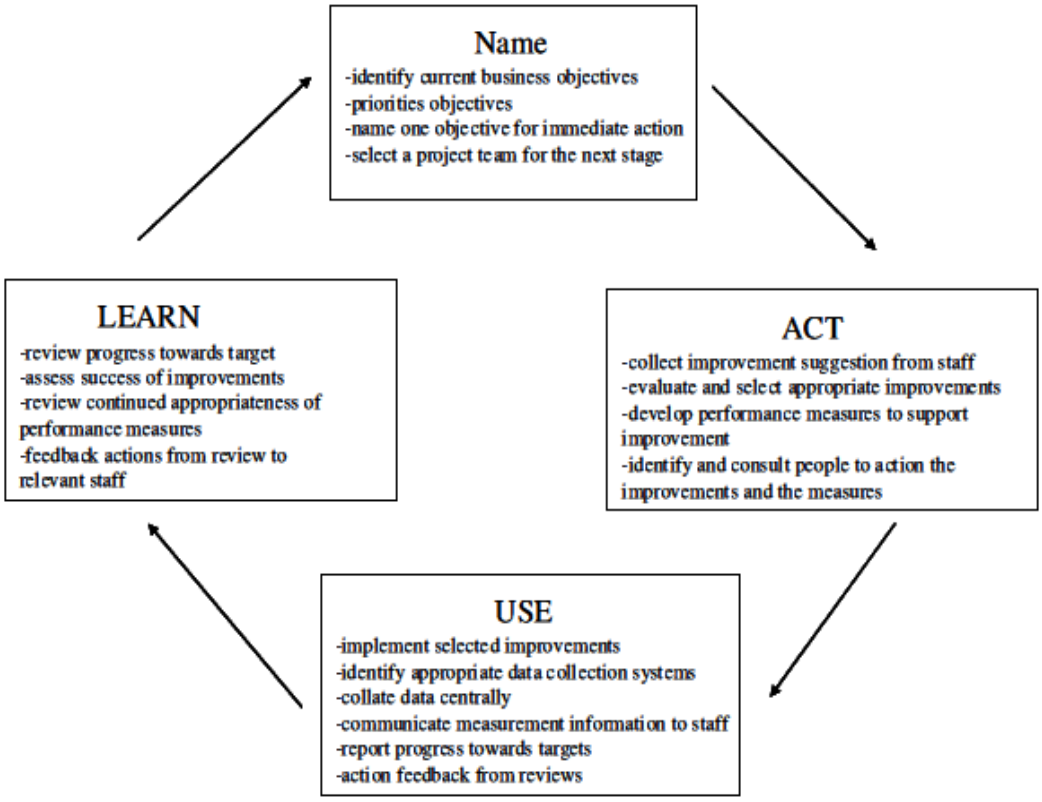

Figure 3-5 Continuous Strategic Improvement Proccesses for SMEs (Hudson, Lean, & Smart, 2001)

- Name

  In this stage the SMEs focus on identifying the current business objectives and prioritizing them. After this action has been undertaken, the SME has to name one objective for immediate action. And, before moving on to the next stage of the process, the SME should select a project team for the next stage.

- Act

After the first stage has been completed, we move on to the second one. Here, the project team that has been selected starts collecting the improvement suggestion from the staff and based on this, they evaluate and select appropriate improvements. After this has been done, the team proceeds to develop performance measures to support the improvements. The final step of this stage, the team focusses on identifying and consulting people to action the improvements and the measures, which will lead us to the next stage of the process.

- Use

  We now get to the fun part of the process, putting the gathered information into practice. The SME implements the selected improvements from the previous stage and identifies the appropriate data collection system. After that, the data needs to be centrally collated and the information about the measurement needs to be communicated to the staff. Finally, the progress will be reported towards the targets and based on the feedback from reviews, actions will be taken.

- Learn

  After the first three stages have been completed, the SME reflects and learns from what has been done and how this can be improved for the next time. The SME reviews the progress towards the targets, asses the success of improvement, reviews continued appropriateness of the performance measures, and feedback actions from review to relevant staff.

When these four stages have been completed, the cycle can start over again, until the SME meets its' goal.

3.3.4 Summary performance measurement

We now know that, in accordance to the IT Governance Institute (2007), performance measurement is the tracking and monitoring of resource usage, process performance and service delivery, strategy implementation, and project completion.

Patricia Lichiello's Guidebook for Performance Measurement (1999) helped us identify why performance measurement is of importance. The following arguments given are finding new goals and objectives, improve work quality, collaborating, keep track of progress, and reporting out.

Furthermore, the guidebook illustrates some key elements to be taken into consideration by an enterprise before measuring performance. These key elements include time and resources, knowing how to explain, and stakeholders.

With the help of the model *Continuous Strategic Improvement Process for SMEs* (Hudson et al., 2001), we identified four stages to illustrate the process a SME has to undergo to when it comes to performance measurement. These four stages are a continuous cycle and it consists of the stages name, act, use, and learn.

With the theories mentioned (by Patricia Lichiello, 1999 and Hudson et al., 2001), we identify certain steps that Small-and-Medium Enterprises undergo. The aim of the interviews we have conducted is to identify whether or not SMEs follow a particular process or have their own process when it comes to measuring performance.

3.4 IT Governance framework

Here we make reference to a framework that map unto the five focus areas of IT governance as we have understood that, "For IT to be successful in delivering against business re-

quirements, management should put an internal control system or framework in place."(IT Governance Institute, 2007). We acknowledge the fact that there are several frameworks relating to the subject matter but we would give just the overview of the COBIT framework primarily because this framework was developed by the IT Governance Institute, it covers our areas of interest in this research namely; value delivery and performance measurement and it is widely accepted in the industry.

COBIT is a process oriented framework which encompasses four interrelated domain, these domains are carved in accordance to the traditional IT responsibility areas of plan, build, run and monitor. These domains are mentioned below;

- Plan and Organise: this gives path to solution and service delivery
- Acquire and Implement: here the solutions are provided and processed into services
- Deliver and Support: the solutions are received and made available (usable) for end users
- Monitor and Evaluate: all processes are observed in order to ensure that provided guidelines are followed.

In this research we only concentrate on the latter two. As it was stated earlier, our focus is directed towards performance measurement and value delivery which are covered in those parts.

Delivery and Support
Looking at the delivery and support, the aim here is geared towards the delivery of essential services, which comprise management of data, operational facilities, security and continuity, service delivery and support for users. According to the IT Governance Institute (2007), Delivery and support typically addresses the following management questions:

- Are IT services being delivered in line with business priorities?
- Is IT costs optimised?
- Is the workforce able to use the IT systems productively and safely?
- Are adequate confidentiality, integrity and availability in place for information security?

Monitor and Evaluate
The quality of IT processes requires assessment at intervals, and also making sure that IT is complying with set control requirements. Therefore this domain looks into the issues of performance management, monitoring of internal control, regulatory compliance and governance. According to the IT Governance Institute (2007), it typically addresses the following management questions:

- Is IT's performance measured to detect problems before it is too late?
- Does management ensure that internal controls are effective and efficient?
- Can IT performance be linked back to business goals?
- Are adequate confidentiality, integrity and availability controls in place for information security?

There are 34 identified processes that cut across the four domain of COBIT and these can be used to check how complete the activities and responsibilities are. We are not going to dive into this aspect as this is beyond the scope of this research and this session is only written for references purpose only.

The figure below depicts the four domains and their interrelatedness;

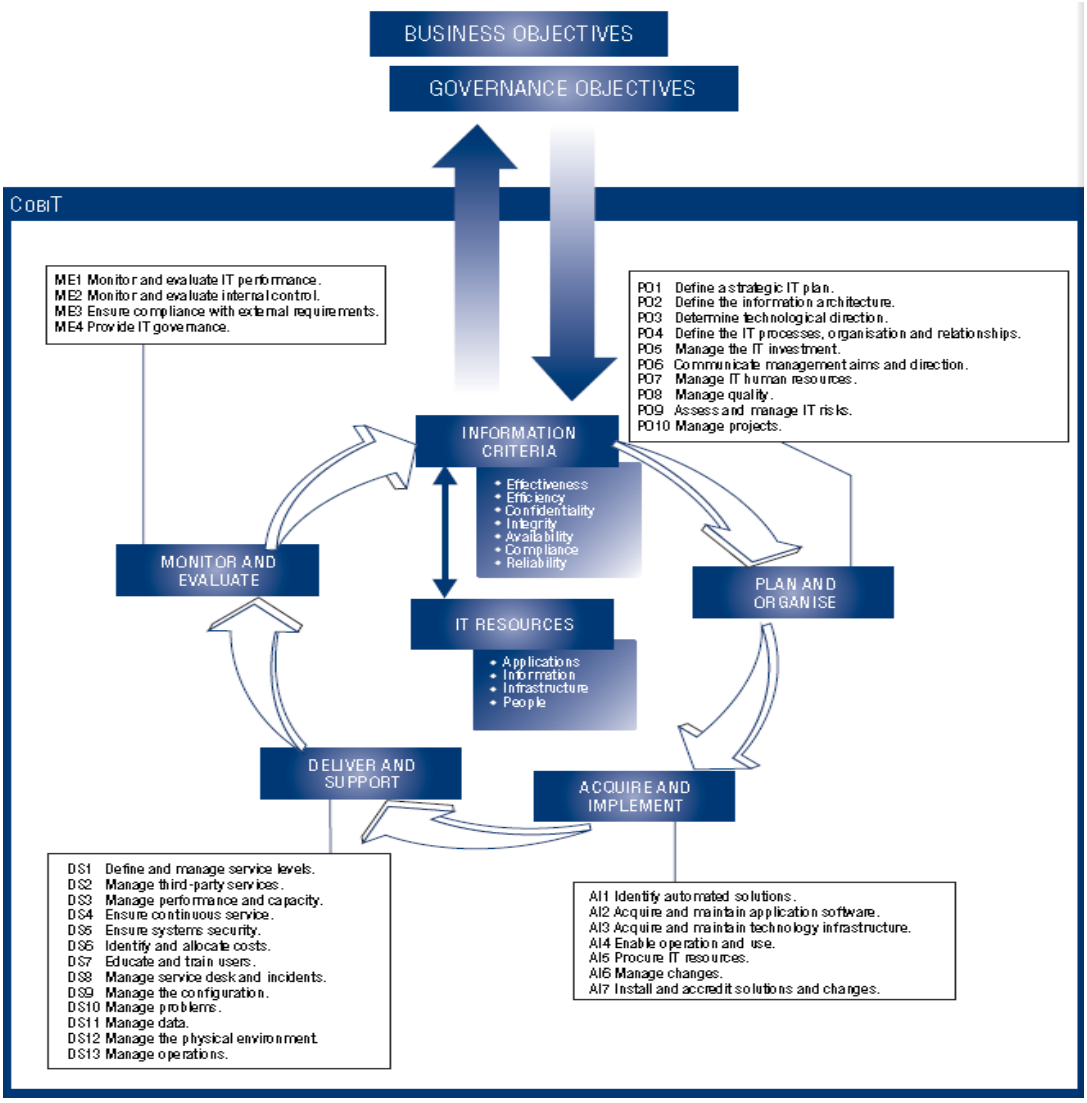

Figure 3-6 An Overall COBIT framework (IT Governance Institute, 2007)

4 Empirical findings

In the following section the outcome of the conducted interviews will be presented for the reader. This section provides the reader some knowledge on the interviewed companies and how they reacted to the interview questions. The findings are based on the interview questions that were formulated with the help of the frame of reference.

4.1 Gislaved Folie AB

Company overview:

Gislaved Folie AB is a small and medium sized enterprise that started its first foil production on December 5th, 1945. The company has about 130 employees, all based in Gislaved. The SME operates with surface materials to add colour, shape and functionality. The product development and production are carried out at the plant in Gislaved, Sweden. The enterprise's foils are used to provide decorative finishes with a variety range of functions, tailored to the application and setting of the finished product.

You can find Gislaved Folie's products in numerous forms and settings all across the world. The following products have been taken from Gislaved Folie AB's website and they include the following:

- Vehicle dashboards and door interior panels
- Walls, ceilings and floors onboard ships
- Woven plastic matting for public and private settings
- Furniture and kitchen cabinets
- Cushions for ear defenders
- Inflatable mattresses for healthcare

The following interview has been conducted on the 19th of March, 2012, with Mats Hallberg, whose position is in IT management, along with one other employee.

Interview findings:

Gislaved Folie AB has 2 employees working in their IT department. With the proximally 130 employees working at the company and all of them being based in Gislaved Folie AB, the company's annual turnover for the fiscal year 2011 has been 260 million SEK.

The budget for IT investment is about 1-1.5%. There are two kinds of investments that are being used; how IT performs and collaboration with other departments. No approval is necessary from the marketing department when working inside the budget.

The first section of the interview with Gislaved Folie AB was aimed at the value creation/delivery of IT to the company.

Benefits of IT value creation

There have been many benefits of IT for Gislaved Folie AB. Some examples given during the interview were that:

- IT has helped the employees work more efficiently;
- IT has helped the company with its (online) marketing; it is only been five years since the company has been using the internet;
- Due to IT, more information has been available to access;
- IT has also allowed the (top) management to have more control over what is going on within the company.

Driving forces of IT value creation
One of the driving forces of IT value creation for Gislaved Folie AB has been the use of the internet over the past five years. The internet has helped the company to get more involved in the market.

Another driving force of IT value creation for Gislaved Folie AB has been that the company follows standards rather than creating new ones, for new ones has costs them a lot of money in the past and it didn't pay off.

Criteria's/decision making process for IT investment
The IT has a budget of about 1-1.5% of the turnover for its investments; the department has to fight for it in order to receive more. Furthermore, there has to be some thoughts and motivation behind each decision to be made by the IT department. Finally, the department receives a frame which they have to keep to.

The criteria considered when making IT investment within Gislaved Folie AB is dependable on the calculations on whether or not it's a necessary and/or an essential investment to have; the aim is strong on the Return on Investment (ROI).

Challenge(s) of IT value creation/delivery
Some of the challenges faced with IT value creation/delivery have been:
- The approval of the budget; the IT department needs to fight for this,
- Following standards, which has caused problems to configure support and make sure everything works properly,
- The employees; the employees need to have the right education, the right information available to them, be informed on how the work, and be able to perform them well.

Measures used to ensure IT value delivery
Gislaved Folie has two ways of measuring how the value delivery of IT is ensured. The first way is through quality control; checking to see if the quality is of standard. And, the second way is through a special group they refer to as "System Management Team". This team consist of specialists of different departments who come together and discuss and compare everything.

The second section of the interview was dedicated to the IT performance measurement within the company.

Tools and IT performance indicators used to measure IT performance
We have found out that Gislaved Folie does not use any tools to measure the performance of their IT, at least not directly. However, indirectly they do keep track of how there IT is performing. The way Gislaved Folie does this is through the following 7 steps cycle:

1. End user – provides idea
2. Super user – expert of the system
3. System management team – discuss the idea
4. IT department – owner of the problem now
    - Configure the system or buy from supplier
5. IT supplier – they buy from the supplier
6. IT department – receives back the feedback from the IT supplier
7. Super user – discuss into details with IT department (do this several times)

These 7 steps are also applicable to other departments besides the IT department.

Reasons for and benefits of IT performance measurement
One reason for measuring performance of IT that was given during the interview was that it's important to keep track of what is going on; do check-ups before and after the project. This is not always done though; mainly done with the large projects, not so much with the smaller projects.

One of the benefits of measuring performance of IT within Gislaved Folie AB has been that the company can follow up on their systems and compare how it should be for future reference.

These reasons and benefits do not come alone by itself; there are challenges that come along with them.

Challenge(s) of IT performance measurement
The challenge that Gislaved Folie AB has faced when it comes to the IT performance measurement is time. According to the interviewee, time is really important, however, time is really difficult to measure.

4.2 Flintab AB

Company overview:

Flintab AB is one of the leading companies in industrial weighing. The company develops and markets scales and weighing systems for industry. The range of services is very wide-spread; from small packages to large scales roads.

Flintab AB was established in 1981, but has history dating way back to 1856 (Lindells & Stathmos). The main markets that Flintab AB operates in are in Sweden, Norway, and Denmark. Furthermore, internationally, the company operates through partners such as UPS, DHL, Van der Lande, Fisia Babcock, Cargotec, MacGregor, IKEA.

The company has 71 employees. Here is an overview on how they are allocated throughout the company:

- Management – 5 employees
- HQ staff, support and sales – 7 employees
- Service and maintenance engineers, including local mgt. – 38 employees
- Engineering (R&D, system development, embedded systems, mechanical design) – 17 employees
- Logistics (stock and supplies, purchasing, transportation, production and configuration) - 4 employees

Flintab AB is accredited for both periodic inspections of industrial scales up to 300 tonnes as well as calibration of reference weights according to EU standardized rules and regulations.

The following interview has been conducted on the 3rd of April, 2012, with Göran Nylén, whose position in the company is as CEO.

Interview findings:

Flintab AB had a turnover of 11.3 million euro at the end of the fiscal year of 2011 and its' net growth was at 9%. Based on the future plans presented to us by the CEO during the interview, the company wishes to have projections of 12.1 million euro turnover by the end of the fiscal year of 2012.

Currently, the company holds a market share of approximately 45% in Sweden. The installed base consists of 780 systems and it has been rated AAA by Dun & Bradstreet for 12 consecutive years; this is a standard held by only 321 of Swedens 358,000 registered public and/or non-public companies.

Furthermore, the company has an annual of 400.000 SEK for its IT budget. Despite having 71 employees within the enterprise, Flintab AB has only 1 person at the IT department; this person is at the store.

IT governance hasn't been so strict in Flintab AB; there is plenty room for freedom to experience and invent new things for the employees. The company is ruled more by the IT strategy which is discussed at the board meetings (once or twice a year) to make sure that there is a plan to connect the business goals with the environment.

The first section of the interview with Flintab AB was aimed at the value creation/delivery of IT.

Benefits of IT value creation

IT value creation has enabled the company to keep and get the clients on a large base. Furthermore, the IT value creation has allowed Flintab AB to build a strong foundation of credibility; if you do not have the right credibility you cannot get the attention of the major companies. This has contributed to not only to the company's reputation but also to its status on the market.

Driving forces of IT value creation

The way that Flintab AB approaches their core business is essential to the success behind the driving force of IT value creation. Here follows a list of some of the key driving forces that has driven Flintab AB to IT value creation:

- ERP system: Jeeves (from company info cube)
- Share point portal (cloud computing)
- Exchange server
- Back-up server

The most important driving force, that connects all the driving forces mentioned above together, is that the enterprise owns everything themselves; they do not rely on outside companies. By doing everything self and not being dependable on other companies, Flintab AB has built a strong credibility for themselves over the years.

Furthermore, the enterprise's employees have played a crucial role in determining everything. The enterprise believes that the employees are responsible for the job and the machines for the tasks; the machine can never take the blame for when something does not go correctly.

Criteria's/decision making process for IT investment

Flintab AB is very aware of the environment concerns of their business. This is a major criteria that always needs to be checked upon, for it could damage the reputation and credibility that the enterprise has built over the years.

Another decision making process that the enterprise takes into strong considerations is that it needs to be not only strategic but also tactical.

Challenge(s) of IT value creation/delivery

The challenge that Flintab AB is facing within the company when it comes to IT value creation/delivery is to make sure that the enterprise should not go too much over the top, because of the many ideas that are produced. There should be a clear purpose and solving matters as you go does not always work out for the best.

Another challenge that Flintab AB faces is to set a clear goal and what methods required to achieve it from the beginning on. Even though, the trust and confidence in the work is there, a certain degree of certainty is necessary; a plan of action that needs to be followed by everyone.

The second section of the interview was dedicated to the IT performance measurement within the company.

Tools and IT performance indicators used to measure IT performance

There are different tools used by Flintab AB to measure its' IT performance. The first tool used by the enterprise is the balance scorecard; this measurement is to track how well (or perhaps not so well) the IT is performing. The second measurement reflects more on the quality aspect of the IT; the enterprise has a fault reporting system. The system that is being used for the fault reporting is called Easit. The third, and last mentioned measurement in the interview, is internal.

Reasons for and benefits of IT performance measurement

The reason behind the IT performance measurement for Flintab AB is to make improvements and ensure that efficiency and productivity increases.

The benefit that arises of having the mentioned IT performance measurements is to keep track of what is going on and help address a situation if it occurs again in the future. How the keeping track of what is going is handled reflects on how much the efficiency and productivity increases afterwards.

Challenge(s) of IT performance measurement

When it comes to the challenge(s) faced of IT performance measurement for Flintab AB, there is one visible threat that is to be kept an eye out for: confusion. People are people and machines are machines. The people are doing the jobs and the machines are doing the tasks. An employee has to know what to do when a critical situation occurs so that it won't happen again in the future.

Measures used to ensure IT performance

Flintab AB has an internal agreement that IT should be categorized by 3 levels; these levels are: non critical, Critical, and Catastrophic.

Furthermore, the enterprise measures the IT performance through invoice. The enterprise finds this essential and is willing to invest 150.000 SEK on hardware to realize the goal of reducing the invoice to 2 days; currently the invoice is at 3 days.

4.3 Uppåkra Mekaniska AB

Company overview:

Uppåkra Mekaniska AB is a company dealing in the advanced turning and milling in large volumes, complemented by a press, welding and sheet-metal workshop. They also assemble advanced drive units and OEM transporters to Flex link's European market. Their cutting department possess large capacity for the cutting of pipes and bars. if desired, they can also perform heat treatment and surface finishing. Uppåkra Mekaniska AB was founded in the early 1940s and currently has a workforce of 235 employees with an annual turnover of SEK 340 million. This company is certified with the ISO 14001 and ISO TS16949.

The following interview has been conducted on the 5th of April, 2012, with Stefan Nilsson, who is the IT manager of the company**.** His role is to technically support the overall IT of the company and his portfolio shows he has 13 ½ years' experience, of which 3 ½ he gained working with Uppåkra Mekaniska AB.

Interview findings:

The enterprise spends approximately 800,000 SEK on their IT budget and this seems to be satisfactory by the IT department. This budget includes what is spent on IT infrastructure, upgrades, and general maintenance.

The decision on IT investment depends mainly on how big the investment is monetarily; if it is a very big investment such as purchase of an ERP system, the company management board would preside over such investment decisions otherwise smaller investment decisions can be made by the IT department. Although decisions are made by management, certain criteria are put into considerations before investing. Sometimes, the trigger to invest starts with the employees or departments making demand for what they need in order to improve their work; the company calls this a wish list. When a department makes specific demand, the investment is made on the department's budget not IT. IT budget are reserved for mainly support and maintenance purposes.

The first section of the interview with Uppåkra Mekaniska AB was aimed at the value creation/delivery of IT to the company.

Challenges of creating value

A challenge faced with creating IT value for Uppåkra Mekaniska AB would include the IT budget allocation. Stefan Nilsson indicated, some time back ago (around 2008), about the board limited investment proposals.

Ensuring IT delivers the promised value

In order to ensure IT is delivering the promised value, the company gathers feedback from the users and system to make sure IT is doing what is expected of it.

Challenges of IT value delivery

Uppåkra Mekaniska AB faces minimal challenges when it comes to ensuring that IT delivers its promised value. During the interview, an example of data migration problems from previous system to a newly implemented system was given. According to Stefan Nilsson, there are no major problems he could think of when it comes to the delivery of the promised value of IT to the enterprise.

The second section of the interview with Uppåkra Mekaniska AB was dedicated to the IT performance measurement within the company.

IT Performance measurement

The enterprise uses virtual servers and is contained in this. A virtual server is a software which can provide the company on performance indicators such as resource usage, response time etc. The company depends so much on feedback from the users of IT in the company as well. Another software used for efficiency measurement by Uppåkra Mekaniska AB is called RS.

The QlikView is a software which the enterprise uses to analyse data and is used for reporting purposes; with this software the enterprise can check individual employee production time.

Essential consideration before IT performance measurement

Before IT performance measurement is carried out, the enterprise needs to check if there is a need for any measurement tools, such as the software used in the enterprise.

Uppåkra Mekaniska AB checks to see if whatever is needed to carry out IT performance measurement is already available in-house or it needs to be purchased. After that, they check the cost to see whether it is reasonable enough to fit the IT budget.

Challenges of IT performance measurement

An example of the challenges faced was given by Stefan Nilsson during the interview. The example of a challenge when it comes to the measuring of IT performance within Uppåkra Mekaniska AB is the identification of the right data to be used at the right time; this could be a problem.

The enterprise uses the QlikView software but also have to cross check data in the company's ERP system.

Benefits of measuring IT performance and its value creation

Generally, Stefan Nilsson admits that IT helps the company in all aspects and believes that without IT, the business processes would be disrupted.

Furthermore, he also noted that the company doesn't make use or deem it necessary to use any advance methods in creating IT value and measuring IT performance. IT is being used to maintain customer relations, communication and also for invoice processing.

Delivery of IT value is being leveraged in production planning and purchasing business process. These are believed to be the ways IT creates value. The company also make use of best practises in creating value.

4.4 Pallco AB

Company Overview:

Pallco AB is a small and medium sized enterprise situated in Ekenässjön. The company develops and manufactures modified products and gears made of metal and steel. Pallco AB was founded in 1949 by Henning Andersson and is currently owned by Polstiernan Industri AB. There are almost 200 employees working for the company till date and the annual turnover is around 40 million euros.

There are a total of three factory plants where the production takes place. The plants include assembly and packing plant, aluminum processing plant, and steel processing plant. Pallco is basically a subcontractor with a broad range of skills. They process steel tubes, sheet metal and aluminum extrusions along with having expertise in the fields of welding, power coating and assembly packaging. Pallco has partnership with well-known companies and they collaborate to make products to satisfy their partners. Along with these are other products such as office hold items, fireplaces, stoves, heaters, etc. which are all specialties of Pallco AB.

The following interview has been conducted on the 27th of April, 2012. We had a chance to interview Lars-Erik Carlsén, the IT manager of Pallco AB. In the parts that follow are the findings that we could extract from the interview.

Interview Findings:

When asked about the IT resources and the IT department being a necessity for the company, we received a positive response. The manager told us that IT was necessary for the business and all the other departments to function. The budget spent on IT is not that much when compared to larger enterprises; the percentage lies between 0.3 to 0.4%. The manager argued that considering the size of the company and the requirements, that this percentage is sufficient enough for the enterprise.

The first part of the interview dealt with extracting information of that value creation and the delivery of value that IT managers come across while handling their respective departments.

Driving forces of IT value creation

Pallco AB uses its IT resources to create value. Technologies like internet are used to contact the customers and clients. All the communication as well as financial transactions like bill payments for the company are done online and the trend for use of internet is an increasing one. IT influences all the departments in the company. The manufacturing and production plants use manufacturing production scheduling (MPS) applications whereas the databases are used by the data storage and backup departments. Pallco AB uses ERP systems and software application packages such as 'Monitor' to carry out the knowledge management of the company. The manger also confirmed the use of Electronic Data Interchange (EDI).

Best practices

When asked about any best practices adapted in order to create and deliver value successfully, the manager told us that they upgrade the IT department every 4 years. This mainly includes all the IT resources in the IT department, mostly hardware. Maintenance is given a high level of priority and for this purpose the function of maintenance and support is outsourced to companies which overlook the IT department to make sure everything is going in accordance. The manager also highlighted the fact that maintaining a database which

contains all the information and the current status of the IT resources also helps the cause of value creation.

Considerations taken into account before making any IT investment

According to the manager, decision making for a new investment IT department of Pallco AB is mainly based on the wish list presented by the different departments. Other considerations taken into account before making an IT investment are the efficiency of work, cost, reduced work cycles, etc. Before making a decision all departments and hierarchies are on board and then decision is taken by considering the capital required for the investment and the value expected from the particular investment.

Criteria for the new investment also involve the fact that it should be compatible with the partners and the clients and that the investments made would help the company to meet future deadlines.

Ensuring IT delivers the promised value

In order to make sure that the investments made by Pallco AB deliver the expected results, the company uses certain methods and follows specific standards. Only Microsoft certified applications are preferred. The maintenance and support, as mentioned earlier, is outsourced to another company. Other than this, the manager always makes a separate team which would be responsible for the particular investment made and make sure that investments delivers the expected value. The department maintains service level agreements with companies like HP so that any failure in hardware and software is managed appropriately.

When the query was put to the manager that how does the company know that IT is performing according to the expectations, the manager responded that for the very basic performance checks Pallco AB used HP insight manager to keep an eye on the hardware. Other than that the outsourced company, mentioned earlier, performed a thorough check on all IT resources (hardware and software) every once a week.

The second section of the interview with Pallco AB was dedicated to the IT performance measurement within the company.

Reasons behind IT performance measurement

The manager told us that the reasons behind measuring the performance were to increase the efficiency of the IT department and to calculate the worth of the It resources to the company. Other important reasons to measure highlighted by the manager were; to improve task times, to improve reduce times for production cycle, customer satisfaction, satisfaction of the users, etc. The tools used to measure the performance of IT in Pallco AB are namely HP insight manager, watch guard for firewalls, fault and error logs, error mails generated automatically and other standard windows tools.

Challenge(s) of IT value creation and performance measurement

When we tried to inquire about any challenges faced in value creation and performance measurement, the manager was concrete on the stance that there had been no major hurdles during his 27 years of vast experience. The main reason for that, according to the manager was the fact that considering the small size of the company, the IT activities were comparatively small and simple, and so easy to perform.

5 Analysis

This section is grouped into three parts based on the research questions posed in the thesis. This is done in order to be able to analyse the main research question (How can IT governance create value and IT performance be measured in SMEs?). The first two sub section (5.1 and 5.2) are directly related to the thesis sub questions which are; 'the driving forces and challenges in creating value through IT governance in a SME' and 'the benefits and challenges of IT performance measurement in a SME' respectively.

5.1 Value creation in SMEs

Creating and deriving business value from IT is the main concerns of IT governance as it refers to the variety of mechanisms that any organization would implement and institutionalize to guarantee that business value is derived from IT investments (Korac-Kakabadse and Kakabadse 2001, IT Governance Institute 2001). The main question that we tried to achieve an answer for in our research was to inquire about two important queries, the driving forces of creating and delivering value and its challenges. Here we try to shed our light and analyse both these aspects and try to enlighten you with what information we grasped.

Driving forces

The question of what drives a company in the size of a SME to create value using IT governance can be related back to the five goals of IT governance itself in which value delivery is one them. Referring to the theoretical frame, value creation/delivery points out that the driving force could be directly related to the competitive advantage that can be derived through IT and this was confirmed when the IT manager of Gislaved Folie AB made note about the evolving nature of the internet over the past couple of years, he also mentioned how the internet has helped his company get more involved in the market. This is also in line with the third paragraph in section 3.2.2 which talks about the usage of information systems to facilitate the access to information and knowledge which in return assists in accomplishing tasks, meeting objectives and realizing goals as another way of how business value is derived from IT, for Gislaved Folie AB the standards embedded in best practices also drives how IT value is being delivered rather than the company trying to create a standard of how value can be created using IT, they have tried to do this in the past and it didn't pay off.

In the case of Flintab AB, the CEO made it clear that the usage of enterprise wide systems such as the ERP, Share point portal for cloud computing etc., has been the major contributor and the fact that the company has invested heavily in such enterprise systems makes it necessary to govern how value is created and derived. Another factor for Flintab AB was the environment in which it operates, the required standard is high and everything matters for credibility.

Maintaining customer relationship was also one driver common amongst all the participant companies. For Pallco, the IT resource such as the internet is very vital because this is a medium to communicate with their client and customers and a lot of other transactions like online bill payments are also done. Stefan Nilsson of Uppåkra Mekaniska AB mentioned a wish list which is the employee demand for desired IT resources. This list is vetted by the board to decide which of demanded resources is of present value to the enterprise.

Support for business process is another driver of creating value through IT governance in SMEs, none of the four SMEs interviewed was an IT company, they only employee IT to support the processes within the company like Pallco AB, Gislaved Folie AB, Uppåkra Mekaniska AB and Flintab AB all use ERP systems for business process integration. Pallco

uses ERP systems and software application packages such as 'Monitor' to carry out the knowledge management of the company.

Challenges

The most common challenge found with all the companies interviewed is the problem of budget approval for some IT investment project, governing IT in some cases becomes a problem in acquire perceived value stream. An example was mentioned earlier, where Stefan Nilsson talked about the wish list they have in their company and how difficult it maybe to get budget allocated.

Another challenge identified was how to bring all employees on board, making them realise how IT value can be derived. At Gislaved Folie, the employees could sometimes pose a challenge as they need to have the right education, the right information available to them, be informed on how to work, and be able to perform them well.

Mat Hallberg the IT manager of Gislaved Folie AB also pointed out that following industry standards sometimes pose a problem to the company as there might not be enough to sometimes support their own business processes. So sometimes they would have to adjust the way work is being done to fit to standards and this is not very easy.

IT departments sometimes also struggle to set clear goals for themselves which results in unwanted spending and reduced IT value. So there are two main challenges which arise here; scrutinizing the choices of investments and deducing methods to deliver the promised value on the chosen investments. Scrutiny is critical because selection of the right investment is the very basis of value delivery. The scrutinized the selection is then followed by proper methods which would ensure the success of the investments and deliver the expected profits.

Summary of Value creation

All the IT managers we interviewed gave a positive response when asked about the need of IT resources and the IT department being as a necessity for the company. One of the managers was even quoted in saying "*IT is necessary for the business and all the other departments to function*".

Considering the small sizes of the company, it was pretty obvious that the percentage of the total budget spent on IT resources was minimal, most of the time between 0.5 to 5%. In most cases the managers were satisfied with the amount being spent; as it was fulfilling the requirements which were not that over the top as in case for large enterprises.

The IT departments, in SMEs, are usually responsible for maintenance and support functions only and there is not much to govern if compared to large enterprises. The authority and say in making investments is therefore not that significant. The decisions to make new investments mainly depend on the wish lists of the departments in the company.

It was extracted that IT has helped a great deal in helping the employees to work more efficiently, fluent flow of information, proficient marketing, knowledge management, increased hierarchical control and numerous other business functions of the enterprises. So, in short it would not be wrong to say that IT is a necessity for an enterprise to create value as it acts as a competitive advantage.

5.2 Performance measurement in SMEs

Reasons

When finding out the reasons why a small and medium sized enterprise would measure the performance of IT, we identified five reasons in the frame of reference; these reasons are based on Patricia Lichiello's Guidebook for Performance Measurement (1999). These reasons include the following:

- Finding new goals and objectives
- Improve work quality
- Collaborating
- Keep track of progress
- Reporting out

For Gislaved Folie AB the main reason behind their IT performance measurement is to keep track of what is going on. The enterprise does check-ups before and after a project; this is mainly done with the larger projects though.

Flintab AB uses IT performance measurement to make improvements and ensure efficiency and to increase productivity.

When it came to the IT performance measurement for the SME Uppåkra Mekaniska AB it was clear that the enterprise depends so much on feedback from the users of IT. The reason why the enterprise is so much dependable on feedback from the users of IT is to ensure efficiency.

Uppåkra Mekaniska AB isn't the only SME that we had interviewed that uses IT performance measurement to ensure efficiency; Pallco AB uses IT performance measurement for the same reason. Furthermore, Pallco AB uses IT performance measurement also to improve task times, to improve reduce times for production cycle, customer satisfaction, satisfaction of the users, etc.

We can see many clear correlations between the reasons provided to us by the four interviewed SMEs and Patricia Lichiello's Guidebook for Performance Measurement. Gislaved Folie AB uses IT performance measurement to keep track of the progress, Flintab AB, Uppåkra Mekaniska AB, and Pallco AB all use it to ensure efficiency; to improve work quality. The points that haven't been mentioned by the interviewed SMEs were finding new goals and objectives, collaborating, and reporting out. However, in return, based on the empirical findings of Pallco AB, we could include improve task times, improve reduce times for production cycle, customer satisfaction, satisfaction of the users to the list of reasons why a SME would measure IT performance.

Tools

In the empirical findings we have used the Continuous Strategic Improvement Proccesses for SMEs (Hudson et al., 2001) to illustrate the process steps for measuring performance for SMEs. These process steps include the following:

- Name
- Act
- Use
- Learn

Gislaved Folie AB has a continuous process model themselves. Their process model includes the following 7 steps:

1. End user – comes up with an idea or suggestion; this idea is taken to the super user.
2. Super user – the super users are the expert of the system and they identify the ideas that could valuable. After the identification process has taken place, the idea goes to the system management team.
3. System management team – the system management team discusses the idea into more details and comes to an agreement about. Ones this is done, the idea(s) that are still standing will be transferred to the IT department.
4. IT department – the IT department becomes the owner of the idea now. The IT department decides whether to configure the system or buy from supplier. If the outcome is configure the system, the process ends here and starts from point 1 again. However, if the outcome is to buy from supplier, we move on to the next step.
5. IT supplier – the enterprise decides at this step from which supplier to buy the necessities. The purchases will go back to the IT department.
6. IT department – the IT department receives back the feedback from the IT supplier. Before any decision(s) can be made, the IT department needs to discuss with the super user
7. Super user – The super user discuss the feedback into more details with the IT department; this process step is done several times. Once this step has been finalized an end product emerges and this then offered to the end user. The process model ends here and stars from the first step again.

Flintab AB uses different tools to measure its' IT performance. One of tools used by the enterprise is the balance scorecard to keep track on how well or perhaps not so well, the IT is performing. Another measurement which the enterprise uses is a fault reporting system; this reflects on the quality aspect of the IT. For the fault reporting system, the enterprise uses a system called Easit. The final measurement used by the enterprise is internal.

The tools used within Uppåkra Mekaniska AB are in house software, RS, feedback, and Qlik View.

The tools that are used by Pallco AB to measure the performance of IT are namely HP insight manager, watch guard for firewalls, fault and error logs, error mails generated automatically and other standard windows tools.

When we look at all four empirical findings of the interviewed SMEs, we can see that Gislaved Folie AB is the only enterprise that resembles a bit to the Continuous Strategic Improvement Proccesses of Hudson et al., (2001). The other enterprises uses mainly (in house) softwares to measure IT performance.

Benefits

In the world that we are living in nowadays, IT plays a crucial role. There are many benefits to IT and especially to the performance measuring of it. As mentioned in the frame of reference, one of the main purposes of performance measurement in an enterprise is to keep track on how the IT within the enterprise is performing. With this information the enterprise can make improvements where it's necessary.

When looking at Gislaved Folie AB, we can see that one of the benefits of measuring performance of IT, within the enterprise, has been that the opportunity to follow up on the systems and compare how and where progress needs to take place.

Flintab AB shared the same vision on the benefits arising from measuring IT performance as Gislaved Folie AB; keep track of what is going on and help address a situation if it occurs again in the future.

For Uppåkra Mekaniska AB, IT is very crucial. Stefan Nilsson, the IT manager, went as far to say that without IT, the business processes would be disrupted. IT brings balance to the enterprise. Furthermore, the IT of Uppåkra Mekaniska AB is being used to maintain customer relations, communication and also for invoice processing. If the enterprise wishes to keep this the way it is, it needs to measure the performance to ensure that the balance remain intact.

The clear benefit of IT performance measurement out of all this is that measuring the performance of IT within a SME helps the enterprise to keep track on what is going on. By keeping track of what is going on, you can make decisions that will affect the future of the enterprise. This is visible by our empirical findings; Gislaved Folie AB and Flintab AB both use performance measurements of IT to keep track of what is going on so that improvements could occur in the end.

Furthermore, another benefit that was visible from our empirical findings is that IT brings balance within an enterprise; according to Uppåkra Mekaniska AB. We believe that this is accurate, for with IT you can enhance a better relation with the customer as well with the employees; this is visible in the empirical findings of Uppåkra Mekaniska AB.

Challenges

Besides reasons to use IT performance measurement, Patricia Lichiello's Guidebook for Performance Measurement (1999) highlights 3 matters to keep an eye out for; matters that could face a challenge to a SME. These matters are:

- Time and resources
- Knowing how to explain
- Stakeholders

If we look at the challenges that have been identified in the interviewed SMEs, we can see challenges linking to time and confusions of making sure that everyone knows what they need to know. For the small and medium enterprise Uppåkra Mekaniska AB, we can see that the challenge faced to use IT performance measurement lies in the identification of the right data to be used at the right time. And, if we look at Gislaved Folie AB, which identifies time as a challenge as well, we can see that this challenge is highlighted. Mats Hallberg, the IT manager of Gislaved Folie, stressed the importance of time, but also mentioned that this is really difficult to measure. This takes us to the final challenge that we manage to identify, based out of our interviews, the confusion; this challenge was identified within Flintab AB. For the SME Pallco AB there weren't any major challenges to be identified, in accordance to the IT manager Lars-Erik Carlsén.

We can clearly see that 2 SMEs, Uppåkra Mekaniska AB and Gislaved Folie AB find challenges when it comes to time. Time and resources is one of the matters mentioned in Patricia Lichiello's Guidebook for Performance Measurement (1999).

Flintab AB brings up the discussion for an additional matter that could be of attention; confusion. This challenge reflects on making sure that everything goes well, and the way to achieving this is by making sure everyone is on the same level of understanding. Further-

more, we believe that this goes hand in hand with the matter of "knowing how to explain", described in Patricia Lichiello's Guidebook for Performance Measurement (1999).

Summary

There is a clear linkage to the benefit of Gislaved Folie AB and Flintab AB and one of the reasons used in Patricia Lichiello's Guidebook for Performance Measurement (1999); keep track of progress. Also, the connection that could be made between Patricia Lichiello's Guidebook for Performance Measurement (1999) and Uppåkra Mekaniska AB is based on the part of efficiency; improving the work quality.

As far as the challenges goes for measuring IT performance, there have been 3 matters highlighted in Patricia Lichiello's Guidebook for Performance Measurement (1999); time and resource, knowing how to explain, and stakeholders. Out of these three challenges, one has stood out in the empirical findings; time and resource, with the emphasis on time in this case. Both Uppåkra Mekaniska AB and Gislaved Folie are dealing with challenges of time. For Flintab AB, the challenge that is been faced is confusions. At the end of the day, it is the human employees that are working with machinery and guidelines need to be mapped out so that everyone knows what is expected from them; this reflects on the matter of knowing how to explain in Patricia Lichiello's Guidebook for Performance Measurement (1999). Based out of our empirical findings, we can see no trace of the stakeholders being a challenge to the interviewed SMEs.

All in all, based on the interview outcomes, we can say that the Guidebook can serve as a good blueprint when measuring the IT performance.

5.3 Examining a plausible framework for SMEs using COBIT

This thesis made reference to COBIT in the theoretical frame as a framework to be used for analysis in order to be able to suggest a similar framework for SMEs. The two domains selected to be used out of the four domains are the 'Deliver and Support' and 'Monitor and Evaluate'.

Delivery and support aims at delivering essential services, which comprise management of data, operational facilities, security and continuity, service delivery and support for users. In the course of this research, data collected from all the interview session shows that the domain of delivery and support validity could be demonstrated towards SMEs if we use the typical management questions suggested by the IT Governance Institute; Are IT services being delivered in line with business priorities?

In all cases investigated, the answer is practically yes. It was noted that all the SMEs have one or two persons in their IT departments, and the decisions to invest in IT was mainly from the business areas. Examples of this can be seen in Gislaved Folie AB and Uppåkra Mekaniska, In Gislaved Folie AB the criteria considered when making IT investment is dependable on the calculations on whether or not it is necessary to make such an investment and their aim is strong on the return on investment whereas Uppåkra Mekaniska uses the what the IT manager referred to as a wish list. The wish list is a list comprising IT service needs compiled by different departments within the company, the wishes in this list is then deliberated on by management for approval.

In the case of Pallco AB, they also use the wish list to make sure that IT investment would remain in line with business priorities but in addition to this, they also consider the efficiency of work, reduced work cycles and cost which brings us to the next question; Is IT cost optimised?

Lars-Erik Carlsén, the IT manager of Pallco AB mentioned that before making IT investment decisions, all departments and hierarchies would be on board and then decision is taken by considering the capital required for the investment and the value expected from the particular investment. That is considered cost optimization, in addition Mr Carlsén also said the criteria for the new investment also involve the fact that it should be compatible with the partners and the clients and that the investments made would help the company to meet future demands.

Finally, we answer one more question: Is the workforce able to use the IT systems productively and safely? The fact that many of the process of IT investments made in the SMEs interviewed starts with different departments shows that demand for IT has a need which is to enhance their workforce ability to improve productivity. Also, it is seen that all of the SMEs interviewed have put in place a performance mechanism to detect when the use of IT systems is not productive and safe. An example of such performance mechanism was put to play by Gislaved Folie AB, they indirectly measure performance through the following 7 step cycle:

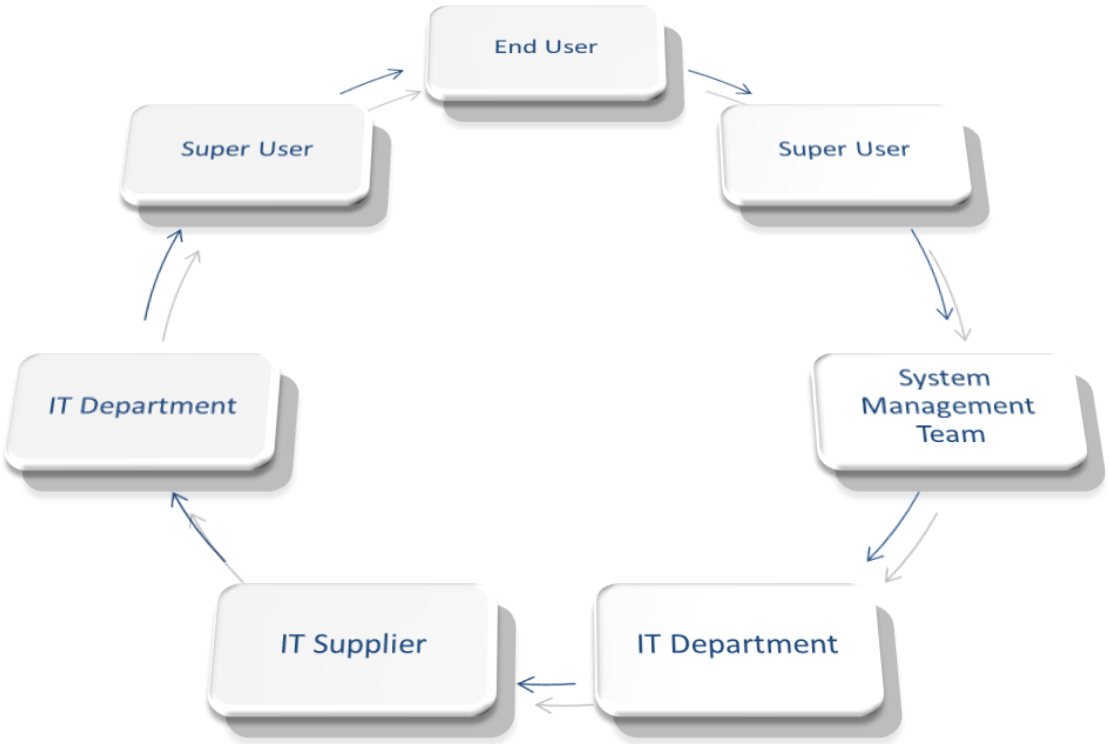

Figure 5-1 Seven Steps Cycle (created by the authors)

This concluding paragraph leads us straight to the next domain of interest within COBIT;

Monitor and Evaluate: The domain ensures that the quality of IT processes is assessed at intervals and to ensure IT is complying with any set control requirements. The domain's validity could be verified towards SMEs if we consider the typical management questions suggested by the IT Governance Institute; Is IT's performance measured to detect problems before it is too late?

The answer to this question was addressed earlier with the Gislaved Folie AB's 7 steps cycle and in addition to this, Mats Hallberg while responding to the question of why they measure IT performance said it's important to keep track of what is going on and one of the benefits of measuring performance of IT within Gislaved Folie has been that the company can follow up on their systems and compare how it should be for future reference.

This was also true for Flintab AB, they have performance management tools such as the balance scorecard in place to capture how healthy their IT is doing and with the help of other performance measurement mechanism, they can even control the quality through a fault reporting system. Göran Nylén the CEO of Flintab AB gave reasons behind the IT performance measurement is to make improvements and ensure that efficiency and productivity increases.

Most of the issues concerned with the monitor and evaluate domain have been address in section 5.2 of the analysis, the section looks into the analysis of performance measurement and examines all the relevant questions posed by the IT Governance Institute.

6 Conclusion

In this section, answers to the research questions posed in section 1.3 are presented in a simple and straight forward manner. After which the authors present their suggestions for further work and highlight the contribution of the thesis research to the field of informatics.

Along the way of this research, the main goal was to provide answers to the research questions. Figure 6-1 showcases what has been found during the interviews; this also reflects the answers to the research questions.

Table 6-1 Research outcome

	Challenges	Driving Forces
Value Creation	➢ To receive budget approval for future investments ➢ To set clear goals for the IT department and deduce methods to realize them ➢ Scrutinizing the investments and choosing the best one ➢ Following standards set by the enterprise ➢ Training of employees to ensure the new investments deliver	➢ Leveraging IT to gain competitive advantage ➢ Delivery of promised value ➢ Enhancement of employee performance ➢ Fluent flow of information ➢ Proficient marketing using different IT resources ➢ Better knowledge management ➢ Increased hierarchical control within the enterprise
	Challenges	**Benefits**
Performance Measurement	➢ Estimation of the time spent on measuring IT performance ➢ Confusion between employees and management about how to measure the IT performance ➢ Identifying the right data to be used at the right time	➢ To keep track on how the system performs ➢ To ensure the balance between IT and business ➢ To enhance the efficiency of the business ➢ Follow up on the systems to ensure that the performance is of high standards

IT plays a crucial role in the SMEs that have been interviewed for this research, so the governing of it all is of great essence. The governing of IT can create value by focusing on the driving forces, because through IT Governance the SMEs can make sure that these aims are being achieved or further work and/or improvements are necessary. Furthermore, IT governance can measure IT performance, because the IT is been tracked and the progress of it is being kept an eye on in order to ensure that the IT is performing to its expectations; this can enhance the efficiency of the business in the end.

6.1 Suggestions for further work

After careful analysis of the empirical data available in the course of this research, it is deemed appropriate to make some suggestions on areas which are to be improved or should be looked into by fellow researchers who might be interested in this subject area.

Firstly, the issue of finding a befitting framework for IT governance in SMEs should be seen as an area that requires attention. The size of SMEs and the complexity that a framework like COBIT could have also makes it questionable whether SMEs can apply a framework as such. During the course of this research, parts of the overall COBIT framework was investigated to see if some elements contained in the framework could apply to or already in existence amongst SMEs. Surprising, the results we got shows that SMEs actually comply unknowingly to elements contained in the domains investigated i.e. the 'Deliver and Support' and 'Monitor and Evaluate'. This makes us to become even more curious on whether similar results could be gotten on other domain of COBIT. Since this research was not based on exploring in-depth on the application of COBIT in SMEs, we would like to suggest more coverage on the aspect of developing an IT governance framework for SMEs using COBIT or a similar framework to serve as a theoretical basis.

Secondly, considering the fact that IT governance spans across five domains of Strategic Alignment, Value delivery, Risk Management, Resource management and Performance measurement, only two of this domains (Performance measurement and Value delivery) have been covered in this research and it would be good to have a more comprehensive study into the other domains to really have clear picture of how IT is been govern in SMEs.

Finally, we suggest more research into areas on the roles played by IT management in SMEs, as this could be considered a giant step by SMEs on determining how best IT can be used to create value.

6.2 Contribution to the field of informatics

The contribution of this thesis is considered to be split into several areas mentioned below; Since most of the research conducted in area of IT governance in the past has been carried out or concentrated on the large scale enterprises and little done or known about SMEs. This thesis therefore provides an insight into how SMEs tend to govern IT and leverage IT to create value while making sure that all its promised values are being delivered.

The authors of this thesis have also presented the challenges faced by the SMEs in creating value and measuring IT performance. In addition, the driving forces for SMEs to use IT governance in creating value were also identified.

This thesis also contributes additional knowledge to what the benefits of measuring IT performance and value creation in SMEs are.

Suggestions have also been made regarding the unintentional correlation between the components of COBIT and how SMEs are actually operating in terms of performance measurement and value creation.

List of references

- Bouhdary, C. & Comes, S. (2008). Accelerate Value Creation: The virtuous cycle of using technology to maximize business value. Germany: SAP AG.
- Boyd, G., Brisebois, R. & Shadid, Z. (2001). *What is IT Governance?* Canada: The office of the auditor general of Canada.
- Burtscher, C., Manwani, S., & Remenyi, D. (2009). Towards A Conceptual Map Of IT Governance: A Review Of Current Academic And Practitioner Thinking. *UK Academy for Information Systems Conference Proceedings 2009. Paper 15.*
- Devos, J. (2010). "IT Governance for SMEs," Proceedings > Proceedings of IFIP 8.2/Organizations and Society in Information Systems (OASIS) . Sprouts: Working Papers on Information Systems, 10(116). http://sprouts.aisnet.org/10-116)
- Eisenhardt, K. (1989).Building Theories from Case Study Research. *The Academy of Management Review, 14*(4), 532-550.
- Ellison, R.J., & Moore, A.P. (2002). Trustworthy refinement through intrusion-aware design (TRIAD). *Technical report,CMU/SEI-2003-TR-002,ESC-TR-2003-002*
- Elo, S. & Kyngäs, H. (2007). The qualitative content analysis process. Journal of Advanced Nursing 62(1), 107-115.
- European Commission (2003-05-06). "Recommendation 2003/361/EC: SME Definition". Retrieved 2012-04-05
- Ghauri P., & Gronhaug K., (2005), *Research Methods in Business Studies*, Third edition, Prentice Hall
- Hudson, M., Lean, J. & Smart, P. A. (2001). "Improving control through effective performance measurement in SMEs." *Production Planning & Control, 12, no. 8*, 804–813.
- IT Governance Developing a Successful Governance Strategy A Best Practice Guide for Decision Makers in IT; National Computing Centre; http://www.isaca.org/Certification/CGEIT-Certified-in-the-Governance-of-Enterprise-IT/Prepare-for-the-Exam/Study-Materials/Documents/Developing-a-Successful-Governance-Strategy.pdf
- IT Governance Institute (2005); 3701 Algonquin Road Suite 1010 Rolling Meadows, IL 60008 USA
- IT Governance Institute (2007); 3701 Algonquin Road Suite 1010 Rolling Meadows, IL 60008 USA
- Keasey, K. & Watson, R. (1993). *Small firm management*. Cambridge, MA: Blackwell.
- Kolberg, L. (2008). Case Studies Methodology: Case studies and Generalization. Retrieved 7 July, 2011from http://www.bi.no/upload/Hjemmesider /fgl00076 /Paper%20DRE%201002.pdf
- Korac-Kakabadse, N. & Kakabadse, A. (2001). IS/IT governance: need for an integrated model. *Corporate Governance*, *Vol. 1 Iss: 4*, pp.9 – 11.
- Lichiello, P., A., (1999). *Guidebook for Performance Measurement*. Washington: Turning Point.
- Linder, S. (2005). *Fakta om Små och Stora Företag 2004*. Stockholm, Sweden: Företagarna.
- Luftman, J. (2003). In Competing in the information age: align in the sand, (2nd Edition). Oxford: Oxford University Press.

- Mahmood, M.A. (1993). Associating organizational strategic performance with information technology investment: an exploratory research. *European Journal of Information Systems, 2 (3),* 185-200.
- Marshall, P., McKay, J. and Prananto, A. (2004). A process model of business value creation from IT investments. *Proceedings of the 15th Australasian Conference on Information Systems*, Hobart 1-3 December, 2004.
- Meyer, M. W. (1972). Size and the Structure of Organisations: A Causal Model. *American Sociological Review, 37*(4), 434-440.
- Orlikowski, W.J. and Baroudi, J.J (1991) Studying Information Technology in Organizations: Research Approaches and Assumptions, *Information Systems Research*, **2(1)**:1-8.
- Performance Measurement Challenges and Strategies; June 18, 2003; http://www.whitehouse.gov/sites/default/files/omb/part/challenges_strategies.pdf
- Robson, C. (2002), *Real world research (2de ed.)*. Wiley-Blackwell.
- Rothwell, R. & Zegveld, W. (2009). Innovation and the Small and Medium Sized Firm. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.
- Saunders, M., Lewis, P., and Thornhill, A. (2007). *Research Methods for Business Students: Fourth Edition*, Prentice Hall.
- Saunders, M., Lewis, P., and Thornhill, A. (2009). *Research Methods for Business Students: Fifth Edition*, Prentice Hall.
- Soh, C. and Markus, M.L. (1995); How IT creates business value: a process theory synthesis. In Ariav, G. et al.(eds.); Proceedings of the 16th International Conference on Information Systems, December 10-13, Amsterdam, Netherlands.
- Tallon, P.P., Kraemer, K.L. and Gurbaxani, V., (2000). Executives' Perceptions of the Business Value of Information Technology: A Process-Oriented Approach. *Journal of MIS, Vol. 16, No. 4*.pp. 145-173
- Van Grembergen, W. (2010). From IT Governance to Enterprise Governance of IT: A Journey for Creating Business Value Out of IT. *IFIP International Federation for Information Processing 341*.
- Yin, 1988*, Case study research: design and methods (4th ed.).*, London: SAGE, Applied social research methods series v. 5

Time Table

What to do	Start	Finish	Comments
Thesis meeting	25-01-2012	25-01-2012	Receive necessary information to get started
Make adjustments and gather information	26-01-2012	29-01-2012	Update first draft (if necessary) and gather information
Meet the tutors	26-01-2012	02-02-2012	Discuss topic and what the next step will be
Gather information	03-02-2012	12-02-2012	Continue gathering information and reformulate research questions
PM1	13-02-2012	15-02-2012	Hand in manuscript (13-02-2012 at 10:00) and presentation (15-02-2012 at 10:00)
Break	15-02-2012	19-02-2012	Focus on exams and presentations
Approach companies/individuals	20-02-2012	03-03-2012	Approach companies and/or individuals to back up and test out theories
Meet the tutors	04-03-2012	07-03-2012	Discuss the findings so far
Write thesis	08-03-2012	13-03-2012	Update the research
Break	14-03-2012	27-03-2012	Focus on exams and presentations
Conduct research	28-03-2010	14-04-2012	Conduct questionnaires, interviews, etc.
Write thesis	15-04-2012	30-04-2012	Write down the outcome of the research and analyse it
Meet with the tutors	01-05-2012	05-05-2012	Discuss the conducted research and findings with tutors
Write thesis	06-05-2012	12-05-2012	Up-date thesis
Break	13-05-2012	27-05-2012	Focus on exams and presentations
Final	26-05-2012	03-06-2012	Finalize everything, prepare PowerPoint presentation, and present the research

Interview questions

General information

1. Can you tell us about your position and role in this company?
2. How many employees do you currently have in your company?
3. What was the last annual Turnover of your company?
4. What is your idea of IT governance? (we give our definition first)
5. Does your organisation use IT governance?
6. In percentage, how much does your company reserve as IT budget?
7. Do you consider this sufficient, relative to the size of the company?

Value creation

1. How does IT add value to your company?
2. Do you make use of any best practices in creating value?
3. How is the decision making process for IT investment?
4. What are the criteria's considered when making IT investment?
5. What challenges do you encounter creating IT value?
6. How do you ensure IT delivers the promised value?
7. What challenges do you face in order to ensure that IT delivers the promised value?

Performance measurement

1. How do you know that IT is performing to your expected standard?
2. Are there any reasons why you keep track of IT performance? (we can give examples)
3. What do you think are the essential consideration to be taken before measuring IT performance?(section 3.3.2)
4. Are there any tools used in measuring IT performance? Could you specify them?
    a. What are the reasons behind using this specific tool to measure IT performance?
    b. How does this tool help measure IT performance?
5. What have been the challenges that you faced when performing measurement? And how did you handle this?

Summarization Question

6. In what way has IT performance measurement and value creation (delivery) contributed to your company?