

Decision maker's inertia in SMEs: a multiple case study in sales invoicing

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ABSTRACT

Objectives of the Study

The main objective of this study was to identify possible inertia in SMEs and its effects on decision making. The secondary objective was to observe differences in adoptive decision making factors between large companies and SMEs using technology-organization-environment (TOE) framework as a comparison theory. The purpose was to gain understanding of SME decision making and factors that influence it.

Academic background and methodology

This study was conducted in form of qualitative multiple case study and included eight SME case companies. The case companies were selected from various industries. Their sales invoicing process and adoptive decision making was analyzed. The research was conducted using a predetermined and mostly open-ended questionnaire in face-to-face situation. Existing studies in the field of adoption were utilized.

Findings and conclusions

Inertia in this study was identified as a decision maker's inertia because the term "inertia" is commonly used in multiple functions. The factors affecting adoption were divided to drivers and barriers. These drivers and barriers were identified from the observations and their rationality in practice with decision making was analyzed. Multiple cases showed similarities with factors that can be argued to be irrational. Inertia was identified in seven out of eight cases. The TOE frameworks capability to explain adoption in SMEs was concluded to be insufficient, so the appropriate extensions were made to further explain adoptive factors in SME decision making. This study's limits were accounted and the extensions were made broad enough to cover different varieties of behavior, and not only what was found on this study.

Keywords

Inertia, adoption, sales invoicing, SME, decision making

ABSTRAKTI

Tutkimuksen tavoitteet

Tutkimuksen päällimmäisenä tavoitteena oli havainnoida mahdollisen inertian eksistenssiä pk-yrityksissä ja sen vaikutusta päätöksen tekoon. Toissijainen tavoite oli observoida adoptio-päätösten tekijöiden eroja suurten yritysten ja pk-yritysten välillä käyttäen technology-organization-environment (TOE) kehystä vertailtavana teoriana. Tarkoituksena oli lisätä ymmärrystä pk-yritysten päätöksenteosta ja siihen vaikuttavista tekijöistä.

Kirjallisuuskatsaus ja metodologia

Tämä tutkimus toteutettiin kvalitatiivisena monitapaustutkimuksena ja se sisälsi kahdeksan monitapausta. Tapausyritykset valittiin useilta liikealoilta. Yritysten päätöksentekoa analysoitiin myyntilaskutus prosessin ja adoptointi-päätösten osalta. Tutkimus toteutettiin kasvotusten käyttäen ennalta määrättyä vastauslomaketta enimmäkseen avoimilla kysymyksillä. Aiempia tutkimuksia adoptiosta hyödynnettiin.

Tulokset ja päätelmät

Inertia tässä tutkimuksessa määriteltiin päätöksentekijän inertiksi koska termiä “inertia” käytetään yleisesti monissa tarkoituksissa. Adoptioon vaikuttavat tekijät jaettiin kannustaviin ja vastustaviin. Nämä kannustavat ja vastustavat tekijät tunnistettiin havaintomateriaalin perusteella ja niiden rationaalisuus käytännöntason päätöksenteossa analysoitiin. Monissa tapausyrityksissä todennettiin samankaltaisia vaikuttavia tekijöitä jotka voitiin määritellä irrationaalisiksi. Inertia todennettiin seitsemässä tapauksessa kahdeksasta. TOE kehyksen kyky selittää adoptiota pk-yrityksissä todettiin puutteelliseksi, joten tarkoituksenmukainen laajennos joka selittää adoption tekijöitä pk-yritysten päätöksenteossa tehtiin. Laajennoksia tehdessä huomioitiin tämän tutkimuksen rajallisuus siten että laajennokset toteutettiin kattavina jolloin ne pystyvät kuvaamaan myös muunlaista käyttäytymistä tämän tutkimuksen havaintojen ulkopuolelta.

Avainsanat

Inertia, adoptointi, myyntilaskutus, pk-yritys, päätöksenteko

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1. INTRODUCTION

“The secret of change is to focus all of your energy, not on fighting the old, but on building the new.” -Socrates

Small and medium enterprises (SMEs) cover major portion of all businesses in Europe (European Commission 2005). Technology and IT development is currently as fast or faster that it has ever been. Most of the theories on managerial decision making focus on large enterprises, and are not capable to explain behavior for total field of business that includes also smaller companies. Countries develop and industries change, forcing companies to adapt to these new settings. The change often comes by adopting new processes and by changing existing behavior. There are almost endless amount of alternatives for adopting new processes and technologies. The change is often seen as necessary evil even that it often comes with opportunity to evolve for better. Companies can create better and more efficient processes. The famous “competitive edge” is not achieved by resisting new, but by evolving faster than others evolve. The term “inertia” describes situation where there is a force fighting against another force which is trying to change objects or in this study’s case, company’s current path. Inertia is a slowing force, causing firms to be left behind as industry and competition keep progressing. There are driving forces that cause firms to adopt new things in order to survive. If the change is inevitable, why are the companies fighting against it and not seeing it as an opportunity? Often the change in organization brings in something new, and possibly something better. Company that decides to change, can automate processes, making employees’ and managers’ jobs easier and letting them focus on the tasks they choose, and not on those that are necessary. Adopting innovation can make a company more efficient and more profitable. The upside of change are endless possibilities that can make company better in many ways. Downside is the risk that things will not be as good as they currently are. From business perspective, the risk is acceptable because the change at some point is inevitable. Nowadays, information search and product comparison is easier than ever. The internet provides endless amount of information of products and services that can save money, increase revenue and make

managers life easier. Still not all nearly all companies effectively utilize these resources. Technology develops, but companies do not, at least not at the same rate. Many companies tend to keep doing things as they have been always done in the past. “Don’t fix it, if is not broken”-mentality will lead of maintaining inefficient habits and processes, even when better alternatives are widely available.

This study aims to answer the following question:

What are the sources of inertia in SMEs?

First, this study aims to define and identify inertia in SME organizations. If inertia can be identified, its effect on decision making and its sources will be analyzed. Secondary goal is to compare these sources affecting SMEs technology non-adoption to the factors that affect large organizations adoption decisions. These factors can work as drivers or as barriers in decision making process. Inertia in this study is defined as decision maker’s inertia. Chapter 2 discusses about the concept of inertia and decision making in SME organizations. Chapter 3 introduces the Technology-Organization-Environment Framework (TOE) that was introduced by Tornatzky and Fleischer in 1990. TOE framework’s variables will be introduced step by step and extensions and implications of the will be discussed at the end of chapter 3. TOE framework is used as a comparative theory that explains technological adoption in large companies. Chapter 4 introduces research methods that were used in this study. In chapter 5, sales invoicing as a process is described and base for its use is argued. In addition, the results from case studies are presented in this chapter. Chapter 6 then discusses about the results of these case studies regarding to the inertia and the TOE frameworks capability to explain adoption with SMEs. Chapter 7 summarizes the results of this study and discusses its limitations

1.1. Small and Medium Enterprises

Small and medium enterprises (SMEs) or small and medium businesses (SMBs) are defined as companies that have under 250 employees and have either annual turnover of equal or less than 50 million euros or annual balance sheet total equal or less than 43 million euros (EU 2005). Definitions vary, depending on the sources used. For this study, the case company needs to meet

at least one of the previous qualifications in order for it to be qualified as SME. SMEs are sub categorized in medium, small and micro companies. In this study, all the interviewed companies fell inside the limit of SME definition. No further categorization to medium, small or micro companies is made, because it is not relevant for this study. Reason for focusing on SMEs is that, according to the European Commission's "*The New SME Definition*", SMEs represent 99% of the companies in the European Union. Many existing decision making and inertia theories focus on larger organizations, which only cover small portion of companies in real life. This study will contribute to this field from smaller companies' perspective and compare the usability of these theories for all sized firms.

SMEs have unique characteristics compared to larger enterprises. They are usually privately owned, have geographical restrictions, their organizational structure is flat and small, and they have limited number of business units or departments (The Open Group 2012). Still their goal is the same as larger enterprises have, which is to create shareholder value and profits. Obviously, SMEs must do this with less resources and work force compared to larger enterprises. On the other hand, decision making can be faster in SME organizations, due to the less bureaucratic processes and larger decision making power possessed by fewer individuals. Possibility of faster decision making does not necessary mean that it occurs in practice. Many of the managers in SMEs have large variety of responsibilities, which means less expertise and specialization for certain tasks. This study focuses on decision making aspect of small and medium enterprises, and especially decision making concerning new technology adoption. According to theories discussed further, decision making is also affected by organizational factors, one of them being the size of the organization. This study aims not for finding the lower or higher technology adoption rate for organizations but rather finding the sources for non-adoption decisions. As it will be explained in later discussions, based on previous studies, SMEs possess characteristics that should lead to increased adoption rates compared to large companies. Example of this kind of "driver" factors is the lack of bureaucracy in the organization. However, SMEs also have limiting factors. Example of the "barrier" factor is lack of resources. Both of these factors come from comparing larger enterprises characteristics to smaller ones, based on adoption factors of the first. The reasoning often follows pattern that starts with larger organizations factors. For example, if bureaucracy

works as a barrier for adoption and smaller companies face less bureaucracy, then their adoption rate should be higher. This might occasionally be the case but very few studies account the fact that SMEs might have unique barriers that do not exist in larger organizations and thus are almost never identified. One of these factors can be a decision maker's inertia.

2. INERTIA AND DECISION MAKING IN SMES

2.1. Inertia

Isaac Newton defined inertia in physics as “The *vis insita*, or innate force of matter, is a power of resisting by which everybody, as much as in it lies, endeavours to preserve its present state, whether it be of rest or of moving uniformly forward in a straight line (Wikipedia 2014)”. Inertia that explains human or organizational behavior is a generic term from physics so it is not clearly defined in organizational context. However, inertia or resistance for change does occur in some organizations, and when it does, its effect on decisions making is definite. However, inertia itself is a wide term used for describing the resistance for change in various levels and contexts. Lack of inertia definition in business organizations makes it hard to be measured. This study will try to observe inertias existence in SMEs and evaluate if it affects their adoption decision making. TOE frameworks factors that are discussed on next chapter, are mostly objective realities and smaller firms often make decisions based on subjective individual human behavior (Hannan and Freeman 1984). In this study, inertia is used as a term for explaining this non-adoption event, arriving from the firms' managers attitudes towards change. Kuan and Chau (2001) studied over 500 small companies and found that the resources and environmental pressure was perceived differently between the adopters and non-adopters. This is one of the reasons why inertia is studied from decision maker's perspective. As explained later, SMEs small organizational size creates decision making processes that are close to individuals' decision making. Thus, the individual has more influence over firm's actions. If this individual does not possess capabilities for change or is unwilling to do so, change will not occur. This is different from larger organizations, where bureaucratic problems are often seen as sources for inertia. (Miller 2012).

Previous studies have focused on inertia that emerges from structures and industry characteristics. Structural or organizational inertia can be defined, as “the tendency of a mature organization to continue on its current trajectory” (Create Advantage 2005). Closely used term with organizational inertia is “routine rigidity”-inertia. Routine rigidity is described as “which captures the cultural and political aspect of the firm” and “routine rigidity results when organizational routines become self-enforcing, nonadoptable, tightly embedded in the environment, and, therefore, difficult to change” (Bala and Venkatesh 2007). Inertia might also be caused by external factors and is then called as “industrial inertia”. This study focuses only on decision maker’s inertia that is not a previously used term. However, it was necessary to create this term in order to describe inertia in SMEs because their organization size is limited.

Inertia is a commonly seen as a negative term because it sometimes prevents companies from acting according to their best interest. Opposite of the inertia, is extensive risk taking, but it is not in scope of this study. Miller (2012) has discussed the basic reasons for why inertia is so destructive. Miller describes the most basic dilemma, “The enemy of the most large companies is “the way it’s always been.” Companies that are held back by inertia are destined to have their lunch eaten by faster, hungrier, competitors.” Miller mentioned specifically large companies, but according to the TOE framework, large companies are more willing to adopt innovations. It might then be that the smaller companies are even more affected by the inertia. When discussing about decisions maker’s inertia, Miller describes it as follows: “but many times, a leader's inability to execute is due to paralyzing inertia that runs deep throughout the fabric of an entire company. The lack of ability to change fast, turn on a dime and react to market demands prevents them from delivering the right thing fast enough.” Miller talks about reacting, which is not even the proactive approach. Proactive company would try to predict market and change before others for staying ahead of competition. Proactive companies are extremely rare, and so are fast reacting companies as well. Miller also states that the leadership’s incapability stems from the fundamentals of the company or as he describes it as “fabric”. This attitude or leadership style prevents the whole organizations from seeing changes as opportunities. Tornatzky and Fleischer (1990) describe this problem as incapability to communicate firm’s strategy and set clear goals. Without goals and strategy as a roadmap, the employees and leadership are not sure where they are heading, leading to static state

that will most likely eventually harm the company. However, inertia is more than incapability to communicate the decided actions or set clear goals. It is about attitude that irrationally and strongly favors certain decisions over others, which in this case is non-adoptive decisions over adoptive.

Inertia can also occur as incapability to make decision for adopting new processes to the organization. The top management and other managers possess the official decision making power over the firm's processes. Inertia, if existent, then must come from these individuals decisions that often favor non-adoptive solutions. Favoring non-adoptive decisions can be conscious or unconscious. United Kingdom's Post Offices research on small business inertia revealed that small businesses waste on average 550£ annually due to the inertia. The total cost in the UK's SMEs was then estimated to be around 2.64 billion pounds in the 2013. These costs mainly come from not comparing the different service providers before purchasing decisions. According to the report, "less than 1% shop around for car breakdown cover (0.4%) or mobile phone providers (0.6 %); only 1.8% checked competitive costs when purchasing foreign currency; just 9% of SMEs researched the market for office insurance." These numbers only include direct costs that come from maintaining old habits, but do not include the costs that arise from incapability to adopt innovations. These costs might actually be seriously higher. Arriving for example from losing the competitive edge, failing to maintain existing customer base and inability to provide high quality services. One might consider that this stems from just lack of effort to compare alternatives. However, decision to act often stems from overly high perception towards effort that is required with change. This phenomenon is further described in chapter 2.3.

Obviously, most of the firms that have been in the business for a long time have adopted new processes. It is unlikely that the firm is able to function exactly some way for decades when environment around it develops constantly. Many of these innovations have made the employees' jobs easier and firms more effective. Still many SMEs fail to see innovations and new processes as opportunities, but rather as threats. Inertia as a term is used in this study because it covers wide spectrum of reasons for inaction. It can occur as irrationality of decisions making, unwillingness to change or resistance towards new. Inertia is often studied with larger organizations, but it might be even bigger influencer with smaller ones. Hannan and Freeman (1984) make the following statement, "However, some organizations are little more than extensions of the wills of dominant

coalitions or individuals; they have no lives of their own. Such organizations may change strategy and structure in response to environmental changes almost as quickly as the individuals who control them. Change in populations of such organizations may operate as much by transformation as selection. Except in exceptional cases, only relatively small organizations fit this description.” Hannan and Freeman focus on structural inertia in organizations believing that the larger organization face more bureaucracy, which lowers the adoption rate. As discussed previously, inertia in business organizations can be looked from various angles. However, inertia in this study is studied from decision maker’s perceptions. Decisions that are made in SMEs do not in most cases include many parties or departments, but rather one or few individuals make those. Thus, it is unlikely that the inertia in these organizations would emerge from structure, because the organizational structure itself is often very simple in these organizations. It is of course possible that certain type of structure increases inertia’s existence even in smaller firms, but this study focuses purely on decision maker angle. Origin for decision maker’s inertia comes from various sources and because the term is new, previous researches do not exist. Thus, the attempt for breaking down the inertias sources is based on logical deduction and previous readings about adoption with SMEs. These sources are presented in the figure 1.

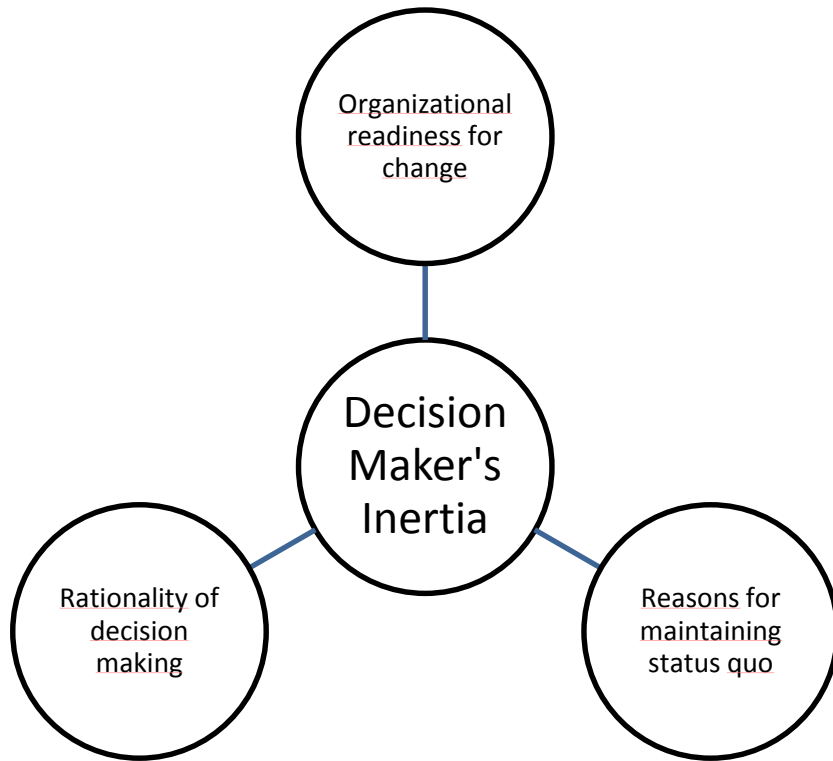


Figure 1: Sources for Decision Maker’s Inertia

These sources are discussed further in the next five chapters. Organizational readiness for change refers to organization’s ability or capability to accept adoptions. Rationality of decision making, or in most cases irrationality includes decisions that are affected by factors that do not highly influence the outcome. Reasons for maintaining status quo includes individual’s skewed perceptions towards change, often in form of overly high-perceived barriers. These three influencers are defined as sources because inertia can have multiple sources but it only requires one. If a strong will for maintaining status quo exists then it can be concluded that firm is affected by inertia, because it “resists” change even when it would be beneficial. Next, decision making in general in business organizations is discussed.

2.2. Decision Making in Business Organization

Decision making has been widely studied subject in the academic field. Making decisions is a requisite in all levels of organization from top to bottom, and horizontally within these levels. This study focuses on decision making that has high organizational influence and this often means decision making at a managerial level. Managerial level decisions are expected to have higher influence in the organization, and will most likely have wider positive or negative impact for the success of the company, compared to lower levels. Decision making by deciding not to act or maintain status quo needs to be also considered. Rationally, absence of action has to be the most common decision in business manager's position. Business manager who possesses the power over decisions would have almost infinite number of options to be considered. He or she can decide to purchase new products, change working hours, assign tasks, reorganize departments and so on. Obviously approving constant changes would make running the actual business impossible, so in most cases, doing nothing is the only viable option. However, maintaining status quo must have its costs as well. For the last decade, technology has improved by impressive rate. Especially information technology has changed and now offers businesses faster and more mobile solutions than ten years ago. Smart phones and tablets for example, are part of people's daily communication in business organizations and in individual consumers' lives. Technology development is one of the fastest evolving fields that can provide businesses potential to growth. Technology development is an example of the environmental factors affecting business organizations. Business organizations need to be able to respond and act for these changes in environment effectively (Fang et al 2004). Incapability to effectively respond for these external changes is an example of inertia in organizations. In this example of technology, new solutions can support companies existing functions. Non-adoptive decisions in this example will eventually lead to expired processes and functions as simply much better options will be available. As new technology gets more effective, cheaper and widely available, non-adoptive decision requires more and more resistance over change. At some point, this resistance can be considered irrational and possibly harmful for the company. In this case, inertia is arguably found and it is influencing decisions making. Inertia might not be this clear in real life, but this example shows how its existence can be defined.

In SMEs, the decision maker often has very high influencing power over the whole organization compared to larger ones. The owner or CEO of small business can decide to do almost what ever he or she wants as he or she is not responsible for anyone. In bigger companies, more stakeholders, boards and policies slow down highly influential decisions. Thus, in theory SMEs have potential to make faster decisions and adopt things faster than larger companies. A CEO of a small firm can make a decision that will influence the total organization almost immediately without anyone evaluating it before or after. In theory, SMEs should be more ready for change because the total decision making process for accepting adoption is faster and simpler. This is conclusion is rational because more complicated and time consuming decision making process when accepting adoption should lower the adoption rates. Non-adoptive decision making process remains almost constant because not accepting something often does not require external acceptance. However, because this process is simpler and involves fewer stakeholders, the pressure of change is also absent. Thus, the change in SMEs is highly dependent on individual decision maker's attitude towards change. In reality, this might be one underlining reasons for inertia in SMEs. If the individual decision maker is not motivated to implement change, it is unlikely that it will ever occur without strong external pressure. Thus, the inertia in SMEs mostly comes from this individual's perceptions and attitudes towards change.

2.3. Rational Decision Making

Rational decision making is discussed in this study because it provides the relative comparison point for identifying irrational decisions. Inertia causes non-adoption even that it would be profitable or otherwise beneficial for the company. A firm may become incapable for seeing the advantages or decide to deny their existence, because of this inertia. Rational decision making does not mean computer-like thinking. Rational thinking refers to making decisions that are most beneficial for the firm. There are infinite number of variables that can be considered with every decision, so decisions are always somewhat subjective. For example, let us imagine that new technology exists that can significantly lower costs and increase profits with little downside. The organization also possesses required employee skills and other resources for the adoption and implementation. In this example, it seems logical that the adoption is the best option. Let us also

imagine that other firms in the industry have already made the adoption. With no other known negative factors, clearly the decision to adopt would be the rational one. If the firm decides not to adopt with this information, it can be argued that some kind of inertia exists in an organization that prevents it from making the adoption decision. This is a clear example on rational decision making, but as a concept, it is controversial. One can always argue against the rationality of decisions, no matter how clear it seems to everyone else. There is always a “reason” or an argument why to do or not to do something. Inertia in decision maker’s level can thus be looked as utility function, which weights vary largely from individuals or groups mean values. According to the utility theory, individuals look at decisions based on the function of their values (Fishburn 1968). These values or weights in the function then lead to the different decisions by different individuals in same situations. Because all the individuals have their own values in the function, decisions are always rational from individual’s perspective. For example, given 20% annual return on stock with probability of 90% and loss of 40% with probability of 10%. An expected return for every 1€ invested is then 1,14€ ($0,9 \cdot 1,2 + 0,1 \cdot 0,6$). Even that the expected outcome on the investment is clearly positive, highly risk-averse individual will decide not to invest. This does not make his or hers decision irrational because it goes along with individuals utility function. In reality, with most of decisions exact probabilities of outcome are unknown, so the argument for positive expected value would be subjective. Irrationality can then be looked as one or more variables in individual’s utility function having overly strong or weak weights. The expectation is that people are more risk averse then risk seeking. This is because it can be easily detected that not every business organization is constantly researching new alternatives or updating their processes. Just by walking in to some companies’ offices, it is clear that some things have not been improved for decades. Finland is one of the most technologically advanced countries in the world but over 30% of the companies made their tax returns by hand and returned them by mail in 2014 (Verohallinto 2014). Filling the tax form by hand and returning it by mail is slower, it makes errors more probably, and it is possibly lost in mail. All of these events have costs. Slower process cost employees time, errors cost money and tax return coming late because original was lost in mail also have financial drawbacks. The whole process stresses environment and created more work for the tax office compared to the electronic form. All most every company has an internet connection or access to one. The only benefit for using the handwritten tax return form is then the effort and time that is

saved from not learning to fill and send electronic tax forms. The electronic form is identical to the paper form, so the learning process should be very simple and would not most likely even cause more time even the first time. Individuals, who decide to keep producing tax returns by hand rather than by mail, can represent the type of individuals who cause inertia in business organizations. In an example case with tax returns, the benefits are clearly superior to the costs, but the individual's own utility function perceives the cost of learning too high when compared to the benefits. This might be rational for the individual as stated by the Fishburn, but the decision is irrational from the business organizations perspective. The tax return form as an example might not be significant when comparing firm's processes, but it describes the attitude that prevents the organizations to change when necessary, and especially on the cases when the change is a possibility, but not a necessity.

In this study, the rationality will be analyzed by observing interview respondents arguments for the decisions they have made. Organizational decision making is largely studied subject, and there are many theories and models that help decisions makers solve problems mathematically. In addition, technology and software that supports management's decision making is easily available. Still, even with larger organizations, decision making is not even remotely a rational process. Rational decision making is not often reality. According to Herbert (1979), "What then is the present status of the classical theory of the firm? There can no longer be any doubt that the micro assumptions of perfect rationality- are contrary of the fact. It is not a question of approximation; they do not even remotely describe the processes that human beings use for making decisions in complex situations." Herbert's article was written in 1979 and technology has advanced massively since then. One might question the need for rational decision making in a first place. However, rational decision making is a desirable outcome because it aims for finding the most beneficial solution for the firm. Hannan and Freeman (1984) also found that, "We have argued that the selection pressures in modern societies favor organizations that can reliably produce collective action and can account rationally for their activities." By term "selection" they refer to evolutionary survival, in this case in the field of business. Thus, the rational decision making should be a target for all the firms, regarding their industry.

2.4. Irrationality in Decision Making

Irrationality is not always an opposite decision to the rational one. If the rational solution can be clearly defined, then all other decisions are somewhat irrational ones. However, adoption decision making is a duplex dilemma, either adopt or not adopt. This set up significantly decreases the complexity of the situation. Decision making most often includes a human variable that is also subject to human error. Tversky and Kahneman (1986), conclude that the decisions are highly affected by the question framing and context. Two problems with equal expected value will often have different responses by same decision makers, proofing the total human decision making process irrational and inconsistent from mathematical perspective. Tversky and Kahneman also argued that the rationality can be learned but the learning rarely occurs; “Effective learning takes place only under certain conditions: it requires accurate and immediate feedback about the relation between the situational conditions and the appropriate response. The necessary feedback is often lacking for the decisions made by managers, entrepreneurs, and politicians because (i) outcomes are commonly delayed and not easily attributable to a particular action; (ii) variability in the environment degrades the reliability of the feedback, especially where outcomes of low probability are involved; (iii) there is often no information about what the outcome would have been if another decision had been taken; and (iv) most important decisions are unique and therefore provide little opportunity for learning.” In SMEs, the managers often have more responsibilities compared to the larger organizations because almost same business processes from the sales to accounting has to be handled in smaller scale, but also with much fewer employees. Satisfying all these learning conditions in SMEs does not seem realistic, so it is safe to assume that some degree of irrationality will occur in these organizations. Challenges in rational decision making and high probability of irrational decision making are now covered. These will act as factors with decision maker’s inertia but do not comprehensively explain it. In some cases, decision maker can make more decisions than is desirable. This would be an opposite phenomenon to inertia. Thus, the other factors must come from actions or situations that only directly encourage or force non-adoptive decisions. These direct influencers are organizations incapability to change and high motivation to maintain status quo.

2.5. Organizational Readiness for Change

So far, decision making and its rationality has been discussed. Managers do have the administrative power to influence many aspects of the organization. However, in some cases, the decision to adopt new processes or change might have been made harder beforehand, by past decisions. Because decision makers' decisions often affect organizations future, some decisions might lower its readiness for change. These decisions might have weakened the communication procedures or caused employees to be less motivated for change. The decision makers in the organization can for example decide to adopt new processes, but if the technical, skill and motivational resources do not exist, significant barriers for adoption exist. Technical and skill resources are already included in the TOE framework and are somewhat objective, so organizational readiness for change is analyzed from motivation factors perspective. Organizational motivational readiness refers to motivation of every individual in the organization. Even if decision makers do decide to adopt new technology, the process will only be effective if the decision is accepted by other levels of organization as well. If it is not accepted, implementation process can become much harder because unexpected challenges often occur in real life. Overcoming these unexpected challenges requires additional effort, which requires motivation. If not all levels or participants in the organization accept the decision, it is unlikely that this required additional motivation is found. Even that the decision maker does possess the official decision making power over other individuals in the organization and these individuals are "required" to act according to these orders, it might not be enough in reality. Decision maker cannot order motivation. Motivation is often seen as a needed driver for action. It can equally possibly drive person to resist change but maintaining status quo, it is not required. Change almost always requires action and therefore it requires motivation. Motivation is required as there must be underlining reasons for person to act. Motivation is the energy that drives us to act in specific manner (Gilley et al. 2009). One obvious motivation source for employees is of course salary and benefits that come from working for the company. Their employment agreement forces them to act according to the manager's orders, and most of the employees will most likely to do so. Therefore, the question is not if the employees will have the motivation to act, but how strong is the motivation. Previous researches indicate that money is not very strong motivating factor (Reilly 2003). It drives people to do what is required,

but not much more. Thus, other motivating factors are needed for organization to possess capability to adopt and implement. This was also seen in Gilley et al.'s study (2009) on organizational change," our results indicate the importance of approaching change from a person-centered perspective—that organizational leaders who address issues of motivation and communications are more likely to successfully implement change." Thus, organization cannot possess readiness for change if its individuals are not motivated for it. Lack of motivation can also come from decision makers inability to communicate and see the situation from others perspective, causing resistance towards change in organizations (Ford et al. 2008)

Organization readiness for change in a summary refers to organization's capabilities and motivation to adopt new things (Bryan 2009). Organizational change occurs when the members of the organization are motivated by one of the three factors; change is necessary (no choice), when the change is needed (feel obliged) or because they want the change (change is valued) (Bryan 2009). This study focuses on mostly on the last motivational factor "valuing the change" because almost all organizations will change when there is a very strong motivation or force requiring it to do so. Example of this strongly motivating adoption case is presented in chapter 3.4.1 with disruptive innovation. Another example is the new law that requires the company to make changes for its current practices. In practice, this situation only gives two options for the firm: either issue change or discontinue business activities. In these cases, motivation to change is often extremely strong. Sometimes the pressure to change might be less ultimate, but if the utility of one option over another is explicit, then the whole decision making process also becomes explicit. This kind of situation might occur when company's car leases expire, but cars are still required. It makes very much sense to renew the lease or purchase cars, rather than give up the benefits of using a car. The only real dilemma occurs when the possible costs and possible benefits of the option are relatively close. When benefits are only slightly superior to costs, organizations that value the change will most likely make the decision to adopt. In the same case, even if the benefits are remotely superior to costs, organizations that are less willing to change, will most likely decide not to. This happens because their perceived benefits are less than actual benefits and perceived costs higher than actual costs. Change always requires effort, so there must be a fundamental attitude in the organization that values change. Seeing innovations with technology as

opportunities rather than as threats requires special mindset. Appreciating change does not mean taking continuously unnecessary risks (Bryan 2009). Firm that is willing to change, can also evaluate these options rationally and make the decision that is best to the firm based on the available information. Often firms that are unwilling to change from fundamental stand point; will irrationally decline opportunity to change even when the derived value is clearly detectable. Reasons for this come from overly valuing a status quo.

2.6. Reasons for Maintaining Status Quo

Maintaining status quo in a relatively successful organization seems to be a natural thing. “If it is not broken, don’t fix it” – mentality is common approach for many things in live. In business organizations, this kind of thinking might be a path to failure. However, some level of success is required for maintaining this state because unprofitable organization will not survive infinitely without changes. Most organizations need to make changes throughout their business life. Organizations can experience pressure to change from outside (external) or inside (internal) the organizations. Regulations, competitors, partners or customers, as described in TOE framework can cause external pressure. Internal organizational pressure can be caused by the employees’ dissatisfaction or by growing business activities. Sometimes, when the organization experiences pressure to change, it is already too late to act. Organization that only changes when pressured, is taking reactive approach instead of proactive one. Problem with the reactive approach is that it can rarely lead to improvements before competition. Demand or pressure only occurs when there is an external or an internal driver that pushes it. The external pressures can occur same time for all of the companies in the industry. Example of this phenomenon can be a new government regulation that forces companies to adopt new processes. Internal driver only occurs when someone inside the organization causes this pressure. This requires effort and willingness from one or multiple employees to carry the possibly need or appeal to decision makers. Disadvantages of acting only based on internal pressure is that it highly depends on random organizational factors and on speed of the total communication chain. Organizations that are not ready to change and do not encourage communication for improvements, are likely to receive information about problems in a late stage. In some cases, the problem might be detected only when it has become truly significant.

Willingness to change without external or internal pressure is a proactive approach called “resilience” by Välikangas (2010). Resilient organization is the opposite for the organization that follows “if it is not broken, don’t fix it” – mentality. A resilient organization is willing and capable of making changes prior they are identified clearly as opportunities or as threats. There are many reasons for organizations to maintain status quo state. One of the reasons that is described by Välikangas is the past success. Achieved success, no matter how and why, gives the management a reason to follow the same models that may or may not have worked in the past. Välikangas describes this situation, “Rationalizing issues away, mistaking luck for smarts in explanations of success, and having difficulty of admitting that the current strategies may be decaying were some of the perceived impediments related to dominant mental models.” Välikangas also suggests that the resilient attitude can be learned but in reality, it rarely is. The overconfidence combined with the complacent attitude is describes as one of the usual barriers, “Overconfidence in business as usual is one of the adoptive barriers that is constantly rehearsed within the core business of the company. The counter-part barrier is then the lack of experience in the exploration of novel areas, crowded out by business routines. The routine business feels easy and confident; exploring anything new seems difficult and intimidating.” Thus, the change is often perceived harder than it actually is. These perceptions work as barriers, leading companies to value their current processes over new opportunities. It makes organizations resistance for change and cause irrational decisions because of overly high-perceived effort towards change. It makes them value their current state and to react for external and internal forces only when necessary. The term “inertia” describes this phenomenon perfectly.

3. TECHNOLOGY-ORGANIZATION-ENVIRONMENT FRAMEWORK

3.1. Theoretical Background

Tornatzky and Fleischer first introduced Technology-Organization-Environment (TOE) framework in 1990. The framework explains technological innovation decision making in large firms, which practically means adoption decisions. Because TOE-framework includes all of the

influencing factors regarding adoption, it is supposed to also include factors that work as barriers for adoption. Thus, if this model is applicable to SMEs, it should include factors that prevent adoption in SMEs. Furthermore, then these factors should act as inertia's sources in SMEs with adoption decisions. This theory was chosen to be used in this study for the following reasons; it has been used in other studies after its publication, it uses observable factors and it is focused on technology. The framework has been used in further studies (Zhu et al 2004) and (Thong 1999), which supports its acceptance and significance in the academic field. TOE frameworks factors are clearly identifiable and can be observed in any environment. This study's results and the theory must be comparable, so factors observability is important. The focus on technology is important because this study's example process is technological.

According to the TOE framework, a firm's adoption decision making on new innovative technology is affected by three contextual factors. These factors are environment, organization and technology (Tornatzky and Fleischer 1990). Environment context includes industry characteristics, competitors, macroeconomic environment and regulatory factors. Organization context includes formal and informal linking structures, communication processes, size and slack. Technology context focuses on availability and characteristics. These main factors and their content can be seen in figure 2. These main factors content is divided into many sub factors that are discussed in detail further in this chapter.

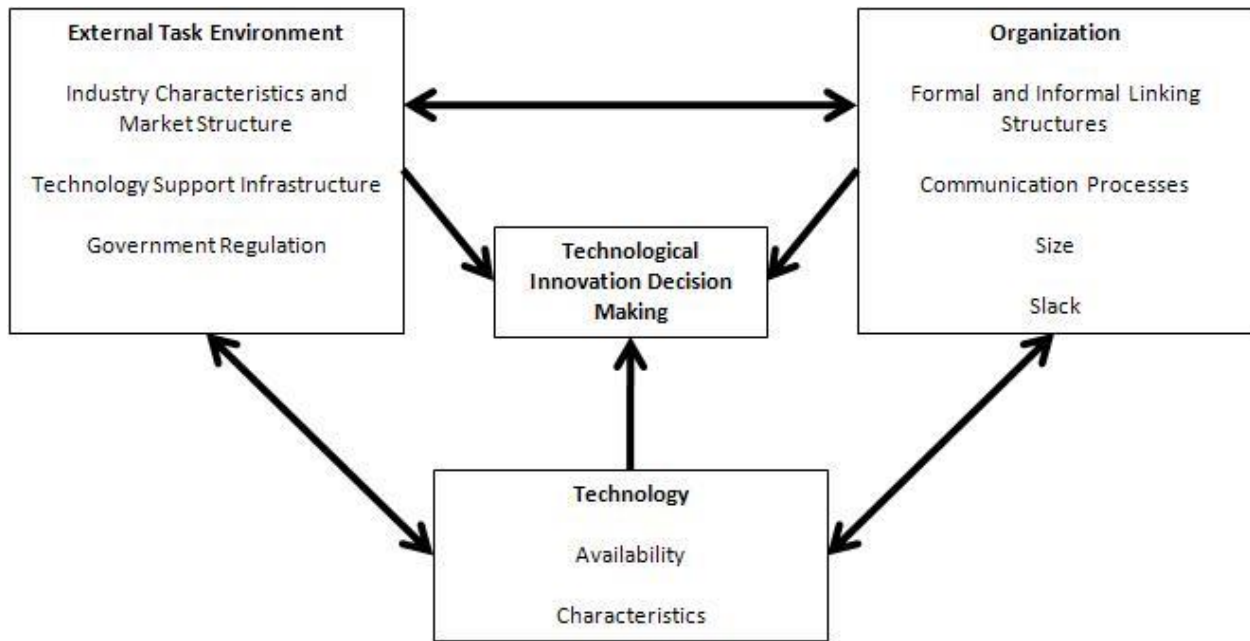


Figure 2: TOE Framework (Tornatzky and Fleischer 1990)

Tornatzky and Fleischer mainly focus on how the context affects technological innovation decision making processes, but they also found out that all the firms can and will adopt innovations. There are no situations nor industries where innovation adoption is not possible nor situation where all of the firms are unwilling to adopt innovation. Tornatzky and Fleischer state that, “For example, while some internal organizations designs can make it easier to innovate, all organizations can (and do) adopt and implement new technologies. Equally, while some industries and some locations are more competitive, or contain more new technology choices, firms in the least competitive industries (government, education), and those with relatively few new technologies from which to choose, also innovate.” Thus, firms do innovate, but do so depending on the multiple factors that are included in TOE framework. Some factors have stronger effect on innovation than others, but their strength on innovation adoption rate is not evaluated. In some cases, it is even uncertain if the influence is positive or negative. This is not a problem because the model focuses on identifying the factors that have some kind of effect on adoption probability. The detailed subcategories for each “boxes” content is show in figure 3.

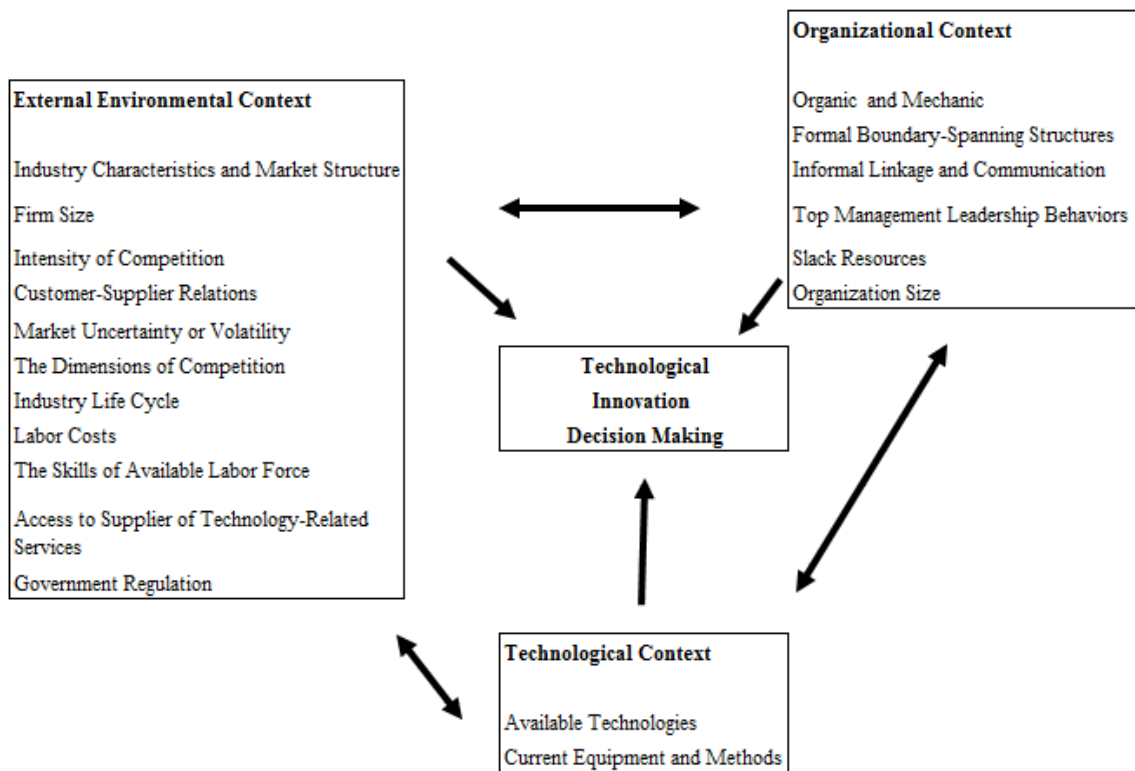


Figure 3: TOE-Framework with Subcategories

Tornatzky and Fleischer use 19 subcategories to explain this phenomenon. These subcategories work either as drivers, barriers or both for the technological innovation decision making process. Explanation of each category is covered in the following sections. The explanation of these subsections is necessary so that the observations of this study can be compared to original factors and possible new factors can be identified.

3.2. Environmental Context

The environmental context explains firm-independent factors that influence firm's adoption probabilities in that particular market. This includes industry characteristics and market structure, and also government's regulatory actions that influence and mold these existing characteristics. Technology support infrastructure has a direct impact on firm's readiness to adopt technology in a certain industries. Some very large firms that have major market share in a certain industry can

influence and even prevent these external forces. However, this occurs rarely and is hard or impossible to measure. Because these cases are very rare or nonexistent with SMEs, this study focuses on environmental factors as purely external forces that cannot be changed or affected by the firm's decision making process. When external changes or pressure occurs, the firm is forced to react. This reaction might have to come in form of decision making regarding for example, whether to adopt new technology. Environmental context is not purely objective factor even that all the factors can mostly be measured and compared between different environments. Still, every potential adopter might perceive the environmental pressure differently. Thus, according to Kuan and Chau (2001), the environmental pressure is a subjective measurement. Their study adoption included 575 small companies and resulted to following statement, "Surprisingly, those small firms that adopted EDI (electronic data interchange) in our study perceived significantly lower pressure from the industry that non-adopter firms did, as opposed to what most past literature suggested." According to their results, small firms are highly affected by their individual employees' perceptions. It does not matter if the perception is skewed to too high or too low, the fact that decisions are based on perceptions allows decision makers inertia possibility to exist. If decisions would be only made based on existing numbers or facts, inertias existence would be less likely. Next, the original TOE frameworks environmental factors are listed and analyzed.

3.2.1. Industry Characteristics and Market Structure

Tornatzky and Fleischer divide this section into six subsections that explain an industry's characteristics and structure. These sub sections are *firm size*, *intensity of competition*, *customer-supplier relations*, *market uncertainty or volatility*, *the dimensions of competition* and *industry life cycle*.

Firm Size

Firm size is self-expiatory factor referring to the company's size based on either number of employees, output, or sales. Tornatzky and Fleischer do not set predefined classes for firm sizes, nor define small or large companies. This is not a problem as the firm size is relatively easily measurable factor and, there are example limits for SMEs, which clearly distinguish these companies from larger enterprises. Often large companies have revenues in billions of euros and

thousands of employees and will not be mistaken to SME. According to Tornatzky and Fleischer, six former studies have found that larger firms tend to be earlier adopters and use more technologies than smaller ones. This occurs because larger companies usually have much more resources and expertise in hand, compared to SMEs. They argue that large companies are more likely to adopt new technology but also state that, “whether measured in number of employees, output, or sales, all six studies cited above found that larger firms tended to be earlier adopters and to use more types of technology. As noted earlier, the interpretation of this is not straightforward.” Tornatzky and Fleischer did not further touch the subject of firm’s size and why it affects technological adoption decision making. PayStream Advisor’s (2013) survey on e-invoicing supports this fact. Their research showed that e-invoicing was largely adopted by larger companies before it was accepted by smaller ones. However, like discussed in previously, in theory, smaller companies have potential for much faster decisions because they experience little or no bureaucracy with decision making.

Intensity of Competition

Tornatzky and Fleischer measure industry’s intensity of competition by the output of its four largest firms. Lower the output compared to the total market’s output, higher the level of competition. This means that there are more firms sharing the more significant proportions of the pie. According to the Tornatzky and Fleischer, previous studies had resulted in controversial results. It is still unclear whether the competition increases the adoption rates, or decreases those. However, even that the direction of effect is unclear, According to Tornatzky and Fleischer, intensity of the competition is clearly correlated with adoption rates.

Customer-Supplier Relations

Previous studies indicated that closer customer-supplier relations and clear expectations from customers resulted in higher innovative action (Tornatzky and Fleischer 1990). Close communication with customers gives a supplier better knowledge of their needs and makes them more likely to adopt new technology. This is expected at least with the suppliers whose revenue is highly dependent on one or few large customers. If supplier has one large customer who produces most of the revenue, it is certainly in its interest to act according to customer demands in order to

protect the revenue stream. This situation might especially occur with technological innovations that could work as inter-organizational information systems. These systems allow communication and information flow with one system between two companies and in some cases can be very efficient tools. If customer feels that this kind of system is needed, the supplier might be inclined to act according to these wishes.

Market Uncertainty or Volatility

Market uncertainty or volatility refers to certain industries correlations with market cycles or changes within these cycles (Tornatzky and Fleischer 1990). Volatile markets are unpredictable and it is hard to maintain same business processes for a long time. According to the Tornatzky and Fleischer, the directional impact of volatility is unclear. This is because it would be equally rational to use innovations to stay on the top of the market and prepare to these volatility events, but also to avoid any risks in the market were many firms tend to fail. The decision to invest or not to invest in innovations in volatile markets, both have rational background. It will most likely depend on organizations strategy on which decision is carried out. More aggressive strategy followers will most likely see the innovations as a way to stay on the top of the market and survival method for economical down cycles. Organizations that are more conservative are likely to avoid adopting new innovations and focus more on managing the existing business operations and avoiding excess expenditures that carry risks.

The Dimensions of Competition

The dimensions of competition most certainly has an impact on type of innovations companies seek, but may not affect the overall adoption rates. Some firms are in an industry where the price is the main determinant on consumers purchasing decision. In these industries, firms are likely to invest in innovations that have potential to lower their operating expenses, so the firm can offer products with lower prices or increase margins. (Tornatzky and Fleischer 1990). In the industries, where the overall customer service is equally important with the price, firms may seek innovations that will improve customer's experiences even with increased costs. It is hard to determine if either of these industry types will lead to more adoptive environments for the operating firms, but still the innovation types are most likely very different.

Industry Life Cycle

According to the Tornatzky and Fleischer, the industry life cycle will affect to the willingness to adopt innovations. This occurs especially in growing industries where firms are extending their businesses. They are then required to adopt new processes, create new departments and expand manufacturing lines. This gives firms an option to invest in innovations for covering new operations but without abandoning current ones. This is rarely the case with more matured firms and industries. In addition, growing businesses are potentially required to make changes when their current processes are not scalable with their expansion. This makes adoption of new technology more likely or almost necessary in order for firm to complete the growth stage.

3.2.2. Technology Support Infrastructure

Implementing new technology is often not a simple nor a fast process. Organizational readiness regarding technology level is discussed later, but there are also environmental factors that affect firm's capability to adopt technological innovations. Tornatzky and Fleischer divided these factors into three parts which are, *labors costs, the skills of available labor* and *access to suppliers of technology-related services*.

Labors Costs

The correlation with high wages and technological innovation is expected because higher wages pushes firm to adopt innovations that can replace part of the labor. This happens because when labor costs rise, the next best option becomes more attractive. The next best option in this case would be for example, new machinery that is more efficient and requires less workers to be ran. This of course then reduces the costs of this "expensive" labor. This rarely works other way ,because machines capacities often significantly exceeds human labors capacity. That is why loosing machinery and replacing this work by employees is unlikely.

The Skills of Available Labor Force

The skill level of available labor force is a factor that affects the firm's willingness to adopt new technology. This is especially true for innovations requiring specific knowledge about certain processes. For example, manufacturing company which is about to install new expensive machinery must consider a fact that there might not be enough skilled employees that can operate its machinery. If skilled employees do not exist, then the firm must train its current employees for this task. This created additional costs and extends the total implementation project's time span. This factor is highly dependent on innovation type because some of the new innovations will not require new or high skills. That is why this factors effect on decision making varies from to very low to high.

Access to Suppliers of Technology-Related Services

Many of a firm's innovation adoptions require external help. Better access to technology related services, lead better changes for smooth implementation process. This has at least a minor effect on probability for accepting innovation. Technology related services refer to, IT experts, IT-consultants and technology training services. These are available for the most geographical regions, but the prices might be higher and access lower for non-metropolitan areas (Tornatzky and Fleischer 1990). Access to suppliers of technology-related services is then highly correlated to the geographical location of the firm. Firms in better location have better access to these services and are more willing to implement technology related innovations.

3.2.3. Government Regulation

Government's regulatory actions can have positive or negative effect on innovations. Sometimes government can issue new laws that forces companies in certain industries to adopt innovations and/or change their current processes. Example offered by the Tornatzky and Fleischer, is the pollution control equipment. If manufacturing companies or factories face new limits to their pollution control, they are forced to implement new technology that will lower total pollution. Another example can be a requirement for electronic tax reports issued by the government. This forces companies to adopt a software that can produce these reports. In cases when innovation is forced by the regulations, the decision making process is straight forward, either implement or

discontinue business. On the other hand, some firms may want to adopt innovations, but there are government regulations that prohibit certain activities and can make these innovations illegal.

New government regulations often change the industry's standards as firms are forced to make changes to their old processes or adopt new ones. Government regulatory actions often lack behind the new business developments, so sometimes firms may need to stop using already adopted innovations as they are stated illegal after they have been in the market for a while. In these cases, firm may have to go back to using its old processes or find better alternatives. Existing regulations also work as an industry boundaries and limits for innovations. For example, some regulations protect individual's privacy and thus sets limits to the targeted marketing. When these regulations are changed, also the boundaries move, which can create and allow new innovations or remove already existing ones. Government regulations will most certainly have impact on decision making with technological innovations especially when new regulations are just published.

3.3. Organizational Context

Organizational context refers to firm's attributes that will affect the innovation implementation probability. Tornatzky and Fleischer divided organizational context into four parts; formal and informal linking structures, communication processes, size and slack. As discussed previously, all industries include firms that adopt innovations. There are strong external factors that will affect the process, but in many cases, firms in similar situations will act differently when facing the same dilemma. This suggests that at the end, the innovation depends heavily on the firm's own characteristics. The decisions are made in the managerial level, so at the end, decisions are made based on firm's managers and leaders perceptions towards the situation. Firms often aim to make the most rational decisions by including many different variables that might affect the outcome. Individuals will still perceive these variables differently, causing different solutions to same problems. For this study, firm's size is not considered as an affecting factor as the case companies' size is predefined.

3.3.1. Organization Structure

Tornatzky and Fleischer divide organization structure into *organic and mechanistic* and to *formal boundary spanning structures* factors. The first factor focuses more on traditional organizational hierarchy and latter to the problem solving strategy within organization's culture.

Organic and Mechanistic

Organic organization is described by Tornatzky and Fleischer at the following way, "In contrast to the mechanistic structure, the organic organization was characterized by frequent lateral communication between individuals and subunits, decentralization of leadership and control, and an overall high degree of networking between people and units." Mechanistic structure then refers to vertical hierarchy where the decision making and communication happens from the top to bottom. Nowadays, more and more firms tend to adopt organic structure and high vertical hierarchy is seen as the old style of leadership (TrustedAdvisor 2013). One of the reasons for increased adoption rates with organic structure might be the freedom and responsibility that is then acquired by the individuals in mid and lower levels. It increases their potential to find and suggest new innovations that might benefit the firm. Tornatzky and Fleischer suggest that the mechanistic structure might be better for the actual innovation implementation process. This happens because the control and communication is clearer. However, they also acknowledge the fact that implementation does not occur without the positive adoption decision which is less likely with mechanic structure.

Formal Boundary-Spanning Structures

A formal boundary-spanning structure guides on how the information from the possible beneficial innovation reaches the adoption decision makers in the firm. This is dictated based on how communication between and within firm's subunits is established. Different strategies for communication may be used in similar organizations. A firm can for example, set up teams, have formal meetings where information are shared between business units, set up problem solving sessions, assign employees to scan the market for new innovations etc. (Tornatzky and Fleischer 1990). Tornatzky and Fleischer did not argue on which structure gives the highest innovation

adoption rate, but they argued that its effect is real because the communication efficiency overall has high influence on adoption probability.

Process Factors

Firm's structural effect on innovation is important as it adds boundaries and routinized paths to firm's processes. Still the firm will have certain amount of freedom to decide on how its internal processes are carried out. These internal processes will effect on various events within the firm, including the innovation adoption. The formal communication structure is closely associated with organizational structure. However, there are certain additional processes that go outside these structural channels. These processes are divided into *informal linkage and communication* and to *top management strategic behavior*.

Informal Linkage and Communication

Informal linkage and communication occurs through individuals roles that are not determined by their job descriptions. Individuals tend to assume certain roles in the organizations, based on many of their internal factors, but also on the environmental factors (Tornatzky and Fleischer 1990). Some employees may become "gatekeepers", passing through some information, but retaining rest. Some employees that have had successful ideas in the past, can now be considered "idea generators", and will have more influence on the decision made in the future. All these roles and communication between these roles will effect on how potential identified innovations reach key decision makers. Measuring the effect of these roles is close to impossible as they are describes dynamic and continuously changing within the organizations. It is still arguable that the informal information flow and unofficial decision making power through attained roles will partly affect every decision inside the organization, including technology adoption.

Top Management Leadership Behaviors

Especially with high impact or expensive technological innovations, the top management is often involved with decision making process. They will also eventually make the actual decisions, so on the long run their leadership style will effect on how many, and what type of innovations are

accepted. The top management leadership will also affect if the new innovation ever reaches the adoption versus non-adoption decision stage. This occurs through firm's defined core values and strategy that is communicated to employees. If the direction and the goal of the firm is clear, the employees are more inclined to search for solutions to the existing problems and also find new opportunities by identifying beneficial innovations. As top management has the authority based on their efforts, wills and skills, they can issue changes or maintain status quo. Their leadership style will effect on the ongoing processes and communications inside the organization, which as previously discussed will affect to the innovation adoption rates.

3.3.2. Size and Slack

Organizations size and slack of resources are two remaining organizational characteristics that according to the Tornatzky and Fleischer have impact on adoption decision making. The effect of organization's size is important as this study focuses on the SMEs. Resource slack gives firms potential and support for decision making regarding adoptions and can thus work as an enabling factor.

Slack Resources

Slack resources refers to firm's capability to adopt innovations. These resources can be for example, financial resources, number of employees and employee skill set (Tornatzky and Fleischer 1990). Resources are needed for taking an action. It is then merely a prerequisite for firm to have these resources in order to adopt technological innovations. The lack or scarcity of these resources will strongly weaken firm's capability to adopt innovations. This seems logical, as the most innovative decisions are not vital for the firm's future existence. A firm without resources would need first find the required resources in order to take make a decision to act, making a decision process much more complicated. A resource can also be a subjective measure. According to Kuan's and Chau's (2001) study on small businesses electronic data interchange (EDI) adoption, adopters and non-adopters saw the resources differently. They argued that, "another reason might be because there firms (non-adopters) perceived the costs of adopting EDI to be too high, even though they actually had the necessary financial resources." Thus, in some cases two firms with

equal resources might decide differently between adoption and non-adoption options, because they perceive their resources also differently.

Organizations Size

Organizations size can be measured in numerous ways. One can measure organizations size by sales, revenues, number of employees or market value. Often however, companies are just divided into small(er) and large companies. No matter what measuring type is used, the previous studies suggest that larger organizations are more likely adopters of innovations (Tornatzky and Fleischer 1990). Reasons for this are not explicit, as contradicting studies (Zhu et al 2004) exist. One of the reasons might still be the fact that large organizations often possess required resources for the adoption. As described before, resources are vital for the adoption to be possible. Another reason might be the higher number of contact points to external environment. These contact points are different departments and employees who interact with customers, suppliers and other sources for potential innovation ideas. This creates more opportunities for the firms to detect innovations that can benefit them. Organizations size is a complex variable, as it is often highly correlated with other factors such as, organizations structure, slack resources and top management decision making.

3.4. Technological Context

Technological context refers to technology that is available for the firm in the market and that is currently used by the firm (Tornatzky and Fleischer 1990). Both of these technological levels will have an impact on firm's capability and motivation to adopt new technology. Technological context does not refer to specific technology, but rather to the level of technology compared to what is currently available at the market.

3.4.1. Available Technologies

Tornatzky and Fleischer argue that available technologies impact on technological adoption depends on the whether it is continuous or disruptive for the industry. According to the Christensen (1997), these are the only two types. Continues innovations add something or improve existing solutions, tools or processes but do not radically change the industry. These types of innovations

are much more frequent than disruptive ones. Continuous innovation can be for example, add-on to existing software, which is then adopted along the industry. Industry is still changed by this innovation but not in “disruptive” way. Disruptive innovations mold and change complete industries. They are often initially less practical and less profitable than current solutions but will eventually offer superior performance. Simple example of disruptive innovation is the mobile phone (Christensen 1997). At the beginning, when mobile phones were introduced to the market, they offered the new feature to the phone, which was of course “portability”, but they were also much more expensive than traditional landline phones. At the beginning, the performance and profitability for the phone companies selling this innovation was less than with current products. However, when the mobile phone manufacturing process got more efficient, prices of mobile phones dropped and now their total features become superior compared to landline phones. The landline phones were now almost fully replaced by mobile phones. Mobile phone offers the perfect example of the new innovation. At the beginning, it is often too expensive for the manufacturer or producer to make a profit, but when the prices come down and/or quality improves enough, it will replace the existing product and change the industry.

Disruptive innovation often represents a great story that is widely known along the industry and sometimes outside the industry. As mentioned before, the most common innovation type still is the continuous innovation that will drive the industry forward but will not change its structure. In addition, the disruptive innovation often does not give firm choices for adoption. Often the disruption is strong enough to make current business model unprofitable, forcing the firm to either adopt or fail. Continuous innovation on the other hand offers a choice for a firm between perceived benefits with a new technology and perceived cost for adopting it. This choice is much more complicated as the benefits are not often clearly superior to the costs, especially when these benefits are not purely numeric.

3.4.2. Current Technologies

A firm’s current technological level or sophistication mainly determines the proportion of change that a firm experiences from switching its current technology to new one (Tornatzky and Fleischer 1990). This is logical and evident since firm that does not have computer, has obviously more

challenges to adopt a new software than a company that does. Sometimes it is not about the level of expertise with technological field that will affect the adoption likelihood but more about the suitability of new technology compared to the old one. For example, if computer operating systems are compared, the pros and cons of Windows and Mac can always be argued. However, it is almost certain that firm using another will be more likely to adopt a software that is suited to its current operating system. Especially with technology and platforms, previous argument is highly supported by Eisenmann et al. (2008). They argue that switching costs and multi-homing costs affect to probability that the firm or individual will switch from one platform to another. Switching costs refer to costs that occur when user switches from one platform to another. High switching costs makes a user or in this study a firm, less likely to switch from one platform to another. Multi-homing costs then refer to costs that user has to “pay” when using more than one product or service to a single purpose. High multi-homing costs suggest that it is in most users’ interests to use only one platform. Costs for switching and multi-homing are often identical. Time, money and effort are examples of these costs (Eisenmann et al. 2008).

Multi-homing and switching costs are often used with information platforms, but this theory can also be used for analyzing current technologies characteristics effect on adoption process. If the switching costs are high, as in example with computer operating systems, it is naturally less likely that firm will make the adoption. Opposite is true when the switching costs are low. Firm using Macs would need to purchase new computers in order to use Windows operated software because currently only one-platform computers are available. This would create monetary costs, time to set up the computers and software, and effort to learn a new operating system. Second option is to keep using Macs but also buy the Windows computers. This would create multi-homing costs that in this case are almost equally high. Purchasing Windows computers to be used along with Macs also costs money, time and effort. In addition to switching costs, they would require additional physical working space. This is just an example case showing this theory’s practical implications for the platforms, but is based on basic theories on consumer behavior and demand. Higher costs are very likely to impact decision making when one option is not superior to another, as often happens with continuous innovation. It then becomes obvious that costs for adopting new technology are dependent on suitability of new technology to the old systems. For some firms,

costs for adopting new innovation are higher than for others. Costs depend on their current technological levels and old systems suitability for new innovation.

3.5. Extensions

Adoption is a relatively widely studied subject and many theories have been built around it. There is still lack of common understanding of which are the main factors affecting adoption in organizations. Most of the studies agreed to TOE's factors, some add other factors and some use different weights for the importance of certain factors. One of the problems when measuring innovation adoption is that many of the variables are highly correlated with each other. Organizations size and slack resources are often correlated, and so are the available technology and industry characteristics as well. Organizations size is maybe the most cross-correlated factor in the TOE framework. Tornatzky and Fleischer were aware of this issue as they stated, "Size-whether measured in terms of numbers of employees, yearly revenues, value-added, or other approaches – has sometimes been mistakenly seen as an indicator of purely organizational traits – of bureaucracy of formalism for example. This view lead to erroneous conclusion for two main reasons. First size reflects not only internal organizational structures, but also technical and environmental factors." This study removes the organizations size factor by focusing only on SMEs and tries to identify the influential factors that are correlated with technological adoption or non-adoption decisions. Results are then compared to original TOE framework. In addition, possible additional influencing factors are identified. Some of the factors from other studies related to TOE framework are discussed in this section.

3.5.1. Decision Maker Characteristics

Understanding technological innovation adoption is a complex dilemma. Thong (1999) researched whether information system (IS) adoption in small businesses depends on similar factors as suggested by the TOE framework. Thong added decision maker characteristics as a fourth main variable to his studies hypothesis and his research indicated that it did indeed have strong effect on the IS system adoption. Decision maker factor is included in the organization context in the original TOE framework. In addition, his study suggested that only organizational characteristics had significant effect on small business IS adoption process. Competition for example, had no

direct effect on IS adoption, but Thong argued that it might have indirect effect that requires further study. Environmental factor had little to zero effect on adoption. Thong's findings were summarized in following sentence," Small businesses that possess (1) innovative and IS knowledgeable CEOs (2) positive attitude toward the relative advantage, compatibility, and complexity of the IS, (3) larger businesses and businesses with more IS knowledgeable employees are more likely to adopt IS."

3.5.2. Social Influences

Social influence is usually studied on the individuals' behavioral perspective. Often these studies tend to focus on consumer purchasing decisions. Frambach and Schillewaert (2002) added this variable to organizational behavior affecting innovation adoption. They base their conclusion on effects that different social networks have. For example, if many firms in the particular industry adopt a video conference software as their communication tool, remaining firms may feel pressure to do the same. When compared to the TOE framework, social influence would belong into the environmental context. No matter what other firms do, it will not affect the firm's resources, organizational structure, size, communication or technical readiness. It does still affect the decision making because the innovation can be considered less risky because others have already approved it. Some technological innovations operate in two-sided markets, meaning that they have two user sides. In two-sided markets, more users on the other side often attracts more users to the other side. This is known as the cross-side network effects (Eisenmann et al. 2008). Example of this can be again a video conference tool, which in this time is adopted by the customers but not yet by other firms in the industry. When more customers start using this tool, it makes more sense for the firms to adopt it because its value highly depends on the number of users. Thus, more users (customers) attract more users (firms).

Social influence can be a strong factor with innovation adoption process. Frambach and Schillewaert (2002) state that, "In our framework, we posit that organizational members will exhibit more positive attitudes if people in their social environment also use the focal innovation. These usage levels may be so compelling that the opportunity cost for a focal individual of not complying becomes too high and may even overcome otherwise negative attitudes." This factor is

not included into original TOE framework. However, managers are the decision makers who at the end make somewhat subjective decisions. Individual manager who has the power to decide over certain innovations adoption, might feel stronger pressure towards accepting the adoption if the social pressure exists. It might also be a risk minimizing technique in case that innovation adoption proves to be non-successful. It is easier to explain failure if the decision was accepted and pressured by others.

3.5.3. Factors Influencing Innovation Adoption in SMEs

SME innovation adoption is not a widely studied field. Most of the innovation adoption researches focuses on all kinds of firms or mainly on larger organizations. These researches often thus fail to include specific organizational characteristics that affect the decision making in smaller organizations. One of these rare studies specifically focusing on SME adoption is the Lawrence's (2010) case study on information systems adoption. Lawrence uses environmental, technological and organizational factors that are also included in the TOE framework, but also adds inhibiting factors to the framework. In addition, his version includes perceptual factors from the Davis' 1989 original "technology acceptance model" (TAM) that was created mainly to explain an individual's technology adoption. TAM's perceptual variables are for example, perceived ease of use, and perceived usefulness. Lawrence's approach also argues that SMEs are mostly led by individuals, who are responsible for the most important decisions in the firm. It is thus logical that the decision making in SME organizations is close to individual's decision making. Lawrence also argues that these factors with decision making are not the same in SMEs and in larger organizations, "the factors influencing large organizations decision to adopt and use the internet are significantly different to the factors influencing SMEs. Findings from the relatively substantial amount of research conducted into adoption of IT in large organizations may not be relevant for an understanding of SMEs decision to adopt similar technologies which have a range of different functional characteristics." Lawrence's study's weakness is the fact that it focuses on internet usage and its broadness is limited to eight case companies.

3.5.4. Organization's Size as an Adopter Factor

Organization's size is a controversial factor with adoption process because studies that support larger organizations as more probable innovation adopters do exist (Tornatzky and Fleischer 1990) and (Hannan and McDowell 1984). Contradicting results are also found (Zhu et al. 2004) and (Zhu et al. 2006). However, both sides agree that the organizations size does matter. Studies supporting larger organizations, often argue that larger organizations are more likely adopters because of the resources they possess. Contradicting arguments from other studies suggest that larger organizations often face bureaucratic problems that makes their decision making process slower and more complex, causing more non-adoption decisions. Zhu et al argue (2004) that, "Large firms are less likely to realize the impact of e-business on their performance than small firms, which seems to suggest that structural inertia associated with large firms may retard e-business value creation." They argue that the reasons for this is , "although our data did not provide enough details, we suspect that large firms may have more fragmented IT legacy systems (build over a long period of time), and change further complicated by complex business processes, entrenched organizational structure and hierarchical decision making. These factors translate into structural inertia that may slow down the digital transformation of large firms." Thus, if the large firms face more structural inertia and are less likely adopters because of their bureaucratic hierarchy, then the reasons for other contradicting studies might stem from outside the TOE framework. Larger firms usually have more financial and employee resources (Hannan and McDowell 1984), but as studies do show contradicting results, the further study on the subject of the small firms adoption factors is needed. Zhu et al. (2006) touch the organizational structure issue with larger firms in their study on e-businesses technology diffusion. One of their findings was that, "large firms tend to enjoy resource advantages at the initiation stage, but have to overcome structural inertia in later stages." This indicates that organizational size is not as straightforward variable as some of the studies on the field suggest. Rather in large organizations, there seems to exist advantages and disadvantages that are rather equally balanced; leading to mixed observations. One might expect that for smaller firms these advantages and disadvantages are just the opposite ones that are experienced by larger organizations. However, this would be just a dull hypothesis without considering other possible factors. Zhu et al. (2006) suggest that, "Along this line, small firms may have advantage because they "require less communication, less coordination, and less influence to gather support". This is

a logical statement, but as argued previously in this study, smaller firms might experience different kind of barriers that might significantly affect their capability adopt, because in reality they are not significantly more frequent adopters.

4. METHODOLOGY

Empirical research includes, "building and testing statements about an object of study by analyzing evidence drawn from observation" (Dul and Hak 2008). Empirical research method was chosen to be used in this study because it allows evidence to be analyzed from observations in a qualitative form. As this study compares existing theories to actual events, it is vital that observations from the actual events can be examined. The TOE framework and inertia theories suggest that there are number of factors that affect a firm's behavioral patterns. Qualitative research is more suitable to this kind of study as it focuses on understanding human behavior and reasons behind the behavior (Dul and Hak 2008). Understanding human behavior becomes more significant as this study focuses especially on SMEs, which according to previous discussions, share more human like behavior with decision making. Rather than measuring the results of behavior, this study focuses on answering question of why certain decision are made or not made. By observing past behavior and perceptions, the absence of adoption or non-adoptive decisions can also be analyzed. This would be hard to accomplish by just quantitatively measuring adoption rates. This study focuses on understanding why certain type of behavior occurs. However, understanding it requires understanding on multiple other factors about these companies. These factors include company background, their industry and their motivating factors. Without understanding these background variables, it is hard to estimate the rationality of one's behavior. A lot of information from the companies needs to be collected in order to answer these questions.

According to the Dul and Hak, "If an experiment is not feasible, the longitudinal single case study or the comparative (multi) case study is the second-best strategy." A multiple case study was used in order to signify the results. Multiple case study or comparative case study is defined as "A comparative case study is a study in which (a) a small number of cases in their real life context are selected and (b) scores obtained from these cases are analyzed in a qualitative manner." (Dul and

Hak 2008). The single case study method would possibly be more comprehensive and analysis could be done more deeply, but the results from one case would be exposed to industry and company specific characteristics and might be unable to explain behavior from the total field. Multiple case study from various industries reduces effect on industry and company specific phenomenon.

Interview method was chosen to be used in this study. Compared to for example online questionnaire, the interview allows better communication throughout the data collection process. Most of the questions, excluding the background questions, were open-ended or included question “why”, in order to identify reasons for certain type of behavior. Compared to predefined answer options, open-ended questions do not set boundaries for the answers. Previously defined answer options would be unable to identify possible influencing factors outside the selected options. Collected information was subjective and based on respondents perceptions. Because of this, all the interviews were conducted face-to-face, in order to affirm the answers. This was proven as a right method because respondents often failed to give clear answers to the questions. In many cases, respondents were trying to explain behavior for answering question “why”, for example by just stating, “It was the best option”. This kind of answer has little value and does not explain the factors affecting decision. When this situation occurred, respondents were asked to identify more precise reasons for the action. Face-to-face interviews allowed clarification to these questions in order to get the relevant answers for this study. Throughout the interviews, no example options were given in order to avoid steering the answers. Many times, respondent had hard time of explaining reasons for behavior, which supports the choice of selecting the interview as a study method. Face-to-face interview also allowed observations to be drawn from all the communication that took place throughout the interview sessions. The sales invoicing and management perception section from the interview questionnaire is presented below. The complete questionnaire can be found on “appendices” section of this study.

Sales invoicing and management perceptions:

Current sales invoicing process and/or software?

How long it has been in use?

What grade would you give for your current process (1-5, five being the best)?

Do you feel that the current process is the most efficient one from the existing alternatives? If yes, why? If no, why is it being used?

Have you made any research for alternatives? If yes, how? If no, why not?

What would it require from you to change the current process and/or software?

What risks you see from changing the current process/software?

What challenges you see from changing the current process/software?

What benefits would you expect from changing the current process/software?

Have you made any research that would confirm these opinions?

Do you feel that it would be beneficial to change your current process/ software? Why?

Are you actively trying to improve company's processes? If yes, how? If no, why not?

What are the challenges when trying to improve company's processes?

Are continuous improvements necessary for the company's success? If yes, why? If no, why not?

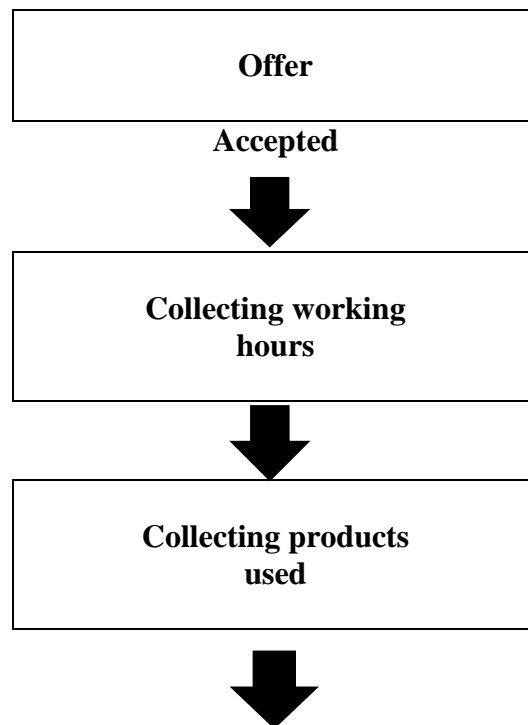
Questionnaire: Sales Invoicing and Management Perceptions

The questionnaire included multiple questions about company's current sales invoicing processes and some general managerial questions. The questionnaire's main purpose was to measure general perceived drivers (pressure) and barriers that affected probabilities of change (and adoption) in respondent's organization, and also to find out process-related drivers and barriers for the sales invoicing process. A word "general" in this study does not mean that the factor does not influence process adoptions; rather it means that the factor is not identified by using an actual example case process (sales invoicing). "General" factors were identified from answers concerning general managerial questions. The drivers and barriers are two terms that are used for identifying factors that affect companies' adoption probabilities. They either increase the probability of adoption (drive) or decrease it (barrier) but the key is that they do influence this phenomena.

5. EMPIRICAL STUDY

5.1. Sales Invoicing

Sales invoicing is a process that includes multiple steps. The process can vary based on a company's own established processes and is probably slightly different between different industries. The process might also be different for companies that only sell products, only services or for companies that sell both. Sales invoicing process steps are shown in figure 4. The process can vary between different industries and companies. Thus, the figure only shows one possible example of this process. This example process is created based on background questions that were answered by the case companies. In this example, a company sells services and products to the same customer. Companies similar that have a similar process as presented in this example can be, for example, construction companies that charge customers based on working hours and materials that are used for a particular project.



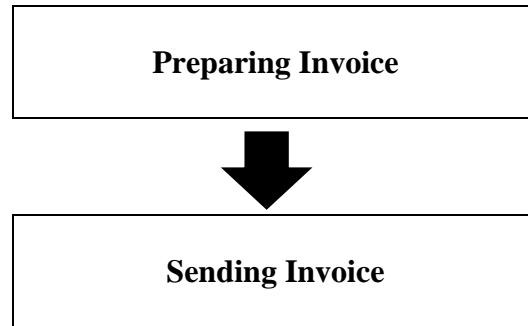


Figure 4: Sales invoicing process with products and services

In this example, process starts by making the offer for potential customer. The offer must be accepted before this process can continue. When the offer is accepted, next the information of working hours and material/products used for that task is collected. This information is then inputted into the invoicing software or other tool that is used for preparing the invoice. After this, the invoice is physically mailed or electronically send to the customer. Some companies might send collected information to the second party (usually to their accountant), who will then prepare the invoice and sent it to customer. Most of these steps can be automated with proper invoicing tools, or they can be all done manually. In rare cases, all of these steps can be done by hand, without using any electronic devices at any point of the process.

Sales invoicing was chosen as an analyzed process in this study for few reasons. First, every business that provides any kind of services or sells products to other companies will almost surely use sales invoices. Almost only cases, when sales invoices are not used, are the physical stores that sell consumer products. There the payment of product or service is done immediately after the sale. However, even most of these firms also offer sales invoices. For this study, it was important that the process that was observed would be a common process, so that the case observations could be compared to each other, regarding their industries. Secondly, sales invoicing as a process is important for the firms. Mistakes in sales invoicing can lead to unbilled sales that results to not receiving revenue from work that is done. However, company will still pay all the costs that were needed to create this revenue. Delays with this process can lead to slower cash flow cycle. Because this process is important for the firms, in many cases even the CEO is included with the process. In this study, 33 supporting phone interviews were also conducted. These supporting interviews aim was to find information about firms' sales invoicing processes and type of employees that

participate to this process. With almost 50% (16/33) of these firms, CEO was included in the process, which significantly raises total process costs for the firm. This happens because it can be expected that CEO has the highest salary and his or hers time is the most valuable for the firm. In roughly 25% (8/33) of the cases, specialist had the main responsibility of this process also leading to relatively high costs. Thirdly, sales invoicing process is often a complex process in which multiple parties (employees) are included. This adds steps to the total process and complexity for the communication flow and thus the risk of mistakes increases dramatically. This is especially true when the technical part of the process is inefficient. Fourthly, changes, adoptions or upgrades with sales invoicing technology do not require substantial investments or resources. As discussed before, the lack of resources can prevent firm from adopting new technology. With sales invoicing, the resources should not generally be a barrier factor because the requirements for adopting a new system are relatively low. Sales invoicing does not require substantial financial investments, or at least less costly alternatives do currently exist.

5.2. Cases

Companies that were targeted for this study were chosen from various industries in order to avoid industry specific phenomenon. Different industries have specific characteristics and selecting firms from only one industry could lead to results that are not comparable to all business organizations. For example, a certain industry might only have one major sales invoicing software that is custom made for those firms' needs, and has then gained large majority of the market. With absence of efficient alternatives, it would be very likely that this software would be used by most of the firms, and adoption factors for alternatives could not be identified. Sales invoicing is a common process among firms and selecting companies from multiple industries allows results to cover more holistic picture of the influencing factors with technological adoption and identifying possible inertia in these organizations.

Companies that were selected to this study, needed to meet following qualifications: (1) company does business-to-business (B2B) selling; (2) company has more than one employee and (3) company can be classified as SME based on its size. First (1) qualification was selected because B2B selling often involves more complicated products and services than consumer products. Thus,

this increases importance of the sales invoicing process for the firms. Second (2) qualification was required so that the company can be considered an organization. Organizational factors are one of the main influencers on TOE framework and ignoring these would make results incomparable. In addition, inertia is looked from decision maker’s perspective and even that one-man company can experience this same inertia, many other possible influencing factors related to organization would be ignored. Third (3) qualification is in essence of this study as it focuses on finding the SMEs specific influencers on adoption and comparing these to existing theories that also involve larger companies.

The goal was to find five to ten companies whose managers could be interviewed for this study. Targeted respondents from firms included persons who were majorly part of the sales invoicing process and also had managerial responsibility in the firm. Decision making is analyzed in this study, because of this, the respondents needed to have certain level of decision making power and they also had to be familiar with the sales invoicing process; in order to be able to evaluate it. Nine interviews were conducted and eight accepted as part of this study. One of the interviews was disqualified, because the respondent was not part of sales invoicing process in his firm. Qualified respondents are shown in table 1.

Case	Respondent
Company A	CEO/Owner
Company B	Sales Director
Company C	Office Manager & Project Manager
Company D	CEO/Owner
Company E	Office Manager
Company F	CEO/Owner
Company G	CEO/Owner
Company H	Office Manager

Table 1: Respondents

As discussed previously with background interviews, in SMEs, the owner or CEO often has the major managerial responsibility and is often involved in the sales invoicing process. Supporting interviews indicated high involvement of the CEO with sales invoicing process. This also occurred with case companies. In four out of eight companies, a CEO was majorly involved or fully

responsible of sales invoicing. In three out of eight cases, office manager had this responsibility and in one of the cases, the sales director was majorly involved. The eight case companies came from seven different industries and are shown in the table 2.

Case	Industry	Number of Employees	Revenue (million euros)	Sale Invoices per Month
Company A	Cleaning	17	1,10	100
Company B	Graphical Design	220	53,00	6000
Company C	Electrical Engineering	8	1,20	40
Company D	HVAC	14	2,00	100
Company E	Earthmoving	12	1,10	50
Company F	Accounting	4	0,40	100
Company G	HVAC	7	1,40	50
Company H	Speaker Agency	20	3,00	100
	Average	37,75	7,90	817,50

Table 2: Case Companies

The case companies' average number of employees was 37,75; annual revenue 7,9 million euros and they averaged 817,5 invoices per month. These averages are highly influenced by company B that is significantly larger, compared to other companies. As mentioned before, there are multiple definitions for SMEs sizes. The company B was still qualified for this study because it has under 250 employees, which was one of the limits set for defining SMEs by European Commission (European Commission 2005). Company B also adds value to this study because it can be considered as a medium sized company. All other companies can be considered small ones. In order to effectively use term SME, both small and medium size enterprises are needed. Thus, adding company that is on upper limit of SME definition will increase the reliability of the results. Without considering company B, the averages dropped. The average number of employees was then 11,7; annual revenue of 1,46 million euros and averaging 77,14 invoices per month. All case companies also produced B2B sales, which was selected as one of the qualifiers for this study.

5.3. General and Process-Related Factors

Case companies representatives answered to various questions regarding their decision making with adoption, non-adoption and change overall. Observations from these answers concluded the influencing factors regarding to change and adoption. Observations were divided into two categories that were named “general” and “process-related” factors. The “process-related” factors are simply factors that were identified through actual example process, which in this case was sales invoicing. “General” factors are then factors that were identified by using general managerial questions, not associated with sales invoicing.

The process-related factors were divided to “process-related pressure” and to “process-related barriers”. Pressure works as a driver and barriers as preventing factor regarding the adoption or change. The process-related pressure for changing the current sales invoicing process was identified mainly by using two following questions.

What benefits would you expect from changing the current process/software?

Do you feel that it would be beneficial to change your current process/ software? Why?

Expected benefits from changing the current sales invoicing system were used as process-related pressure factors, because those indicated reasons encouraging new system adoption. However, the results were not purely tied to certain questions. All of the factors were identified by observation throughout the interview. This means that answers for certain observations might come from different questions than what they were originally designed for. Questions were mainly in open-ended form and often the respondents actually identified driving factors, for example, with questions that were designed for identifying barriers. However, the process-related barriers were mainly identified by using the following questions.

Have you made any research for alternatives? If yes, how? If no, why not?

Do you feel that the current process is the most efficient one from the existing alternatives? If yes, why? If no, why is it being used?

What would it require from you to change the current process and/or software?

What risks you see from changing the current process/software?

What challenges you see from changing the current process/software?

The general factors were divided to “general pressure for change” and “general barriers for change.” The observations for these sections were mainly identified by using general managerial questions. The general pressure was identified using the following questions.

Are you actively trying to improve company’s processes? If yes, how? If no, why not?

What are the challenges when trying to improve company’s processes?

Are continuous improvements necessary for the company’s success? If yes, why? If no, why not?

All except one of the respondents answered “yes” to the first question, and then identified their focus for improvements. The question on challenges was used for identifying general barriers. All respondents were able to identify one or two factors that drive or prevent change in their business organization. The last question indicated respondents perceptions towards change overall. The comparison between the general and process-related factors is presented in table 3.

		General management		Sales invoicing	
Case	Industry	General pressure for change	General barriers for change	Process-related pressure	Process-related barriers
Company A	Cleaning	Competition	Regulations	Accountant recommendation	Accountant relations and employee training
Company B	Graphical Design	Customers	Management assurance	Demand for time	Industry specific demands
Company C	Electrical Engineering	Customers and employee satisfaction	Employee training	Demand for time	Employee training and time available
Company D	HVAC	Government regulation/employee satisfaction	Employee training	Accountant recommendation	Information transfer/employee training
Company E	Earthmoving	Unable to identify	Employee training	Employee satisfaction	Time and energy
Company F	Accounting	Government regulation	Employee training	Demand for time	Time and energy
Company G	HVAC	Competition and IT development	Time available	Accountant recommendation	Accountant relations
Company H	Speaker Agency	Competition	Time available	Demand for time	Time and energy

Table 3: General and Process-Related Factors

As it can be seen from the table, case companies identified 18 general factors that affected change or adoption decisions in their organization. Interestingly, 8/10 of these pressure factors came outside the organization, but 7/8 barriers came inside the organization. When the sales invoicing process was used as an example process for change, the pressure factors were completely different. None of the driving general factors matched the process-related driving factors. Five companies were pressured to change their current process in order to save time for other tasks. As discussed previously with each case, most of the companies (7/8), felt that their current process was not the most efficient one. Three companies identified accountant as most influencing factor that had affected their current sales invoicing systems adoption. In addition to previous, company F is an accounting firm, so another accounting firm could not affect its decisions. Thus, accounting firm affected decisions in three out of seven possible cases. Based on this, accountant’s opinion was significant factor that drove the adoption.

A “demand for time”- factor describes the situation where company’s current processes are eating more time than they optimally should, and scarcity of time was an issue with some other tasks. The company also felt that saved time would be the biggest gain from more efficient process. This saved time could then be allocated to tasks with higher priority. General barriers and process-related barriers were relatively similar to each other. Three companies identified partly or completely same barriers and rest of the companies also showed results that had significant similarities with each other. Employee training and time were the main general and process-related barriers. The accountant relations had caused adoptions but also worked as a barrier, preventing the company to change their current systems, because it would go against accountant’s advices. Going against accountant’s advices was seen as a barrier because it would negatively affect the relationship between the firm and the accountant. Employee training was also seen as a barrier but not directly as employees’ incapability to learn new things in proper time. Moreover, it referred to time and effort that would be required from management to educate these employees. As it can be seen from the table 3, half of the companies were driven to change their current sales invoicing system for gaining more time for other tasks. However, lack of time also worked as a barrier towards new process adoptions.

5.3.1. Company A

Industry: Cleaning

Number of Employees: 17

Sales invoices per month: 100

Revenue in 2013:1.1 million euros

Grade for current sales invoicing process (scale 1-5): 4

General pressure for change: Competition

General barriers for change: Regulations

Sales invoicing process: Company A uses business management software that is compatible to accounting firm’s software. All financial accounting processes are outsourced for the accounting firm, except sales invoicing. In most cases, time tracking and the description of the tasks are

gathered from physical reports that are produced by the workers (cleaners). These reports are then delivered to CEO, who checks them for mistakes and then physically deliveries those to office manager. If customer information is already in their system, the office manager uses previous invoices as templates. She changes the rows and dates from old invoices to match the correct information. If the customer is new, then the information is filled by hand from paper to computer. The invoice is then printed out, put in to the envelope and mailed to the customer. Current process has been in use for past three years and required a substantial investment in form of physical servers that carry the invoicing data. The investment was done because their accountant recommended it. Most of the invoices are sent within seven days from day when task was completed. The CEO estimates that all the work that is completed is also billed.

Current system efficiency and alternatives: According to the CEO, superior process could prevent mistakes and automate the process by connecting employee's tasks to their payroll. CEO would like to adopt an additional commission system, which cannot be done with current system. CEO said that, "Because the original investment we made (for the servers allowing use of invoicing software) was large, the change at this point is not worth it." In addition, he thinks that financial expenses and effort would exceed possible benefits. The effort refers to time that would be needed for office employees' education. Current system is in use because it is "learned and working", and also because it was recommended by their accountant. Perceptions towards efficiency of alternatives were based purely on CEO's intuition and no actual search for alternative products has been done.

Management's view towards change in business organization: CEO says that he is sometimes trying to improve firm's processes. Improvements are mainly targeted to technological improvements and employees' well-being on the job. Most of the challenges regarding the change come from government regulations. He said, "There are so many laws and regulations regarding to paid employees that is hard to keep track on those." The main pressure for adopting new processes comes from outside the firm. CEO commented change in business organization, "Constant change is needed because the competition and the industry is constantly changing. If you don't change, you will be left behind."

Analysis: Company A's current sales invoicing process includes multiple steps but the investment made by the accountant's recommendation serves mostly as a communication tool between the firm and the accountant. Improvement was made to the end of the process. The final invoices could now be send electronically to the accountant who uses the same accounting software. Benefits of this improvement is that the invoices go automatically to the accounting software and accounts payable can be monitored more easily. However, this investment mainly affected the final steps on the total process. The invoices are still created to the software by hand, using information from previous invoices. Software does not majorly help tracking or inputting sales. The information for completed tasks is monitored by the CEO, who then physically carries the paper report for invoicing to the other room for the office manager. This process takes time and is sensitive for mistakes, as according to the CEO "Papers do get lost frequently". CEO had not analyzed the process nor the alternatives, because the previous investment was substantial. This might have led for company being committed to the current process, which is not rational decision making. Money used for servers is already lost, and possible alternative search should not be dependent on it. In addition, the accountant-firm relationship seemed close, and the accountant's recommendation possibly has significant weight on CEO's decision making. CEO also felt that the change always requires effort and it seemed that the barriers were perceived higher than they might actually be.

5.3.2. Company B

Industry: Graphical Design / Advertisement

Number of Employees: 220

Sales invoices per month: 6000

Revenue in 2013: 53 million euros

Grade for current sales invoicing process: 2

General pressure for change: Customers

General barriers for change: Management assurance

Sales invoicing process: Company B's sales invoicing is highly dependent on the efficiency of the information flow from the printing machines to the sales invoicing software. Company B sells advertisement products and plans for the customers. The software collects the information of used supplies automatically from the printing machines. It calculates the amounts of print and medium that was used. The information then goes directly to the firm's ERP system where it is verified by an office assistant. Office assistant then adds the working hours that were spent on the job and inputs this to invoice. Each employee enters his or her hours in to the system daily. The complete invoice is then send electronically to accounting firm that will sent the physical invoices to the customer. System is very sensitive to errors, and sales director estimated that these errors can cost up to 100,000 euros per month in form of unbilled work and materials. In addition, time between sale and sent invoice is almost four weeks. Company's current target is two weeks. The current system was created in-house. The company has tried to identify alternative software, but has failed to implement them because of the complex requirements with printing machine.

Current system efficiency and alternatives: Sales manager agreed that the current process was tender to errors, but because of the complicated requirements, better system was not yet found. The company allocated one employee to find a better solution to the current invoicing software and automate the process. This was employee's main task in the firm during that time. However, none of the available financial management and enterprise resource planning software were suitable for graphical industry. Company B continues to develop their own software that would be able to automatically input materials that were used for correct invoices. The current process has already been analyzed and found to be inefficient. Alternatives have also been actively searched. Sales manager's stated that, "Current system is not working well, but because there are multiple parameters in the printing machines and the volume is high, the small delay with inputting parameters to the invoice would result on major delay of the total process." Company B is looking for system that would automate the sales invoicing process and resulting to "faster system which would save money and time, and result to increased employee morale."

Management's view towards change in business organization: According to the sales manager, company B is actively trying to improve all processes and many of those are measured, evaluated and timed. For example, attaining certain typing speed is recommended for the sales

representatives in order to save time for more relevant tasks. According to the company B's sales manager, change and growth are requirements for successful business organization. He states that, "the business organization is like a tree, it needs to grow and change constantly otherwise it will die." Reasons and pressure for change comes from the customers, as they constantly require new and better services. The sales manager said, "our competition is not really evolving but it does not mean we don't have to."

Analysis: Company B produces graphical prints and advertising plans for the major companies in Finland. The advertising industry is traditionally seen as very competitive and dynamic industry which is also the case with company B. The firm has a proactive approach to the processes and they are measured and constantly evaluated. According to the sales manager, the employees training will not be a problem when adopting new processes because they are used to constant changes and are highly motivated. It is possible that the industry attracts certain type of employees that possess above average motivation for change. Company B is at the higher limit of definition of SME by its size and has a small management board. According to the sales manager "there might be a challenge to get the management to approve to new processes but when they do, this process will be most surely implemented." Based on this interview, there seems to be no routinized processes that could not be changed, if seen inefficient and alternatives would exist. Little or no inertia was found with this organization.

5.3.3. Company C

Industry: Electrical Engineering

Number of Employees: 8

Sales invoices per month: 40

Revenue in 2013: 1.2 million euros

Grade for current sales invoicing process: 4

General pressure for change: Customers and employee satisfaction

General barriers for change: Employee training

Sales invoicing process: Quotations for customers are created with Microsoft Word, and if accepted, printed out and delivered to office manager. Office manager gets the project information and billable details from the offer. Every employee that is involved in the project, inputs his or hers working hours to shared excel file. From this excel, office manager gathers reported hours for each invoice. Information for each projects materials that were used, are taken directly from electrical invoices and are directed to the appropriate projects invoices. Finished invoice is then sent electronically through accounting software to accounting firm, which delivers it to customer. Average time that it takes from the finished project to be invoices is over three weeks. Office manager estimates that it takes around 24-32 hours per month to create all the invoices. Project manager estimated that roughly ten invoices are never sent annually. Project manager also estimated that the some of the credit losses could be avoided with system that is more efficient. Current system has been in use for seven to eight years.

Current system efficiency and alternatives: The office manager and the project manager felt that current process is not the most efficient one, because it is time consuming and sensitive to errors. Project manager said that, “I don’t know if this is the best system. I think there might be better solutions available but Ecom (current software) is widely used in electronic industry.” The current system still works and implementing new system would take too much effort in form of employee training. Superior system could lead to savings in form of time and avoided credit losses. As a whole, office manager estimates that changing the system would have little benefits compared to effort required of doing it. Office manager stated that, “Why change the system that is working?” The biggest challenge seen towards searching alternatives and implementing a new system was found to be the lack of time. No research for alternatives has been made so the estimation for the pros and cons of switching the system was based purely on experience.

Management’s view towards change in business organization: Office manager and project manager agreed that profitable business organization requires changes and adoption at certain times. The pressure for change comes from their own employees and from the customers. In addition, new employee regulations require additional training from time to time. When the company has made changes to its routines those have been mostly focused on reallocating and

increasing employee responsibility. According to the project manager, “employees will get unhappy if things do not improve from time to time.”

Analysis: Company C focuses heavily on running the core business activities. Even that the some processes might be seen as inefficient, the perceived effort seems to be too much compared to perceived benefits for even searching alternatives. The company’s processes have become habits or routines and there seems to be absence of motivation to analyze and possibly reevaluate those. Current time tracking and reporting process is slow and causes errors but it seems to be accepted as one of the “cons” of running the business. The highest perceived cost seems to be the effort that is required with any type of change in this business organization. The attitude towards change also seems to be more reactive because the employee training is done only when there is regulations demanding it. Thus, maintaining status quo seems to be a positive situation in this organization and clear signs of inertia can be found.

5.3.4. Company D

Industry: HVAC

Number of Employees: 14

Sales invoices per month: 100

Revenue in 2013: 2 million euros

Grade for current sales invoicing process: 3

General pressure for change: Government regulation and employee satisfaction

General barriers for change: Employee training

Sales invoicing process: Company D’s sales invoices are produced by the CEO. The CEO gathers the information from the physical reports that are filled out by the employees who are working on that particular project. Their reports include the hours that were spent on each day with that project. The CEO also combines information from the materials and items used in a project for the invoices. The information is then sent to the accounting firm, which sends finished invoices to the customers. Combining the hours from physical reports takes approximately three to four days per month. CEO estimates that the credit losses could be avoided by using more efficient sales invoicing methods.

The new system has been in use for six months and was implemented based on accountant's recommendation. CEO was not very pleased with current system but only little search for alternatives was conducted. However, none of the alternatives was approved mainly because it would be against accountant's opinion.

Current system efficiency and alternatives: The CEO was not pleased with current system because it was slow and any errors made were hard to fix. Accountant recommended this software because it is compatible with their accounting software. It allows invoices to be sent electronically to the accountant, which makes the information transfer between the company more efficient. According to the CEO, "The software is slow and it is hard to fix errors when you make them, but the archive option for contracts is nice." The current software does not include time tracking for working hours, so project hours are inputted by hand from physical papers. According to the CEO, "A superior system would be beneficial as it would save time and make my job easier." Alternatives were searched before the implementation of the new system and little bit after that, but not with serious intent to implement anyone of those.

Management's view towards change in business organization: The CEO was planning to make an action plan for the firm covering next three to five years. He also actively discusses with employees about potential improvements in the firm and tries to improve employees working conditions. He is also taking night classes on business leadership for improving his leadership skills. He would like to adopt a commission based salary system, if the working hours monitoring system can be implemented in the future. According to the CEO, "Biggest challenge is business organization regarding the change are the old attitudes from the employees and the routinized behavior of the management." CEO also says that, "Change is needed for keeping employees happy and for committing the skilled workers." He also thinks that the pressure for change also comes from new government regulations.

Analysis: The CEO of company D seems to have proactive approach towards change in organization and willingness to adopt new things. However, the approach towards the change with sales invoicing does not seem to proactive. Instead of independently analyzing the process, change was made purely based on accountant's opinion. This change mainly automated accountant's tasks,

and actually resulted in the slower total process for the company D. This suggests that the organization might be ready to change, but it either sees the accountant relation too valuable, or the independent search effort too costly. Now there seems to be a barrier to implement a better system or search alternatives as it would go against accountant's opinions. CEO admitted that it would be beneficial to change the current system. Thus, most likely without the accountant's influence, firm would search for alternatives and look for software that is better suitable for its needs. However, this also indicates that the willingness to change is not very high because the perceived benefits do not exceed these clear costs.

5.3.5. Company E

Industry: Earthmoving

Number of Employees: 12

Sales invoices per month: 50

Revenue in 2013: 1.1 million euros

Grade for current sales invoicing process: 5

General pressure for change: Unable to identify

General barriers for change: Employee training

Sales invoicing process: Company E has one major customer whose orders cover over 90% of their annual revenue. These orders cover various projects throughout the year. Each project employee hours are reported with a physical paper after each day. Each employee is responsible for reporting their own hours. The CEO combines these hours and sends them to office manager. Significant working time from the CEO is used for reporting these hours and each invoice is created to the accounting software from the scratch. Office manager estimated that software is very efficient but the working hours reporting system is not. Current software has been in use for 16 years. Company E did not experience credit losses nor unbilled invoices.

Current system efficiency and alternatives: Office manager gave the top grading for their sales invoicing process. She did not have experience from other accounting or invoicing software. The CEO was willing to consider alternatives that would automate the system but the office manager

refuses to work with other software. Office manager said, "Our CEO wanted to compare software we use for accounting and for sales invoicing but I said that, I would leave the firm if the change was made. I have been using this software for over 20 years and I am not going to start learning a new one at this age." Her perception on current systems efficiency seemed to be based on her efficiency with the system, not based on actual system characteristics.

Management's view towards change in business organization: Office manager agreed that it might be beneficial for business organization to change from time to time, but their business model is straightforward so change is not actually required. Office manager said that, "changing is hard because the time and especially energy needed to learn new systems is hard to find." In addition, her opinion was that new technical adoptions require a lot of data transfer and employee training before they will become efficient.

Analysis: The interview did not include the CEO, but according to the office manager, he is willing to change things and tries to improve employees working conditions. It seems that office manager has high influence on sales invoicing processes and she is not willing to make significant changes at this point of her career. The company probably has the resources and need to improve systems, as the working hour monitoring is inefficient. Automating the whole system might still require changing the accounting software or at least adding other parallel system. Office manager seemed to refuse strongly against this, which most likely works as a major barrier towards any potential changes with firm's financial procedures. This barrier is likely stronger than most alternatives perceived benefits would be. This case works as an example, on how hierarchically lower level worker can influence decision making in higher levels. The CEO's opinion about change in the organization is unclear. However, it is certain that inertial barriers exist in the organization that will prevent some of the possibly beneficial changes done in the future. This has already proven by CEO's willingness to search for alternatives, but it was made impossible by other employee's unwillingness to change.

5.3.6. Company F

Industry: Accounting

Number of Employees: 4

Sales invoices per month: 100

Revenue in 2013: 0.4 million euros

Grade for current sales invoicing process: 3

General pressure for change: Government regulation

General barriers for change: Employee training

Sales Invoicing process: Company F's sales invoicing process is fully handled by its CEO. The CEO checks the "rows" used in accounting software by the employees for each customer, and creates new invoices by using the previous month's invoices as templates. With some customers, the previous month's invoices are copied and only dates are changed. These customers are not officially contractual customers with fixed monthly prices but are considered such, because of the long lasting business relations. The CEO tracks special customer requests by using Microsoft Excel. Many invoices for these special requests are never sent or are sent months after the actual work is done. These delays or errors are caused by unorganized process. No alternatives have been considered for the system and it has been in use for past 20 years. Total invoicing process from information collection to the actual invoices takes two to three days per month from the CEO.

Current system efficiency and alternatives: Current sales invoicing process has been the same for a long time and the accounting software that is also used for customer bookkeeping creates customer invoices. According to the CEO, changing the system would most likely require changing the accounting software. The CEO says, "Changing the accounting software is not possible since there is no time for it." Adding a new system and maintaining the old software has not been considered. The CEO says, "System is working, I should just be more organized."

Management's view towards change in business organization: The CEO sees that change is required when external pressure occurs. External pressure for the company F means new government regulations for bookkeeping or for tax returns. The most recent change in the organization occurred two years ago when company updated its office spaces, in order to increase its archive space. The CEO commented about process changes, "There is just no time to improve processes and then teach these processes to employees." CEO thinks that business does sometimes requires changes and that pressure for change comes mainly from government regulations.

Analysis: In company F, the CEO handles all managerial tasks from payroll to invoicing and customer acquisition. He feels that he does not have time nor the energy to improve processes. Improving processes might increase efficiency, but cost for doing research and implementation seems to be too much. Changes are not made unless there is compelling pressure to do it. There also seems to be lack of pressure for change from employees, customers or competition. The greatest barriers for change seems to be the effort that would be required for it. The CEO is also heavily involved with customer service and their consultation. Few days for each month is used just for sales invoicing, which is a lot when time seems to be in high demand. In addition, the tracking system for invoices seems to be very inefficient. Both of these processes could be most likely be improved by existing alternatives, or CEO could possibly delegate part of these processes to the employees. This would relief more time for him, which is most likely to be the most valuable time for the organization. However, change overall seems to be perceived as a highly laborious project. Unwillingness to change can be clearly identified and also perceived barriers seem to be very high for all non-routinized tasks. This indicates that inertia does exist and influence adoption in this organization, and it especially comes from decision maker's level.

5.3.7. Company G

Industry: HVAC

Number of Employees: 7

Sales invoices per month: 50

Revenue in 2013: 1.4 million euros

Grade for current sales invoicing process: 3

General pressure for change: Competition and IT development

General barriers for change: Time available

Sales Invoicing process: Company G's CEO is responsible for their total sales invoicing process. He collects working hours used in each project by using different channels. There is no exact process for employees to report these hours. Each employee reports their own hours and they can use SMS, email or paper reports for doing it. Each employee uses approximately ten minutes per

day for reporting these working hours and CEO uses approximately one full working day to combine these hours to invoices. Around ten invoices are never sent annually. This system has been in use for ten years and alternatives have not been considered. The CEO sends the information for the accountant through software. The accountant and the firm both have the same software. The accountant then delivers the final invoices to the customers. The CEO often uses the previous month's invoices as templates for the new ones.

Current system efficiency and alternatives: Current system is not the most efficient one but it is being used because there is a pressure from the accountant for maintaining it. This pressure comes from the fact that it is the system that is also used by the accountant. Alternatives have not been actively searched. The CEO gave two reasons why alternatives have not been considered. First he says, "There has not been really time to look for alternatives and the current system is working." and then, "switching current software would most likely require changing the accounting firm as well." According to the CEO, perceived benefits of the superior system would come in form of saved time and automated processes for working hours monitoring. The CEO said that time that is available, mainly goes on customer acquisition and project management, leaving no time for process improvements. He says that upgrading the system would require too much effort compared to the possible achieved benefits.

Management's view towards change in business organization: The CEO agrees that change is required in business organizations because the environment changes constantly. He explains environment with the following statement, "competition changes and information technology keeps developing constantly. The business must evolve or it will eventually fail at some point." Biggest challenge for changing the processes seems to be finding the time for it. CEO says that they are trying to improve and automate some of the processes for acquiring more time.

Analysis: The CEO of company G seems to be mostly focused on running the core business processes. The time is allocated almost fully to these processes. He also handles most of the managerial tasks in the office. The lack of "time", seems also include lack of "energy and interest" to focus on processes outside the core business activities. Because working hour communication for example, is not regulated in the company by any means, there is definitive possibility for

improvements. Even that the total process is known to be inefficient, the perceived benefits for changing them seems to be too low when compared to perceived required effort. This might be the reason why time is not “found” for improving these processes even that they might actually save more time in the future. Rationally, if the demand for time were high, it would be beneficial for trying to gain more of it by developing current inefficient processes. Time that would be saved could then be allocated for core business processes. There is clear indication that the perceived effort required to implement changes overall in the business is high. The company would like to save time with more efficient processes, but there seems to be a fundamental barrier towards change, which prevents it from doing so. No rational reasons against benefits of change could be made. Thus, inertia’s existence can be clearly observed, and it does influence decision making in this organization.

5.3.8. Company H

Industry: Speaker Agency

Number of Employees: 20

Sales invoices per month: 100

Revenue in 2013: 3.0 million euros

Grade for current sales invoicing process: 2

General pressure for change: Competition

General barriers for change: Time available

Sales invoicing process: Company H provides speakers (people) for various events. Most of the employees (17/20) do selling among other possible tasks. Sales representatives create quotations, which, if accepted, are sent to office manager through CRM system. The office manager then collects the information and inputs it into the financial management system that produces the invoices. She then sends these invoices to customers. The company charges a fee from its customers, so no working hours or materials is included for invoices. Creating monthly invoices takes approximately one full working day each month from the office manager. The current system has been in use for past ten years.

Current system efficiency and alternatives: The office manager feels that the current system is inefficient and old-fashioned. The alternatives have been considered but no major search has been done. The major barrier for adopting alternative is that it needs to be compatible with the current CRM system, which is used for quotations. Office manager says, “Our current system is slow and hard to use, but it is the way things have been done for a long time and management seems to be used for using it as well”. Company H’s sales invoicing process has fewer steps than previous case companies had. This is due the fact that they do not charge materials, products or working hours. The main step is then information transfer from the accepted quotation to the invoice. Current systems ability to do this is low, because CRM and sales invoicing software are not compatible with each other. Office manager says that, “I get the information from confirmed sales through CRM system and then I take that information and manually input it to the sales invoicing software.”

Management’s view towards change in business organization: According to the office manager, changing current system would have clear benefits. The main challenge regarding change is the time required for learning new habits and systems. The company tries to improve processes constantly and employees are encouraged to give feedback about current processes to managers. The feedback has been given to managers about sales invoicing system as well, but so far, real alternative research has not been conducted. The office manager agrees that business needs to evolve because the environment and competition changes constantly.

Analysis: According to the office manager, it seems that feedback and suggestions for alternatives are encouraged by the top management of company H. However, for example, the current sales invoicing has been in use for past ten years and its inefficiency has been communicated to the top management. However, so far there has not been serious search for alternatives. This suggests that there is a gap between valuing change in theory and what is done in practice. Currently the company uses two parallel systems for different tasks that are not compatible with each other. Problem has been recognized for a while, but action has not been taken. Thus, it suggest that some level of inertia exists also in this organization. According to the office manager, biggest challenge for the change in their company comes from finding the time for searching alternatives and implementing the new system. Like is some previous cases, the “time” seems to refer also the effort and energy that is required to take additional tasks with “normal” daily tasks. As discussed

with company G's case, using "lack of time" as a reason for absence of action often indicates that perception of effort needed for change is most likely much higher than the actual effort would be. This indicates that the decision maker's utility function prefers status quo to changes and thus suggests that inertia does exist in company H.

6. DISCUSSION

6.1. Inertia in SMEs

Primary target for this study was to identify inertia in SMEs, if it existed, and to observe its effect on decision making and find out its sources. Identifying it and observing its effect are of course closely related because inertia is a slowing force, and it thus always affects decision making. However, identifying it with chosen method was not self-evident. This study was able to identify inertia with sales invoicing process and observe its effect on decision making. In addition, the predefined sources of inertia, discussed in chapter 2.1 were all found with these cases. Decision maker's inertia clearly occurs with majority of this study's case companies. The company B was only company that did not provide any signs of inertia. However, with majority of the cases, decision making was influenced by overly high-perceived effort compared to benefits of changes or adoption in organizations. This almost always led to non-adoptive decisions before the options were even evaluated. Decision makers made relatively irrational decisions and were motivated to maintain the status quo and; two sources that were argued to cause inertia in chapter 2.4 and 2.6, respectively. Generally, they also did not embrace change or allow time for development which decreased the whole organizations readiness for change. This shows that change is not valued nor individuals are motivated to change; factors that were discussed in chapter 2.5. These sources of inertia might act as reasons why the TOE framework is incapable to explain many of the factors that were identified in this study. Many factors refer to the time and energy that are needed for adopting new technology. They are also highly connected to employee training, which is discussed with more detail in next section. Time and energy cannot be considered directly as resources, because they are nearly constant with each firm. They are constant because they refer to decision maker's time and energy, not combined time and energy of all the workers in the firm. If this would

be the case, then simply increasing number of employees or working hours could acquire more time and energy. This however does not apply, because number of decision makers (CEOs or owners) cannot be simply increased in reality. Thus, the time and energy in these cases cannot be considered as resources because they are equal with all the firms. Tornatzky and Fleischer also saw this, “organizational resources are fungible, in that they can be taken from one area and moved to another. Thus, a firm may decide to reorient its priorities, taking resources away from an existing activity and applying it to an innovative one.” Six out of eight case companies identified “time” as a general or a process-related barrier preventing the change. Rationally, in these cases the opposite phenomenon should occur. Too much time spent on routine processes should encourage adoption of new and more efficient alternatives. In practice however, unwillingness to change overrides this driver significantly. This highly supports conclusion for inertias existence. In addition, many managers were “able” to decide that costs of adopting a new sales invoicing process were too high, without comparing the alternatives. If lack of “time” or “energy” were the biggest barriers influencing decision making in these firms, it would be rational to spend a little time now, in order to save it more in the future. Half of the case companies agreed that better sales invoicing technology would potentially save time and energy for other tasks, but at the same time, many of them identified “lack of time” as the biggest barrier. This is an example case of irrationality in decision making. As discussed in chapter 2.6 one form of inertia is to make irrational decisions in order for maintaining status quo. It also supports the expectation that some of the managers utility functions are affected by overly high perception towards difficulty of changes overall. Thus, it is reasonable to conclude that the overly high-perceived effort needed for thoroughly evaluating current processes and implementing new ones, is irrational and resistant towards change, and thus, inertial.

Second most important process-related factor that influenced decision making process’ with sales invoicing was the accountant’s opinion. An accounting firm can play an important role in company’s success, but usually it does not directly bring in revenue for the firm. Also, accountant is most surely not irreplaceable. Accounting firms are very common in Finland so many alternatives for service providers do exist. A good relationship with the accountant might provide some value for the business, but letting it affect the evaluation of the current processes or

recommend processes without comparing alternatives cannot be optimal for business. As mentioned previously, three case companies had changed their sales invoicing software because of accountant's recommendation. Accountant's recommendation led to improving processes so that they mostly benefitted communication between the accounting firm and the case company. Company's sales invoicing process did not significantly improve after the implementation. The adoption merely improved the information transfer. The company A had even made server investments that required significant financial commitments based on their accountant's recommendation. Despite of these investments, the total process did not again significantly improve, in fact with some tasks it become less efficient.

An accountant is a service provider for the company, but his or hers opinion can work as a barrier that prevents company to evaluate best alternatives for its success. Someone might consider this kind of behavior unethical from accountant's perspective. However, company is still responsible for its own decisions. In addition, accountant's recommendations do not directly harm the company; they are just not very efficient. In theory, service provider should only work as consultant for the firm, but not act as a barrier that prevents firm to make its own choices. Why then management lets accountant have such a high impact on their decisions? There might be number of reasons, but one of them is probably the close relationship with the accounting firm that has occurred for years. Managers and the accountant have developed a personal relationship that prevents managers from acting as optimally as they probably would without this relationship. The accounting firm's services are widely available and can be easily compared. If the firm would like to improve its processes, it would probably do so, even that it might require switching accounting firms. Changing accounting firm is still another task requiring effort. Thus, because of the inertia that exists in these companies, the costs of maintaining this current service is not high enough for driving the change. In addition, the accountant's recommendation decreases the level of effort required to change. The accountant provides the company with a complete solution that can be accepted without evaluating alternatives by themselves. Thus, we can conclude that the level of required effort plays the major role in business decisions in these organizations. This highly indicates that also inertia plays significant role in SMEs decision making.

6.2. Technology-Organization-Environment Framework in Practice

This study's results support existing TOE frameworks factors that affect technological innovation decision making. However, it can be concluded that there are additional factors affecting to total process in case of SMEs. These additional factors stem mainly from sources of inertia. The process-related factors and general managerial factors were identified. Both of these factors can be considered valid for explaining the behavior. This is true, because general factors describe decision maker's perceptions toward change, which often steers their actions in practice. Perception especially drives decision making when it is not externally evaluated by anyone else. With large companies, decisions often involve multiple parties that "averages" these involved individuals perceptions. This is not the case with SMEs. With SMEs, decision maker is rarely responsibly for anyone else, nor is his or hers decision later evaluated.

In this study, focus was mainly on identifying possible additional factors outside the TOE framework, but at the same time, results confirmed some of the existing factors in this theory. Factors affecting changes in organization were found on each of three major contextual categories: environment, technology and organization. Thus, SMEs are also affected by the same factors that are presented in original TOE framework. However, TOE framework is incapable to explain this behavior as a whole.

When TOE frameworks factors were compared to results with sales invoicing process, additional factors were found outside the framework. Total of 22 process-related factors affecting the sales invoicing were identified. These driving factors for technological innovation were, "demand for time (4)", "accountant recommendation (3)", and "employee satisfaction (1)." The barrier factors were, "time (4)", "employee training (3)", "energy (3)", "accountant relations (2)", "information transfer (1)", and "industry specific demands (1)". When the process-related factors were compared to the TOE frameworks factors, only "information transfer", "employee satisfaction" and "industry specific demands" were directly explained by TOE framework.

Total number of general factors influencing adoption that were identified with the case companies, was 18. The general factors driving general adoption were, "competition (3)", "customers (2)",

“government regulation (2)”, “employee satisfaction (2)” and “IT development (1).” The barriers prohibiting adoption were, “employee training (4)”, “time available (2)”, “government regulation (1)” and “management assurance (1).” From these factors, “competition”, “customers,” “IT development” and “government regulation” can be explained by environmental factors in TOE framework. In addition, “management assurance” fits into the framework as an organizational factor.

6.3. Extended TOE Framework

The process-related factors affecting case companies’ possible sales invoicing changes were, “industry specific demands”, “employee satisfaction” and “information transfer.” These can be explained by original TOE framework. Industry characteristics explains the “industry specific demands” as a barrier for adoption. This observation came from company B, which was trying to adopt a new system but was unable to do so because printing machines used large amount of parameters and automation stage of this process would be required with a new system. This process proved to be too complicated with available alternatives. “Employee satisfaction” can be partly explained by multiple factors. These factors are for example “labor costs”, “technological skill of available labor” and/or by the “top management leadership behavior”. None of these factors solely explains employee satisfaction as a driving force for innovation, but they can refer to top managers’ goals for sustaining skilled employees. This might also come from high labor costs, when the individual worker’s output needs to be maximized. In addition, this can also come from the low technological skill set of available labor, which supports the decision to keep skilled workers. Even that this factor does not drop directly in one of the TOE categories, it is a single factor that should not be used for evaluating the whole theory. The last factor, “information transfer” is explained by the low current technology level, which prohibits information transfer from one software to another.

Now the explained factors that could be identified by TOE framework are covered. However, many of the factors affecting SME decision making do not fit into any of the TOE frameworks categories. TOE framework does not explain “time”, “energy”, “employee training” “accountant relation” nor “accountant recommendation.” First three factors explain 13 out of 22 sales invoicing

innovation adoption drivers and barriers in these cases. This study suggest that these factors play a significant part with adoption probability and should be combined as one of the main factors affecting SMEs technological innovation adoption. These three factors are not explained by TOE framework but they work both as drivers and as barrier variables in the decision making process. Time and energy clearly refer to effort that is required to search for alternatives, make adoption decisions and implement new technology. “Time” as a barrier does not purely refer to time that is available, but also to opportunity costs of using this effort for finding the alternative approach. “Time” is also a driving factor as more time available taken from routinized processes that do not create direct revenue, frees up more time for tasks that do. “Energy” factor is closely related to “time”, and it also refers to the effort that would be used to research, education and implementation. None of these tasks are physically much more demanding than other managerial tasks, but also they are not routine tasks and thus require more effort to be completed. Managers seem to perceive adoptions as complex and laborious tasks. “Employee training” factor is included, because as discussed before, managers were not worried about employees training capability when implementing new systems, but they were rather worried about the time that it would take to educate these employees. The common nominator with these three factors is then overly high perception towards time and effort that would be required compared to perceived benefits with adoption. More efficient sales invoicing process’s value largely stems from time and money that is saved. However, none of the case companies were focused on the financial benefits. Sales invoicing is a process that does not usually directly lead to higher revenue, so it can only save money by lowering expenses or by maximizing revenue. Maximizing revenue occurs when the credit losses and delayed cash flow are minimized with efficient invoicing process. Sales invoicing is used only as a method for studying the overall technological innovation decision making factors with the SMEs. The saved time cannot be included into theory, because it is not applicable for all of the other technological innovations that might have very different benefits. The conclusion with the “time”, “effort” and “employee training” factors comes then down on perceived benefits versus perceived costs of the adoption. This is of course the case with many of the decisions as they are often subjective and not purely based on facts or measurable variables. However, the significance that these factors had in these companies’ decision making, indicates that SME decision making

is much more closely related to the individual decision making than rational process. Thus, individual manager's perception has significant value in technological innovation decision making.

The existing studies conducted on individual technology acceptance have led to similar results as found on this study. Technology acceptance model (TAM) introduced by Davis in 1989 measures potential adoption of technology based on products perceived usefulness and perceived ease of use. This is illustrated in figure 5.

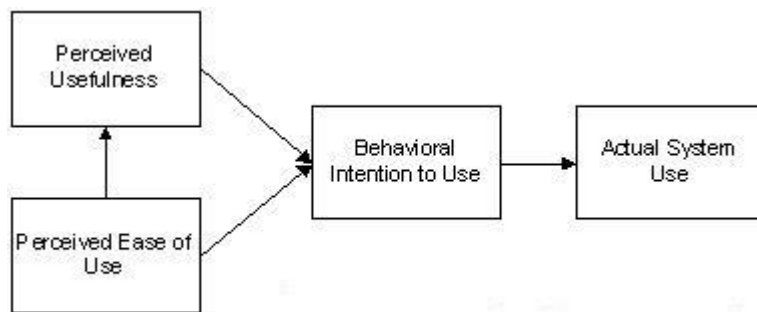


Figure 5: Technology Acceptance Model (Davis 1989)

However, TAM focuses on product qualities rather than individuals behavior in organization. In this study, alternative product qualities were not identified, so case companies were unable to evaluate alternative processes usefulness or ease-of-use. Also with case companies, inertia prevented decision makers from evaluating alternatives, so perceptions of “ease of use” for example with alternative, could not be a factor. TAM still provides support for the similar qualities that matter in processes for SMEs. As the SMEs decision making is close to individuals decision making, it shows how individuals in these cases perceived alternatives “not useful enough” and “not easy enough to use” for making the adoption decisions. Inertia in these organizations works as a barrier, preventing the willingness to change at the get-go before alternatives can even be evaluated.

Riemenschneider et al. (2003) studied the adoption decision making by small firm executives. Their results indicated that, “Reversing the emphasis somewhat can help to explain why executives in small firms fail to adopt what might be seen as clearly helpful and even essential form of IT. Our findings suggest that this reticence does not stem from expected difficulty or constraint but is

because they do not see, or are not aware of, clear anticipated benefits, and they do feel social pressure to bring the IT into their firms.” Thus, based on their study the actual costs for IT adoption are not the problem, but it rather comes from unclear benefits. This might be one of the reasons why this study’s results show perceptual gaps between costs and benefits of unsearched alternatives. If the drivers for technology adoption are not perceived as strong enough, the small barriers might still be high enough for preventing adoption. Their study does not suggest that the benefits do not exist, but rather that managers fail to identify them. Similar results were found by Thong (1999) in his study of IS adoption with small businesses. One of the positive adoption factors was the CEO’s level of innovativeness and level of IS knowledge. Thus, the decision maker’s knowledge level on the issue will affect adoption probability. This is rational because if the manager is familiar with the alternatives then the search process is less complex. This then lowers adoptions total perceived costs in form of time and effort. However, with some of the decisions, the level of required knowledge is very low. This was also the case with sales invoicing because the process itself does not substantially require new skills. It is also unlikely that managers would be incapable of executing this evaluation, so the reasons for this unwillingness must stem from negative attitudes toward this total process.

Kuan’s and Chau’s study (2001) led to similar results as this study. Their study indicated that SMEs managers were unable to identify the full benefits of the electronic data interchange systems. Managers perceived benefits and perceived costs varied highly, usually in form of low-perceived benefits or high-perceived costs. Their study did not try to explain this phenomenon nor extend the original TOE framework. As previously argued, this phenomenon comes from inertia. This study will provide the extension in one of the sub categories of TOE framework and add the fourth main context factor. The extensions were created based on this study’s and existing studies results (Thong 1999) and (Riemenschneider et al. 2003) that support individual-like decision making with adoption in SME environment.

This study itself is not extensive enough for providing clear subsections or for understanding all levels of individual-like decision making. The extension for TOE framework was done by providing fourth major context in addition to three original major contexts. This category is called “individual”. Based on this study’s results, two subsections were also been identified. The term

“individual” refers to individualistic behavior that occurs with decision making in these firms. The individual can be anyone in the organization who has the decision making power over certain technological innovation decisions. Multiple decision makers can also exist simultaneously in situation of one dilemma, in which case their combined individual perceptions will drive the decisions. This of course occurs on especially with larger organizations and then averages out these perceptions. These organizations have large number of decision makers on various levels, and thus decision making results might become more as combined consensus of these individuals opinions. With smaller organizations, this is not the case. Often, one or maximum combination of few individuals makes these decisions in SMEs. This number is often too low that significant averaging can occur.

Results of this study suggest that decisions are often made purely based on individual’s perceptions, and often these perceptions are affected by unwillingness to change, or in other words, by inertia. In some cases, certain individual who possesses extremely high perceptive barriers for change can influence decisions over others. This phenomenon occurred with case company E. In SMEs, often a sole actor, who is not responsible for anyone else, can make the decisions. In many cases, this actor is the owner or the CEO of a small firm, who can make decisions without responsibility to the board or to the shareholders. The absence of outside pressure seems to allow decisions to be made purely by one’s opinion. Instead of using term “individual”, the terms “individualism” and “individualistic behavior” were also considered. However, as mentioned previously, this study is not broad enough for fully understanding this behavior, so the selection of most comprehensive term was appropriate. However, two sub categories were identified for the “individual” context. These categories are “willingness to change” and “relations”. The new “box” for the TOE frameworks extension is show at figure 6.

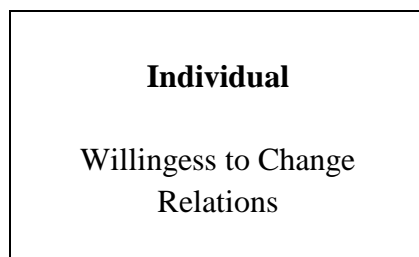


Figure 6: Fourth Major Context: Individual

“Willingness to change” was chosen as a term for first subcategory based on the found inertia with case companies. With most cases, “unwillingness to change” was found. Unwillingness to change is one of the forms of inertia. However, using term “inertia” would be naïve expectation that this would be the case with all SMEs outside this study’s scope. The term “willingness to change” measures the individual decision maker’s perceptions towards change in business organizations. Some individuals might be unwilling to change, showing higher perceived barriers than actually exists, but in some cases, opposite might occur. However, these factors carry significant weight on company’s probability to adopt. As seen with case company E, the office manager refused to adopt new accounting software even that the CEO was willing to do so. For CEO to override office manager’s decision, significant drivers would have been required to exist in this case. The company E’s case also works as an example for second subcategory. The term “relations” refers to individuals relationships with different actors in business industry and in personal life. As seen with company E, even that the CEO holds the official decision power over office manager the office manager was able to stop the adoption using personal reasons. The CEO’s was also unwilling to use his decision making power over the individual, even that it might benefit the company. This also occurred with cases on which the accountant was allowed to influence decision making.

The remaining factors that are not explained by TOE framework are “accountant relations” and “accountant recommendation”. These two factors cover 5 out of 22 drivers and barriers. In cases which the accountant was influencing sales invoicing process solution selection, there seemed to be a long lasting business relationship between the firm’s manager and their accountant. The close relationship increases accountant’s recommendations weight with company’s decision making. As seen in these cases, it can either drive adoptions or work as a barrier over new technology adoption. In some cases, it highly encouraged companies to adopt systems even that those were not optimal for them. The relationship also worked as a barrier, preventing evaluation and implementation of alternative solutions, which could be better suited for these companies. As discussed previously, this did not occur because their services would be irreplaceable but because of the personal relationship. Again, it would be naïve to expect that this relationship with accountant would be unique. Most likely, similar relationships that affect companies’ decision making, do occur. They

might occur with another service provider or be purely personal. However, it would have been not proper to call these relations just “business relations” because the line between personal and business relationship is hard to separate. Again, the use of broader term was seen appropriate. In addition, the identified individual-like behavior supports the conclusion that these business relations can develop to personal relations. Thus, the term “relations” was seen as broad enough to cover these relationships.

The accountant relationship is also important when its effect is compared to original TOE frameworks factor “customer-supplier relations.” Phenomenon in both cases is similar. As discussed in theoretical part of this study, “customer-supplier relations” refers to customers’ ability to affect supplier’s (decisions maker company) technological innovation decision making. Tornatzky and Fleischer saw the effect to be only one sided, by customer only influencing supplier, but the results of this study showed that the effect is two sided. As discussed previously, this influence can act as a driver or as a barrier. Because SME technological innovation decision making can be affected by the suppliers, there is a need for extending TOE frameworks environmental context. The extension is presented in figure 7.

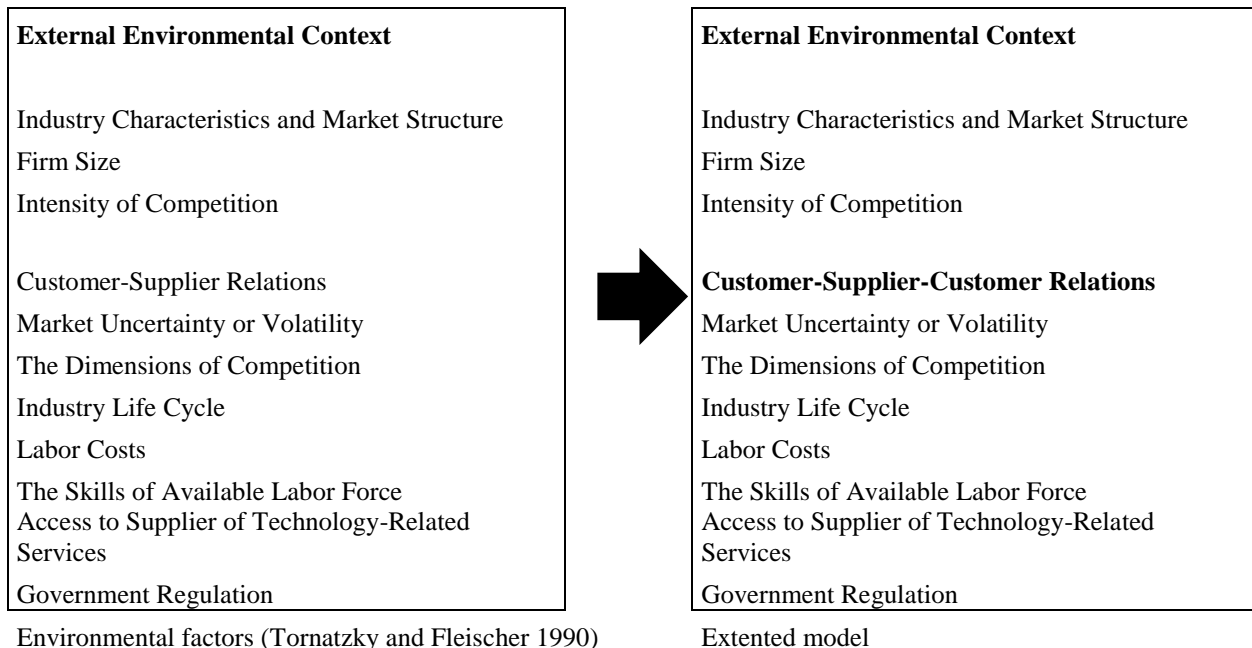


Figure 7: Extended Environmental Factors

The original TOE framework model and all the subcategories were presented in a Chapter 3. The extension includes the term “customer-supplier-customer relations”, clearly indicating that supplier and customer can both work as an influencer. Now the environmental context is expanded and fourth major context factor is introduced. Next, a full model explaining technological innovation decision making with SMEs is shown in figure 8.

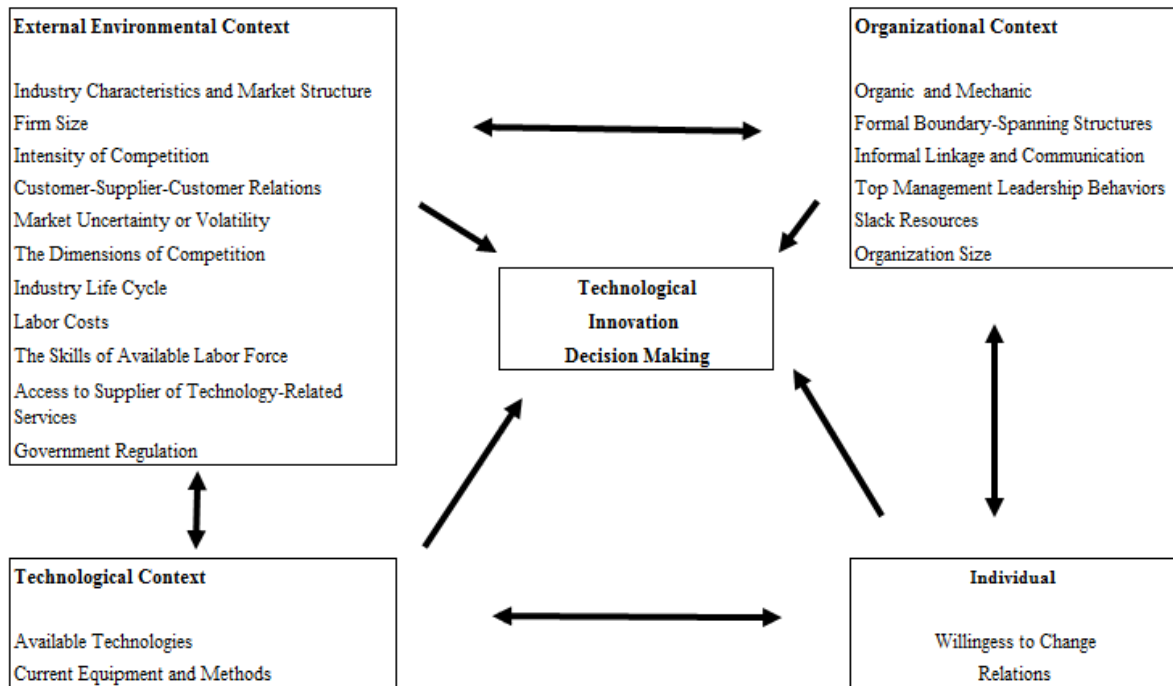


Figure 8: Extend TOE-Framework for SMEs: Technology-Organization-Environment-Individual Framework

Visualization of new extended model shows the extended fourth “individual” context. This context includes subcategories “willingness to change” and “relations.” In addition, the original “customer-supplier” is extended to cover “customer-supplier-customer” relations. This is presented under “external environmental” context. Based on this study’s results, this extended framework is able to explain technological innovation decision making also with small- and medium enterprises.

7. CONCLUSIONS AND LIMITATIONS

7.1. Conclusions

This study aims to answer the following question:

What are the sources of inertia in SMEs?

The question was comprehensively answered by identifying inertia in seven out of eight cases and identifying its main sources. Answer to this question also allowed specific improvements to TOE framework to be developed. The term “inertia” was defined as a decision maker’s inertia, based on expectation that few individuals have strong influence in SME decision making. This expectation was highly confirmed because actual evidence of individual-like behavior’s effect on adoptive decision making was found. Sources for this phenomenon were however different between the cases. However, the main sources were related to individual’s perceptions towards change and to their personal relations. This led to conclusion that the overall prevailing barrier in these companies was indeed inertia. Some of the TOE framework’s original factors were confirmed and additional factors were identified. The results were also compared to existing studies that provided theoretical extensions for finding out if the phenomenon was already analyzed. Extensions that were found, provided support and understanding to this study’s results but did not provide complete explanation to this behavior. Thus, the appropriate extensions to TOE framework were made. However, this study’s broadness limits were accounted. The extension was made by including “individual” context as a major factor into TOE framework with SMEs. Results indicated that the requirement of “time” and “effort” were highly influencing decision making. These terms presented individuals negative perceptions towards change. The demand for “time” functioned as a driver, and “time” and “effort” combined, functioned as a barrier. In most cases, respondent’s perceptions of these barriers significantly exceeded the perceived benefits. The term “willingness to change” was chosen to describe this phenomenon, allowing possibility to opposite behavior.

The accountant relationship also influenced decision making. It worked as a driver and as a barrier, allowing conclusions of relationships effects on decision making to be drawn. The term “relations”

was added, to describe the influence on decisions maker's relationships on decision making. The term was chosen, because it was broad enough to describe any kind of relations that have influence. In addition, the extension on "customer-supplier relations" section in original TOE framework was included. Original framework suggested that the effect was one sided, but the results of this study indicated clearly that both sides can influence another. Both of these extensions were created based on similar observations that were gathered from multiple respondents. No extensions or conclusions were made based on single case. The new extended model was then described and presented visually. This study was able to identify new factors that can be taken into consideration with further studies regarding inertia, TOE framework or SME decision making.

7.2. Limitations

This study has major limitations that should be considered when evaluating the results. The first limitation is a small sample of case companies. The total of eight cases were observed. This is not a large enough sample for reducing the effect of outliers in the data. In addition, the small sample size did not allow comprehensive testing of the original TOE framework. The extension was made because additional influencing factors were found, but not nearly all of the original framework's factors were found in these cases. The results of this study could thus only add factors to the existing theory or confirm part of the existing factors, but not be able to remove any original factors. Removing the original factors would require substantial sample size from wide geographical regions. Large sample size would be required in order to proof that some factor does not have any kind of effect on adoption. Because of the small sample size, also most likely not all factors that affect adoption decision with SMEs were identified. In addition, the new added context factor "individual" and its subsections effect on adoption process require further research, in order to be comprehensively understood. All case companies were from Finland, thus the results might be affected by the certain cultural and geographical characteristics and might not be applicable around the globe. Sales invoicing process was chosen as research method for multiple reasons provided in chapter 5. However, if a higher valued core business process would have been chosen, the results might have been slightly different. SMEs managers focus was mainly directed towards processes that had more significant and direct business value. Sales invoicing seemed to be important enough

for creating proper results. However, any less important process outside the company's core businesses would most likely be too insignificant for the managers. This kind of process would probably not be able to describe actual decision making behavior. Because of these limitations, this study mainly contributes the groundwork for SME decision making and defines inertia in a new way. In addition, the behavioral differences between with small and large enterprises are highlighted by the analysis of TOE framework with SME cases.

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APPENDICES

COMPLETE QUESTIONNAIRE

Background:

Industry?

Number of employees?

Employee structure (example: 2 in sales, 1 in administration, 3 project workers)

Latest annual revenue?

Do you (company) have any other than financial management software helping with sales tracking, sales invoicing, or time tracking? If yes, what?

Invoicing:

How many invoices are created monthly?

Who has the main responsibility of invoicing?

What is your estimate of the time used for sales invoicing per month?

Do you create reports based on sales invoicing? If yes, what is your estimate of time used for creating these reports?

What is your estimate of invoices that are never sent to customer?

What is your average time from point of sale to invoice being mailed to customer?

Is it possible that some of your credit losses could be avoided with faster sales invoicing process?

Tracking working hours:

Do you provide expert services? If yes, what is your time tracking process? How much this process takes employee hours on monthly basis?

Do you charge customer based by actual hours or by project?

How many employees are involved with time tracking?

How many hours are spent monthly by a single employee for time tracking?

Do you create reports from hours tracked (working hour surveillance or project profitability)?

Continuous contract invoicing:

Do you have customers that have on going contract with you?

How many ongoing contracts you have?

How often these customers are invoiced (monthly, quarterly, semi-annually or annually)?

How are these invoices created?

What is your estimate for time used to these invoices?

How are your contracts archived?

Sales:

Do you make sales quotes?

How are sales quotes created?

How many sales quotes are produced monthly?

How many employees are involved with producing these sales quotes?

How much time is used for one sales quote?

How is the information from accepted sales quotes transferred for invoicing?

Sales invoicing and management perceptions:

Current sales invoicing process and/or software?

How long it has been in use?

What grade would you give for your current process (1-5, five being the best)?

Do you feel that the current process is the most efficient one from the existing alternatives? If yes, why? If no, why is it being used?

Have you made any research for alternatives? If yes, how? If no, why not?

What would it require from you to change the current process and/or software?

What risks you see from changing the current process/software?

What challenges you see from changing the current process/software?

What benefits would you expect from changing the current process/software?

Have you made any research that would confirm these opinions?

Do you feel that it would be beneficial to change your current process/ software? Why?

Are you actively trying to improve company's processes? If yes, how? If no, why not?

What are the challenges when trying to improve company's processes?

Are continuous improvements necessary for the company's success? If yes, why? If no, why not?