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Pursuing Value from IT-investments through IT-governance for SMEs

A supply-side perspective

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Abstract

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Title: Pursuing value from IT-investments through IT-governance for SMEs – A supply-side perspective

Background and problem: Investments in Information Technology (IT) are not only assets but also enablers of capabilities for organizations, such as enhanced performance through alignment between strategy and IT. Small and medium enterprises (SMEs) are currently increasing their IT-investments while the failure rate of IT-investments remains high, primarily due to a lack of IT-governance. Furthermore, IT-governance can support organizations in managing their IT-investments by framing their complexity. IT-governance contains three dimensions (structure, people and process) which encompass concerns regarding IT-investments. Previous research is calling for a rethinking of IT-governance when applied to SMEs. By taking a stage-based approach to the IT-investment decision-making process, this thesis aims to delineate IT-governance for SMEs and answer the call for increased understanding regarding the fit of IT-governance for SMEs.

Purpose: The purpose of this thesis is to increase the understanding of how IT-governance can be applied to IT-investment decision-making processes, within the context of SMEs and from a supply-side perspective.

Research questions:

- *RQ: How and why can IT-governance support the IT-investment decision-making process in SMEs?*
- *Sub RQ 1: How and why are the IT-governance dimensions relevant for SMEs?*
- *Sub RQ 2: What characterizes the stages of an IT-investment decision-making process in SMEs?*

Methodology: A qualitative scientific approach was taken consisting of five semi-structured interviews with vendors of IT-systems and consulting firms, i.e. suppliers of IT-investments.

Discussion and conclusions: The three IT-governance dimensions are relevant in an SME-context, but certain aspects are less relevant due to the nature of SMEs. The IT-investment decision-making process in SMEs is characterized by unspecified needs and lacking follow-up processes. This study concludes that there are three pillars that jointly will contribute to IT-governance's support of the IT-investment decision-making process. 1) Creating a project group to specify the needs of the organization. 2) Enunciating the decision-rights. 3) Formalizing the decision-making process.

Suggestions for future research: Through an enrichment of the three stages of the decision-making process and combining those with an attribute-based process the complexity of IT-investments could be further alleviated, as the three stages might not be sufficient to capture the complexity of IT-investments. Further studies could also investigate the applicability of the findings by interviewing SMEs since this thesis had a supply-side perspective. Finally, the characteristics and differences among SMEs could be further explored due to this thesis' assumed indifference of the heterogeneous group of SMEs.

Keywords: SME, IT-governance, information technology, decision-making process, IT-investments

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1. Introduction

The introduction begins with a problem background, arguing for the chosen topic's relevance and a broad presentation of the SME-context, IT-governance and decision-making processes. Thereafter; purpose, research questions and contributions of this thesis are presented. The chapter ends with delimitations and an outline of the thesis.

1.1 Problem background

Investments in Information Technology (IT) are not only assets but also enablers of capabilities for organizations, such as enhanced performance through alignment between strategy and IT (Drnevich & Croson, 2013; Cragg et al., 2002). In December 2015 ComputerSweden reported how primarily medium sized enterprises are outgrowing their previous IT-solutions, and are therefore increasing their IT-investments (ComputerSweden, 2015). However, the failure rate of IT-investments remains high, primarily due to the lack of IT-governance (Bernroider, 2008), albeit substantial research in the field and the development of several frameworks (Maguire et al., 2010; Katerattanakul et al., 2014; Zhong & Seddon, 2009; Weill & Ross, 2004). There is a need for research to alleviate the complexity of IT-investments (Kimberling, 2011; Ram et al., 2013; Ridley & Liu, 2004). Specifically how IT-governance can support firms of various sizes (Balocco et al., 2013) and particularly small and medium enterprises (SMEs) (Lee, 2013; Devos et al., 2012) as IT-investments are complex (Beetz & Kolbe, 2011; Devos et al., 2014; Wilkin & Chenhall, 2010). IT-governance can support organizations to organize their IT-investments by framing their complexity (Weill & Ross, 2004). Devos et al. (2012) calls for a rethinking of IT-governance when applied to SMEs and according to Bergeron et al. (2015) IT-governance for SMEs is a necessity and must be further researched.

On a global level SMEs are of vital importance for the economy (Devos et al., 2014; Fink, 1998). For example, in 2013, SMEs in Sweden employed about 64,7% of the total workforce in Sweden and they generate approximately 59,9% of the total annual turnover in Sweden (SCB, 2013). An SME is defined as an enterprise with less than 250 employees and that fulfils one of the following two criteria; turnover below 50 million € or balance sheet total below 43 million € (European Commission, 2003). Devos et al. (2012) state that SMEs are a heterogeneous group, acting within an ecosystem consisting of not only SMEs, but also the suppliers of IT-investments (Magnusson & Nilsson, 2014). Researchers have stated that SMEs can be seen with the same lens as larger firms (Raymond, 1985), however, more contemporary research contradicts this (Metaxiotis, 2009; Levy & Powell, 2008; Ballantine et al., 1998) by presenting characteristics of SMEs such as less time consuming decision-making processes, less resources and fewer specialists (Huang et al., 2009). Xue et al. (2008) synthesize the prior literature on influencing factors on IT-governance and propose three broad factors; characteristics of the IT-investment, internal context and external environment. These characteristics and factors imply that SMEs ability to generate value from IT-investments might be different from larger firms (Day & Shoemaker, 2005), but due to the void of tools for SMEs, concepts such as IT-governance need to be contextualized and adapted to an SME-context (Bergeron et al., 2015).

IT-governance systematically determines who makes and contributes to IT decisions, focusing on the management and use of IT to achieve the strategic goals of the organization (Weill & Ross, 2004; Wilkin & Chenhall, 2010). IT-governance defines what IT decisions to make, who has the decision-rights to make them and the formal mechanisms put in place for managers to enact governance (Weill & Ross, 2004). IT-governance is a strategic activity conducted by management (ibid) but can also be tacitly existent within an organization (Sharma et al., 2009). IT-governance steers the organization through organizational structures and processes to ensure that the organization's IT adequately supports and delivers the strategic objectives and goals of the organization (Drnevich & Croson, 2013; De Haes & Van Grembergen, 2009;

Weill & Ross, 2004; Palmer & Markus, 2000). Successful incorporation of IT-governance contributes to financial value and enhanced performance (Van Grembergen & De Haes, 2008; Weill, 2004) through facilitation of efficient and effective usage of the firm's IT as a corporate resource (Drnevich & Croson, 2013; Wilkin & Chenhall, 2010). A study by Xue et al. (2008) framed the complexity of IT-investments by studying the different stages of a decision-making process in its entirety, from pre-decision to final decision, thus delineating IT-governance.

However, there are two approaches to decision-making processes that describe the patterns of organizational decision-making from pre-decision to the final decision; attribute-based and stage-based. Attribute-based describes the decision-making process by a set of attributes such as analysis, planning and politics (Bourgeois & Eisenhardt, 1988; Dean & Sharfman, 1996) enabling a rich understanding of decision-making (Xue et al., 2008). Stage-based perceives the IT-investment decision as a complex, multistage process (Bower, 1970; Maritan, 2001; Xue et al., 2008). It further delineates the responsibilities and decision-rights by including several organizational actors in the decision-making process (Xue et al., 2008). Xue et al. (2008) identify three major influencers on IT-governance; the characteristics of the IT-investment referring to the functional scope of the IT-investment and the organizational level at which the investment is implemented, the external environment including customers and suppliers as well as the internal context comprising the IT-function of the firm which shapes the internal governance of IT through power and knowledge. The IT-function concentrates decision-making rights and evaluation activities, which is why a stage-based approach can alleviate this consolidation of power and contribute to the alignment of business needs and IT-investments to generate value (Xue et al., 2008).

The value creation of IT is contradicted by prior research because the measured results from IT-investments have not generated the expected value (Hitt & Brynjolfsson, 1996; Rai et al., 1997; Im et al., 2001). This is referred to as the productivity paradox (Brynjolfsson, 1993; Macdonald et al., 2000). However, more contemporary research claims that IT has become an increasingly important resource during the past decade, for firms to leverage as they strive to create value (Mangalaraj et al., 2014; De Haes et al., 2013; McAfee, 2012; McAfee & Brynjolfsson, 2008; Drnevich & Croson, 2013). Sometimes the strategic position of IT is blurred and it is rather perceived as an island or silo, both physically and psychologically separated from 'the business' (Peppard, 2007; McFarlan et al., 1983). The merging of IT into the organization to achieve strategic alignment, value delivery, performance measurement, risk management, and resource management is integral to IT-governance (Wilkin & Chenhall, 2010), strongly connected to the larger area of corporate governance (Weill & Ross, 2004).

As presented above, SMEs play a central role in our contemporary society. Given that SMEs in Sweden are increasing their investments in IT (ComputerSweden, 2015) and the high failure rate of IT-investments (Bernroider, 2008), there is a demand for understanding of how IT-governance can allow them to steer their IT-investments towards strategic alignment and value creation. Not only due to the bias of existent frameworks towards larger organizations, but also to enable SMEs to utilize IT-governance to support their IT-investment decisions. Generating business value through IT, by itself, is a formidable predicament as IT has become commoditized rather than a strategic resource (Carr, 2003), but through the understanding of IT-governance, IT can transform into a strategic resource and contribute to value creation (Bernroider, 2008; Balocco et al., 2013). SMEs are not a homogeneous group making the study of them complex and the relative experience and knowledge that they individually possess regarding the IT-investment decision-making process limited, especially considering how rare this process is within separate firms. Therefore the cross-sectional data needed to gain an increased understanding of how IT-governance can support this process would increase substantially. Hence it is pertinent to study this phenomenon from another perspective, the supply-side perspective, as suppliers have seen several IT-

investment decision-making processes which provides the supplier with a broad experience. A cautionary note is that suppliers can have a vested interest in the adoption of management concepts, such as IT-governance.

1.2 Purpose

The purpose of this thesis is to increase the understanding of how IT-governance can be applied to the IT-investment decision-making process, within the context of SMEs and from a supply-side perspective. This purpose is based on the need identified in the academic literature to increase the understanding of IT-governance (Kimberling, 2011; Ram et al., 2013; Beetz & Kolbe, 2011) especially for SMEs (Devos et al., 2012; Bergeron et al., 2015) and the IT-investment decision-making process (Xue et al., 2008) as several SMEs are now encountering this complexity for the first time (ComputerSweden, 2015).

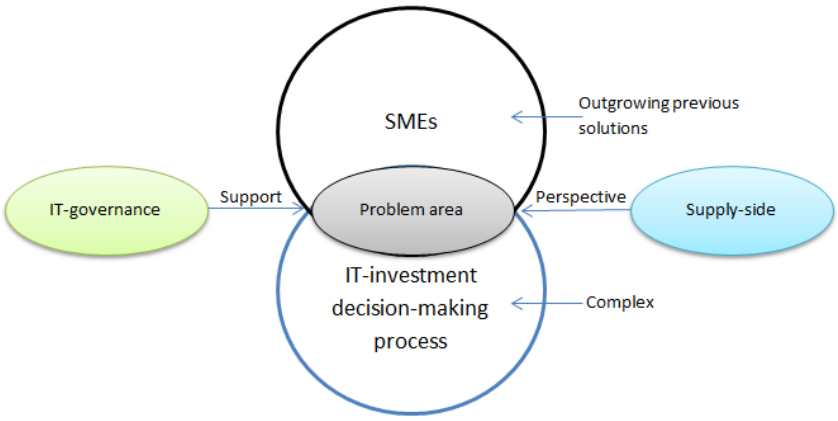

Figure 1.1: Problem area

1.3 Research question

The research question of this thesis is:

- *RQ: How and why can IT-governance support the IT-investment decision-making process in SMEs?*

This research question is further operationalized through two sub questions.

- *Sub RQ 1: How and why are the IT-governance dimensions relevant for SMEs?*
- *Sub RQ 2: What characterizes the stages of an IT-investment decision-making process in SMEs?*

Sub RQ 1 aims to capture the relevance of the three IT-governance dimensions (structure, people and process) to gain an increased understanding of how and why IT-governance can support SMEs. Sub RQ 2 enriches the process dimension of IT-governance and aims to describe what characterizes the stages (identification, development and selection) of an IT-investment decision-making process in SMEs. These concepts stem from the theoretical framework presented in chapter 2. Jointly these questions aim to encompass the two elements of the RQ, Sub RQ 1 corresponds to IT-governance's applicability to support SMEs whereas Sub RQ2 corresponds to the IT-investment decision-making process in SMEs.

1.4 Contribution

The gap identified by Xue et al. (2008) is how traditional IT-governance can be enriched by adapting a stage-based decision-making process to incorporate not only final decision-makers but the organizational actors in the pre-decision process, to which we add the context of SMEs (Bergeron et al., 2015). However, IT-governance needs to be rethought when applied to SMEs according to Devos et al. (2012) due to IT-

governance being focused towards larger enterprises (Weill & Ross, 2004; Huang et al., 2009). This conceptual addition of IT-governance to stage-based decision-making regarding IT-investments in SMEs complements previous research and increases the understanding of IT-governance. By studying the supply-side instead of the demand-side of IT-investments, the study contributes with a broader perspective of how IT-governance can support SMEs in their IT-investment decision-making process.

This thesis contributes to both prior research and practice. In theory, by investigating how IT-governance in an SME-context can support the decision-making process of IT-investments (Devos et. al., 2012; Bergeron et al., 2015). Contributions to practice are to develop an increased understanding of what SMEs should consider in their decision-making process of IT-investments, in order to achieve strategic alignment. Furthermore this study contributes with aspects of IT-governance that are of relevance for SMEs, which can be incorporated into their overarching corporate governance.

1.5 Delimitations

As the scope is to increase the understanding in an SME context, this thesis delimits itself from the problematization found in large enterprises. SMEs that are within a conglomerate have a different structure, e.g. the support from the parent company, and due to this difference they are excluded. SMEs with a staff headcount below 10 do usually not need a formal management (Burns, 2010). Thus, this thesis only investigates SMEs that are not within a conglomerate and that have between 10-250 employees. Another delimitation is the exclusion of data collection from the demand-side, which is due to the heterogeneous nature of the SME group.

1.6 Disposition

The thesis is structured as follows:

Figure 1.2: Disposition

The introduction presents the problem background, the purpose of the thesis and what the thesis aim to contribute to. Following is the theoretical framework which includes the theoretical concepts used and further explaining the context of SMEs. The methodology chapter argues for the choices regarding the research method and describes and argues for the data collection method used. The following chapter presents the empirical findings accumulated from the data collection. Subsequently the theoretical framework and the empirical findings are discussed in the discussion, in order to answer the research questions. Finally the conclusion is presented which includes contributions to theory and practice as well as suggestions for future research.

2. Theoretical framework

The theoretical framework starts of by presenting how IT-governance sustains value-creation. Thereafter IT-governance and its three dimensions are explored. Following is a section regarding the decision-making process of IT-investments which will explain the different stages a firm goes through when making decisions regarding an IT-investment. Finally, a section regarding the context, SMEs is presented, including the internal context and external environment which characterizes SMEs followed by the analytical framework, which synthesizes the theoretical framework.

2.1 Value-creation through IT-governance

In order to understand the relevance of IT-governance for SMEs it is paramount to understand how companies can translate their needs from an IT-investment to align it towards their organizational strategy and achieve value. Strategy refers to a set of choices a business makes in order to adapt and survive in the ever-changing business environment based on their needs (De Waal, 2013; Weill & Ross, 2004). Porter (2004) states that a company needs to choose between three generic strategies; cost leadership, differentiation or focus, to not waste the business' resources. In order to obtain this organizational fitness, the top management has to define these choices to make them translatable through the entire business model (De Waal, 2013; Jermias & Gani, 2004). Research has stated that a successful strategy will lead to desirable behaviors which will increase the effectiveness, meaning doing the right things externally, and efficiency, meaning doing things right internally (Yunis et al., 2013; Arachchilage & Smith, 2013; De Waal, 2013). Aligning the strategy to different functions such as the IT function has shown to increase the performance of the firm (Cragg et al., 2002; Banker et al., 2011; Weill & Ross, 2004; Livari, 1992). This is also in line with the thoughts of Ko and Fink (2010) which place a strong emphasis on the results from the successful alignment between IT strategy and the wider context of strategy.

Contemporary research emphasizes the strategic alignment between IT and business to ensure that the strategic business objectives are prioritized (Ko & Fink, 2010; Drnevich & Croson, 2013; Cragg et al., 2002). As pointed out in research it is deemed necessary to balance the measures between technical and business objectives in terms of output and performance (Velcu, 2007; De Haes & Van Grembergen, 2005; De Waal, 2013).

Zuboff (1988) describes three types of investments that each firm do to support different managerial objectives during the computerization; automate, informate and transformate. Automate refers to the stage where manual labor is automated through the use of IT. Informate is the process with visualization of information to increase the quality of decision making. Transformate is the last stage which is where the consequences of computerization lead to transformation of the business model (Zuboff, 1988). The focus nowadays is foremost on the transformation stage since companies do not only try to impact their operations with IT, but instead the whole business (Magnusson & Nilsson, 2014). Therefore, companies can chose different strategies within IT by either following the cost leadership strategy or the differentiation strategy (Magnusson & Nilsson, 2014). The cost leadership strategy will try to optimize the automation stage by lowering the IT lead times and rationalizing the IT organization which will lead to higher efficiency. The differentiation strategy focuses on the last stage, the transformation stage. By letting IT influence the business, the company will try to find organizational innovations which will lead to competitive advantage, meaning higher effectiveness (Magnusson & Nilsson, 2014). As stated by other researchers, organizations can use IT-strategy across the value chain activities to improve work process efficiency and the external effectiveness (Krishnan et al., 2007; Huang et al., 2009).

IT-investments are either technology led or business led (Mabert et al., 2000; Chand et al., 2005; Botta-Genoulaz & Millet, 2006), indicating that IT-governance should facilitate either transforming the IT-

system by expanding or replacing functionality, or focusing on benefits in terms of efficient processes and effective business (Velcu, 2007; Weill & Ross, 2004).

2.2 IT-governance

IT-governance manages the structures, processes and relational mechanisms within IT decision making, as IT either supports or drives business (Luftman, 2003; Van Grembergen et al., 2004; Weill & Ross, 2004). One established definition, by Weill and Ross (2004), of IT-governance is: "*the decision rights and accountability framework for encouraging desirable behaviours in the use of IT*" (Weill & Ross, 2004, p. 4). De Haes and Van Grembergen (2005) contrast IT-governance with IT-management and offer the following definition: "*...IT governance, in turn, is much broader and concentrates on performing and transforming IT to meet present and future demands of the business and the business' customers.*" (De Haes & Van Grembergen, 2005, p. 1). Weill and Ross (2004) further provide three concerns that should be addressed by efficient IT-governance, and visualized in their framework presented in Figure 2.2:

1. What decisions must be made to ensure effective management and use of IT?
2. Who should make these decisions?
3. How will these decisions be made and monitored?

These three questions are now briefly explained and summarized in Figure 2.2.

1. What?

According to Weill and Ross (2004) there are five different interrelated IT-decisions as explained by Figure 2.1. By mapping their IT-governance using the matrix in Figure 2.2 firms can compare and evaluate different IT-governance arrangements (Weill & Ross, 2004).

<table>
<tr><td colspan="3">IT Principles: High-level statements about how IT is used in the business</td></tr>
<tr><td rowspan="2">IT architecture: Organizing logic for data, applications, and infrastructure captured in a set of policies, relationships, and technical choices to achieve desired business and technical standardization and integration</td><td>IT infrastructure: Centrally coordinated, shared IT services that provide the foundation for the enterprise's IT capability</td><td rowspan="2">IT investment and prioritization: Decisions about how much and where to invest in IT, including project approvals and justification techniques</td></tr>
<tr><td>Business applications needs: Specifying the business need for purchased or internally developed IT applications.</td></tr>
<tr><td colspan="3">Adopted from Weill & Ross (2004)</td></tr>
</table>

Figure 2.1: IT-decision

2. Who?

When it comes to who should make the decisions Weill and Ross (2004) use six archetypes to divide the IT decision rights:

- Business monarchy: A senior executive or a group of senior executives, sometimes including the CIO.

- IT monarchy: Individual or groups of IT executives.
- Federal: Top-level executives and representatives of other functions/departments.
- IT duopoly: Decision making involving IT executives and one group of business leaders.
- Feudal: Business unit or process leaders making separate decisions based on the needs of their entities.
- Anarchy: Individuals or small groups make the decision.

These archetypes go from a high degree of centralization, Business monarchy, of decision rights to highly decentralized, Anarchy (Weill & Ross, 2004).

3. How?

The final concern raised by Weill and Ross (2004) is the formal aspect of how decisions are made comprising who should provide input vis-a-vis who makes the decision and what mechanisms to use for monitoring. Examples of such mechanisms are IT-committees, budget processes, service level agreements, chargeback, architecture processes, and it is with these formal mechanisms that managers enact governance on a daily basis (Weill & Ross, 2004).

Figure 2.2 displays the relationship between these three questions from the perspective of traditional IT-governance as presented by Weill and Ross (2004).

IT-decision / Archetype	IT principles		IT architecture		IT infrastructure		Business applications needs		IT investment and prioritization	
	Input	Decision	Input	Decision	Input	Decision	Input	Decision	Input	Decision
Business Monarchy										
IT Monarchy										
Federal										
IT Duopoly										
Feudal										
Anarchy										

Figure 2.2: IT-governance matrix. Adopted from Weill & Ross, 2004

Hence, IT-governance is 3-dimensional; structure, people and process (Ko & Fink, 2010), or as Keyes-Pearce (2002) presents it; a continuum ranging from structural IT-governance, focusing on control and coordination, to process-oriented IT-governance with focus on sustainable capability and continuity. The people dimension is situated in-between to incorporate human aspects such as leadership, responsibilities and accountability (Keyes-Pearce, 2002). These three dimensions will now be further explained to get a broader understanding of what they encompass.

2.2.1 Structure

Structure designates the responsibility of IT decision-making authority within an organization (De Haes & Van Grembergen, 2004) with regards to what decisions to make (Weill & Ross, 2004). IT-governance structure is the single most important predictor for organization's ability to derive value from IT (ibid) as it defines what IT related decisions to make as presented earlier in Figure 2.1. IT-investment decisions specifically contain three questions; how much to spend, what to spend it on and how to align with the needs of different organizational actors (ibid). What to spend it on should be related to the business

objectives with agreed indicators of success (ibid) relating to the three types of investments presented by Zuboff (1988) explained in section 2.1. To focus their IT-investments on strategic priorities firms tend to separate 'must have' and 'nice to have' capabilities as the scope of the investment is defined (Verville & Halingten, 2003).

This focus has presented a trade-off between the traditional economies of scale through concentrated cost and benefits calculations versus economies of (functional) scope and agility through adaptation to contextual needs (Kallinikos, 2011). Upton and Staats (2008) eloquently describe the IT-system as a cathedral, where a new investment replaces the existing system in a rapid shift and transforms into something sturdy and inflexible, while indicating that IT should be scaled and forged with the organization to ensure strategic alignment rather than "one size fits most"-systems. The scale versus scope discussion is of relevance within an SME context since they tend to be more centralized which allows for advantageous IT-governance as economies of scale and functional scope are adapted to the organizational realities (Huang et al., 2009).

Weill and Ross (2004) perceive strategy as the starting point interlinked with IT-governance and then generating performance. The implementation of IT-governance throughout organizations requires a set of mechanisms to yield desirable results (Weill & Ross, 2004). What decisions to make is covered by the structural dimension while the process dimension covers the formal arrangements of decision-making. Between these two dimensions is the people dimension (Keyes-Pearce, 2002) which will be further explained in the next section.

2.2.2 People

The people dimension covers who should make IT-related decisions, ranging from operational staff to top-management, such as the CEO and CFO (De Haes & Van Grembergen, 2005; Weill & Ross, 2004). The control exercised by the board, C-level management and IT management is a vital component to ensure successful IT-governance (Sethibe et al., 2007; De Haes & Van Grembergen, 2005; Weill & Ross, 2004). As previously presented there are various constellations of how IT decision-rights are allocated depending on the degree of centralization within the firm (Weill & Ross, 2004). Weill (2004) identified that the quality of leadership's ability to make IT-decisions is what separates top-performing organizations from less performing entities. Committed leadership that is proactive, strategic and supportive is needed to achieve effective resource allocation to IT (Weill & Ross, 2004). Furthermore, Weill and Ross (2004) put emphasis, through their definition of IT-governance, on the decision rights and accountability frameworks needed. Hence, it is important to have the roles and responsibilities defined and unambiguous while identifying all involved parties (De Haes & Van Grembergen, 2004), similar to the ideas of roles and responsibilities in the wider management literature (De Waal, 2013; Bolman & Deal, 2007). Studies have found that some managers lack a sufficient understanding of IT-governance in their approach to IT-investments (Brown & Grant, 2005; Robinson, 2005) to be able to reap the potential governance benefits of such an understanding (Weill & Woodham, 2002).

2.2.3 Process

The process of making and monitoring IT related decision through the deployment of three primary governance mechanisms, decision-making mechanisms, alignment processes, and communication approaches, are expected to promote desirable IT behaviors (Weill & Ross, 2004). These mechanisms set the formal boundaries of decision-making and can be viewed as "*a rational set of arrangements and mechanisms*" (ibid, p.183). It further encompasses who provides input and who has decision-rights concerning IT-decisions (Weill & Ross, 2004). Decision-making structures further make implications for power structures within the organization and highlights important relationships (Johnson et al., 2008). An

example is IT-committees as a formal and effective mechanism to steer IT, providing direction and control to both manage risks and value-delivery in the long-term (Van Grembergen et al., 2004). Sometimes the CEO spearheads a team of executives, or a senior manager assembles a team from different functions leading to greater executive attention (Vadapalli & Mone, 2000). The latter works to balance the enterprise priorities with priorities related to the functional areas of the team members (Weill & Ross, 2004). Alignment processes are the formal aspects of the IT-investment approval process to encourage and ensure that creative ideas and strategic priorities are considered (ibid).

"Alignment processes should bring everybody on board both by providing input into governance decisions and by disseminating the outputs of IT decisions. (Weill & Ross, 2004, p. 97)"

Metrics such as Return on Investment (ROI) and Net Present Value are often used to approve or disapprove the investment (Ackerman, 1970; Karadag et al., 2009; Frisk et al., 2014).

"The IT-investment approval process is a critical determinant as to whether IT is a strategic enabler or simply a huge expense. (Weill & Ross, 2004, p. 99)"

In terms of communication approaches to IT-governance decisions it is usually conducted through announcements by senior management, internal portals or the office of the CIO (ibid).

"*IT-governance needs a recognized advocate, owner and organizational home. (ibid, p. 106)"*

After consolidating the contributions from IT-governance literature the less formal aspects of decision-making processes are presented, including the different stages an IT-investment decision undergoes before a final decision is made.

2.2.4 Contributions to the theoretical framework

In order to organize the key contributions of the different dimensions above, a summary is presented below in Table 2.1. The literature sources of each key contribution within each dimension are also presented.

IT-governance		
Dimension	Contribution	Source
Structure	Specifies organizational decisions	Weill and Ross, 2004
	Strategic IT	Weill and Ross, 2004; Zuboff, 1988
	'must have' and 'nice to have' capabilities	Verville and Halingten, 2003
	Scale vs Scope	Kallinikos, 2011; Upton and Staats, 2008
People	Control exercised by the board	Sethibe et al., 2007; De Haes and Van Grembergen, 2005; Weill and Ross, 2004
	Decision-rights	Weill and Ross, 2004
	Roles and responsibilities	De Haes and Van Grembergen, 2004
Process	Decision-making mechanisms	Weill and Ross, 2004; Van Grembergen et al., 2004
	Alignment processes	Weill and Ross, 2004; Ackerman, 1970; Frisk et al., 2014
	Communication approaches	Weill and Ross, 2004

Table 2.1: Contributions from IT-governance

The following section presents decision-making processes and the various stages it entails. It adds to the process dimension of IT-governance by taking a richer perspective on decision-making and linking it specifically to IT-investments.

2.3 Decision-making process of IT-investments

IT-governance is a driver of decision-making processes since its arrangements are the outcome of rational and political activities within the organization (Xue et al., 2008). According to Sabherwal and King (1995) there are two approaches to decision-making processes, attribute-based and stage-based. Attribute-based describes the decision-making process through a set of attributes such as planning, analysis and politics (Ghobadian & Gallear, 1997; Bourgeois & Eisenhardt, 1988; Dean & Sharfman, 1996) and has been the predominant approach to IT-investment decisions (Xue et al., 2008). A stage-based approach sees the IT decision as a complex and multistage decision process (Xue et al., 2008). The number of stages varies, yet the process is similar (Maritan, 2001; Simon, 1965; Mintzberg et al., 1976). Xue et al. (2008) claim that attribute-based approaches, while providing a detailed understanding of the decision process, does not properly describe the interactions and responsibilities of different actors within the decision-making process. Hence a stage-based approach allows for a more seamless integration with IT-governance, considering the decision rights and accountability frameworks needed in the decision-making process (Xue et al., 2008). Contrasted to Weill and Ross' focus on actors who provide input and those who make the final decision (Weill & Ross, 2004) a stage-based approach focuses on identifying key actors within each stage, glimpsing beyond the final decision makers to other organizational actors who initiate, develop and manage the decision-making process (Xue et al., 2008; Maritan, 2001; Mintzberg et al., 1976; Weill & Olson, 1989).

The three stages of a decision-making process are as follows, based on stage models presented by several researchers (Simon, 1965; Ackerman, 1970; Mintzberg et al., 1976) summarized in tabular form by Xue et al. (2008):

1. A problem, crisis or opportunity is **identified** which leads the organization to initiate a response and gather the necessary information to align or mitigate the causing event
2. Based on the identified needs and contextual factors the organization **develops** suitable alternatives by searching for ready-made solutions or design their own custom solution given the needed variables and dimensions, as well as secure funding.
3. Finally the potential solutions are screened, evaluated, funded and a **selection** is made based on the variables and dimensions in stage 2.

The following sections will describe the three stages more in detail to understand what characterizes the activities contained in a decision-making process.

2.3.1 Identification

Firstly, the recognition of a problem, crisis or opportunity in either the internal context or external environment evokes decisional activity (Mintzberg et al., 1976). A series of stimuli such as perceived benefits, risks and success rate cumulate until a threshold level is reached and action is taken (ibid). Thereafter resources are mobilized and allocated to define the issue (ibid). This diagnosis can be either explicit and formal through the creation of a project group or informal (ibid). Maritan (2001) found a statistically significant relationship between investment type and level of initiation due to the information available at different levels of management.

2.3.2 Development

Secondly, the identification results in a search for suitable solutions through; existing memory, such as human and written, passively waiting for alternatives to appear, activating other individuals to search for the organization, and/or active search by the manager (Mintzberg et al., 1976). The search routines differ between different managerial levels, from local to global, generating differences in information available

(Maritan, 2001; Cyert & March, 1963). Another course of action is to develop either custom-made solutions or modify the solutions found through search (Mintzberg et al., 1976). Custom-made solutions are expensive and time consuming thus usually limiting the willingness to spend resources on more alternatives whereas the cost of generating alternatives through search is low allowing for a second solution for comparison in the final stage (ibid). The decision is often factored into smaller sub decisions, each necessitating at least one selection step as presented in the next section.

2.3.3 Selection

Thirdly, the developed alternatives are screened to eliminate infeasible alternatives, thereafter the alternatives are evaluated (Mintzberg et al., 1976). In the evaluation-choice routine the individuals can; decide in his/her own mind using unknown and/or unexplained procedures, bargaining between decision-makers with different goals and wanted outcomes (see Bower, 1970 for the sociopolitical and organizational politics of decision-making), or make an analytical decision based on factual consequences compared to goals and some predetermined utility function (Mintzberg et al., 1976). Finally the selected alternatives reach a, usually, binary authorization step and is either accepted or rejected by the decision-maker with decision-rights (ibid).

2.3.4 Contributions to the theoretical framework

The key contributions of the different stages are presented below in a summarizing table. The literature sources of each key contribution within each stage are also presented.

Decision-making process

Stage	Contribution	Source
Identification	An event occurs	Mintzberg et al., 1976; Maritan, 2001
	Information gathering	Mintzberg et al., 1976
	Resources are allocated	Bower, 1970; Mintzberg et al., 1976
	Creation of a project group	Mintzberg et al., 1976; Maritan, 2001
Development	Search for alternatives	Mintzberg et al., 1976; Maritan, 2001
	Custom-made solutions	Mintzberg et al., 1976
	Modify existing solution	Mintzberg et al., 1976
Selection	Rationalization of alternatives	Mintzberg et al., 1976
	Bargaining	Bower, 1970; Mintzberg et al., 1976
	Alignment with goals	Mintzberg et al., 1976
	Authorization	Ackerman, 1970; Mintzberg et al., 1976

Table 2.2: Contributions from decision-making process

2.4 SMEs

SMEs are enterprises with fewer than 250 employees and that fulfil one of the following two criteria; Turnover below 50 million € or balance sheet total below 43 million € (European Commission, 2003). This is however not the only definition of SMEs, but is the one chosen due to the expected harmonization within the European Union (Crawford et al., 2014). A large portion of the firms on a global level are SMEs (Fink, 1998; Kushnir et al., 2010) and constitute 99,9% of all enterprises, employing 64,7% of the workforce in Sweden (SCB, 2013). The distinct lens used when researching SMEs vis-a-vis large enterprises is debated by researchers (Devos et al., 2012; Ballantine et al., 1998) due to the different economic, cultural and managerial environments (Devos et al., 2012; MacGregor & Vrazalic, 2008). SMEs rather employ generalists than specialists and have informal and more dynamic strategies as well as decision-making processes (Ghobakhloo et al., 2012; Huang et al., 2009; Dibrell et al., 2008). The major differentiator between SMEs and large enterprises is the resources available and under the SMEs control

(Welsh & White, 1981), causing them to be relatively weaker at several levels; organizational, managerial, technological, individual and environmental (Ghobakhloo et al., 2012). Because of the discrepancy between larger enterprises and SMEs, the internal context and the external environment of SMEs need to be further explored in order to get a holistic view of their decision-making process.

To understand the decision-making process and how decisions are made an understanding of the organizational context and environment are presented. The different stages of the IT-investment decision-process are jointly influenced by internal context and external environment (Xue et al., 2008), which will now be further delved into.

2.4.1 Internal context

Ghobadian and Gallear (1997) separate the differences between SMEs and larger enterprises into four categories. Processes, as SMEs need simpler systems for planning and control. Procedures, since SMEs have lower degrees of standardization and idealistic decision-making. Structure, with lower degrees of specialization SMEs tend to multi-task and have higher degrees of innovativeness. The last category, people, explains that the consequences of failure in SMEs have larger individual impact and thus tested techniques are preferred. Processes and procedures imply that SMEs are more flexible with less bureaucratic management whereas structure and people indicate a focus on the people (Turner et al., 2010). Huang et al. (2009) add to the differentiators the financial constraints limiting SMEs' ability to invest in IT and attract highly competent IT professionals. Furthermore, SMEs often lack process maturity and long-term focus (Huang et al., 2009).

Organizational hierarchy in organizational decision-making has been recognized as heavily influenced by individuals with a wide experience and knowledge throughout the organization (Carter, 1971) while in an SME-context decision-making is generally idealistic and more simplified (Huang et al., 2009; Ghobadian & Gallear, 1997). Xue et al. (2008) proclaim that IT-governance is contingent on two things; the nature of the decision to be made i.e. IT-investments, and the context in which the decision is made, such as an SME-context.

Since these decision processes tend to be simplified in an SME-context (Cowling, 2003; Huang et al., 2009) the final decision-maker is usually the CEO, but as the firm grows the responsibilities of CFOs and CEOs diverge (Zorn, 2004). Another function with varying presence in top-management is the CIO due to either a lack of understanding for the strategic implications of IT or IT being included in the responsibilities of either the CFO or CEO (Krotov, 2015). In the presence of a CIO it is not self-evident to whom (s)he should report (Banker et al., 2011). Banker et al. (2011) found clear implications of aligned reporting-structure with strategic positioning generating increased performance. In a cost leadership strategy the CIO should report to the CFO and in a differentiation strategy the CIO should report to the CEO (ibid). Furthermore the reporting structure is found not to be industry-specific (ibid).

Given that decision-making processes contain several stages with different actors before reaching the final decision-maker these processes tend to be less formalized within an SME context due to many owners being directly involved in the operations (Cowling, 2003). There are examples when the board has active outside members as a means of strategy development and exercising control over some internal processes (Fiegener, 2005). This improves the odds that they participate in strategic decision-making (ibid).

The set of choices a company face regarding strategy is influenced by the size of the firm (Levy et al., 2002; Levy & Powell, 2008). Through IT-investments an SME will try to optimize the automate phase by lowering lead times, scaling the business (Levy et al., 2002). The contrast to this strategy is the SMEs that

have the customer in focus. These SMEs look for improvements in their IT that will strengthen the relation to the customers, trying to find a new broader scope (ibid). However, SMEs acts in a reactive manner without strategic planning (McAdam, 2000; Laverty, 2004). The managers in SMEs do not have time to devote specifically for strategic planning and other long-term activities due to focus often being on the day-to-day operations (Ates et al., 2013). To contrast this statement, Day and Shoemaker (2005) conclude that thriving SMEs focus on the external conditions by scanning business opportunities and that they actively analyze their competitive position on the market.

2.4.2 External environment

SMEs act in a market environment that is competitive and which affects the chance of survival of the firm (Storey & Cressy, 1996; Supyuenyong et al., 2009). The market uncertainty for SMEs is often high because of the relatively low market share that SMEs tend to have, due to their size (Levy & Powell, 2004). The typical external environment that SMEs are affected by includes dependence on external financing, politics and governmental regulations. These characteristics of the external environment for SMEs will be further explained below.

SMEs are dependent on external financing through banks or other venture capitalist because of the independence from a larger firm, such as a parent company (ibid). Because of this, SMEs are affected by political forces that may change the external financing landscape (Burns, 2010; Pullen et al., 2008). Institutional pressures e.g. from governmental regulation and powerful business partners have a large impact on SMEs due to the expected power structure between the SME and the more powerful actor (Liang et al., 2007). SMEs are also compelled to do a certain IT-investment due to institutional pressure to mimic other companies (Xue et al., 2008).

2.4.3 Contributions to the theoretical framework

The key contributions of SMEs internal and external characteristics above are presented below in a summarizing table. The literature sources of each key contribution within each characteristic are also presented.

SME		
Characteristic	Contribution	Source
Internal	Shorter decision-making processes	Ghobadian and Gallear, 1997; Turner et al., 2010; Huang et al., 2009
	Reporting structure	Zorn, 2004; Krotov, 2015; Banker et al., 2011
	Owner involvement	Cowling, 2003; Fiegener, 2005
	Strategic choices	Levy et al., 2002; Levy and Powell, 2008; McAdam, 2000; Lavery, 2004
External	Competetive market environment	Storey and Cressy, 1996; Levy and Powell, 2004; Supyuenyong et al., 2009
	Dependence on external financing	Levy and Powell, 2004
	Institutional pressures	Liang et al., 2007; Xue et al., 2008

Table 2.3: Contributions from SME-context

2.5 Analytical framework

To provide a holistic view of how IT-governance can support the IT-investment decision-making process in SMEs, which is the research question of this thesis, an analytical framework was developed, presented in Figure 2.3. IT-governance is separated into three interlinked dimensions; structure, people and process, as found in the literature (Ko & Fink, 2010; Weill & Ross, 2004). The relevance of these dimensions is answered by Sub RQ 1. Thereafter Sub RQ2 explores what characterizes the stages of the decision-making process an IT-investment can go through; identification, development and selection (Xue et al., 2008; Maritan, 2001; Mintzberg et al., 1976). Since IT-governance is perceived as a driver of decision-making processes (Xue et al., 2008) the figure should be interpreted from top to bottom. Finally, surrounding IT-governance and the decision-making process are the internal context and external environment of SMEs, which consequently influence the IT-investment decision-making process and IT-governance.

Each concept within Figure 2.3 can be found in the theoretical framework and they are summarized in tables at the end of each section. Process is here presented as the second dimension to emphasize its link to the decision-making process.

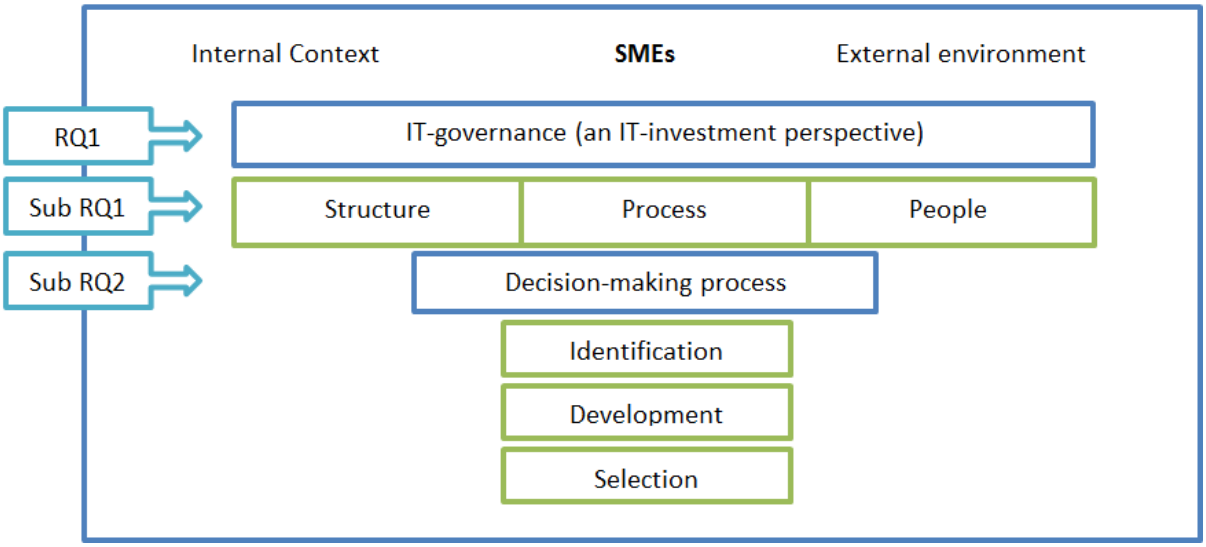

Figure 2.3: Analytical framework

3. Methodology

The methodology chapter presents the hows and whys and starts off with arguing for the research design and approach used in this thesis. Following is the literature study, the data collection process including the search for respondents, and operationalization. The research process is then visualized and the chapter ends with a critical review of the thesis' methodology.

3.1 Research design

3.1.1 Research method

There are two approaches to research method, quantitative and qualitative (Collis & Hussey, 2014; Holme et al., 1997). The choice of method is selected to support the type of research question. The RQ of this thesis is aimed at increasing the understanding which gives implications for the chosen research method (Collis & Hussey, 2014). Quantitative methods are primarily used when the object of interest/data can be measured and analyzed utilizing statistical methods; the world is perceived as objective and measurable (Collis & Hussey, 2014). The broad definition of qualitative data is anything that is not quantitatively used in statistical testing and used to interpret the social construct of reality (Corbin & Strauss, 2015; Collis & Hussey, 2014). This thesis applies a qualitative method to attain rich data through semi-structured interviews with respondents representing the supply-side of IT-investments. This makes the research question a possible object of discussion to eventually reach an increased understanding of the topic compared to if a quantitative method had been applied, which suits the purpose of this study. The thesis adds to prior knowledge about the phenomenon by exploring the decision-making processes of IT-investments in an SME-context but from a supply-side perspective where each respondent has their own perception of the phenomenon, independent of each other and individual experiences.

3.1.2 Interview design

Face-to-face interviews are an appropriate choice of method when exploring a person's understanding of a phenomenon (Arksey & Knight, 1999). This method is however time-consuming, but since the study investigates a complex phenomenon which might need deep explanations to reach an understanding, this method is necessary (Collis & Hussey, 2014). By collecting primary data instead of secondary data the researcher can tailor the data collection to fit the need of the study and increase the validity of the findings. Easterby-Smith et al. (2012) state that semi-structured or unstructured interviews are applicable when:

- *"it is necessary to understand the personal constructs (sets of concepts or ideas) used by the interviewee as a basis for his or her opinions or beliefs*
- *the logic of a situation is not clear*
- *the subject matter is highly confidential or commercially sensitive, or there are issues about which the interviewee may be reluctant to be truthful. (Easterby-Smith et al., 2012, p. 132)"*

The basis to use semi-structured interviews within this study is to explore the respondents' view of the phenomenon in order to increase the understanding of the same phenomenon. All of the respondents represent the supply-side in this study, as justified in section 3.3.1. If closed questions would be used instead, the full scope and depth of the phenomenon would not have been identified (Collis & Hussey, 2014). To give the respondents the opportunity to fully give their view of the phenomenon, the technique of probing was used to increase the depth and dimension of the responses (Collis & Hussey, 2014).

3.2 Literature study

To get a comprehensive knowledge of the field, a literature study is appropriate (Collis & Hussey, 2014). A systematic scan of the research topics (Keywords; Strategy, IT-governance, SME and decision-making) was conducted through three journals and combined with accounting to find research within the theoretical domain. The journals of interest were; MIS Quarterly, Information and Management and Academy of Management Journal. These journals were consistently highly ranked within the relevant domain of this thesis according to Scimago Journal & Country Rank (2016). The last five years within each journal were scanned. The chosen journals presented the frontline of research that is being conducted within the research topic of interest. The initial literature study was wide, but it consequently was narrowed down and limited to the specific problem area. In order to get a deeper understanding regarding an interesting subject found within an article, the snowballing technique was used where interesting sources found in the initial articles were also read and used when appropriate.

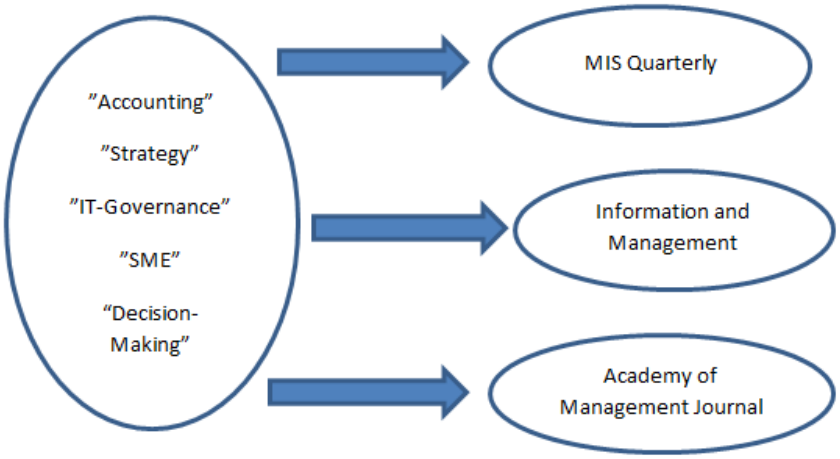

Figure 3.1: Literature study

Before conducting the interviews a few important constructs were found in the literature study and presented in the theoretical framework following Bourgeois and Eisenhardt (1988). This a priori finding of constructs supports the initial research design and analysis to permit researchers to more accurately capture these constructs (Huang et al., 2009; Eisenhardt, 1989), as presented in section 2.5.

3.3 Data

3.3.1 Data collection

By studying the supply-side instead of the demand-side of IT-investments, the data will consist of a wider and enriched view of the problem area. The supply-side of IT-investments has a broader experience of the complex area of the decision-making process of IT-investments, which is the focal-point of this study. Furthermore they are able to provide a holistic perspective compared to individuals involved with a specific SME. If the study would have interviewed SMEs instead, which is a heterogeneous group, the data would consist of a specific and narrow experience of IT-investments since SMEs are not investing in new IT frequently.

The data was collected through semi-constructed interviews. The procedure of finding respondents was to contact different vendors and consultants in the western region of Sweden that either sell different IT-solutions to SMEs or consult firms in their decision processes regarding IT-investments. These respondents were deemed appropriate since they have worked closely with different SMEs and been through the process an SME goes through when it is taking an IT-investment decision, either as a seller or as a consultant. Five respondents replied with an interest of providing data through interviews. Through initial contact, all of the five respondents were deemed appropriate due to experiencing the problems an SME goes through when deciding on an IT-investment by contributing their perspective from the supply-side.

To be certain that the interviews were fully comprehended, focus during the interviews was to understand what was being said and delve deep into the problem explained. The majority of the interviews were recorded, four out of five, in order to mitigate the workload of taking extensive notes. One interviewee chose not to be recorded due to the sensitive nature of the information provided. The recording was in consent with the other interviewees. The personal requirements of the interviewees, such as anonymity, confidentiality and review of the findings, have been carefully considered in order to enhance the validity and reliability of the study which is of importance according to Yin (2014).

The semi-structured interviews were designed in order to make them easy to understand to avoid misleading the interviewees. The same design has been used on all interviews, but due to the nature of semi-constructed interviews, the follow-up questions differed due to different understanding of the phenomenon and different position at the firm. To prepare the interviewees for each interview and get well considered answers and reflections, the interview questions were e-mailed in advance (Bryman & Bell, 2015).

The interviews were conducted at the location of choice by the respondents. The interviews were held in Swedish since it is the mother tongue of all of the respondents and the interviewers, which ensured a coherent and joint understanding of the discussed concepts. The companies and respondents were anonymized throughout the thesis due to the sensitive nature of the information revealed during the interviews and allow the respondents to openly discuss the phenomenon. The respondents are divided into two groups based on their perspective from the supply-side of IT-solutions. A short description of the respondents is presented below:

Consultant 1 works at Company A, which is a consulting firm within the IT-area. Consultant 1 is a regional manager in Company A. Consultant 1 has experienced SMEs struggle to structure their decision-making process when deciding on an IT-investment during the previous years as a consultant working with implementations of ERP-systems. The interview was conducted on the 16th of March 2016.

Consultant 2 works at Company B, which is a consulting firm. Consultant 2 works with IT-related concerns and has experienced the issues that SMEs have when they are deciding on an IT-investment. Consultant 2 has experience regarding implementations of ERP-systems, but also the process that leads to an investment. The interview was conducted on the 2nd of May 2016.

Vendor 1 works at Company C, which is a vendor of ERP-systems with SMEs as their main customers. Vendor 1 is the manager of system development. Vendor 1 has worked closely with different SMEs and seen the decision-making process and problems that arise when deciding on an IT-investment. The interview was conducted on the 11th of March 2016.

Vendor 2 works at Company D, which is a supplier of ERP-systems with SMEs as one of their main customers. Vendor 2 is the manager of solutions for enterprises. Vendor 2 has vast experience within the area of IT-investments, especially for SMEs, and understands the problems that arise when an SME is deciding to do an IT-investment. The interview was conducted on the 5th of April 2016.

Vendor 3 works at Company E, which is a supplier of ERP-systems with SMEs as their main customers. Vendor 3 works in sales. Vendor 3 has worked as a salesman for ERP-solutions since 1979 for different firms. The main focus for Vendor 3 has been within the SME-segment. The interview was conducted on the 12th of April 2016.

3.3.2 Operationalization

The interview questions were divided into four primary sections; *Introductory*, *IT-governance*, *Decision-making process and concluding*. The questions were constructed based on the Analytical Framework and how the different components are interrelated. The questions were all situated in an SME-context and were meant to be guiding rather than specific. The respondents were free to diverge on examples or other thoughts that occurred to gain a richer insight into their thoughts. Probing questions were also inserted when appropriate to dig deeper into the answer provided.

		SME-context		
	Introductory	**IT-governance**	**Decision-making process**	**Concluding**
Purpose	*To gain an understanding of the respondent*	*To understand how the IT-governance dimensions are relevant in SMEs*	*To understand what characterizes the stages of IT-investment decision-making processes in SMEs*	*To identify potential gaps between reality and this thesis*
Questions	# 1-6	#7-11	# 12-19	#20
Example of question	Describe your experience with IT-investments and IT-governance?	Have you experienced that an SME created an IT-committee or project group to handle certain decisions?	How are different alternatives generated and compared?	Is there something that we have not discussed or that warrants further research regarding our topic?

Table 3.1: Operationalization of questions

3.3.3 Data analysis

The empirical findings will be analyzed using the theoretical constructs presented in the theoretical framework to provide a categorization of statements and empirical information as suggested by Bourgeois and Eisenhardt (1988) and supports the research process by permitting the researchers to more accurately capture these constructs (Huang et al., 2009; Eisenhardt, 1989). To structure the analysis the theoretical framework was synthesized into an analytical framework, presented above in section 2.5. IT-investments are influenced by their specific context, in this case SME-context which consists of internal and external factors, however; these only present different characteristics of SMEs and will thus not be used to divide the data. Concerning IT, the IT-governance dimensions provide structure to the complex IT-investment and drive decision-making processes. Each decision goes through three broad stages; identification, development and selection. These concepts are used to sort the empirical findings and consequently link them to relevant scientific literature in the discussion. The sub questions of this thesis cover the different sections of this model within the relevant context. The expectation being that the overarching research question will be answered.

3.4 Research process

Figure 3.2 below visualizes the research process and how the different sections are interlinked.

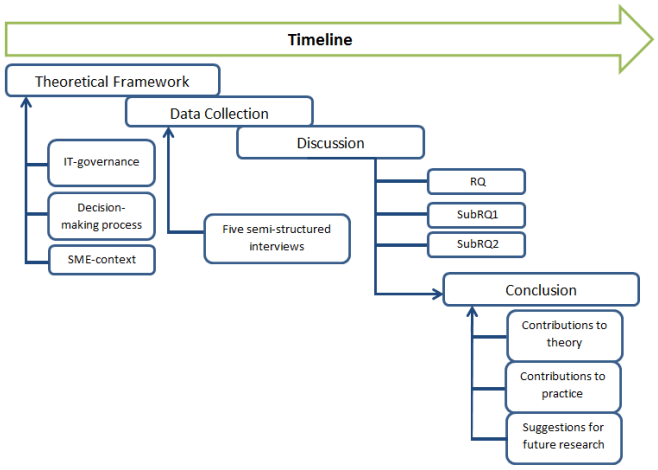

Figure 3.2: Research process

3.5 Critical review of the methodology

3.5.1 Reliability and validity

Reliability in a qualitative study has the purpose to evaluate the generation of understanding of a phenomenon (Stenbacka, 2001). To ensure the reliability of a qualitative study, Seale (1999) states that the researchers need to examine the trustworthiness/rigor of the study. To increase the validity, it is of importance to define the domain which the results of the study will be of relevance (Yin, 2014). By having this in mind throughout the whole thesis, choices concerning transparency and careful argumentation regarding choices made have been presented. The majority of the interviews have been recorded, the respondents were cautiously chosen, definitions clearly stated, empirical findings linked to theoretical constructs and the discussion was grounded in the theoretical framework. A weakness of the study from a reliability and validity perspective is the indifferent view of SMEs` various sizes and businesses.

3.5.2 Evaluation of sources

Due to the huge amount of literature that has been digested throughout this thesis, some sort of evaluation of the sources is relevant. Patel and Davidson (2003) stated that four primary questions should be in the back of the mind of the researcher when reviewing the literature:

- When and where was the document created?
- Why has the document been created, and what was the author's purpose(s) with the document?
- Under what circumstances was the document produced?
- Who is the author of the document and what knowledge does (s)he has within the related field?

The research field surrounding IT-investments and IT-governance is constantly evolving, mainly because of technological advances, and thus the literature study focused on the research that is in the frontline of the field. The chosen journals are all highly ranked and present much of the state of the art research. Through constantly reviewing where the articles included were published, it was deemed easier to evaluate the authenticity and objectivity of the papers.

4. Empirical findings

This chapter includes the empirical findings from the five interviews. It starts off with the findings regarding IT-governance and its three dimensions; structure, people and process. The findings consisting of the decision process in SMEs are then presented and organized through the three stages; identification, development and finally selection.

Through the theoretical framework presented above, the empirical data found through the interviews has been organized in order to provide structure to this study. Due to the open ended nature of the interview questions several answers overlap and contribute to different aspects of the various dimensions/stages. An example is when the respondents mention organizational actors in different contexts making them relevant both within an IT-governance dimension but also somewhere in the decision-making process. Thus the answers should not be interpreted separately but also placed within the overarching narrative. Each section contains the statements and quotes of the respondents according to their respective heading. The answers are from a supply-side perspective and thus should not be interpreted as what SMEs are actually doing, but instead the perception of how the supply-side believes SMEs are acting.

4.1 IT-Governance

The three dimensions presented in the theoretical framework have been used in order to understand how and why the IT-governance dimensions are relevant for SMEs.

4.1.1 Structure

This section is primarily concerned with the separation of different IT-decisions, the strategic role of IT, requirements in terms of 'must-have' and 'nice to have' capabilities and also the choice between functional scope or economies of scale.

Consultant 1: Some people might perceive that SMEs do not think long-term, but Consultant 1 has another perception. It is not a coincidence that an SME has 50 employees; they must have some kind of long-term strategy. However, (s)he thinks that SMEs act more based on their gut-feeling than larger enterprises. Consultant 1 mentions that SMEs value local presence and that they often have strategies and IT-strategies, but perhaps do not call it strategy.

According to Consultant 1, SMEs differ regarding the specification of requirements; some only have a few requirements while others have up to 500 requirements. S(he) further mentions that younger firms often demand more flexible modular systems, and perhaps have a "do it yourself"-mentality. Consultant 1 explains that commonly sought effects from the IT-investment have shifted focus from internal efficiency to external effectiveness. It is mainly the marketing manager and the purchasing manager that steers the external effectiveness.

Sometimes SMEs tinker too much with the IT-system to add functionality and thus making it difficult to upgrade the IT-system in the future according to Consultant 1.

Consultant 2: Consultant 2 says that all SMEs have a strategy but its development and usage differs. SMEs tend to lack both the resources and structure to properly manage the IT-investment compared to larger enterprises that have templates or models.

"*Larger enterprises often have ready models to manage projects and I look at investments as a project. To buy a machine, it is a small project, but also a part of a larger project. When I say project I mean a little*

larger than just buying a thing. Then, larger enterprises have an organization that manages larger projects. They have a model to follow, including a pre-study, what needs to be in place, templates for calculations such as internal time and external time, and investments to be able to make a decision. SMEs do this as well but they have no structure for it. They measure the wrong things and do not take everything into consideration, e.g. that the project is not done just because you have bolted everything but continues a while longer. That is the biggest difference I think between SMEs and large enterprises. Either it is money, resources or knowledge. [Could you explain further?] *SMEs do not have the money to hire someone to work specifically with IT, it could also be that they lack the competence to realize the projects. They are two sides of the same coin really. If you have the money you can temporarily hire resources internally or externally to manage the project and push it to the finish line. (Consultant 2)* "

Vendor 1: Vendor 1 provides what (s)he calls a classic example of an IT-investment that many enterprises face, the purchase of a CRM-system with standardized functionality. Everyone is expected to use the system for it to work properly. The modifications of a system are what the supplier profit from, and are thus very costly for SMEs. This is why SMEs often use best-practice standardized solutions. The more functionality demanded by the SME, the more expensive and complex the solution becomes.

Vendor 1 adds to this that the growing market of BI-solutions for SMEs. BI-solutions, e.g. Qlikview, offer great potential due to their ability to connect different flexible solutions. There are different needs of SMEs and larger enterprises in terms of functionality in the IT-system. Larger enterprises need functions that can handle the consolidation within the corporate group that SMEs often do not need. Another capability that may differ is the need of mobile solutions and the integration between different systems in larger enterprises.

SMEs do not work strategically with IT but rather focus on the day-to-day work. Vendor 1 explains that commonly sought effects from the IT-investment are more dimensions in their accounting or standardized reports instead of costly custom-made solutions. However, in the decision-making process it is important for the SMEs to have the ability to adapt the system to different needs. As Vendor 1 elaborates that sometimes it is hard to specify all the possible different needs for the SME, and the SME might think that a need is implicitly solved by the system. However, it is sometimes not solvable; an example is the need for a solution to be used on a smartphone, which might not be possible for the supplier to solve. Everything is not clear when it comes to different IT-investments and their flexibility in terms of functional scope as identified by Vendor 1.

Vendor 2: SMEs tend to focus on making the operations more efficient and are lacking strategic IT according to Vendor 2. Smaller SMEs do not use any tools regarding IT-governance; however, larger SMEs often have an idea of how to make their operations more effective with the use of IT. Nowadays SMEs outsource their server park to the cloud rather than having it physically under their control. Vendor 2 further explains that cloud-based solutions are growing in popularity.

"It is interesting that, what decisions they make; should they run it themselves [server park] *or outsource as SMEs are more in the cloud than having it themselves. The larger the enterprise the larger the probability that they will have their own IT-department and this greatly influences what systems they can choose. (Vendor 2)"*

"That a company has their own IT-department with server park is less and less common. (Vendor 2)"

SME has a different need for functionality than a larger enterprise. Vendor 2 explains that it is important for the SME that the IT-solution can be extended with added functionality and that it is user-friendly.

"I believe that it is important with user-friendliness, that an IT-system is user-friendly, it is easily accessible. I mean, a carpenter should not need to bring his computer; the IT-solution should work on his phone. You should be able to receive purchase orders via an app, in your phone or similarly. (Vendor 2)"

Vendor 3: The entire decision-making process can take between a day and a year according to Vendor 3, often depending on the size of the firm. Vendor 3 identifies that it is important that they have understood that the SME needs a change. They have usually not specified their needs and that is something that Vendor 3 often helps them with.

SMEs do not generally work long-term with their strategies. If the owner is the one who makes all the decisions then it can become more problematic for the company to change anything, e.g. through a new ERP-system as the owner might not see the benefit of the change.

"Yes, usually it is I think, simpler [discussing IT-investments without the founder present or working in the firm]. *It becomes a very different conversation if you do not have to deal with the founder of the company. He knows that this is the way I have been doing things forever and it has always worked for me, should I now spend my hard earned money, what will it give me. If it is an external* [i.e. not the founder], *an employee, a CFO, a project leader or whatever it could be then you get a better discussion. Man is clearly not created to make change. That is the absolutely greatest brake pad when doing something; it is good enough we say. Who is your largest competitor? It is good enough. (Vendor 3)"*

The auditing firm is a crucial factor when SMEs make their decisions according to Vendor 3. (S)he further explained that a change has happened here, you look more to the business than before, but you still listen closely to your auditor. When it comes to specifying 'must-have' and 'nice-to-have' capabilities of the IT-solution it is currently lacking as SMEs rather identify a reason for the IT-investment.

"[Specification of requirements] *They often have a picture in their mind but have not written it down on paper. We want to achieve these things. It is very rare that I receive a specification on paper but we rather discuss it while sitting down at a table. I usually stand at a whiteboard and help them to understand why the company wants to invest at all. There has to be a reason. It should lead somewhere. (Vendor 3)"*

4.1.2 People

This section contains findings concerned with the control exercised by the board, allocation of decision-rights and finally what roles and responsibilities are relevant for SMEs

Consultant 1: According to Consultant 1, it is often the CEO that makes IT-related decisions within SMEs. The smaller the company, the closer the IT-function is to the CEO or the CFO. If the company has a CIO which reports to the CEO, the IT-area becomes an interest for the board due to the identified revenue potential. However, if the CIO reports to the CFO, the company perceives the IT-area has a cost center without revenue potential. It is more common with a CIO in a newer company. Larger enterprises have a different reporting structure due to being more controlled by managers.

"It is common to have a gatekeeper who avoids taking a decision unless pressing issues until the company is totally out of business. (Consultant 1)"

Consultant 1 mentions that some CEOs focus too much on what other companies within the business do and do not focus on the specific needs of their company. It is usually the owner that has the mandate to take important decisions.

"If the name is on the wall, you know who is in charge. (Consultant 1)"

However, in family owned SMEs the mandates can be rather complex and blurry. There can be informal decision-makers within the family when the locus of decision-making is the Sunday dinner.

Consultant 2: Consultant 2 states that firms vary in their degree of centralization, from one person making all the decisions to the entire board being heavily involved in all IT-decisions. It depends on the culture within the organization and the specific industry. Sometimes SMEs have a technician with IT-responsibility but with the CFO being responsible for the strategic direction of IT. If the IT-manager reports to the CFO this can indicate that IT is primarily considered a cost rather than having strategic potential according to Consultant 2.

"[Do SMEs have a specific IT-strategy?] *Yes, but extremely simplified. It is rarely clear and could just be consolidated by the IT-manager. It could be hard to see the connection between operations and IT. Smaller firms tend to have an IT-manager and then this person also has another role, e.g. CFO or operations manager. (Consultant 2)*"

When it comes to decision-rights, Consultant 2 stresses the importance of having thought through them and works actively when allocating them.

"*You* [SMEs] *often have structured decision-rights but they can be allocated poorly, you have too many with very high clearance without actually needing it. The IT-function usually has access to all system. Because you need support they say, but do they really. There are quite high risks that someone does something with ill-intentions or due to lack of knowledge. (Consultant 2)*"

"They have begun to work more with it [decision-rights] *but it is still fairly routinely allocated. (Consultant 2)"*

Vendor 1: Compliance and the ability to track how people have used the system are in focus; however, IT-governance is rather underdeveloped within the SME-context at the moment according to Vendor 1. The CFO often has the responsibility for IT, however, sometimes an SME has an IT-manager which is allowed to be more strategic, especially if he is on the board his responsibilities and strategic role is extended.

Vendor 1 further mentions that it is the CEO that takes important IT decisions in smaller SMEs. The larger the SME, the larger is the chance that the CFO has decision-rights. The decision of an IT-investment often comes from the CFO, but it is the CEO that authorizes the IT-investment. In larger SMEs there are many actors involved in IT-decisions and there might be discontent due to different needs and decision-rights. S(he) further mentions that the consequences from the discontent might be extensive, especially in larger SMEs. To utilize the IT-investments optimally, it is important that the users in an SME get the proper training in the system.

Vendor 2: In an SME, it is the CEO/owner who has the decision-right regarding IT-related decisions according to Vendor 2. It is common that the CEO and the owner is the same person, but not always. A larger enterprise is structured with more managers, e.g. HR/administration/IT. An SME more often has a jack of all trades who has all the information and manages everything. However, it is more risky to rely on one person to much. An issue mentioned by Vendor 2 was: "*What happens if this person gets injured or sick?*"

"In an SME it is one person who runs everything, if they even have that. An outsourced solution to PWC, GT, Ernst & Young or equivalent is significantly more common at SMEs than larger enterprises. A larger enterprise often has an administrative/HR-department. The SME do not have this, if they even have it themselves. (Vendor 2)"

Historically the CIO was a more important person in a company than he is today due to companies outsourcing the IT-function according to Vendor 2. The need for an IT-department has also decreased.

"If you purchase an IT-system which is in the cloud, why do you need a CIO then? The difference is that if you physically control a server in-house, then you must maintain it, there are fans and you must update the system etc. If you use the cloud instead, then you do not need an IT-department. (Vendor 2)"

Vendor 3: Vendor 3 explains that it is most commonly the owner who makes IT-related decisions. It is not often the SME has a CIO, not outspoken. It is common that it is the CFO, he or she, who also has the responsibility for the IT-function and handles the contact with the suppliers. It might be because the firms perceive it as a matter of costs. However, it is not always clear in SMEs how it is structured and who has decision-rights. S(he) further states that there is often more informal structures concerning decision-making and who has the decision-rights in SMEs.

"The one who is financially responsible usually also, for some weird reason, becomes responsible for the IT-function. [Is it a matter of cost?] *Most often, often he or she sits down and counts on it. And this is where I am usually also included and helping out to do a good calculation. Often they have not thought along those lines before but just say like this: it looks expensive. (Vendor 3)"*

4.1.3 Process

The empirical findings presented in this section are primarily concerned with decision-making mechanisms such as IT-committees, alignment processes used when approving the IT-investment i.e. making the decision and communication approaches, for example how IT-investments are communicated internally including who gives input before the decision.

Consultant 1: Communication within SMEs is rather informal and interlinked to the owner as reported by Consultant 1.

"In SMEs everyone is close to the owner. (Consultant 1)"

A CEO often creates a project group regarding IT-decisions which the CIO manages. Sometimes external consultants are used. In SMEs, consensus is often sought for, due to the Swedish cultural context and relative size of the firm.

"*The reporting structure in SMEs is a fast process. The smaller the SME the faster the process due to the flatter organizational structure. (Consultant 1)"*

Consultant 1 has identified that SMEs do usually not have any formal evaluation of IT-investments. If it is formal, it is the supplier of the solution who controls the evaluation. To formalize the decision-making process and how it is communicated internally is of relevance in order to identify potential pitfalls in the same process.

Consultant 2: The alignment process between the system and the organization is crucial according to Consultant 2.

"*You can set a system up perfectly, but if you use it in the wrong way it does not matter. It is more about, when the project ends, the importance of understanding that the project is not finished just because it is implemented, there is also training, education and so forth. (Consultant 2)*"

However, follow-ups are rarely done although they can allow the organization to evaluate if it works and what can easily be improved. Follow-ups, or post-evaluations, are rarely done due to SMEs lacking resources or knowledge according to Consultant 2.

"*It is crucial to conduct a follow-up, but it is not something that is common in smaller firms. However, they have the possibility to do it rather simply even in smaller firms and it is something that they should be doing. (Consultant 2)*"

"*It takes some time and extra resources to do it but if you* [SMEs] *do a simple follow-up you can get so much more from your investment. It is due to lacking resources that SMEs do not focus on follow-ups and sometimes the knowledge that it* [post-evaluation] *is needed but primarily resources. (Consultant 2)*"

Vendor 1: Vendor 1 mentions that if the founder of the company is still working in the SME, there is a clear vision regarding the long-term strategy and how this should be aligned meaning that communication is lacking in terms of formalization. However, evaluation and analysis of the system after the implementation is rather low on the priority list due to the costs and "*when a system is in place, there is no turning back (Vendor 1)*". S(he) further explains that SMEs mainly focus on if the IT-solution works, if it works there is no need for any post-evaluation of the investment. Due to time constraints, SMEs do not use ROI calculations etc. Sometimes there is a specification of requirements with must-have and nice-to-have demands that is used to evaluate the decision according to Vendor 1.

When deciding regarding an IT-investment, the CFO or the CEO often creates a project group which involves different functions such as HR, sales, administration, etc.

Vendor 2: According to Vendor 2 SMEs have the potential to communicate more efficiently, e.g. via an app but not all SMEs are yet mature as they have yet to understand the possibilities. Vendor 2 further mentions that to make such decisions it is common to create a group consisting of the CFO, users and a possible, if they have one, CIO which goes through the different needs of the company vis-a-vis the capabilities of the different systems. The SMEs tend to have an informal decision-making process.

Vendor 3: Vendor 3 states that in terms of giving input it is often the owner/CEO and the CFO who provide inputs in the pre-decision phase. Then a project leader or user can be involved. After a decision has been made it is the same people who are involved as in the pre-decision phase. Vendor 3 also mentions that metrics are rarely used to evaluate the decisions and that an external consultant could support in this process from the start.

"It would be healthy for firms to use measures or KPIs to evaluate their decisions. They usually go more on their gut-feeling saying "This was a good investment". But there is no one who does a follow-up. They would benefit from hiring a procurement consultant while investing, preferably an external who understands the business. Someone who can identify what it is they can do to save time and money and how. (Vendor 3)"

4.1.4 Summary of empirical findings regarding IT-governance

The empirical findings found from the interviews regarding the relevance of the three IT-governance dimensions; structure, people and process, are summarized in Table 4.1 below. Each dimensions aspects are checked if the respondent found it to be relevant in the context of SMEs and a descriptive comment is also included.

IT-governance		Consultants		Vendors			
Dimension	Contribution	1	2	1	2	3	Comment
Structure	Specifies organizational decisions						Hard to specify
	Strategic IT	✓	✓	✓	✓	✓	Lacking
	'must have' and 'nice to have' capabilities	✓				✓	Lacking, identified in the decision-making process
	Scale vs Scope			✓	✓		Functional scope due to BI and mobile technology
People	Control exercised by the board	✓					Relative size of SMEs
	Decision-rights	✓	✓	✓	✓	✓	Blurry, owner is usually the CEO
	Roles and responsibilities	✓	✓	✓		✓	CFO has a lot of responsibility but CEO authorizes
Process	Decision-making mechanisms	✓		✓	✓		Project groups are prevalent
	Alignment processes	✓	✓			✓	Consensus and continuing the project
	Communication approaches	✓		✓			Informal and close to the owner

Table 4.1: Empirical findings, IT-governance

4.2 Decision-making process

The empirical data regarding the decision-making process is classified through the three stages; identification, development and selection; in order to gain an understanding of what characterize the decision-making process of IT-investments in SMEs.

4.2.1 Identification

This section includes how the respondents perceive what characterizes how an event occurs, how the information gathering looks like and how the resources are allocated, within the decision-making process of IT-investments in SMEs.

Consultant 1: Consultant 1 explains that usually an IT-investment is initiated to gain safety in SMEs by remedying some current problem and at the same time be on the right platform for the future. The information gathering face differs between different SMEs. S(he) further mentions that some collect huge amounts of information, while others speed up the process by specifying fewer needs. SMEs often have problems with estimating the required resources for an IT-investment.

It is also common for SMEs to create a project group which the CIO manages according to Consultant 1. A potential risk is that SMEs do not consider the total cost of ownership when conducting an IT-investment. The language differs between SMEs and larger enterprises; it is more conceptual in larger enterprises. Understanding the specific needs is thus more difficult for an SME.

"The larger the firm is, the more conceptualized and terms there are. If you go to the local entrepreneur in Småland or at "Skara-slätten", he does not talk about decommissioning, he just talks about whether he

can turn the old system off and get rid of it, the legacy-system as it is called. It is also there an important difference is, the terminology is different in SMEs compared to larger enterprises. (Consultant 1)"

Consultant 2: According to Consultant 2 an IT-investment is started when someone identifies a need and brings it to the board. It could also arise internally as someone wants to change something, perhaps add functionality or that the previous system is too old and lacks compatibility with other IT-systems. The entire decision-process is quicker in an SME as the process involves fewer individuals. SMEs do not allocate enough resources to ensure that their specific needs are identified according to Consultant 2. S(he) further identifies that a project group is usually assembled when there is a larger IT-investment to work with the project. This group usually includes the IT-manager, CFO and the board in some capacity. The group lasts until the project is done, which is often when the investment has been implemented, meaning that evaluation is missed. Consultant 2 stresses that the project group could last at least another 2 months to ensure organizational alignment.

Vendor 1: What causes SMEs to need IT-investments is a need of new functionality or outgrowing their previous system according to Vendor 1. When gathering information and specifying the need larger enterprises use external consultants whereas SMEs do not have those kind of resources. It is often the CFO of an SME that writes the specification of requirements. S(he) further explains that the need for integration with existing systems is usually customer-specific and costly. Hence, SMEs do not have the same resources to specify their requirements.

After identifying a need a project-group, or sometimes a procurement consultant, are brought in/hired to work with finding a solution. SMEs often underestimate the resources needed throughout a whole decision-making process. Vendor 1 says that the process from an idea of a solution to purchase is usually around six months.

Vendor 2: Vendor 2 explains that the decision-making process regarding IT-investments often starts with the need of new functionalities in SMEs, often due to growth. Another reason could be the possibility for a more effective process, one example of this is time-reporting.

"*Imagine a small construction firm where they report their work hours using an app. I have friends who have their own construction firms and I have discussed this with them. How do you report? We do it on paper. Because they are not mature enough* [when it comes to IT-solutions]. *But I believe that a lot of things will change when it comes to reporting work hours, e.g. for a construction firm via an application or an HTML5-page* [...] *made more efficient through IT-support. (Vendor 2)"*

SMEs sometimes have difficulties with specifying their needs which consequently gives rise to uncertainty according to Vendor 2. S(he) further explains that liquidity has historically been an issue as SMEs do not necessarily have the resources as larger enterprises. However, recent developments has mitigated this by coming up with new payment solutions, e.g. monthly subscriptions.

The creation of a project group is common. They are tasked with identifying the needs of the firm. When asked who are included in such a project group Vendor 2 answers the following:

"Users, CFO, and potentially the CIO, if that one exists. (Vendor 2)"

Vendor 3: Vendor 3 stresses that SMEs do not always know what possibilities there are to make their business more efficient due to lack of knowledge. SMEs do not use tools/frameworks for IT-governance as they do not always know the benefit or how to proceed.

"I take that very early on. What time do you spend on these things? Do you think it could have been possible to save time by doing it this way instead? And then once you have answers to these questions you can make an [analysis], *here you see that within a year you will this and halved the time for this. (Vendor 3)"*

SMEs do not usually identify by themselves that they have an opportunity to make their operations more effective with the use of IT according to Vendor 3. Instead they identify that a colleague within the industry has an IT-solution that also could be used in their company. This is more common within SMEs than larger enterprises; the word-of-mouth marketing is very strong.

"It is a very interesting field that you are researching as these companies, meaning SMEs, are terribly bad at this, how they make decisions and it is absolutely not on any theoretical foundations. They are really bad buyers and procurers of IT, that they are. I believe it is an area where they feel that they do not know that much. They just know that they shall have something, they must have something. My role, it is a very important role to help them, so I am more of a consultant than a salesman. I am out there, telling them what they should think about concerning these types of investments, so that they can make money and get better governance and follow-ups to manage their operations. When I tell them they usually go: "ah right, that is good, ah exactly that is good. (Vendor 3)"

Vendor 3 believes that SMEs do in some cases create a project group when deciding on making an IT-investment. However, s(he) explains that the constellation of the project group will differ from company to company.

"In some cases, but most often it is the owner who is involved to a very high degree when they are supposed to make this kind of decision as it is a rather large amount for the small enterprise. [...] *It depends on what kind of people they are, they should be professional. Preferably younger individuals at the firm, I do not think it matters what function they usually have but that they have a different mindset. "Why should we even do this? Well, we must think long-term about this; we need to rationalize for the men in the field as well. (Vendor 3)"*

A common problem SMEs face when deciding on doing an IT-investment is the fear for it to take too much time according to Vendor 3. That the timeframe set up will not be held by the supplier. SMEs sometimes underestimate how much time they must commit for the IT-system to work properly. S(he) explains that they might not understand that they need to integrate it with their operations and perhaps that they might need to adapt their operations slightly for it to work optimally.

4.2.2 Development

This section includes how the respondents perceive what characterizes the search for alternatives and the different alternatives, such as custom-made solutions or the modifying of existing solutions, within the decision-making process of IT-investments in SMEs.

Consultant 1: Consultant 1 did not provide any material of relevance to this section.

Consultant 2: When it comes to choosing between different IT-investments this is usually done by comparing it with a specification of requirements according to Consultant 2. In SMEs this is less formalized and fewer people are involved, maybe only one individual. Furthermore it depends on the organizations IT-dependence

"*It is more common with standard-solutions today, it is where the trend is moving. To remove the need for development* [internally]. *However, some firms are dependent on special solutions as their industry or operations require it. (Consultant 2)*"

Vendor 1: In terms of alternatives Vendor 1 identifies adaptations that can be done to the system, such as adding modules, are what the supplier's profit from, making it costly for SMEs. This is why Company C's focuses on best-practice and standardized solutions. The more functionality wanted from the solution, the more expensive the solution becomes. Something else to take into consideration is the ability to add BI-solutions to extend the range of alternatives. S(he) states that the project-group contacts different suppliers and see if they can present a solution based on the specification of requirements of the SME. These presentations are used to ask complementing questions and get a demonstration of the system.

Vendor 2: A difference between larger enterprises and SMEs is the need to accommodate regulations when considering the functionality of the solution, an example mentioned during the interview was component depreciation. Vendor 2 further mentions that a larger enterprise has to consider this, even in their ERP-system. However, since SMEs are less complex they do not have to consider the regulation in the same manner. When searching for alternatives SMEs ask colleagues within the same industry.

"In our industry it common to ask others in the industry, look at colleagues [other SMEs], *within the industry, you ask around what they run, do test runs, and some even test run our system with someone else's. If looking at cloud-based solutions you can login and do a test run immediately, get a preview, does it work for me? Well yes, then let us run with it*! *(Vendor 2)*"

As SMEs strive for flexibility a modular system is preferred to be able to add functionality as a need arises.

"You often start with a foundation; bookkeeping, accounts receivable and invoicing. Then we can add more dimensions etc., when there is a need. (Vendor 2)"

Vendor 3: Vendor 3 explains that there is a difference between how SMEs and larger enterprises come in contact with potential suppliers. SMEs often do this by looking at what their colleagues in the industry use. S(he) also state that larger enterprises use more different factors to find out which suppliers there are on the market. SMEs do not have the time, or rather do not take the time, or the resources to scan the market for suppliers in the same way larger enterprises do. SMEs contact us [Company E] to get more information about our ERP-system, often due to recommendations from the industry.

"I was down in southern Sweden and met them for the first time, went in and sat down and went back home with the [purchase] *order which is not that uncommon in SMEs, if they are on the clear that "we shall do something". That is my first question, before I go out to them: Have you whatsoever decided whether or not you are going to do an investment? If I get a yes then, then I know that they have at least thought about it, that now they are doing something. (Vendor 3)"*

4.2.3 Selection

This section includes how the respondents perceive what characterizes the rationalization of alternatives, bargaining and authorization aspects, within the decision-making process of IT-investments in SMEs.

Consultant 1: When selecting between different IT-investment, it is important to consider the goals of the company according to Consultant 1. One aspect could be to shorten the time to finish the annual accounts. In larger enterprises it is hard for the consultants to reach the final decision-makers. SMEs often use their gut feeling when taking an important decision. S(he) further believes that the final decision-maker in SMEs is closer to the operations than in a larger enterprise. It is the IT-investment project-group, often managed by the CIO, who gives inputs to the CEO. Consultant 1 has experienced the union providing input, but it is less common in SMEs. Finally, in SMEs it is the CEO who authorizes IT-investment decisions.

"The decision-making process is very different between SMEs and larger enterprises. In the SME you are often close to the owner; it is relatively easy to make quick decisions, there is little internal politics, and straight arrows. This at least makes the decisions go faster; however, these might not always be more correct. Larger enterprises are often more controlled by white-collar workers and it is more about us consultants helping the other party developing their basis for a decision that can be anchored with the final decision-maker. It can be a bit tricky to reach the final decision-makers in larger enterprises. (Consultant 1)"

To collect external funding can also be problematic and there is always the risk of interest fluctuations and hardware costs according to Consultant 1.

Consultant 2: It is the CEO who authorizes IT-related decisions in SMEs according to Consultant 2. An SME often compares different possible IT-investment by the price. They send out tenders to different vendors and then chose which is the cheapest who can fulfil their needs.

Vendor 1: It is hard for SME to compare different IT-investments and it would be beneficial for SMEs if it was easier to compare total cost of ownership according to Vendor 1. The process of bargaining and getting people on board with the solution becomes more important in SMEs.

Vendor 1 states that the final step in the decision-making process is the authorization and that it is almost always the CEO who authorizes, but the CFO who presents the project. A common problem is that a well-founded decision takes a long time which is straining for both the SME and the supplier of an IT-investment. Thus when a solution is purchased, there is no turning back. However, it is uncommon to make a bad decision due to the supplier's interest in the satisfaction of the SME.

Vendor 2:

"If it is a firm with 15 employees then there is one man or woman who makes the decision. If it is a larger SME with 200-250 employees it is the CFO or equivalent who gives a proposal to the CEO. (Vendor 2)"

Vendor 2 believes that it is the CEO/Owner and CFO who usually has the mandate to make IT-related decisions in SMEs. It is common in SMEs that the CEO and owner is the same person, but not always. The choice between different IT-solutions is made based on price and functionality.

"The CEO signs the agreement if that is the same as the owner or if it [the owner] *is someone else he coordinates with the owner. (Vendor 2)"*

SMEs are generally bad at following up on their decisions as it is irreversible, it is seldom that an SME makes a decision and wants to reverse it according to Vendor 2. They rarely use evaluation measures post-investment. If they use any it will be how much time they can save.

"It is not common to use KPIs in that way [to evaluate IT-decisions] *but rather look at processes, does this flow work, does this process work properly. It is often timecards or invoicing which have become less time consuming for those working with administration, which is the KPI. That is the way we had it before, this much time has been saved. If that is a KPI, I do not know. That is what it often is, we can save this much time working in this way, work more efficiently. (Vendor 2)*"

Vendor 2 further explains that strategically, SMEs often use their auditor to guide them in their choice. SMEs are unsure in their decision-making process since a change might not always yield the expected results. S(he) explains that when selecting between alternatives, an SME must consider that the supplier might go bankrupt. The brand of the supplier is thus very important. An inherent risk is the lack of knowledge among the different actors in the decision-making process.

Vendor 3: SMEs are quick in their decisions regarding IT-investments. However, sometimes they do not really know what they are buying and if it fits their business according to Vendor 3. SMEs compare between different IT-investments by looking at the tenders of the different systems. It is all about how much the system costs. However, the personal chemistry between the purchaser and the suppliers also influences the process. SMEs strive to save time and money through an IT-solution.

"It is hard for me to know who will make the final decision and sign this paper. It could be anybody. As it sometimes is, in SMEs, it is often the husband and wife, where she works with finances and he is the business leader and she has a lot to say in the decision. The one who runs the company; I usually get tough and ask: Who is it that decides here? It is very often they say like this, that they have their auditing firm, and they have it like this and they have this IT-system. But that is super dangerous I think, if you are not taking care of the profit making business yourself but rather focusing on that someone else is running this accounting software. Then it becomes a factor, deselecting an alternative that is their optimal solution. (Vendor 3)"

In SMEs you meet the CEO/CFO early on and help them find the right choice for them.

"SMEs have no knowledge in purchasing and rarely ask for help. Larger enterprises hire a procurement consultant to find the right choice. But in SMEs it is either the CFO, the CEO or a combination of those that you meet directly. (Vendor 3)"

The final step in the decision-making process, signing the paper, is not always the easiest role to have.

"To take this [pen] and sign this with your signature [paper], I mean, it is on fire. It is very dangerous to touch it [pen]. It is someone who has the decision-rights to sign when it is a larger investment, and in SMEs it is often the owner. (Vendor 3)"

4.2.4 Summary of empirical findings regarding decision-making process

Through the empirical findings above, the decision-making process in SMEs regarding IT-investments is characterized by the following elements, presented in Figure 4.1.

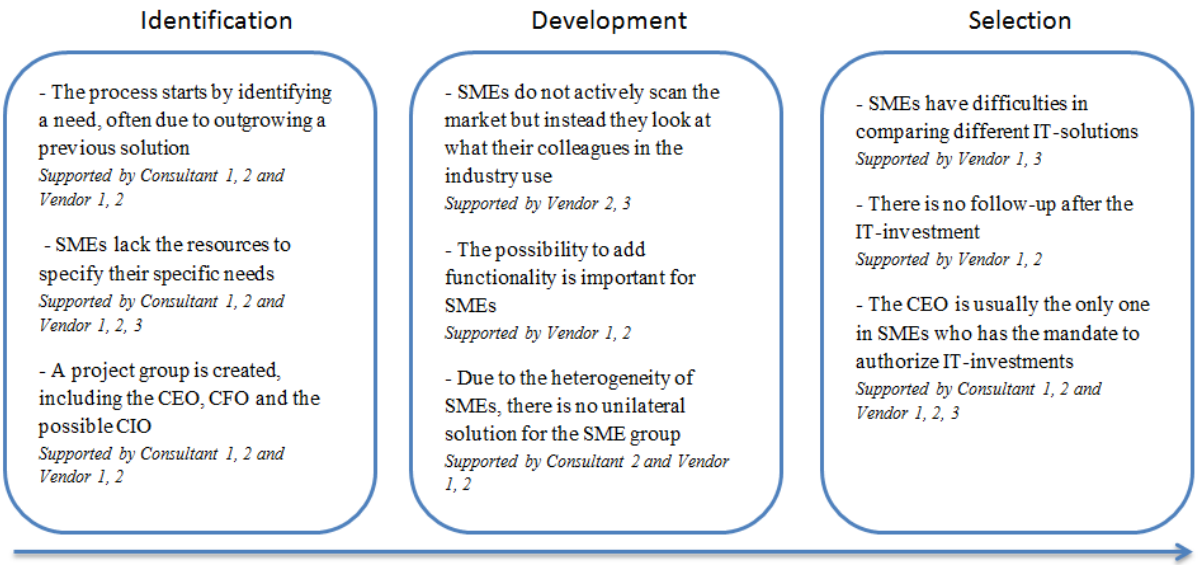

Figure 4.1: Empirical findings, decision-making process

5. Discussion

The following chapter includes a discussion regarding the sub research questions and finally the main research question. It begins with the relevance of IT-governance for SMEs which includes the three dimensions. Each dimension will result in an answer to how it is relevant for SMEs, visualized through a table. Following is a discussion regarding how the decision-making process of IT-investments is organized in SMEs. The last chapter discusses how and why IT-governance can support IT-investment decisions in SMEs.

5.1 Relevance of IT-governance for SMEs

Here the theoretical framework is joined and knitted together with the empirical findings. The following sections will discuss how and why the IT-governance dimensions are relevant for SMEs to support the discussion of the main research question of the thesis.

5.1.1 Structure

From a traditional IT-governance perspective the enterprise should consider how much to spend on an IT-investment, what to spend it on, and the alignment with different needs of the organization (Weill & Ross, 2004). Other aspects included in traditional IT-governance are the separation of capabilities (Verville & Halingten, 2003) and trade-off between functional scope versus economies of scale (Kallinikos, 2011; Upton & Staats, 2008). Vendor 1 highlights SMEs preference to invest in standardized 'best-practice' solutions as modifications or custom-made solutions are costly, given that SMEs face stricter financial constraints compared to larger enterprises (Huang et al., 2009). Vendor 2 explains that SMEs are now outsourcing their IT-function to cloud-based solutions as it is a more financially viable option further implying that the IT-function is losing strategic importance in SMEs. Consultant 2 adds to this by implying that SMEs lack both the resources and structure to manage IT-investments compared to larger enterprises who have templates or models but (s)he declares that all firms have an IT-strategy although its development differs. This is in contrast with De Haes and Van Grembergen (2004) claiming that IT has generally become more of a strategic matter. Specifically this is due to the characteristics of SMEs as strengthened in the literature (Ghobadian & Gallear, 1997) since SMEs tend to focus on general knowledge. Adding to this Vendor 3 even emphasizes the reliance on the auditor of SMEs as they specify what IT-decisions to make.

In terms of functionality Consultant 1 distinguishes young SMEs as needing more modular functionality whereas Vendor 1 emphasizes the 'best-practice' solution but acknowledges that a problem can occur when SMEs fail to specify their needs and take functionality as implicitly available. IT-governance research states that firms tend to separate their functional needs into two categories; 'must-have' and 'nice to have' (Verville & Halingten, 2003) something recognized by Vendor 1. These functional needs generate a number of requirements, varying between only a few requirements to many according to Consultant 1 whereas Vendor 3 had rarely experienced specifications at all, but rather a gut-feeling that something had to be done. This lack of specified requirements is due to SMEs being subject to stricter resource constraints compared to larger enterprises and also lack the knowledge to properly measure and capture different aspects of the IT-investment, which was discussed by Consultant 2. Disregarding the resource constraints and ensuring that organizational needs are taken into account can provide a more optimal strategic fit between the organization, which in turn will sustain value generation for the firm, and thus implying that a specification of requirements is of relevance for SMEs.

According to Vendor 2 user friendliness and functionality are important factors to take into consideration when investing in IT. This is in line with research (Kallinikos, 2011) stressing the contextual needs of the firms as they make strategic IT-decisions. Vendor 2 claimed that SMEs do IT-investments without

considering the IT-strategy whereas Consultant 1 indicated that s(he) did not believe a firm to be 50 employees or more by chance implying that the SME has a strategy with their IT-investments. However, both respondents agree that the reason for IT-investments is to make operations more efficient. Consultant 1 says that effectiveness of the IT-investment is left to marketing or purchasing managers. Linking this to the three types of IT-investments firms do (Zuboff, 1988), these IT-investments are concentrated on efficiency indicating that firms are automating their business and reserving the transformation of the business to marketing/purchasing managers. Vendor 1 however focused on standardization of reports bespeaking the relevance of Zuboff's (1988) informate type of investments. The focus on automation indicates that IT-investments are linked to a cost leadership strategy (Magnusson & Nilsson, 2014) which is further supported by several respondents' explicit perspective that IT reports to the CFO. Having a cost-focus stems from the traditional IT-governance consideration of how much to spend on an IT-investment (Weill & Ross, 2004) but rather than deciding a specific amount it is a cost function meant to be minimized, rather than revenue potential. Hence the potential usage of IT-strategies towards external effectiveness identified in the literature (Krishnan et al., 2007; Huang et al., 2009) is still lacking in SMEs entailing the relevance of 'best-practice'-solutions depending on organizational needs.

The expansion or replacement of functionality from IT-investments (Velcu, 2007) is identified by some of the respondents, e.g. Vendor 1 who argues the ability to add functionality through BI-solutions and Vendor 2 mentions both the cloud and mobile technology as influencers on the way SMEs do business caused by technological advancement (Mabert et al., 2000; Chand et al., 2005; Botta-Genoulaz & Millet, 2006) whereas a specification of requirements is able to capture both operational and technological needs of the organization.

The relevance of the structure dimension for SMEs

Due to the resource constraints present, a preference towards 'best-practice' solutions allows SMEs to focus on operations rather than resource consuming solutions. However, taking the needs of the SME into consideration is still vital to ensure a good fit, rather than only taking the auditor's opinion into account. Separating 'must-have' and 'nice to have' capabilities is useful for alignment between the investment and the SME's strategy. Furthermore, SMEs might not require a specification of different IT-related decisions as suggested by the literature (Weill & Ross, 2004) since the CEO is inherently entangled in the decision. The structural dimension of IT-governance thus provides considerations of relevance for SMEs. Table 5.1 summarizes the relevance of the structure dimension for SMEs compared to traditional IT-governance.

Structure	
Traditional IT-governance	IT-governance for SMEs
Specifies organizational decisions	Not as relevant for SMEs
Strategic IT	Important to specify organizational needs
'must have' and 'nice to have' capabilities	Useful to separate different capabilities
Scale vs Scope	'best-practice'-solution, adding functionality e.g. mobile or BI

Table 5.1: Relevance of the structure dimension for SMEs

5.1.2 People

Traditional IT-governance divide IT decision-rights into six different archetypes and focusing on the control exercised by the board (Weill & Ross, 2004). Furthermore, having clearly defined roles and responsibilities helps delineate the decision-rights and identify all involved parties (De Haes & Van Grembergen, 2004) which in turn will enable the organization to reap benefits of the organizations' IT-governance (Weill & Woodham, 2002). Strategic leadership is needed to achieve effective usage of IT

(Weill & Ross, 2004) which is something SMEs currently lack according to the respondents. A contradicting opinion to this is Vendor 2 who claims that the role of the CIO is decreasing with the increased outsourcing potential for SMEs. Commonly the owner is also the CEO as identified by the respondents. Hence the six archetypes described in the literature are not as prevalent in SMEs due to the flat organizational structure and reliance on a select number of people (Ghobadian & Gallear, 1997). As indicated by the respondents it is almost unanimously a business monarchy where the CEO decides everything and sometimes shifting to an IT duopoly involving the IT-responsible/CIO while authority tends to remain with the CEO/Owner.

Banker et al. (2011) indicate that IT-governance is a strategic question for the board of a firm but most of the respondents saw IT within the decision-domain of the CFO, or as Vendor 2 presented it the CIOs are disappearing especially with the increasing outsourcing of IT to the cloud among SMEs. Vendor 1 identifies that if an SME has an IT-manager or CIO who is allowed to be on the board it enables him/her to take a more strategic role. However most commonly IT is the responsibility of the CFO according to three of the respondents. This is in accordance with the literature e.g. Banker et al. (2011) who also found that CIO reporting structure indicates either strategic focus, what Consultant 1 called revenue potential or a cost-focus when the CFO is responsible. Consultant 2 concurs that the CFO is usually responsible for IT, indicating a cost focus, or sometimes it is allocated to a technician while the strategic directions is at the discretion of the CFO. Vendor 3 proclaimed that SMEs perceive IT as a cost which implicitly indicates that SMEs fail to see the strategic potential of IT (Krotov, 2015; Drnevich & Croson, 2013; Cragg et al., 2002). Furthermore, Weill (2004) states that the ability to make IT-decisions has considerable implications for performance. IT-investment decisions often come from the CFO but the CEO has the final decision-rights. These decision-rights decrease as the enterprise increases in size when the role of the CFO is extended according to Consultant 1 and Zorn (2004). Consultant 1 draws similarities to having a gatekeeper, which potentially could make the firm go out of business, which is in line with Weill and Ross' (2004) statement that leadership has to be proactive and strategic. Vendor 3 indicates that this can cause problems if the decision-maker is afraid of change or unable to see the benefits from the IT-investment. Hence it is of relevance for SMEs to distinguish who has decision-rights and then taking into consideration the strategic implications of this distinction.

SMEs are often characterized by idealistic and simplified decision-making (Turner et al., 2010; Huang et al., 2009; Ghobadian & Gallear, 1997) corroborated by all of the respondents. Consultant 1 and Vendor 3 further add that the division of decision-rights is not always clear in SMEs, but as Consultant 1 exemplifies, if the name of a person is on the wall they have implicit decision-rights regardless. Consultant 2 implies the importance of allocating decision-rights, something that SMEs have begun working with. Another issue is the existence of informal decision-makers, especially in family-run businesses as it adds another layer to the decision-rights as the family dinner on Sunday evening becomes a forum for decision-making according to Consultant 1, which obfuscates underlying power structures and relationships (Johnson et al., 2008). Furthermore SMEs tend to rely more heavily on few individuals with vital responsibilities as identified in the literature (Carter, 1971) and supported by Vendor 2. Another example is the allocation of decision-rights to the IT-function without them actually needing it as stressed by Consultant 2. Having well defined roles and responsibilities can thus be of even more relevance for SMEs than larger enterprises due to the existence of informal forums of decision-making and overreliance on a few individuals as supported both by IT-governance and management literature (De Haes and Van Grembergen, 2004; De Waal, 2013; Bolman & Deal, 2007).

The relevance of the people dimension for SMEs

Decision-rights within SMEs are largely divided between the CEO, who is most commonly also the owner, and the CFO with responsibility for the IT-function. A CIO, which is not common among SMEs, would allow a strategic focus and remove IT from the current cost focus. If the needs are properly clarified and the gatekeeper with final decision-rights recognizes the benefits of the IT-investment (s)he will be able to make a better decision. Enunciating who has the decision-rights becomes essential as SMEs are characterized by informal decision-makers and forums for decision-making which could overthrow and lay waste to decisions made by formal decision-makers. Table 5.2 summarizes the relevance of the people dimension for SMEs compared to traditional IT-governance.

People	
Traditional IT-governance	IT-governance for SMEs
Control exercised by the board	Not as relevant for SMEs
Decision-rights	Important to enunciate
Roles and responsibilities	Important to enunciate

Table 5.2: Relevance of the people dimension for SMEs

5.1.3 Process

In terms of the process dimension, the traditional IT-governance literature emphasizes the distinction between who provides input to a decision and who actually makes the decision, such as IT-committees that govern the value-delivery of IT-investments. Furthermore, the decision can use metrics such as ROI to accept or reject the IT-investment (Ackerman, 1970; Frisk et al., 2014). Finally it also entails how such investments are communicated internally (Weill & Ross, 2004).

Consultant 1 said that it is common for SMEs to create a project group, rather than an IT-committee, for the specific IT-investments which is managed by the potential CIO or otherwise the CFO, supported by Vendor 2. Van Grembergen et al. (2004) claimed this formal mechanism as a practice to both manage risks and value-delivery, whereas for example Vendor 2 said that it was to specify the needs of the organization and compare it to the different solutions. Understanding the needs of the organization is vital to define the strategy (Porter, 2004) and aligning strategy with IT in turn will help achieve value (Cragg et al., 2002; Banker et al., 2011; Weill & Ross, 2004; Livari, 1992). Vendor 1 contributed that if the founder is still active in the firm (s)he often has a clear strategic vision and knows what should be done, however, Vendor 3 also explained that this could cause issues as the founder/CEO could be unable to see the benefits of the change caused by the investment. Xue et al. (2008) contributes that the involvement of different departments helps identify business needs whereas the strength of the founder being involved is their good overview of the firm. Who is chosen as the leader of the project group has strategic implications based on literature (Banker et al., 2011) or as Consultant 1 said that the board is more involved when there is a revenue potential while several respondents saw the CFO as the natural leader indicating a cost focus. The CEO is generally more involved due to the flat organizational structure according to Vendor 3 and implicated by all respondents. Consultant 1 indicated that external consultants could be part of the project group whereas the other respondents focused on including the CFO, future users of the system and representatives from different functions. The project group is important as the project is not done directly after implementation, thereafter comes the usage which requires training and education according to Consultant 2.

Post-evaluation of the IT-investment decision is rare due to the associated costs and perception that once a decision has been made there is rarely any turning back. Vendor 1 emphasizes that SMEs focus on

whether the IT-solution works or not rather than ROI-calculations, which stands in contrast with the literature (Ackerman, 1970; Karadag et al., 2009; Frisk et al., 2014). Metrics are rarely used to evaluate the decision but consultants could provide support. Consultant 1 says that evaluation, if one is conducted, is done by the supplier rather than the SME itself. Vendor 3 claims that using metrics however could be healthy for SMEs rather than just basing it on gut-feeling. Sometimes they compare it to their specification of requirements to ensure that they achieved the wanted outcome. Consultant 2 perceives the same need for follow-ups as it can allow SMEs to gain more from their investment. (S)he argues that this is currently lacking due to primarily resource constraints which is also identified in the literature (Huang et al., 2009).

Vendor 2 identifies that SMEs tend to have informal decision-making processes and Consultant 1 adds that formalizing the decision-making processes is of relevance as it allows the SME to identify pitfalls existent within the process. What Consultant 1 further identifies is that the Swedish context could influence decision-making as SMEs strive for consensus. When it comes to providing input both before and after a decision it usually involves the CEO, CFO and a project leader according to Vendor 3.

The characteristics of SMEs being fewer decision-makers (Huang et al., 2009; Ghobadian & Gallear, 1997) make it a rapid process implied by Consultant 1. Vendor 2 indicates that reporting could be more efficient if SMEs realized the untapped potential of IT in their IT-governance process.

The relevance of the process dimension for SMEs

The creation of a project group, often spearheaded by the CFO, to specify the needs is a common mechanism. Involving actors from different function and levels of management is important and especially users of the IT-investment to achieve alignment. The post-evaluation process is identified as rare in SMEs since their primary focus is whether the IT-investment works or not, rather than using metrics such as ROI. As important as it is to enunciate the decision-rights in the people dimension it becomes crucial to elucidate the decision-making process and formalizing it to identify potential pitfalls. Table 5.3 summarizes the relevance of the process dimension for SMEs compared to traditional IT-governance.

Process	
Traditional IT-governance	IT-governance for SMEs
Decision-making mechanisms	Utilize project groups
Alignment processes	Involve different functional actors
Communication approaches	Formalize reporting structure

Table 5.3: Relevance of the process dimension for SMEs

5.2 Decision-making process of IT-investments in SMEs

Here the theoretical framework is linked and interwoven with the empirical findings. The following sections will discuss what characterizes the stages of IT-investment decision-making processes in SMEs to support the discussion of the main research question of the thesis.

5.2.1 Identification

According to Vendor 1, 2 and Consultant 1, 2, an SME usually starts a decision-making process regarding an IT-investment due to the need of new functionality due to outgrowing the previous solution or to fix a current problem. This is in line with the findings of McAdam (2000), that SMEs act in a reactive way and acts first when they have identified a need. This is in contrast to the proactive and strategic manner needed regarding IT-investments as suggested by Weill and Ross (2004). Vendor 3 contrasts this by stating that

SMEs often do not identify the need by themselves, but instead find out about the possible effectiveness gain through business colleagues or equivalent.

The following step after the event has occurred is the information gathering phase, which involves gathering resources to define the issue that needs to be managed (Mintzberg et al., 1976). All of the respondents stress that SMEs lack the resources and knowledge to specify their specific needs from the IT-solution. It is also mentioned that SMEs underestimate the time needed to do a successful IT-investment. Welsh and White (1981) strengthen this finding by concluding that SMEs do not have the same resources as larger enterprises. Ates et al. (2013) specify this further by explaining that the managers in SMEs focus on the day-to-day operations, and consequently have less time to specify the specific needs of the IT-investment.

Vendor 1, 2 and Consultant 1, 2 state that it is rather common in SMEs to create a project group after identifying a need for a new IT-solution. The constellation of the project group varies, but the CEO, CFO and a possible CIO are very important actors. According to Consultant 1 and Vendor 2, it is often the CFO/CIO who manages the project group and reports the findings to the CEO. However, Vendor 3 comments that in small SMEs the CEO manages the project group directly. Zorn (2004) explains this by stating that the final decision-maker is often the CEO but as the SME grows the responsibilities of the CFO/CIO expands.

5.2.2 Development

Vendor 3 says that due to time and resource constraints, SMEs do not actively scan the market for different IT-investment alternatives. Instead they look at what colleagues in the industry use. Vendor 2 confirms that this is usually the way SMEs search for alternatives. However, this is probably not due to institutional pressure as Xue et al. (2008) would explain it, but instead due to the lack of knowledge and resource constraints that characterizes SMEs as Devos et al. (2012) claim and that all of the respondents indicated.

Adding more functionality to the current system is important for SMEs, according to Vendor 1 and 2. When SMEs grow, the need to add functionality to the system becomes evident. However, adapting the current system is often expensive according to Vendor 1 which is also consistent with what Mintzberg et al. (1976) state about custom-made solutions. Turner et al. (2010) identify that SMEs are more flexible than larger enterprises and Vendor 2 claims that SMEs often need a modular systems to enable them to be a flexible organization. Consultant 2 identifies that standard-solutions are more common today at SMEs, which is in contrast with the findings from Vendor 1. Consultant 2 further states that SMEs development phase is less formalized and fewer people are involved, as is supported in the literature (Huang et al., 2009; Ghobadian & Gallear, 1997).

5.2.3 Selection

The last stage in a decision-making process is the selection phase. It is of vital importance to find the most suitable alternative and to eliminate the infeasible options (Mintzberg et al., 1976). All of the respondents stress that the decision-making process is rather rapid in SMEs. Consultant 1 believes that SMEs do not always think rationally, as they often use their gut feeling when taking an important decision. This can be explained by the difficulties of comparing different alternatives as explained by Vendor 1 and 3. Vendor 3 and Consultant 2 say that SMEs usually only look at the tenders when taking a decision, and not considering the goals of the company which is important according to Consultant 1. Consultant 1 explains that getting external funding is a common problem for SMEs, which is also identified by Huang et al. (2009). Levy and Powell (2004) further describe this problem as frequent since SMEs cannot rely on

funding from e.g. a parent company, but instead is more dependent on external funding than larger enterprises are.

The person who has the mandate to authorize IT-investments in SMEs is almost exclusively the CEO, according to all of the respondents. The people who have an influence on the choice between the alternatives are mainly the CFO, the potential CIO and in some case the auditor. After the choice has been done, Vendor 1 states that there is no "turning back" and Vendor 2 further claims that the IT-investment is irreversible, similar to the idea of a cathedral presented by Upton and Staats (2008). It can be explained by the financial stake SMEs pour into the investment and the financial limits the SMEs have according to Huang et al. (2009). Vendor 1 has however identified that an IT-investment often is not unsuccessful in SMEs due to the interest from the supplier to satisfy the SMEs needs. Vendor 2 explains that the brand is of importance when selecting an IT-investment to somehow manage the risk of the supplier going bankrupt.

5.3 Applying IT-governance on IT-investment decisions in SMEs

IT-governance provides several aspects able to support SMEs throughout their decision-making process regarding IT-investments. In the identification stage once a need has been identified, be it functional or strategic, it is vital to establish and understand the organizational needs to assure that the IT-investment fits the organization. Upton and Staats (2008) propose that the IT-investment should be forged together with the organization whereas in the case of SMEs a 'best-practice'-solution could be preferred as it allows the SME to focus on its operations. However, this implies that the needs are understood by actors within the organization.

After identifying the need the creation of a project group was identified as fairly common by the respondents. This group is responsible for the specification of the needs and includes the CEO or more commonly the CFO as team leader and representatives from different functions and Vendor 2 stressed the inclusion of users of the IT-investment. This is to strengthen organizational fit, which is strongly supported in the literature (Mintzberg et al., 1976; Maritan, 2001; Weill & Ross, 2004; Xue et al., 2008). The project group is able to handle value delivery and risk management (Van Grembergen et al., 2004). Hence by forming this type of project group the SME enables identification and understanding their needs but to ensure long-term management and value-delivery (Van Grembergen et al., 2004) this should be evolved into, what traditional IT-governance defines as, an IT-committee that remains after the IT-investments has been done and gives it decision-rights and accountability for a strategic use of IT (Cragg et al., 2002; Banker et al., 2011; Weill & Ross, 2004; Livari, 1992) as suggested by Consultant 2.

In the second stage of the decision-making process the IT-committee is, assuming that needs have been specified, able to compare solutions and find the contextually optimal fit between the SME's strategy and IT-investment (Huang et al., 2009). The respondents claimed that SMEs mimic the decisions of colleagues within their industry or suggestions made by their auditors whereas an IT-committee would mitigate this and emphasize the organizational context (Ghobadian & Gallear, 1997) and chosen strategy of the SME (Yunis et al., 2013; Arachchilage & Smith, 2013; De Waal, 2013) which will improve the performance of the organization, both internally and externally (Cragg et al., 2002; Banker et al., 2011; Weill & Ross, 2004; Livari, 1992).

In the selection stage the CEO has a lot of power within SMEs (Zorn, 2004) and has the final decision-rights in most cases, as indicated by all of the respondents. Traditional IT-governance accentuates the distribution of decision-rights and stage-based decision-making integrates this further by allowing for interactions between different actors at various stages (Xue et al., 2008). Hence, in SMEs where decision-

makers are close to the operations and decision-making processes are more simplified (Huang et al., 2009; Ghobadian & Gallear, 1997) the enunciation of decision-rights throughout the process clarifies who is accountable for what decision. This is essential to alleviate the complexity of IT-investments. By involving several different actors complexity can be discerned and dealt with from different aspects compared to overreliance on the CEO or CFO. These further ties back to the first stage where the identification and understanding of organizational needs are important to further alleviate the complexity of the IT-investment.

A limitation of the three stages in the decision-making process is the lack of a post-evaluation as SMEs have different resource constraints making post-evaluation a timely and resource consuming process. As Vendor 1 said "*when a system is in place, there is no turning back*" or as Vendor 2 indicated that the most important aspect is that the flow of the system works for the SME. Consultant 2 indicated that a post-evaluation could support SMEs to gain more from their IT-investments. This furthermore indicates that SMEs are missing out on one very important aspect of IT-investments and decision-making processes, the ability to continuously improve the organization and allow the organization to learn and develop. Therefore the formalization of the decision-making process needs to be formalized through alignment processes and established communication approaches that enables the identification of pitfalls in the process. Through the inclusion of feedback-loops in the decision-making process an organizational learning can take form and shape into a formative process.

5.4 Limitations

This study has several limitations. This study is conducted in Sweden and thus the findings might have limited implications and replicability in a different contextual environment. As the study is of qualitative nature, the findings do not aim to be generalized, but instead contribute to the body of research on the topic. Furthermore, since the empirical findings interpret the problem from a supply-side perspective another limitation of the study is only having data collected from the supply-side, which gives the findings limited implications as addressed by the suggested future research. Finally, this thesis assumed indifference between SMEs with for example 30 vis-à-vis 240 employees in terms of both reliance of IT and capital intensity was discussed with all the respondents and is relevant for further research.

6. Conclusion

The purpose of this thesis is to increase the understanding of how IT-governance can be applied to the IT-investment decision-making process, within the context of SMEs and from a supply-side perspective. The research process is guided by two sub research questions which will aid the objective to answer the main research question:

How and why are the IT-governance dimensions relevant for SMEs?

The empirical findings stress that all three of the IT-governance dimensions: structure, people and process are relevant for SMEs, but to various degrees. The structure dimension is of relevance for SMEs as it is important for SMEs to specify the organizational needs in order to align the IT-investment decision with their overall long-term strategy and ensure organizational fit. The findings from the people dimension state that it is important for SMEs to enunciate who has the decision-rights, to ensure that the actual decision-makers are identified. The third dimension, process, is highly relevant for SMEs. One aspect is the importance of elucidating the decision-process, by e.g. creating a project group with the focus of sustaining long-term value from the IT-investment. The other aspect is the informal part of process, which is explored next.

What characterizes the stages of an IT-investment decision-making process in SMEs?

The decision-making process of IT-investment in SMEs starts off with an identification phase which often is characterized by the identification of need due to outgrowing the previous solution. However, SMEs do not allocate enough resources to define the issue but rather create a project group to try to find a solution as fast as possible. The development phase is characterized by mimicking the colleagues within the industry, or what the auditor recommends. The empirical findings show that the final phase, selection, is rather rapid and the decision-maker use its gut-feeling when selecting between alternatives. The person who authorizes the IT-investment is almost exclusively the CEO in SMEs; however the CFO has a great deal of influence on the decision.

How and why can IT-governance support the IT-investment decision-making process in SMEs?

To support the IT-investment decision-making process in SMEs there are three main pillars contributed from IT-governance. Through properly **identifying and specifying the organizational needs** SMEs enable alignment between their IT-investment and their organizational context to ensure a strategic fit. A mechanism to support this is the evolvement of project-groups into IT-committees which are given the decision-rights and accountability to ensure long-term management and value-delivery. The IT-committee can thus support the development stage by providing wider functional inputs into the needs of the organization. The **enunciation of decision-rights** is needed to alleviate accountability from the CEO or CFO, but also to elucidate the informal and formal decision-makers. **Formalizing** the decision-making process helps identify potential pitfalls.

Contributions to theory

By responding to the call for research within the IT-governance domain (Devos et al., 2012; Bergeron et al., 2015) and decision-making process domain (Xue et al., 2008) by applying it on IT-investments, this thesis gives the following contributions to theory. Firstly, it increases the understanding of the relevance of IT-governance for SMEs (cf. Bergeron et al., 2015) and its ability to alleviate the complexity of IT-investments in SMEs (cf. Devos et al., 2012). Furthermore, through exploring and thus increasing the understanding of the stage-based decision-making process of IT-investments as suggested by Xue et al. (2008). By presenting how the IT-governance dimensions are of relevance for SMEs when conducting an IT-investment, this thesis contributes by extending the applicability of IT-governance to SMEs (cf. Lee, 2013). Additionally this thesis highlights some characteristics of the decision-making process, based on a

supply-side perspective, and their connection to IT-governance by extending and adding further layers to the decision-making process.

Contributions to practice

The practical contributions of the thesis are that SMEs need to evolve their project groups into a more long-term IT-committee. These IT-committees should remain after the IT-investment decision has been made to keep ensuring the value-delivery of IT. SMEs need to define the roles and responsibilities of the actors within the organization to mitigate the influence of informal decision-makers. The most important component that SMEs needs to allocate resources towards is the identification phase in order to define the organizational needs that the IT-investment is expected solve. By specifying the organizational needs the organization can align the IT-investment with the long-term strategy and ensure strategic fit. The findings of how IT-governance can be of relevance for SMEs are presented in Table 6.1 below. The traditional IT-governance is contrasted by how IT-governance could be perceived and used from an SME perspective.

	Traditional IT-governance	IT-governance for SMEs
Structure	Specifies organizational decisions	Not as relevant for SMEs
	Strategic IT	Important to specify organizational needs
	'must have' and 'nice to have' capabilities	Useful to separate different capabilities
	Scale vs Scope	'best-practice'-solution, adding functionality e.g. mobile or BI
People	Control exercised by the board	Not as relevant for SMEs
	Decision-rights	Important to enunciate
	Roles and responsibilities	Important to enunciate
Process	Decision-making mechanisms	Utilize project groups
	Alignment processes	Involve different functional actors
	Communication approaches	Formalize reporting structure

Table 6.1: Relevance of IT-governance for SMEs

Suggestions for future research

- The three stages of the IT-investment decision-making process used in this thesis, although encompassing several steps, might not be sufficient to fully capture the complexity and alleviate it. A further study could explore the possibility of evolving the three stages to include other aspects and combine it with the attribute-based decision-making to expand the decision-making process, especially important within an SME-context as the different stages are intricately interwoven. For example the identified lack of post-evaluation among SMEs, as the respondents indicated that this could help and support SMEs, is a possible addition or development to create a learning organization that grows through a formative process.

- This thesis takes a broad approach to SMEs by interviewing respondents from the supply-side who have seen the problem area through different organizations without actually experiencing it first-hand. Therefore a future study could take the findings of this study a step further by interviewing a number of SMEs, i.e. the demand-side, and through this attest to the applicability and substantiality of the findings.

- A limitation present in this thesis is the assumed indifference between SMEs with 30 employees and 240 as well as potential differences between firms with the same number of employees, as number of employees is not an indication of organizational characteristics. A future study could mitigate this by looking at firms with similar characteristics or identifying the influences of these potential characteristics on IT-investments and decision-making in SMEs.

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Appendix 1 – Interview Guide

1. Present yourself and your current position.
2. Present the company where you currently work.
3. How long have you worked at your current company?
4. Describe the company's customer base?
5. How would you perceive and interpret the term IT-governance?
6. Describe your experience with IT-investments and IT-governance.
7. What differences do you perceive exists between larger enterprises and SMEs? Internally and externally?
8. Have you recognized that your customers use frameworks for their IT?
9. In SMEs, who is it that takes IT-related decisions?
    a. Who are expected to provide input before a decision is made in SMEs?
    b. Who are expected to provide input after a decision has been made in SMEs?
10. Have you experienced a difference between who took an IT-decision vis-à-vis who should have taken it?
11. On a general level, how are SMEs working with long-term strategy? IT-strategy specifically?
12. Have you experienced that an SME created an IT-committee or project group to handle certain decisions?
13. How do SMEs evaluate their IT-investment decisions?
14. How do you perceive that the decision-making process regarding IT-investments looks like in SMEs?
15. What usually initiates the IT-investment decision-making process in SMEs?
16. How are different alternatives generated and compared?
17. In SMEs, what are the common problems regarding the decision-making process of IT-investments?
18. What risk factors do the SMEs take into consideration when conducting an IT-investment?
19. What effects are the SME seeking from the IT-investment?
20. Is there something that we have not discussed or that warrants further research regarding our topic?