Who Decides What?
IT Governance – Prioritization & Outcome

Bachelor's thesis within BUSINESS INFORMATICS
Author: ANDREAS CARLSSON
PIERRE ENGMAN
Tutor: ULF LARSSON
Jönköping JUNE 2010
Acknowledgements

We would like to express our gratitude to all the participating companies who provided us with the necessary data to conduct this research. The time they set aside to this study, despite hectic schedules, made this thesis possible and helped us produce an interesting end product.

Secondly, we would also like to emphasize our appreciation to the following people;

Fil.lic. Ulf Larsson – Our supervisor who guided us with his expertise and knowledge in the field. We thank you for your availability and professional guidance, pointing us in the right direction and enabling us to see this thesis from multiple perspectives.

Rune Mossberg, Bo Bauhn, and Ulf Engerby – With many years of experience in the business arena, Rune, Bo and Ulf provided us with feedback in the field of IT Governance. With their professional IT-skills, they provided us with knowledge and insights through a practical perspective. Their practical experience and professional input allowed us to discuss problematic aspects and develop this thesis with guidance of high quality.

Sofia Jonsson – Sofia's help has been vital for our thesis work. She have actively helped us numerous of hours, to ensure we could carry out a survey with a high response rate. We thank Sofia at the most for her interest in our work.

Nicklas Dahl – We thank Nicklas for introducing us to the subject and for all the hours he allocated to help us create a feasible academic perspective yet still applicable in a practical manner.

At last, we would like to thank our families and friends for support and encouragement during this semester.

Andreas Carlsson
Pierre Engman
Abstract

Introduction. This bachelor thesis concerns the subject of IT Governance, how organizations prioritize and decides IT-related issues. The thesis will approach how Swedish Small-to-Medium sized Enterprises, which are considered successful, governs IT-related issues.

Theoretical Framework. In order to conduct this research, the Governance Arrangement Matrix, created by MIT Sloan 2003, is applied which was also incorporated in a global study by Weill in 2003. The matrix involves five different decisions domains within IT and different corporate archetypes divided by stakeholder involvement. The compiled data will thus be analyzed and mapped against Weill’s study to derive the contemporary decision structure in Swedish SME’s and create a comparison to map any alterations that might have occurred.

Method. Through utilizing an online-survey and conducting telephone interviews, 108 responses from Swedish SME’s provided the necessary data to map the contemporary decision-structure within IT in a deductive manner to both utilize quantitative and qualitative data, creating an understanding of the derived outcome. The analysis will provide an understanding for organizations to see the fit between business objectives and IT-usage, creating future possibilities for organizations to further optimizes their alignment between the business and IT. The main conclusions from this thesis could be summarized as follow:

Results. The involvement of the board-of-directors has become more frequent, and with the inclusion of a Chief Information Officer, the collaboration throughout the corporate hierarchy enables a broader understanding of the impact of IT. Although that this approach was the most frequent selected archetype, the decisions relating to IT acquisitions and architecture, the majority of responses showed indications relating these areas to be decided by CIO/IT-department thus in conclusion: the knowledge that CIO/IT-departments has are sufficient to support the everyday business need.

Furthermore, the differences found between this research and the underlying study by Weill, indicates that IT is considered a multi-dimensional problem that needs constant supervision and that the view upon prioritizations and governance has been altered.
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1 Introduction

The introductory section will cover the overall information about this thesis, thus acting as guidance to its background, content and definitions used throughout the thesis.

1.1 Background

The terminology of IT governance refers to how IT is managed and how decisions are made aligning processes, resources and responsibility within the enterprise (Luftman, 2003). Together with these aspects, IT governance also comprises the subsequent layer of corporate responsibilities. This involves creating a stable relationship between who should make the decisions, where in the corporate ladder it should be decided, why investments/changes are necessary, and how should it be processed to reach a satisfactory outcome.

As the connection between efficiency and IT has become a necessity in contemporary business reality, an increased responsibility targets IT-departments. Furthermore, this increases the importance of realization of the effect that governance within IT has, in order to provide a competitive advantage for an organization.

Although this might come across as an easy task for organizations, when in actuality it is a troubled area that needs constant supervision. With the rapid evolution of technology, IT governance has become more important, as this is shown in academic literature and previously conducted studies. The complexity of how IT should be governed successfully is imperative for any organization.

This thesis, written by two students at the Business- & IT-Management bachelor program at Jönköping International Business School, has its roots from courses given during the third and fourth semester. After practicing theoretical knowledge to fictive cases, the authors realized that this was the field that they felt connected their academic interests to the business world.
1.2 Definitions

SME – SME refers to a categorization of enterprises, Small to Medium-size Enterprises. There are different classifications categorizing what financial and organizational numbers that defines Small-to-Medium sized Enterprise. The selected definition is the standard formulated by the European Commission from January 5th 2005. The European Commission defines SME as an organization with 10-250 employees, a turnover less or equal to €50 million or a balance sheet with assets of less or equal to €43 million. (European Commission, 2005)

Archetype – Refers to different decision structures. The definition of archetype concerns who decides about what in the corporate hierarchy. Archetypes define the different corporate decision structures into categories that are further discussed in chapter 3.2.2.

CxO – An abbreviation of an Executive Officer, where x stands for an unspecified position. CxO’s often hold managerial authority, which is used to lead different business domains in the corporate direction, and are sometimes referred to as the highest instance of authority within enterprises. Examples of could be Chief Financial Officer (CFO), Chief Executive Officer (CEO), and Chief Information Officer (CIO).
2 Problem Discussion

Today, the importance of IT is more obvious than before. Despite this, many companies struggle to incorporate IT effectively. In the 21st century, the perception of IT has shifted, with less emphasis on cost cutting, but to be seen as a partner, which could generate business value. IT is no longer solely a question of technological capabilities itself, but how it could be of use in a business context.

Researchers as Luftman et al (2003), elaborates upon evidence showing that the dominant business culture disregards the full value of IT as an integral part of organizations. The research points out that reasons for this include improper IT evaluation, management, strategic intents and business alignment.

Results published from a survey in 2008, Luftman et al (2009), reflect the IT executives' point of view in which the key issues are ranked, and the results emphasize the need of IT governance. The top ranked issue for the second year in a row is IT and business alignment with a 92.6% rating. The third issue was IT and strategic planning.

The dynamics in business environment require effective IT and business alignment, clear goals and sufficient funding. With strained IT budgets along with blistering development and smaller business margins creates further obstacles for organizations to achieve satisfaction from stakeholders.

In order to understand the grave importance of IT governance, matters regarding utilization of strategic capabilities from a business perspective should be taken into consideration and map those capabilities with the overall business vision.

As IT governance target problematic areas, the need of alignment between internal structure and strategic purposes of IT should be considered imperative, in order to reach the maximum output of IT in accordance to business requirements.

2.1 Problem Specification

Described in the background section, IT governance deals with how decision-domains are handled and processed based upon the organizational decision structure. Different organizations consider certain aspects as more important than others, thus selecting their specific path upon those priorities as a foundation for their decision structure of IT-related decisions.

Looking beyond the terminology of IT governance and into research done in this specific area, Weill & Ross (2004) describes this as a two-way relationship between interrelated decision domains and organizational decision archetypes combined into a framework, in which patterns and outcomes could be derived.
The combination between these two axes depicts the pattern where different IT-related decisions are managed and to whom it concerns. This figure above, created in 2003 by MIT Sloan Center for Information Systems research, is adapted to a later study by Weill, published in the third volume of MIS Quarterly 2004, which shows how larger global organizations govern IT.

The governance arrangement matrix provides an opportunity to understand the complexity of the situations that involves IT within an organization. As the need of understanding how to utilize IT properly in order to stay competitive increases, the matrix indicates how IT could be managed to further increase organizations competitive potential.

Based upon the model presented by Weill and Ross (2004), what effects and differences could be found, if variables regarding geographical selection and organizational size were altered? As Weill’s study was conducted in the beginning of the 21st century, how would the span of seven years influence the patterns and how are IT governed today.

### 2.2 Research Questions

- What type of decisions related to IT-Governance are made, given the underlying framework, within the selected SME's and how does these decisions reflect Business/IT alignment?

- How are key IT-decisions prioritized and governed in comparison to previous studies?
2.3 Purpose

The purpose of this thesis is to describe the effect of IT decisions based upon archetype and how this relates to the underlying framework within the selected Small-to-Medium sized enterprises in Sweden.

2.4 Delimitations

There are a vast amount of previous academic studies attempting to understand the aspects and complexity of IT governance and its influence upon businesses.

There are several stated definitions of IT Governance, and in order to understand the nature of this study, a clarification of the concept is required. The study conducted by Weill and Ross (2004) cover large corporations with a global perspective. Using Weill’s definition and study of IT governance, this paper will limit the empirical investigation to Swedish SME’s. Weill define IT governance as “specifying the framework for decision rights and accountabilities to encourage desirable behavior in the use of IT”.

The study to be undertaken will be limited to SME’s, Small to Medium-size Enterprises, which will prove whether there is a correlation to Weill’s study on large enterprises or not. SME’s is defined by numerical terms as an organization which has between 10-250 employees, a turnover of less than or equal to €50 million and assets with a value of less than or equal to €43 Million. The European Commission established this definition in 2005.

The empirical study will be limited to companies that proved to be, or are considered successful within their particular business segment. This is done in order to adapt the same pre-determined variables regarding profitability as the underlying research.

The previous study by Weill concerned both input and decision rights in every decision domain. Thus the defined archetypes were used both to identify underlying structure for input and the archetype for decision making, which could differentiate in each company. To clarify, one company could use the federal archetype for input while also using IT duopoly for decision rights, in the domain of IT principles. The study conducted by the authors are concerned with decision rights only, thus input rights will not be discussed. Therefore, the data presented from the empirical study will map archetypes in the different decision domains concerning decision rights.
2.5 Perspective

The perspective adopted by authors or researchers inevitably impact the research process, data analysis, and how findings are reflected upon. This highlights the importance of explaining the perspective thoroughly, defining how the research is conducted. Clarifying the perspective, the reader can get a profound understanding regarding arguments and descriptions, and understand the implications that the perspective have on the research. In order to enable further research with these delimitations, the perspective from which this research has been conducted must be understood.

The focus in this paper covers the strategic management of IT Governance and its business implications. The empirical study being conducted will target different management positions in companies, such as CIO. This shall be done to understand the strategic usage of IT within the selected organizations and enable the possibility to map those toward the alignment between business and IT. The empirical data used in the study will, to a large extent focus, on CIO’s, or an equivalent point of view. The CIO, as discussed by Ward & Peppard (2007) et al, should posses the understanding of how IT is to be used within the company and if so, how it can create strategic value that contributes to the organization. The argument for addressing CIO’s or equivalent is that they are most likely to provide the necessary information to produce accurate data.

The CIO’s perception of the business value created from IT will be of importance to retrieved findings in the study. Motivation or thoughts of other employees, not in management positions or equivalent, will not be taken into account, even though employees could arguably affect the performance of the business.
3 Theoretical Framework

Acknowledging previous work in the research field is important, as the purpose is to further explore the subject of IT governance and contribute with new knowledge. In this chapter, IT governance is introduced and the models applied by the researchers will be discussed in-depth, guiding readers through the academic background.

3.1 IT Governance

The terminology of IT governance address questions of power, decision processes and alignment between business and IT (Luftman et al, 2003). As IT should be seen as a business partner, with commitment from both business and IT, how could one argue who should be involved and what resources that should be dedicated? IT Governance requires attention; as careful management of IT is essential to generate business value.

3.2 IT Governance Arrangements Matrix

In order to understand the wide concept of IT governance, Weill and Ross (2004) used the IT Governance Arrangements Matrix. MIT Sloan School originally designed the model, in order to explore the correlation between IT Governance and firm performance. Proposed in the matrix, the relation between IT Governance and firm performance are result of the correlation between IT decision domains and the decision structure, which is described as archetypes.

The IT Governance Arrangements Matrix, comprise of two axes, which addresses decision domains and archetypes. The model conceptualizes the IT decision domains horizontally, which are major areas to be dealt with in order to ensure effective IT governance. The second, vertical axis discusses the decision structure concerning decisions to be made. In the matrix, the decision structure reflects political structures, which are explored in a later paragraph.

In order to understand the results from Weill's study in relation to the derived outcome from the empirical study, the IT governance arrangements matrix will be discussed in detail.

The model in question is utilized in the study, to allow positioning of the organizational IT Governance structures. The matrix will serve as a framework for both data collection and empirical analysis.
3.2.1 Key IT Decision Domains

Weill, MIT Sloan Center for Information Systems Research 2003, identifies five key IT decisions that must be managed properly within organizations.

- IT Principles
- IT Architecture
- IT Infrastructure Strategies
- Business Application Needs
- IT Investment And Prioritization

These decision domains are corner stone’s of the theoretical framework; each domain will be discussed in detail.

3.2.1.1 IT Principles

Davenport et al (1989), defines the IT Principles as a “High-level statement about how IT is used in the Business”. Clarifying IT Principles will provide understanding of the expectations of IT towards the business strategy.

Further discussing IT Principles, Pearson and Saunders (2006) present the Information System Strategy Triangle, as a result of conducted studies. The apprehension of the strategy triangle is that the organizational information and business strategy should work in coherence to drive the overall business strategy. (The different strategies should, in the end, support the business strategy that leads the company.)

With the strategy triangle in mind, the IT Principles should clarify how IT should be used to become a business strategy facilitator. The defined IT principle can also provide the business executives an understanding of the relation between IT and the business within the enterprise. IT principles can be argued to be a strategic issue to be dealt with.

3.2.1.2 IT Architecture

IT architecture concerns technical choices. The architecture should reflect how technology should be used and implemented in order to maximize business benefits. Ross (2003, p.2), defines IT architecture as; “the organizing logic for applications, data and infrastructure technologies, as captured in a set of policies and technical choices, intended to enable the firm’s business strategy.”

3.2.1.3 IT Infrastructure Strategies

Byrd and Turner (2000), discuss the flexibility of IT infrastructure. In their article, they state that IT infrastructure is comprised of two subsets, human IT infrastructure and technical IT infrastructure.
Further they define IT Infrastructure; “IT infrastructure is the shared IT resources consisting of a technical physical base of hardware, software, communication technologies, data, and core applications and a human component of skills, expertise, competencies, commitments, values, norms, and knowledge that combine to create IT services that are typically unique to an organization. These IT services provide a foundation for communications interchange across the entire organization and for the development and implementation of present and future business applications.” (Burd and Turner, 2000, p. 6)

When discussing this definition it is necessary to reflect upon IT infrastructure not only as technology itself, but also how it’s managed through human resources and capabilities. A combination of the two creates, as quoted above, a unique service for organizations.

3.2.1.4 Business Application Needs
Business application needs concerns the specification of applications required by the business. This should have a close relation to the business strategy, in order to ensure applications fulfill a purpose and align with the business strategy.

3.2.1.5 IT Investment and Prioritization
This domain, discusses how different prioritizations and Investments in the nature of IT concerns the managerial aspects of an organization. Weill and Ross (2004), discusses this as the decisions regarding what investments to undertake and to what extent. This would also concerns prioritizing the investments and managing approvals followed by justification. IT investment justification analyzes the investment through comparison between perceived and estimated value. It is necessary to evaluate proposed IT investments to ensure they align with the strategic intent of IT.

3.2.2 IT Governance Archetypes
The archetypes in the matrix reflect the decision structure, such as who deal with certain decision domains and who are in position to provide input. The archetypes applied in the IT governance matrix reflects political structures of an organization (Ross & Weill 2004). In order to clarify the archetypes and discuss the definitions applied, a thorough discussion of each archetype will follow.

3.2.2.1 Business Monarchy
In business monarchy the executives manage the IT decisions. CIO or equivalent executive can be a part of the executive directorate to make decisions, of importance to the company. This however does not exclude the fact that IT-professionals can influence the decisions, since the business executives need to grasp the whole picture about the decision domain.
3.2.2.2 IT Monarchy

In contrast to Business Monarchy, IT Monarchy solely involves IT-professionals, excluding other senior executives. Weill and Ross (2004) argues that a team of IT professionals often comprises of IT professionals from IT- and other business units, which has authority to manage decisions within this decision domain.

3.2.2.3 Feudal

Encyclopedia Britannica describes feudal archetype as “using local authority due to lack of public authority”. Translating this into the context of IT, it is when business unit leaders manage their own decisions and investments, in order to fulfill their specific needs. There is no overall IT decision structure on an enterprise level.

3.2.2.4 Federal

The federal decision structure attempts to combine the use of business unit authority and corporate decision-making. The decision structure within this archetype involves business units and representatives together with corporate executives.

The federal structure takes into account the different business unit requirements, but also focuses on corporate strategies. Because of possible gaps between business unit and corporate strategies, questions related to unintended issues can require attention on the cost of the corporate strategies. In the federal structure, the focus is on the business objectives, and decisions do not necessarily involve IT professionals.

3.2.2.5 IT Duopoly

IT duopoly is cooperation between IT executives/professionals and business representatives. In the decision domains, there are always IT representatives together with business executives or representatives, which contribute to a balance between the parties. Since the business representatives can be both executives and business unit accountable, one can cover both specific business unit needs with a focus towards corporate goals. IT Duopoly aim to integrate the business unit and corporate goals into one strategy, creating a solid business strategy.

Due to the fact that executives are involved in a majority of the decisions, a consistent platform and policy of IT use can be realized throughout the enterprise. This structure depends on close relationships between CxO’s, business units and IT professionals.

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1 CxO refers to different chief officer positions, such as CEO, CIO.
3.2.2.6  **Anarchy**

The business units themselves manage decisions regarding IT, in order to satisfy their needs. Since there are no clear guidance on corporate level, the structure can be difficult to deal with for IT professionals on the order to meet corporate strategies. Anarchy enables very rapid IT changes, but could be expensive to maintain.

3.2.2.7  **Applying Archetypes**

<table>
<thead>
<tr>
<th>Decision rights or inputs rights for a particular IT decision are held by:</th>
<th>CxO Level Execs</th>
<th>Corp. IT and/or Business Unit IT</th>
<th>Business Unit Leaders or Process Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Monarchy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A group of, or individual, business executives (i.e., CxOs). Includes committees comprised of senior business executives (may include CIO). Excludes IT executives acting independently.</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IT Monarchy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals or groups of IT executives.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Feudal</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Business unit leaders, key process owners or their delegates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Federal</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>C level executives and at least one other business group (e.g., CxO and BU leaders) — IT executives may be an additional participant. Equivalent to a country and its states working together.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IT Duopoly</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IT executives and one other group (e.g., CxO or BU leaders).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anarchy</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Each individual user</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Figure 2 - Overview of IT Governance definitions (Weill, 2004 p.5)

The different archetypes depict the different management styles of IT on a theoretical level. In order to analyze the IT Governance Matrix from a practical perspective, which is necessary to be able to conduct a study, the IT governance archetypes must be mapped into terms and positions used in organizations. Weill and Ross (2004) defines the archetypes at title levels. Thus, figure 2 will be used to map the different archetypes to possible management structures that can be used in the survey. Breaking down the archetypes to management positions and organizational decision structures will ensure the study's validity since the reality must be interpreted in a way which is applicable using the IT governance matrix. The practical management styles must be converted to theoretical archetype definitions.
3.2.3 Results of Weill's study of IT Governance Arrangements Matrix

The model IT Governance arrangements matrix, was used by Weill & Ross (2004), to conduct a study in which 256 enterprises participated. The enterprises studied were global with multiple business units, in America, Europe and Asia. The study conducted resulted in information concerning input rights and decision rights, which related to each decision domain. The study conducted in this thesis is solely concerned with decision rights, why input rights won't be discussed.

In the appendix, the model is shown as a chart, with percentages illustrating the results from conducted research. The results in each decision domain will be discussed in following subheadings.

3.2.3.1 IT Principles

From the companies studied by Weill (2004), the decision rights concerning IT principles were scattered. The most common decision structure was IT duopoly (36%), where companies rely on cooperation between IT executives and business representatives to align and facilitate IT goals and strategic intents. Further business monarchy was widely used (27%) in which business executives and professionals solely manage the decision domain. Business monarchy excludes the involvement of IT professionals except CIO's, and business requirements are prioritized.

3.2.3.2 IT Architecture

The study indicates that the majority of the enterprises rely on IT professionals to manage the IT architecture independently. Of the respondents, 73% claim that IT monarchy is the structure applied. IT Architecture is considered a technical matter by most enterprises, hence its heavily involvement of IT professionals rather than standard business executives.

3.2.3.3 IT Infrastructure Strategies

IT infrastructure is a matter of IT professionals. Of the respondents, 59% identified infrastructure to be IT monarchy. A few of the enterprises applied IT duopoly, where business representatives or business unit accountable collaborates with IT professionals. This distinguishes from the fact that IT infrastructure is seen as a technology issue only, but need business attention as well.

3.2.3.4 Business Application Needs

The research indicates that federal and IT duopoly were the two most common decision structures. Federal decision structure in the domain of business application
needs enable both enterprises, wide and local business unit application needs. This archetype emphasizes on business requirements rather than focus upon technical matters. Discussing the federal archetype, one could argue if the full potential of IT is realized because of the lack of communication between business and IT. The federal archetypes enable the combination of strategic goals and business unit requirements, which creates a homogenous enterprise.

Together with federal archetype, IT duopoly was almost equally applied in enterprises. With IT professionals working in equilibrium with business professionals, the possibilities and goals can be discussed. One can try to maximize the value of business applications to be invested, when the need has been established by the organization.

In order to ensure that established goals and strategies are incorporated in the overall business strategy, business professionals, in collaboration with IT professionals, should ensure that the selected applications matches the strategies to maximize the value of IT. As discussed by Weill and Ross (2004), the business application needs domain was the only one where a significant part of the respondents used the feudal archetype (18%).

3.2.3.5 IT Investments

This decision domain did not have one prominent archetype in particular. Business monarchy, federal and duopoly were used equally among the respondents. The different archetypes discuss different possible structures, such as top down driven, business focus from both corporate and business unit perspective or a balance between IT and business. Although, the majority of the respondents indicated that it is a matter for business oriented professionals rather than a specific IT-related issue.

From the research, there seems to be many different views of how IT investments should be managed, but one can see that the business side has a large impact in all the archetypes applied concerning IT investments.

3.3 Strategy Triangle

Many researchers highlight the strategic value of IT and the need for a clear IT strategy. Pearlson and Saunders (2006) discuss three types of strategies: Business strategy, Organizational strategy, Information Strategy and the correlation between those. The information strategy triangle elaborates upon these and illustrating it with a triangle based on equilibrium.

The three strategies are all in close relation, and the business strategy is discussed to drive organizational and information strategy in successful firms. Because of the dependencies between the strategies, changes or improvements in one strategy would lead to changes or adaption in the other two strategies, in order to maintain a balance that is necessary to contribute with business value. The model further elaborate on the balance between the strategies and if carefully managed, IS/IT can
support the business strategy and thus be business driven. Keeping this in mind, one could argue that it is not effective to deal with one strategy solely, but instead facilitate collaboration between both. This could be achieved through communication and mutual understanding between different organizational units.

Pearlson and Saunders (2006) further claim that if the business strategy is designed to make use of Information System (IS) as a strategic advantage, this could only be sustained through continuously innovation of the IS. They continue to discuss the importance of the three strategies, “IS strategy always involves consequences - intended or not - within business and organizational strategies. Avoiding harmful unintended consequences means remembering to consider business and organization strategies when designing IS deployment”. (Pearlson and Saunders, 2006, p. 20)

The strategy triangle discusses the need for mutual understanding between business and IT professionals. In order to create strategies that are aligned, it is important to involve the right executives and professionals, which have authority to develop and evaluate a strategy. The involved executives and professionals must have a thorough understanding of the three strategies discussed in the model, in order to facilitate collaboration in the creation of the strategies.

In reflection, IT governance refers to the decision structure in different business domains, from which the strategy triangle can be applied to see if governance practiced in enterprises facilitate the creation of strategies as proposed in the strategy triangle.
4 Method

4.1 Research Philosophy

Research philosophy refers to the view of the world, and its impact upon the research process (Saunders et al, 2007). Further discussing the concept of philosophy, Encyclopedia Britannica define scientific philosophy as “Branch of philosophy that attempts to elucidate the nature of scientific inquiry...”. The philosophy should be considered when discussing current research, and how the knowledge is influenced by adopted philosophies and further how the philosophies influence the generation of knowledge.

Different research philosophies advocate different research approaches, thus affecting the research process. Consequently, researchers should be well aware of different research philosophies, and what would constitute their point of view.

Saunders et al (2007) discusses different research philosophies and three philosophical areas in which research is affected; epistemology, ontology and axiology. Without presenting all existing knowledge within research philosophies, a short explanation of the underlying principles of the philosophical areas will be given in order to further elaborate on the guiding approach for this paper.

4.1.1 Epistemology

The focus of Epistemology is the field of knowledge. The philosophy challenge given understandings, such as what is knowledge and how knowledge is produced. It also concerns reflections upon what is the truth, and how generated knowledge is affected by the researchers assumption of knowledge.

4.1.2 Ontology

Addressing the nature of reality, one discusses the philosophy of ontology. In relation to epistemology, ontology concern assumptions of the world and how social entities interact and whether one's assumptions of the world create social entities or if entities exist independent on social actors. Ontology questions whether generated knowledge is valid, discussing the existence and correlation between social entities and actors.

4.1.3 Axiology

According to Saunders et al (2007), axiology refers to the study of judgments associated to value. This involves a discussion of how a researcher’s value judgments would influence the drawn conclusions. As a result, the conclusion of one researcher could be different from another’s, even though the question would concern the same case, given the different values.
4.1.4  Pragmatism

Adopting pragmatism, attention is drawn to the research process, thus deviating from the discussion of what is considered reality and the truth (Tashakkori et al 1998). This approach suggests researchers should study the field of interest, using what they perceive to be appropriate methods of research, drawing conclusions based upon their values.

Pragmatism does not disregard the fact that you need to understand the adopted approach, since the approach is necessary to clarify how research is undertaken from the philosophical point of view.

4.1.5  Approaching Pragmatism

This study is conducted within the philosophical field of pragmatism. Concerning the ontological perspective, the usage of different methods suitable for answering the research question is essential. While studying the nature of reality, we do not take a standpoint of one orientation or the other about the social entities. We highlight the use of appropriate methods in order to answer the research question, and further arguing that there are additional aspects to consider, such as independent social actors, and objects exist independent of humans.

The experience one lives through each day is a matter of interpreting the world, based upon one’s values. Our research questions aim to investigate the correlation between IT governance and firm alignment, and the use of interviews will generate information which is a results of interviewee’s view of the reality. Since pragmatism advocates that it is hard to choose between one specific approach, we intend to emphasize the analysis of the information rather discussing the interviewee’s opinion about the reality which could bias the data.

Further we argue that knowledge is an interpretation of observable phenomena or subjective meanings. The knowledge generated or gathered is from our point of view, rather than a discussion of the relevance in comparison to the research questions, which avoids the matter of questioning what constitute facts. Acceptable knowledge is a question of interpreting the context to understand the relevance. Thus we will validate the knowledge to our research questions.

In the field of axiology, pragmatism advocates the objective and subjective view of values. When discussing the results of a study, our point of view is that there are certain values of the researchers affecting the interpretation of data. From our scientifically perspective we aim to analyze the data objectively, but the researcher’s values could influence the results of an analysis.

Our view of research philosophies, which are in line with pragmatism, conclude that although being aware of our philosophical stance, we do not put emphasis upon the choice of philosophies, but rather conducting research in line with research questions. We argue that if motivating choice of method and procedure of analysis, researchers adopting other philosophies could find the data trustworthy
and reliable. Although, advocating pragmatism does not exclude the fact that the researcher should still be aware of the philosophical impact of the research, since pragmatism is still an orientation within the philosophical domain.

4.2 Research Approach

During any research process, a number of different approaches may be included to support a study. In this chapter, the selected approach will be presented and motivated.

4.2.1 Inductive and Deductive

There are different ways of approaching research; how it shall be conducted and the underlying processes. Either the process will reach an outcome proving a theory or building one. Saunders et al (2007) define this as the inductive and deductive approach. Described in figure 3, the inductive based research is defined by Saunders et al, as involving the development of a theory as a result of analyzing empirical data. The opposite approach, defined as deductive, involves the testing of a theoretical proposition through employment of a research strategy specific to the purpose of its testing.

Deductive based research is divided into five sequential stages according to Robson (2002).

1. Deduction of a testable theory-based hypothesis
2. Converting the hypothesis into operational terminology to propose a relationship between two specific concepts or variables
3. Test of hypothesis
4. Examination of the outcome
5. In case where results are different than theory, revise the theory in the light of the findings
Stage one is considered in section 2 and 3 of the paper. Part 4 of the paper discuss the conversion, stage 2 in the deductive research, of our hypothesis or theory. The analysis examine the outcome of the study, thus stage 4. The conclusion examine the outcome related to the theory, answering our research questions and could be seen as phase 5.

4.2.1.1 Chosen Approach

This thesis has been conducted in the deductive manner, formulated around the fact that the intended model presented in the theoretical framework will be utilized as a hypothesis to guide the authors through the data collection. With the adoption of pragmatism, we have chosen methods we argue appropriate for this deductive research, in order to answer the research questions.

The IT Governance model presented in the theoretical framework is defined as the theory to be tested. Undertaking research in a deductive manner, the pragmatic view enables research to be conducted with multiple methods in order to obtain empirical data. Arguing for what is perceived as appropriate methods, one could see this as a further validation of the empirical data.

The inductive research approach prevails analysis of empirical data in order to build a theory. Thus the inductive approach is open to new way of understanding empirical data, while the deductive target a more specific understanding of the empirical data. Adopting the pragmatic view, and the process of utilization of several methods, gathered data will enable interpretation outside the frame of reference if results deviate.

4.3 Research Choice

As the research process progresses, the nature and extent to which data is collected and analyzed should be carefully monitored.

Different types of data need different methods for analyzing and concluding a satisfactory outcome. As presented in previous chapters, the two different types of data that any research process generates are either qualitative or quantitative. If a single collection technique and a corresponding analysis technique are used then the mono method choice is adapted to the research. In contrast, if a combination of techniques is adopted, then the multiple method research is selected.

As the mono method focuses upon one type of data collection used for collection and analysis, the multiple methods is sub-divided into two separate fields with an additional two sub-research methods:
The Multi-method choice is described according to Saunders et al. (2007) as the combination between more than one data collection technique, but is still restricted to solely qualitative or quantitative analysis procedures. The Mixed-method choice combines both qualitative or quantitative data collection and analytical procedures in a sequential or parallel procedure, without mixing qualitative/quantitative data collection with the opposite technique for analysis.

In order to produce applicable and reliable empirical data the Mixed-method research choice is applied through the use of questionnaire and interviews. Through the pragmatic perspective, we find this approach as most feasible since it allows us to focus upon the reality of the problem rather than finding alternate solutions, that might/could be the answer.

### 4.4 Time Horizon

There are two different approaches to conduct research. The two approaches are referred to as cross-sectional and longitudinal studies (Saunders et al 2007). When studying a phenomenon at a certain time, thus not referring to a period of time, the studies are of cross-sectional characteristics. If a phenomenon is studied over time, as a process, the study is referred to as longitudinal. Longitudinal studies are often useful when studying development or impact of a cause over time. The question asked when adopting longitudinal studies, is if there has been any change over a period of time.

This study maps the different type of decisions domains companies deal with, and the organizational structure of decision rights. The results will be compared to Weill’s study from 2003 in order to understand differences, as a consequence of business development over time and further comparing large global enterprises to Swedish SME’s. This would position the study as longitudinal, answering the question; has there been any change over time, in accordance to the specified variables?

### 4.5 Data Collection

In academic research, it is necessary to make use of well-founded data, to ensure research validity and relevance. According to Saunders et al (2007), Gronhaug and Ghauri categorize research data in primary, secondary and tertiary data classes. In research, one could either use one technique solely or a combination of both. Understanding what characterizes the two types of data is necessary, since this inevitably could bias the data and how data should be analyzed. Further, Gronhaug and
Ghauri set a definition for primary data. Primary data is data collected for the researchers own purpose, such as interviews and questionnaires.

Both primary and secondary data will be used in this paper. Secondary data is used, in order to understand concepts and research that has been undertaken in the field. As a tool to find appropriate secondary data, a sub-branch of this data type, tertiary literature sources will be used. The secondary data used in this research will lay the foundation for primary data collection.

The primary data to be collected will consists of data from interviews and questionnaires, conducted for the purpose of this paper. The interviews and questionnaire shall reflect the subject, IT governance structure and the relation to business alignment, and provide enough data to be analyzed in relation to prior studies. With the perspective of pragmatism, the empirical study will be a reflection of different individuals view of the world and knowledge. We advocate that emphasis should be on the knowledge itself, through the perspective of how we use the knowledge and the values embedded in those, thus deviating from the philosophical orientations of interpreting the data from a certain philosophical approach. This will enable a wider understanding of the data.

The empirical study will target managers with the title of CIO or equivalent position. This will ensure that the resulting data originates from the strategic management perspective with the influence of IT.

To understand what shall be considered when using the different types of data and how it can be used in different contexts, an explanation of qualitative and quantitative will follow.

4.5.1 Qualitative VS Quantitative data

Saunders et al (2007) defines quantitative data to be of numerical kind. Quantitative data is often useful for statistical studies or when comparing to different studies of the same kind. When analyzing large amount of data, it is easier to use a quantitative collection of data.

Qualitative data refers to non-numerical data, which could be used to gain deeper understanding rather than covering vast amount of data through numerical figures. Qualitative data could explain the underlying reasons for phenomena’s, rather than just describing the phenomena.

4.5.2 Primary data

Researchers can make use of primary data, defined by Saunders et al as “data collected specifically for the research project being undertaken”. The major benefit with primary data is that the data to be collected is gathered with the research problem as starting-point, which is why researchers from a pragmatic perspective can use what they perceive as suitable methods to obtain the data. Some research should
be conducted in terms of primary data since secondary data might not answer the research questions. One must be careful of what methods are used when collecting data, in order to draw conclusions of relevance. Disregarding this could endanger the research generalizability and reliability.

The primary data in this paper is based upon interviews and questionnaires with CxO’s in different enterprises, within the scope of SME’s. The empirical study will generate both qualitative and quantitative data, which will make it possible to cover a large sample-size. The obtained data will to be used as statistics but also to further analyze the context and reasons of the results produced through interviews.

The primary data is a necessity to answer our research questions. The primary data will be put in relation to secondary data that depict results from previous studies. The structure of the interviews is further discussed in methods.

4.5.2.1 Survey

According to Saunders et al. (2007), a survey is a research strategy that involves data collection from a sizable population. The sample size can be calculated and adapted to different sampling techniques that will be discussed in forthcoming chapters. The terminology of survey refers to the collection of data through the use of questionnaires, or through techniques such as observations and structured/unstructured interviews.

Further discussing surveys, Saunders et al. (2007) argues that the survey strategy allows adopters to retrieve answer to important questions such as who, what, where and how much and goes hand in hand with exploratory and descriptive research. Utilizing the survey strategy enable the adopters to retrieve a large amount of data from the intended population in an efficient way using techniques such as questionnaires, with the possibility to complement with in-depth interviews.

In order to prove our research, this approach has been selected as most appropriate because of the intended purpose of the primary data. The study focuses on using a matrix to analyze the data, which is collected from a large geographical area, it is important to utilize suitable methods in order to gather enough data within the time-plan for the study.

The questionnaire will be created using an online survey service. When the questionnaire is finalized online, an email will be sent to the sample size that we intend to include in our survey, with a link to the questionnaire. When a company has filled in the questionnaire, a notification is sent to the system, which automatically decodes the data, eliminate all possibilities to trace the data.

Using an online service for questionnaires, the compilation of data will be done by the system and thus save time, which can instead be focused on the analysis of the data. The system managing the questionnaire offer other services, such as sending a reminder to those who have not responded after a certain period of time, as an additional aid to ensure a good response rate.
4.5.2.2 Questionnaire Design

The questionnaire created should be seen as a smaller version of the interviews to be conducted. The questionnaire will cover the fundamental parts of the study, in order to provide enough data to answer the research questions. As the questionnaire is an important part of the study, it is vital to ensure a high response rate. To attract attention, the questionnaire will be designed as short and hands-on.

Addressing issues such as response rate will ensure we gather enough data from respondents within our sample size, to be analyzed through the understanding of the IT Governance Matrix.

The study investigates IT governance in Swedish SME’s, using Weill’s et al matrix, the study should address the decision domains and indentifying the different archetypes. Consequently, the main questions will cover the decision domains and provide data from which the researchers can map the archetypes in each decision domain.

No further questions, not directly connected to archetypes and decision domains, will be asked, in order to keep the questionnaire short.

4.5.2.3 Interview

As interviews give contextual information and interpretations that questionnaires cannot, we find it suitable to complement the questionnaire with this type of empirical study. During interviews, one can interpret expressions, tone of voice and language that can give a further understanding about the message interviewee’s communicate. Understanding contextual information using questionnaire is not possible, since there is no human interactions while the respondent fill in the questionnaire. Further interviews allow researchers to explore interesting subjects appearing during the interview, as a possibility from a semi-structured approach, which we intend to apply. We find it suitable to use interviews in order to verify the IT governance matrix in a qualitative way and compare this to the empirical data obtained from the questionnaire.

When conducting interviews, we will use a semi-structured approach to be able to further pursue subjects that seems relevant during the interview. As mentioned in previous paragraphs, the interviews will target the same intended population as the questionnaire.

Since the questionnaire is the main data collection technique, the interviews should not be seen as the main foundation of this thesis, but rather a complementary method.

The interviews will be conducted in parallel to the questionnaire, and target selected companies within our sample. The interview will cover the domains the questionnaire address and discuss the strategic intent of IT and future goals. We argue the information retrieved will be valuable to grasp an understanding around the model and get feedback from different companies, how they view and under-
stand the model. Further discussing what they perceive to be a successful way to approach IT.

### 4.5.2.4 IT Governance Matrix Conversion

The IT Governance Matrix predicates of scientific research, from which theoretical expressions are used to map different governance types. Studying this model, inevitably knowledge about the decision domains and archetypes is developed. Using different researchers definition’s regarding the decision domains and archetypes, we have used a scientific way to define the concepts.

While conducting a study, one cannot assume all respondents have thorough understanding of the concepts used. Further discussing the concepts, there are many definitions and understandings of those, both academic and non-academic, which could aggravate the possibility of accurate answer. It is necessary not to use concepts that could cause ambiguity or be comprehended differently in the questionnaire and interviews. Thus the archetypes and decision domains will not be discussed as such, but to use questions from which the answer can be mapped to the theory in order to validate the empirical study.

When discussing the organizational structure, the different archetypes, focus shift from notions to different positions within enterprises and the correlation between those regarding decisions. Questions will cover the different positions at enterprises and the involvement depending on the decisions given. Understanding what positions are involved in different decision domains allow researchers to position the decision structures within the context of archetypes, disembarrass the respondents from elaborating on archetypes.

In terms of the decision domains to be investigated, we use underlying questions to obtain data usable in order to position the decision structures within the decision domains. Thus the companies will not be asked to define the decision structures within the decision domains with the academic definitions applied in this paper, since definitions and understandings of the decision domains can differentiate. Mapping the empirical data into the matrix is to be done by the researchers, thus not involving the respondents in order to avoid ambiguity.

### 4.5.2.5 Pilot Study

Teijlingen et al (2001), suggest that pilot studies indicate where surveys could fail or succeed, related to the research questions.

Applying the concept of pilot study, we will conduct pilot studies both with questionnaire and interviews. The questionnaire will be conducted targeting CxO’s at chosen enterprises, which are a part of the sample in the main study. The respondents act as an external input, enabling us to understand how respondents perceive the questionnaire. The feedback is important to ensure the questionnaire fulfill the criteria’s set for the survey. The questionnaire pilot study will consist of 5 feedback sessions.
Using the interview template, 5 pilot interviews will be conducted. Arguing for the attributes of a pilot study (Teijlingen et al 2001), researchers have the possibility to change the interview template based on feedback from pilot studies. With the feedback from the pilot studies, we shape the end result, which is used in the main study.

While conducting pilot studies, it is possible to use collected empirical data and analyze this, discussing the validity. Is the data answer the research questions, and in a way which is academic passable. This technique will be applied in both the questionnaire and interview pilot studies.

4.5.2.5.1 Pilot study feedback
The questionnaire and interview pilot study resulted in feedback from 10 peers that had an impact on the surveys final design. One issue that was noted from several respondents was the definition of the five decision domains. Discussing architecture and infrastructure as example, the respondents would prefer a few examples of every domain in order to provide accurate answers. In collaboration with respondents and tutors, suggestions that respondents could relate to were added to each question.

Further the first alternative in each answer had a change of words, to further clarify the answer. Discussing the questionnaire and interview as a whole, positive feedback was received, and each respondent could relate to and answer each question, which further prove that we target right positions within companies and use relevant questions.

4.5.2.6 Questionnaire Selection
In order to conduct the first part of the study, the questionnaire, a selection of companies was done. We have randomly selected 300 enterprises that fall within the categorization of SME’s. A request to fill in the questionnaire will be sent by email to the CIO or IT manager from the selection. If the person in question has not responded within 5 working days a reminder will be sent, and a second reminder after additional 3 days.

4.5.2.7 Interview Selection
We have randomly selected companies we intend to interview, based on the definition of SME’s presented in section 1.2. Beyond the definition of SME, no other categorizations are applied, as this adds no academic value to the research questions. For telephone interviews, 100 companies have been selected. Of the selected companies an email will be sent to 85, introducing the topic and errand. The remaining 15 enterprises will be contacted by phone only, since we did not find sufficient contact information. Contacting companies through phone only require a further explanation of the study and our interest of the enterprise.
4.5.3 Secondary data

The secondary data is discussed as data obtained from other sources, e.g. data produced by other researchers, and has thus been used in other contexts. Because of this, one should be cautious when using the data, and make sure the context is understood as this could impact the data. These are issues affecting objectivity and biases.

Arguing for the perspective of pragmatism, discussing if data is acceptable knowledge or not is dependent upon the research questions. The data are to be interpreted through different perspectives since we argue that adapting one philosophy entirely is not possible. This changes the focus from interpreting if the data is based upon social phenomena's or subjective meanings, to analyzing the data itself.

Saunders et al (2007), identify three types of literature sources of use in research. Those are discussed as; primary data sources, secondary data and tertiary data. Primary literature sources are; reports, theses, emails, conference proceedings, company reports, unpublished manuscript sources and some government publications. Secondary literature sources are referred to as; books, journals, newspapers, some government publications. Further tertiary data are discussed to be; indexes, abstracts, catalogues, encyclopedias, dictionaries, bibliographies and citation indexes.

Secondary data is important for the research in order to gain better understanding of the research topic, thus defining the research scope. Research is often initiated through literature review of present research in the field. The secondary data used in this paper are of academic nature.

4.5.3.1 Literature Search

The secondary data used in the research process have been fetched from:

- Academic Journals
- Books
- Theses
- Published articles

In order to find relevant secondary data different search engines is used, which are listed as follows:

- DIVA
- Google Scholar (which search various academic sources)
- Google
- Jönköping University Library Database
Following combination of keywords have been used while searching for relevant secondary data:

- IT governance
- Firm performance
- IT business value
- Strategic IT
- Economic value of IT
- IT governance matrix
- IT decision structure
- Linking IT and business performance
- IT’s impact on businesses
- IT and business alignment
- IT alignment

### 4.6 Analysis Method

In order to properly analyze collected data and adapt the pragmatic approach selected for this thesis, several aspects shall be considered. The collected data has been interpreted based upon the authors point-of-view and in accordance to the given framework, mapped to fit into the Governance Arrangement Matrix, according to the given definitions of the different archetypes.

Based upon the mapping, a three-level calculation was enforced to further create opportunities to derive patterns and compare the validity and generalizability of the data. The calculation progressed as followed:

1. Utilization of figure 2 (pp14) to map the respondent answers to corresponding archetype
2. Comparison between collection techniques to ensure the quality of gathered data.
3. Compile the overall results between the data collections.

From this a clear perspective of the compiled results enabled a descriptive analysis, both in comparison to Weill's study and to create a contemporary view of IT Governance in Swedish SME's.

### 4.7 Research Reliability

Questioning research reliability is a process to ensure the research quality. Discussing the empirical data, researchers are responsible to collect data that are of quality, which contribute to the academic world. The survey to be carried out involves employed personnel at various companies, and it is vital that an empirical study collect data that are accurate and reliable.
The importance of research reliability cannot be disregarded, and Saunders et al (2007) pinpoint three questions, which addresses the research reliability:

- If other researchers undertake studies with the same characteristics, will the outcome of the study be the same?
- Will a study with the same measures produce the same results on another occasion?
- Is it transparent how raw data was interpreted and thus how results were produced?

Robson (2002) identify four possible threats to research reliability:

- Subject or participant error
- Subject or participant bias
- Observer error
- Observer bias

To address issues such as reliability, surveys and interviews must be designed to obtain information from respondents that are honest and are valid in relation to the research questions. The study must approach respondent's objective to not impact the result from a subjective view. As pragmatists we argue that the interviewees possess values that are reflected in their answers, and is impossible to avoid. In order to obtain information that is not prejudiced or influenced by the respondent's cohorts, the anonymity of the interviewee will be guaranteed. The information will be decoded immediately ruling out the possibility to identify the respondent.

We further think there are different levels of reliability to be addressed when discussing face-to-face interviews and using a questionnaire. When conduction interview's in person, one can further explain a question if it is misunderstood or misinterpreted, why the interviewee can address those issues immediately. If the respondents feel the question cannot be answered with two alternatives, he could give more information describing the answer in order to be satisfied with the answer.

Even though our interviews are decoded and kept anonymous, the respondent might not feel confident to provide an honest answer because we know who provided the answers at that time. This could pose a threat to the reliability, why questions need to be designed, not to challenge the performance or position of the CxO, and to not require sensitive information that could in some way impact the reliability. If the interviewee’s feel some answers are ambiguous, further validating questions could be asked to avoid threats to reliability.

The online questionnaire is anonymous like the interviews. By using to questionnaire online, the respondents could perceive the anonymity more tangible in contrary to an interview conducted face to face or via telephone. One reason could be because no one records the answers in real time, instead filling in a questionnaire without any contact information included. A risk with questionnaire without per-
sonal supervising is misinterpretations of questions. If the respondents don’t feel their answer is covered in any of the given answers, they might not answer the question and thus pose a problem to the study’s reliability.

In order to ensure the reliability of both the interviews and questionnaires, a test-study will be conducted. Concerning the interview’s, a small sample of CxO’s will be asked to be part of a control group which are interviewed, and the questionnaire will be sent to a control group selected from the questionnaire sample size. The test study will indicate whether the respondents understand the questions and if the information obtained is reliable and valid in relation to our research questions. Conducting a few test studies and revising the interview and questionnaire questions will help us conduct a reliable study, and to ensure the academic relevance.

In order to ensure that a similar study of ours conducted by other researchers would produce results or of similar characteristics, the connection between the questionnaire, interviews and the research questions are substantial. By using an interview template, attempts are made to eliminate the risk of different responses depending on our way to ask questions. Since the collection of primary data is in close relation to the research questions, it is rather a question to investigate the reliability of the responses.

4.8 Research Validity

Validity discuss if the findings answer the research questions. Based upon the presented models, the data collection phase will be designed to enable comparison to the related models. As discussed by Saunders et al. (2007), one should formulate this part of the research process as proving casual relationships between two variables. In the case of this thesis, the variables that will be investigated are the relationship between the organizational governance management of IT and the theoretical framework presented in chapter three. As data will be collected through questionnaire and interviews, and adopting the pragmatic approach, the research is based upon what the authors believe is reality and truth.

4.9 Research Generalizability

Producing an end product that is applicable to any surroundings, the terminology of generalizability needs to be discussed. Saunders et al. (2007) define generalizability as the “produced outcome is equally applicable to other research settings than your own”. This thesis focus on how IT is governed within a general context in the business arena and the different IT-related managerial settings are to be understood. Depending upon chosen research methodology by other researchers, the theories presented and discussed in this thesis could be approved, disapproved or further elaborated upon.

Discussing the relation between the research questions stated and the provided model depicted in chapter 3, from the general perspective the intention is to analyze the data applicable to other contexts. As the study applies the functionality of
IT-Governance within a specific size of organizations, it is important to maintain the analysis within the field and not try to stretch it too far.

The study is based on selected companies given the correct scope, and reflects SME’s in Sweden and can be seen as generalizable to some extent. 400 enterprises were targeted in the study, of those 108 responded. As this thesis process is adopted towards the pragmatic way of thinking, if further research is conducted towards other philosophies, such as positivism, the understanding of this thesis generalizability must be considered towards the pragmatic perspective.
5 Empirical findings

In this chapter, a thorough presentation of the collected primary data will be given. As there were two methods applied in the collection phase, an introductory presentation of the collected data per decision type will be given followed by a distinctive separation between the data collection techniques in order to validate the given research questions. Furthermore, the findings will be presented according to the Governance Arrangement Matrix, separated upon each IT-related decision domain.

As described in the fourth chapter, the selected methodology of data collection was the mixed-method approach, combining an online questionnaire with semi-structured telephone interviews. To put this in short, the reason for selecting these two approaches was to utilize the telephone interviews as a tool for understanding the survey, which then with the help of questionnaire produced the maximum amount of returns compared to only selecting the telephone interview option.

In total, 108 responses were given to the study, with the majority of responses from the questionnaire. The questionnaire produced 87 replies and 21 interviews were conducted through phone.

5.1 Response rates of collected data

In this section, an overview of the results from the collected data will be presented along with a separation between the two different collection techniques. Percentage numbers formatted in bold, indicates the most frequent selected archetype and also in the cases where the outcome showed an even spread between different selections. In the appendix, numerical answers are presented based on decision domains and archetypes.

5.1.1 Total response rate

The study produced results reflecting the vast differences between the decision domains. First the produced results will be discussed from the perspective of the whole study. Over half of the respondents (51%) decided about the IT principles through a business monarchy, followed by 24% applying IT duopoly. IT professionals commonly managed IT architecture, as 37% applied IT monarchy and nearly 30% relied on business monarchy. The majority of the respondents applied IT monarchy (48%) when deciding about IT infrastructure questions, while business monarchy was applied in 29%.

The decision rights in the business application needs were almost equally distributed among business monarchy (28%), federal (27%), IT duopoly (27%). Business monarchy was once again found prominent in a decision domain as this the archetype was applied by 44% in IT investments. Table 1 shows the total response rates in percentages and the prominent archetypes are bold in each decision domain.
Table 1 - Swedish SME's IT-related decisions

<table>
<thead>
<tr>
<th>Decision / Archetype</th>
<th>IT Principles</th>
<th>IT Architecture</th>
<th>IT Infrastructure</th>
<th>Business Application Needs</th>
<th>IT Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Monarchy</td>
<td>50.9%</td>
<td>29.6%</td>
<td>29.6%</td>
<td>28.7%</td>
<td>44.4%</td>
</tr>
<tr>
<td>IT Monarchy</td>
<td>10.2%</td>
<td>37.0%</td>
<td>48.1%</td>
<td>5.6%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Feudal</td>
<td>1.9%</td>
<td>0.9%</td>
<td>0.9%</td>
<td>12.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Federal</td>
<td>12.0%</td>
<td>4.6%</td>
<td>1.9%</td>
<td>26.9%</td>
<td>15.7%</td>
</tr>
<tr>
<td>IT Duopoly</td>
<td>24.1%</td>
<td>25.0%</td>
<td>18.5%</td>
<td>26.9%</td>
<td>27.8%</td>
</tr>
<tr>
<td>Anarchy</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Insufficient</td>
<td>0.9%</td>
<td>2.8%</td>
<td>0.9%</td>
<td>0.0%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

5.1.2 Telephone interviews

The telephone interviews represent nearly 20% of the total responses, and were found to deviate from the questionnaire in some decision domains. IT architecture is managed through business monarchy (52%) and is in line with the surveys overall pattern. IT Architecture is a matter of IT monarchy (38%) or IT duopoly (33%), thus relying on IT professionals solely or through collaboration with business professionals. The decision rights in the domain of infrastructure lay on the shoulders of IT professionals as almost 50% discussed IT monarchy to be applied.

Business application decisions distinguish between the different data collection techniques. From the respondents interviewed through telephone almost half (47%) of the companies apply IT duopoly, while federal is applied in 28%. IT duopoly is the prominent archetype (42%) in the IT investments domain, followed by business monarchy (28%).

Table 2 clarifies the responses from telephone interviews with the prominent archetypes in bold.

Table 2 - Telephone Interviews
5.1.3 Web-based Questionnaire

While conducting the questionnaire, business monarchy was the prominent archetype in IT principles (50%) and IT investments (48%). IT architecture is commonly managed through business monarchy (34%) or IT monarchy (36%), among companies who responded to the questionnaire. IT infrastructure is the only domain where the majority applied IT monarchy (48%).

Majority of the respondents let business professionals (business monarchy could include a CIO) deal with business application needs. Business monarchy (32%) and federal (26%) are the most common archetypes, discussing the domain of business application needs. As seen in table 3, the bold percentages are the prominent archetypes in each decision domain.

<table>
<thead>
<tr>
<th>Decision / Archetype</th>
<th>IT Principles</th>
<th>IT Architecture</th>
<th>IT Infrastructure</th>
<th>Business Application Needs</th>
<th>IT Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Monarchy</td>
<td>50.6%</td>
<td>34.5%</td>
<td>31.0%</td>
<td>32.2%</td>
<td>48.3%</td>
</tr>
<tr>
<td>IT Monarchy</td>
<td>10.3%</td>
<td>36.8%</td>
<td>48.3%</td>
<td>5.7%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Feudal</td>
<td>2.3%</td>
<td>1.1%</td>
<td>1.1%</td>
<td>13.8%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Federal</td>
<td>13.8%</td>
<td>4.6%</td>
<td>1.1%</td>
<td>26.4%</td>
<td>14.9%</td>
</tr>
<tr>
<td>IT Duopoly</td>
<td>23.0%</td>
<td>23.0%</td>
<td>18.4%</td>
<td>21.8%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Anarchy</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Insufficient</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Table 3 - Questionnaires

5.2 Decision Domains

5.2.1 IT Principles

IT Principles clarifies how IT shall be used within an organization, and the outcome of the research questions related to it presented the following pattern.

Summarizing the collected data, it clearly was a board of director's decision to set the principles, as Business Monarchy gained a sole majority with 50.9% of the responses, as seen in table 1. The second most popular answer was IT Duopoly with 24.1% and third was IT Monarchy with 10.2%

During the telephone interviews, the respondents replied in the nature that the responsible for IT either is included in the board-of-directors, is a sub-ordinate to a member of the board or act as an external agent in charge of IT but with no connection to the board.
5.2.2 IT Architecture

The principle of the IT architecture of an organization circulates the creation and upholding of policies and routines regarding IT. According to the sample population, IT Monarchy is the top source for deciding the architecture with 37% of the replies, followed by Business Monarchy with a little less than thirty percent, finishing with 29.6%. The third most popular IT Architecture archetype was IT Duopoly with 25%.

The explanation of these results from the respondents was that policies and regulations were either set by the IT department/CIO itself or together with different CxO’s relating it to the board-of-directors.

5.2.3 IT Infrastructure

As infrastructure deal with technical parts of IT that can be “seen” or “touched”, the decision is often, according to the respondents solidly up to the IT department or CIO. The IT-Monarchy is applied in 48.1% of the sample population; almost twice the sum of the Business Monarchy that ended up with 29.6% and IT Duopoly with 18.5%.

In accordance to notes from telephone interviews, the reasons for the choice of IT Monarchy, is because the total responsibility were given to the CIO/IT-department, or that the IT-department were the only one with the knowledge of how to combine different platforms which were the case in a number of interviews.

5.2.4 Business Application Needs

The questions related to what applications are needed for the different departments and the organizations as a whole resulted in the most even outcome of the five decision domains. Within the bare margin of 1.8%, Business Monarchy became the most selected option with 28.7%, with both the Federal and IT Duopoly option claiming 26.9% of selections, as seen in table 1. Compared to the other decision domains, the feudal options were selected 12% of the occasions, which was the highest mark for the feudal archetype and the only time reaching above 1.9%.

When respondents described this archetype, the domain was allocated at the desk of the board or the CIO specifically. Although, pointed out throughout the interviews were that it was a matter of costs that indicated where the decision was decided. However, the respondents clearly stated that it was primarily a decision for top-management.

5.2.5 IT Investments

The discussion regarding the extent of investments relating to IT and what type of investments, produced a clear picture of where the decisions were taken. Almost half of the respondents answered that it was a board of director’s decision, with
44.4% selecting the Business Monarchy option. In the telephone interviews this was discussed as a decision for the board-of-directors solely or as decisions where the board of directors have the final saying.

This can be related to the second most common archetype, based on collaboration between the IT department and other subdivisions, as 27.8% selected IT duopoly for Investment decision. Third, respectively fourth most common archetypes were Federal with 15.7% and IT Monarchy with 10.2%

5.2.6 Comparison between data collection techniques

As the collection of primary data was administered through usage of viral questionnaires as well as fetching information through telephone, verification of the data is important before an analysis could be made. As the telephone interview acted as a support of validity for the understanding of web-based questionnaire the differences in the produced outcome of the two techniques will be discussed.

Looking at table 2 and 3, overall the different percentages between the two collections of data matches, however, they produce two sets of answers that are contradicting each other (that will also be discussed in 6.5). This occurs in the IT Architecture and Business Application Needs, on where the percentage difference is vast. This may be the case due to the fact that the number of respondents of the web-questionnaire consists of 76% of the total amount of the population. This means that the number of respondents per option using the telephone interview will have a larger impact upon the specified method.

It is impossible to pinpoint a single reason for the percentage-gap between the two data collections. An unclear question or the number of participating respondents per technique could be the cause. However, when the pilot study was conducted, neither the test-respondents nor the interviewer noticed anything close to uncertainty regarding the question or the selection of answers, thus finding it as a coincidence due to the random selection of respondents.
6 Analysis

After the conducted study, with the purpose to investigate the stated research questions, the collected data has to be analyzed. As a tool to investigate the research questions, a model derived from previously conducted studies has been presented in the theoretical framework that will be applied.

The research questions are;

- What type of decisions related to IT-Governance are made, given the underlying framework, within the selected SME's and how does these decisions reflect Business/IT alignment?

- How are key IT-decisions prioritized and governed in comparison to previous studies?

The data derived from the study, which is presented in the fifth chapter, generates sufficient knowledge about what types of decisions are made within the IT governance domains. Since the framework and model presented by Weill and Ross, (2004) is used as the underlying framework, the study have been designed to easily be applicable to the model. This can be verified through, partly the method used to design the study and partly by looking at the generated data presented in section 5.

Thus the analysis will continue to compare our findings against the study conducted by Weill, and analyze the differences. Each decision domain will be discussed in detail.

The first part of the analysis, section 6.1, focuses on specific decision domains and the findings that were discovered. The second part of the analysis, heading 6.2 and following subheadings, will discuss the differences between the conducted study and the results from Weill’s study, and to which a comparison will be made. This part of the analysis will answer the second research question, in relation to the produced findings.

6.1 Decision structures

Results from the conducted study will be analyzed in this part of the analysis. The focus will be on the results produced from the study solely without comparisons to outcome of previous studies. The outcome will be a thorough analysis of Swedish SME’s, and will follow the structure of describing each decision domain.
6.1.1 IT Principles

As IT has become a contemporary necessity in the business arena, the core fundamentals of where essential principle for how IT shall be utilized are of grave importance. In correlation to our expectations, the majority of the respondents replied that the decisions were made in the highest instance, Business Monarchy. What can be argued is that it is not necessary to involve the entire board-of-directors, to which almost one-fourth agreed upon, selecting IT Duopoly. Allowing IT to act separately does not come across that popular for the sample population, as more than 85% rejected the statement of having IT to act on its own (IT Monarchy).

This instead highlights how the respondent Swedish SME’s allows IT to be of influence for not just the specific IT department allowing the influence either spread across the entire corporate hierarchy or the necessary departments/officers to formulate successful principles relating to IT. The top three alternatives picked for this domain of IT decision constitutes of almost 90% of the respondents, and the remaining alternatives Feudal and Anarchy (IT Monarchy previous discussed) sums up to less than 2%, with Anarchy left blank. The Feudal archetype involves adopting a silo-like perspective, isolating every single business unit to manage themselves. As technology progresses and the opportunities to collaborate internally and externally the low response proves that indication.

6.1.2 IT Architecture

Our study indicates that IT architecture is most commonly a matter of IT professionals. IT monarchy, which is the terminology in the model, defines the decisions to be in the hands of IT professionals without the involvement of business representatives, and of the respondents 37% reported IT monarchy to be the applied archetype. IT architecture involves more technical details, concerning internal structure and rules, but should be based upon the business needs. Discussing IT monarchy, the business executives and business unit leaders rely on the IT professionals to satisfy the business needs with the necessary technical choices. As IT professionals are to act on their own, one could question if business and IT architecture build on mutual understanding of the capabilities and attention required. This archetype reflects the decision domain to be viewed as a non-business question, with technical focus. As of today, the necessity for IT to produce business value cannot be overlooked. Business professionals require explicit value, which for an IT professional might not always be the case. Facilitating communication and collaboration could bridge such gaps.

From the study, almost 30% claimed IT architecture to be managed by a business monarchy. The business monarchy consists of business executives, which could include a CIO or CTO. This archetype reflect the IT architecture to be a strategic matter in which a board of directors should be included in order to ensure the business alignment and interlace the business needs and the architecture supporting this. This could be seen as a top-down approach in which the business monarchies have the decision rights solely.
The third most common archetype was IT duopoly. This archetype could facilitate a very close collaboration between the business and IT, since IT-professionals, business executives and/or business unit leaders or process owners are involved. In the conducted study, result shows that this archetype was used in order to enable business and IT alignment, ensuring that IT support and enable the business.

Among the respondents, 54% of the Swedish SME’s finds IT architecture as an area in need of business attention, either as a business domain solely or as shared responsibility between the business and IT professionals. The results show that decisions in this domain are anchored into the business domain of Swedish SME’s, attempting to align and maximize the business benefits. Feudal, federal and anarchy were applied in less than 6% of the responding enterprises, while 2.8% were insufficient information.

Through an overall perspective, the majority of decision, based upon data from the respondents, three main archetypes clearly state how decisions are put into practice. The most common practice (only selected as top priority in two domains) was IT Monarchy. Together with another strategic business unit (IT Duopoly) and influenced through the executive board (Business Monarchy), the combined figure of 91% response rate shows that the heavy involvement of the IT department in IT related architectural decisions, signifies the importance that Swedish SMEs considers, in order to stay competitive.

6.1.3 IT Infrastructure

The core fundamentals of acquisitions of physical equipment and related software are shown throughout the conducted study to be located at the desk of the IT department. This is decided either by themselves (48.1%) or in co-operation with another business unit (18.5%). These two archetypes highlights how the matter of technical expertise is of essence when it comes to selecting the appropriate range of IT related equipment. As in the previous decision domains, the impact of the executive boards is clearly highlighted within the infrastructure domain as well. With almost 30% (29.6%) of the responses indicating that the board had the final saying in what is okay and what is not. During the collection of data, when further discussing this topic with respondents, they clearly state that IT has a big influence, however, it is often a matter for a higher ranked hierarchal business unit to finalize the decision, based upon the input provided by the IT department.

The overall overview of the responses from this specific decision domain clearly shows that both the feudal and the federal archetype were barely selected or discussed by respondents. From this, a point worth to mention is that there is no need for a company-wide discussion regarding the overall influence for infrastructural investments involving IT. It is shown through the numbers that alienating the IT department only allows a minimum of respondents (0.9%) to stay competitive.
### 6.1.4 Business Application Needs

With a few percentages, business monarchy was selected by most enterprises. This decision approach emphasize the corporate need and requirements, allowing strategic thinking. This could be the case since many argued that the business application needs should be developed from the business side of an enterprise. Some enterprises discussed the importance of the CIO and the decision authority he or she holds. The CIO could in some cases facilitate mutual understanding between IT and the business, and enable effective operational and strategic decisions.

Federal decision-making was applied by 27% of the selected SME’s. There is a value of combining corporate and local decision making, to facilitating cogency in the company supporting the business.

The federal archetype advocate the involvement of business unit leaders and/or process owners in collaboration with business executives in order to satisfy unit needs while attaining the corporate goals. This could enable the enterprises to base corporate application needs from local business units or break down corporate applications into specific business unit needs. With a 27% rating, the federal archetype indicates that respondents rather exclude IT-professional in this matter and push towards a wider perspective of business professionals and regular users. Excluding IT-professionals could neglect the potential business value of IT, but will establish the decisions to origin from different layers of the corporate ladder.

The three archetypes, business monarchy, federal and IT duopoly together constitutes of over 80% of the respondents, which could be seen as the overall opinion of how the needs for proper applications reflects upon practices and financial influence. IT duopoly could facilitate mutual understanding and collaboration between the IT and business professionals, instead of alienating one part of the company. Discussing duopoly, clear communication and structure is necessary. Very few discussed business application needs to be a technical question, in which it creates a need for business understanding among IT-professionals within this domain.

### 6.1.5 IT investments

The domain of IT investments concerns investments that are of significant importance for the enterprise. Since the investments discussed in this domain should target the business domain, one could argue the need for business involvement. Of the responding 108 enterprises, 44.4% reported that business monarchy was applied. This indicates that large investments are seen as a matter concerning the board of directors, involving a CIO. If this domain is managed through business monarchy, there is a possibility that decisions are based on business needs and play a part in the strategic planning of the business and IT. Efforts to assure that decisions in the investment domain involve business professionals, and a CIO included in the board of directors, there can be a better relationship between IT and business, through which equilibrium is achieved. Some of the respondents emphasized the importance of the CIO and IT responsible/coordinator, both as the client that require business value and as an input agency when discussing decisions at
Cxo level. Business monarchy is a good way to ensure that the corporate strategies work in synergy, but should as a suggestion involve a CIO.

Almost 30% of the responding companies decide about IT investments in an IT duopoly archetype. Since this archetype advocates involvement of IT professionals and business executives, the decisions could improve the understanding between the two corporate dimensions. Integrating business expectations and business needs with the competence of IT professionals who could stress the possibilities and opportunities to drive the business, could contribute to sustainable competitive advantage.

IT monarchy and federal archetype summed up to be applied in just above 25%. IT monarchy entrust the decisions to IT professionals solely, mostly limited by a yearly basis budget. This archetype often seem to be applied in companies who assign IT questions to an own instance such as the IT department. This archetype should be carefully managed to integrate the IT into the enterprise in order to achieve maximum business value. The federal archetypes involve business professionals on different levels within the enterprise, without involvement of IT professionals, and view the investment domain as a question of business needs and requirements.

The feudal and anarchy archetypes were minorities applied in very few, or none of the respondent organizations. In an overall analysis of the different archetype, one could discuss that it is not a sole matter of decision structure in this specific domain. What shall be taken into consideration is the matter of how investments enforce changes in work practices and to what extent the different decision domains support the intended investment. What can be seen here throughout the outcome of the collected data is that the finalized decision often constitutes the top-level executive, in which an Information Officer shall be considered a key player to uphold the technical directives towards business strategies and financial implications. As seen through the results of this particular decision domain, the case of involving IT professionals is imperative, as the case whereas a secluded IT department constitutes of less than 1% corresponding to more than 80% of the cases where IT professionals are heavily involved.

6.2 Comparison

The results presented from the conducted study are compiled in the same manner as the original study by Weil et al. (2004). Based upon the model, deviations and shifts in decision structures can be mapped, with a difference of 7 years between the two studies. The study conducted by Weill yielded results that indicate that IT in many domains was seen as technical choices, excluding business professionals. A comparison will be made in each domain, to thoroughly understand archetypal shifts; with the starting-point that one study involved large global enterprises while the other concerned SME’s in the region of Sweden.
6.2.1 IT Principles Comparison

In the study conducted 2003, the majority of the respondents positioned themselves as adopters of IT duopoly. The cooperation or collaboration between IT professionals and business professionals seemed to help companies facilitate understanding to both sides to create principles that drive the company forward. This archetype could be the most common because IT professionals did not have a place in CxO levels in companies, but rather work below the board of directors. Thus CIO’s that is a part of the business executives was not as common. This could be the case which lead to the IT duopoly where the communication was between IT professionals and the steering committee was common. Some of the respondents in the 2003 study claimed business monarchy were utilized. This could either be the business executives with absolute decision authority concerning the domain of IT, or that the business executives included a CIO which is utterly responsible of IT.

The results from the recent study yield a major shift towards business monarchies. In comparison to previous study, business monarchy was applied in over half of the respondents with an increase of almost 25% over seven years. At the same time, the frequency of IT duopolies was reduced with almost 12 %. One could discuss that this is the case due to the increased amount of CIO-included executive boards, which relocates the IT principles domain to be a matter of the directorates, thus considered a business monarchy.

IT monarchy, feudal and federal was all declining to be minorities compared to the two major archetypes. IT monarchy declined with almost 8% from previous study, but 10% was still relying on IT departments solely to manage the IT principles decisions.

6.2.2 IT Architecture Comparison

Comparing the results we see a major shift in archetypes concerning IT related architectures. Most of the respondents in both studies saw IT architecture as technical questions with no need of business involvement. The 2003 study indicates that 73% of the respondents apply IT monarchy, while this study indicated that there is a decrease of over 35%, where now 37% enterprises claim to use IT monarchy. Even though IT monarchy is the largest archetype in this decision domain, archetypes involving business professionals have increased with almost one third. Business monarchy was used in 6% of the enterprises participating in the study 2003, while almost 30% argue IT architecture to be a matter of business monarchy in 2010. It is an increase of over 20%, which could prove that many companies assign positions such as CIO in the directorate, or manage IT questions at C-levels, thus understanding the possible leverage of business value.

IT duopoly increased slightly over the seven years of difference between the studies, to constitute of one fourth of the respondents. This indicates that many companies still facilitate collaboration between business professionals and IT professionals, which not necessarily include business executives and the top management.
6.2.3 IT Infrastructure comparison

Dealing with infrastructural decisions, the great differential between the two studies indicates that a slight decrease of pure IT-managerial decisions meanwhile an increase of executive board decisions. As Weill showed in his study, seven years ago, more than half of the respondents indicated that it was a pure IT related decision to select and acquire physical equipment and related software.

However, with the escalating number of Technical and Informational Officers (CTO, CIO), it shows a slight decrease as mentioned above within the sample population that were collected. It still shall be seen as the dominant force that executes the finalized decisions, however, the influence of the entire board of directors (Business Monarchy) has begun to bring more interest to the table, with the impressive growth of 22.6 percent within the seven-year span separating the researches.

6.2.4 Business application needs comparison

Analyzing the domain of business application needs, there are no signs of remarkable shifts. The domain is managed roughly the same fashion as in the original study. The only significant difference is the business monarchy. All archetypes except the business monarchy slightly declined with a few percentages. Business monarchy increased with almost 17% comparing the two studies. This concludes that business monarchy, federal and IT duopoly all are applied almost equally among the respondents.

The scattered result in the research indicates that it could be the results of several alterations and improved developments. The only increasing archetype, business monarchy, could possibly be linked to the IT investments domain, in which almost half of the respondents apply business monarchy. One could argue that business application needs in the end initiate IT investment projects why this could be one explanation. It could also be related to an increasing numbers of CIO's, now involved in decisions and a part of the directorate, defined as business monarchy.

Statistically, the largest decrease among archetypes was feudal, with a decrease of 6%. This emphasizes the small margins of change, except the increase of business monarchy of 16%. The changes one can identify conclude that in the business application domain, the changes have moved to become more business related.

6.2.5 IT investments comparison

As in all the other decision domains there is a distinct increase throughout the business monarchy archetype. Concerning IT investments, as much as near 45% apply business monarchy, which is majority among the archetypes. The increase compared to the 2003 study reached 14.4%, while the federal archetypes decreased with almost 12%, ending up with 15%. Almost unchanged, IT duopoly
nearly reached 30%, thus almost applied in one third of the companies. IT duopoly do not involve a CIO or IT-professional that is a part of the top management, but instead business executives or business unit leaders/process owners and IT-professionals. Even though IT duopoly remained unchanged we could see that companies were moving towards business monarchy.

The cause in some enterprises is the appointment of a CIO in the board of directors, which lift many IT related issues to a business perspective. On the other hand the cause could be the business focus of IT. Business executives are the contractors of IT, which is expected to deliver the business value required. Thus the top management of business executives manages decisions regarding IT investments.

### 6.2.6 Archetypal comparison

When Weill conducted his research, seven years ago, awareness must have been raised that the applicableness of the findings might not last in all business arenas throughout time. Although that different variables were taken into consideration in this research compared to decade old original, results will differ, the question is, to what extent. This part will cover the differential that were found as well as an overall discussion about how IT decisions are prioritized and governed have changed, in accordance to the title of this thesis.

As the world of IT has shifted several times, and with the current post-bubble burst reality that are facing organizations, how are IT utilized and to what extent has it changed? Comparing the two conducted studies, we can see that from a contemporary perspective that one particular archetype has significantly changed. From being one of the second to third most popular choices of archetypal decision structure, Business Monarchy stands out of the crowd with an overall growth of 20.6%, spreading from circa 24% (IT Principles) down to 14.4% (IT Investments). This shows that decisions related to IT might be of great influence of the board of directors. However, it could also tell how IT has become more influential, inducting a specific IT Chief to the board, thus relying on his expertise without the input of a subordinate IT department (e.g. IT Duopoly).

Based upon the numbers that calculated the difference between the studies, the dissimilarity between the different archetypes and the year that the research was conducted shows that IT Monarchy has lost is favorable position. Within four out of five decision domains, negative numbers spreading from -2.4% to -36% indicates that IT is not just a question for one technically focused department, instead as presented above, it is a matter for a company-wide board or executive group, often involving IT officers.

### 6.3 IT Strategy Triangle adaption

The Information System Strategy Triangle, described and elaborated in section 3.2 provides the opportunity to see the fit between how the Information System strategy fits with other imperative strategies that drives the organization. As the results
between the two separate conducted studies, based upon variables of organizational size, geographic location and the time span of seven years, several analytical aspect are worth emphasis.

Elaborated upon in the previous paragraph, the escalation of decision being made and handled in the executive board (Business Monarchy) provides an organization with the option for the senior board to broaden their horizon of the complete organizational usage of IT, thus increasing the fit between internal and external business, organizational and informational strategies. This will in the end formulate an optimized usage of their Information System Strategy, hence a more central pillar of principles, architecture and infrastructure. Furthermore, these founding pillars will directly affect how investments shall be considered and to what extent they shall be used.

As described and elaborated, the increase of pure executive-based decision is frequently shown between the data collections. As the overall increase of business monarchy-based decision has increased between 14.4% and 23.9%, together with the decrease in especially IT Monarchy, the intention of the usage of IT has become more imperative. What shall be discussed is the imperativeness between overall organizational strategies, to which the usage and intent of IT shall be compared. During the time span of the two studies, the change of decision practices enlightens the possibility to streamline the value of executive collaboration in order to combine several business unit to base and implement IT-decisions, which can enforce competitiveness in the business arena (Business Monarchy, IT Duopoly) instead of relying upon IT as a multi-option tool to uniquely fit each business unit.

This can further be seen when comparing the studies, in particular highlighted in this data collection. The difference between the different domains indicates that the attempt to create an equal fit between organizational strategies is subconsciously described. The increasing number of executive board based decision with the inclusion of IT-executives, jointly discussing IT-related topics, provides a better overall fit between the dimensions of the Information Strategy Triangle than shown throughout Weill’s findings.

6.4 The Changed Role of IT Governance

Discussing IT governance, we see an increasing interest of where in the corporate ladder the issue of IT should be managed. In the participating enterprises, IT was discussed to be fundamental for the business. Comparing to previous study, IT seems to have become a business issue rather than a matter of technicalities. As the study was conducted, we got the understanding that IT-professionals was required to produce business value from a strategic perspective to a greater extent compared to early 21st century.

In order to produce strategic value, one must understand how IT can facilitate and improve the business. In the contemporary environment, when business-margins is cut and business executives seek tools to improve and optimize operations, we think that IT should be targeted to the desk of directorates. To achieve maximum
alignment between business and IT, we see the need to appoint a CIO, with understanding in both domains. In order to maximize the value of IT, we argue strategic knowledge of IT and business to be vital. One must be able to see beyond the technical parts, and focus on the possibilities and collaboration between IT and business from a futuristic perspective. This could if managed properly bridge the gaps between the business and IT, which was found in some enterprises.

As technological development progress faster, it is vital to understand how one should utilize technology. Investing in technology solely will not bring expected value, as this requires knowledge of how to adapt and change the organizational aspects. Looking at the empirical findings, one can see proof that some companies without proper IT understanding believes that technological investments could solve problems in the business domain.

6.5 Differences in Compared Studies

The two studies compared target different type of companies, one of the studies target large enterprises that act on global markets while the other investigate IT governance in small to medium size enterprises in Sweden. As a consequence the studies inevitably involves companies with different organizational structures, sizes and corporate goals that act in different markets.

The differences found could thus originate from the disparities between enterprises participating in the two studies, as a cause of geographical or organizational differences. With the differences presented one could argue that this might not be the case solely, since seven years is substantial time in the business domain and the aspect of this study being longitudinal. Participating enterprises discussed the increased need for IT to leverage business value, why changes, in both SME’s and large enterprises could be the case as proven in empirical findings.
7 Conclusion

This section will involve a clarification of the outcome of this thesis, answering the two stated research questions:

- What type of decisions related to IT-Governance are made, given the underlying framework, within the selected SME's and how does these decisions reflect Business/IT alignment?

The first question concerns the impact of decisions relating to IT-Governance and how it affects the alignment between business and IT. The concluding outcome of this research shows that the distinct majority apply Business Monarchy, which indicates the influence that IT has within an organization in order to optimize the business throughout an enterprise-wide approach to align business and IT.

In addition, IT is considered, based on the empirical findings, to be the glue that creates a cohesive platform to which businesses rely upon. This can be concluded as cross-sectional corporate decision now involves the necessary executives (Business Monarchy) to make decisions that improve the alignment between technical and functional aspects.

Furthermore, decisions relating solely to technology, such as policies and acquisitions is still an area to which organizations rely upon the expertise of IT monarchs, thus concluding: the knowledge surrounding IT is sufficient for CIO/IT-department to support the need of the organization.

- How are key IT-decisions prioritized and governed in comparison to previous studies?

The second research question relates to the differences between this research and previously conducted studies. From the previous study, incorporated into this thesis, indicates that the seven year time span highlights an increase board-of-directors decisions (including CIO). Furthermore, the amount of pure IT-based involvement in decisions has decreased in comparison to the previous study.

In accordance to the research question, one could conclude that the changes in decision structure have taken place. As the trend in this research proves the discussed managerial-level decision structure, an alternate outcome is discussed in the underlying study. In Weill’s research, a clear distinction between collaborative and IT-department related decision are made, to which an answer to the second research question could be proven. As governance of IT has been moved from a sole to a multi-dimensional perspective, our conclusion is that both the alignment of business/IT and the seven-year span has altered the view upon prioritization and governance.
8 Discussion

Concluding a study of this magnitude, it is important to discuss the weaknesses and strengths that could have an impact on the study. Highlighting strengths and weaknesses will prove the reliability of the study, and reflect the author’s understandings that future researchers should be aware of.

Further we will propose future research based upon the work we have done. This could be seen as a source of inspiration how the subject could be further explored from an academic perspective.

8.1 Weaknesses and Strengths in the Conducted Study

When selecting research methods, one should be aware of the weaknesses. As the weaknesses could have an impact on the results, we will bring this to a discussion. In order to relate the underlying framework to Swedish SME’s, with academic relevanvce and applicability, the study was designed to cover a large sample through the use of questionnaire and interviews.

The result is a product from given answers by the participating companies. The data could be biased and influenced by the respondents personal view’s or understanding of the organization. As a consequence one could question if the results reflect the organization structure from a neutral perspective. To further validate the empirical findings, one could propose case studies or observations in which the researchers investigate organizations from an uncommitted perspective. Since the study seeks to generalize, involving 108 companies, this choice of methods was seen inappropriate due to time and financial constraints. This could be seen as both a weakness and strength.

The generalizability and validity through the large amount of answers could outweigh the possibility that some answers could be influenced by personal opinions as we argue it unlikely that the majority of answer deviate from reality. The study conducted was designed in an unbiased matter, where respondents were to answer questions directly related to organizational structure with minimalistic room for personal interpretations. This would further confirm the relevance and validity of the produced findings.

8.2 Future Research

The study conducted produced understanding in the area of decision rights. The underlying framework by which comparison was made did not solely cover the domain of decision rights. Weill’s research comprised of both input and decision rights according to the framework. Due to need of delimitation in the study we chose to investigate decision rights solely. As the domain of input rights influence decisions to a great extent, research striving to understand the area of input rights in Swedish SME’s is of academic interest and business relevance. From the con-
ducted interviews, we got feedback arguing the importance of input, but due to delimitations this was not further explored.

As discussed in the introduction of the subject, the study was to produce knowledge around Swedish SME’s. The conclusion could be a seen as a result of the Swedish business culture and progression, not applicable to SME’s in other countries. Exploring companies in other geographical areas could produce outcome indicating cultural differences, and implications on decision structure in the corporate ladder. Further, the conducted research discusses SME’s in Sweden while prior research by Weill looks at large enterprises from a global perspective. As our analysis establish major differences in many domains, further research investigating large enterprises in Sweden could prove the applicableness of our research in relation to the original study by Weill.
List of references


MIT Sloan School of Management, http://mitsloan.mit.edu, 16th of March 2010


Teijlingen, E, Hundley, V, The Importance of Pilot Studies, 2001, Sociology University of Surrey


Weill, P, Don't Just Lead, Govern: How Top-Performing Firms Governs IT, MIS Quarterly Executive Vol.3 No. 1, March 2004

### Results from Study Conducted by Weill’s (2003)

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Most common pattern for all firms

The numbers in each cell are percentages of the 256 enterprises studied in 23 countries. The columns add to 100%.

Results from Weill’s study conducted in 2003. Published in MIS quarterly Executive vol.3 No.1 / March 2004.
Introduction-mail for Telephone Interview (Swedish)

Hej,

Vi är två studenter från Internationella Handelshögskolan i Jönköping, som studerar tredje och sista året på programmet “Business and IT Management”. Vi skriver avhandling inom IT Governance, hur IT hanteras i företag och dess relation till företags prestationer. Den Engelska titeln är IT Governance - Prioritizations and Outcomes.

Vi genomför en studie av Svenska företag som är framgångsrika och kategoriseras som små till medelstora, varför vi intresserat oss för er.

Vi är väldigt tacksamma om ni vill ställa upp på en kort telefonintervju. Intervjun berör var i organisationen olika IT-relaterade beslut fattas, och kommer ta ca 8 minuter. All information avkodas direkt, och hålls totalt anonym. Som tack för er medverkan skickar vi gärna den färdiga avhandlingen till er vid intresse.

Vi kommer försöka nå er på telefon för intervju under vecka *****!

Vi tackar för er tid och nås på,

Pierre Engman
Telefon:  -
Email:  -

Andreas Carlsson
Telefon:  -
Email:  -

Handelshögskolan Jönköping
http://www.hj.se
Appendix

**Introduction-mail for Internet Questionnaire (Swedish)**

Hej,

Vi genomför en studie av Svenska företag som är framgångsrika och kategoriseras som små till medelstora företag, varför vi intresserat oss för er. Vi är väldigt tacksamma om ni vill svara på ett kortare frågeformulär som består av 6 frågor och tar cirka 3 minuter. Frågeformuläret riktar sig till IT-ansvariga eller andra inom ledande befattning i företaget.

Vi är två studenter från Handelshögskolan i Jönköping, som studerar tredje och sista året på programmet "Business and IT Management". Vi skriver nu en avhandling inom IT Governance, det vill säga hur IT hanteras i företag och dess relation till företags prestationer. Den Engelska titeln är IT Governance - Prioritizations and Outcomes.

Formuläret berör var i organisationen olika IT-relaterade beslut fattas. All information avkodas direkt efter vi har noterat att ni svarat, och hålls totalt anonym. Information som lämnas kommer inte kunna spåras.

**TILL FORMULÄRET**

Vi tackar på förhand för deltagandet och er tid,

Med Vänliga Hälsningar,

Pierre Engman  
Telefon: -  
Email: -

Andreas Carlsson  
Telefon: -  
Email: -

Handelshögskolan Jönköping  
http://www.hj.se

**JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL**

Källa: UC
Appendix

Mail-Questionnaire (Swedish)

I vilket landskap ligger ditt företags huvudkontor?

Fri-text svar

Vilka beslutar övergripande om strategi hur IT används / kommer användas i företaget?

( ) Företagsledning (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT-personal, kan även vara IT-chef om denna inte är med i
   ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Hos vilka ligger ansvaret för IT infrastrukturen (exempelvis nätverksfrågor, helpdesk, IT tjänster intern)?

( ) Företagsledning (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT-personal, kan även vara IT-chef om denna inte är med i
   ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Vilka tar beslut kring företags applikationsbehov (vad för applikationer som behöver köpas in, eller utvecklas)?

( ) Företagsledning (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT-personal, kan även vara IT-chef om denna inte är med i
   ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Vilka ansvarar för beslut kring IT investeringar i företaget (Hur mycket som ska investeras, och i vilka typer av projekt samt hur det utvärderas)?

( ) Företagsledning (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT-personal, kan även vara IT-chef om denna inte är med i
   ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej
Vilka ansvarar för IT-arkitekturen i ert företag (såsom regler, policies skapade för att tillgodose affärsbehov)
( ) Företagsledning (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT-personal, kan även vara IT-chef om denna inte är med i ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej
Appendix

Interview template, semi-structured (Swedish)

Vilka beslutar övergripande strategi hur IT används / kommer användas i företaget?

( ) Affärsledningen (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT ansvariga, IT personal, kan även vara IT-chef om denna inte är med i ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Hur påverkar denna det löpande arbetet med IT?

Vilka beslutar om IT infrastrukturen (exempelvis nätverksfrågor, helpdesk, IT tjänster internt)?

( ) Affärsledningen (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT ansvariga, IT personal, kan även vara IT-chef om denna inte är med i ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Vilka tar beslut kring företagets applikationsbehov (Vad för applikationer behövs för att stödja affärsverksamheten, och vad för applikationer som behöver köpas in eller utvecklas som exempel)?

( ) Affärsledningen (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
( ) IT ansvariga (IT ansvariga, IT personal, kan även vara IT-chef om denna inte är med i ledningsgruppen)
( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej
Vilka ansvarar för beslut kring IT investeringar i företag (Hur mycket som ska investeras, och i vilka typer av projekt samt hur det utvärderas)?

( ) Affärsledningen (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
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( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Nämn de som beslutar om IT Arkitekturen i ert företag (såsom regler, policies skapade för att tillgodose affärsbehov)

( ) Affärsledningen (VD, Ekonomichef, IT-chef om denna finns i ledningsgruppen)
( ) Affärsenhetsledare (till exempel ledare för logistikavdelning, ekonomiavdelning)
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( ) Ledare av affärsprocesser
( ) Användare inom organisationen
( ) Vet Ej

Hur viktig del av företaget är IT?

Hur stor roll tror du IT kommer ha i framtiden / utvecklas till i ert företag?

Har organisationen planerat eller genomgår någon förändring relaterat till IT?
# Study Results in Numbers

## Telephone-Interview’s (Responses)

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<th>Decision / Archetype</th>
<th>IT Principles</th>
<th>IT Architecture</th>
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## Questionnaire (Responses)

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## COMPLETE RESEARCH (AMOUNT OF RESPONSES)

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## Results Comparison

The results from the two studies are presented in a table in which the differences in percentages can be seen. Weill conducted the study compared to in 2003. The diff column shows the changes seen from the seven years between the two studies. Increases are clarified through green numbers, while decreases are shown as red numbers. The highest increase and decrease in each decision domain is marked as bold.

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