



The Killing of Queues

A story of why some companies can create competitive advantage from using Technology-Based Self-Service

Abstract

Self scanning and Self checkouts are two popular in-store Technology-Based Self-Service (TBSS) systems used among food retailers in Sweden. These systems bring new opportunities and challenges for stores to consider. The result of implementing these in-store TBSS systems actually seems to differ quite a lot. Some are able to reduce the queues at the checkouts and save costs, while other stores have not been able to do this. The purpose of this thesis is therefore to explain why different results of using in-store TBSS systems occur between stores, based on how their internal resources, competencies and capabilities differ. It also aim at assessing if an in-store TBSS can be a source of creating sustained competitive advantage.

A multiple case study, including five food retail stores, was conducted using the classical Resource Based View (RBV) on strategy. The study shows that it is useful for managers to have a RBV on strategy before making investments. The following six resources, competencies and capabilities were found to serve as explanations for why the result of using in-store TBSS systems differ: (1) Type of location, (2) Physical store design, (3) Maintenance competence, (4) Customer service approach, (5) The store managers goals and commitment and (6) The marketing efforts. Although the study shows that the physical in-store TBSS system itself cannot be a source of sustained competitive advantage, having a high *capability* of deploying the system can be a source of sustained competitive advantage.

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CHAPTER 1. INTRODUCTION

A noticeable trend today is the increasing use of *Technology-Based Self-Service* systems (TBSS systems) in many different industries and businesses. TBSS are services with high customer involvement, where the customers to various extents through the use of technology perform some of the value adding activities themselves. In everyday life these kinds of systems can be found in multiple places. The bank industry, for example, was very early in adopting this kind of technology. In Sweden the first ATM was installed in Uppsala in 1967 (Thodenius, 2008). The spread of TBSS systems in Sweden during the last 20 years have been explosive and there is no sign of a slowdown. The railway and airline industries are other industries where the use of TBSS systems is widespread, in the form of ticket vending machines, online travel booking and self check in at airports. Another industry that has been in the front line of using TBSS systems is the retail industry. The majority of larger retailer chains today use TBSS systems, either through web shops, or in-store systems. In-store systems are for example multimedia kiosks, which is used to check the price of a good or to print a recipe. Other examples of in-store TBSS systems are self scanning and self checkout, which are alternatives to traditional checkouts. The usage of in-store TBSS systems in Sweden is, however, limited to the food retail industry and the famous furniture retailer IKEA.

The spread of self scanning and self checkouts in the Swedish food retail industry has gained much attention in media. Both the issue of customers complaining about having to do the cashiers work and the risk of lost control from the store perspective are common subjects in newspapers ("Självs scanning väcker starka känslor", 2009; "Självs scanning är bra men kräver att butikerna byggs om", 2006; "Åtalad för fusk med självs scanning" 2010; "Oh no! Shoppers face yet more self-scan tills", 2010; "Fem trender-så shoppar vi år 2020", 2010). Despite the negative publicity, these in-store TBSS systems have become very popular among food retailers in Sweden. The advantages therefore seem to exceed the disadvantages. Still, the knowledge of what these advantages and disadvantages are and how they can be a source of creating possible competitive advantages for stores is quite limited. Nevertheless, it is a knowledge that would be valuable for many store managers to have when considering investing in self scanning or self checkouts or when an investment has already been made. The result of implementing these kinds of in-store TBSS systems in food retail stores actually seems to differ quite a lot. Some are able to reduce the queues at the checkouts and save costs, while other stores have not been able to do this ("Matbutikerna låter kunderna göra jobbet", 2009). The question of why these results differ then becomes relevant.

The majority of earlier research on the subject of TBSS has been conducted from a marketing perspective and emphasis has been put on Internet-based self-service or customers' attitudes, satisfaction and interaction with these self-service systems (Bobbit & Dabholkar, 2001; Curran et al, 2003; Reinders et al, 2008; Bitner et al, 2002; van Beuningen et al 2009). Little research has, hence, been conducted from a strategic management perspective and this thesis therefore aims to fill this gap. The use of TBSS systems has a significant effect on the operations of a firm, since previously functions performed by the firm can now partially be handled by the customers themselves. These systems bring new opportunities and challenges for the store to consider and investing in this type of self-service technology can also affect a store's competitive advantage and strategy. The question of why some food retailers are able to benefit more from the technology than others then becomes relevant. To be able to answer this question we have chosen to use an inside-out perspective on strategy. The Resource Based View (RBV) offers this perspective, since this thesis focuses on in-store TBSS systems, which can be viewed as an internal resource.

1.1 PURPOSE

The main purpose of this thesis is to explain why different results of using TBSS systems occur between stores, based on how their internal resources, competencies and capabilities differ. This thesis also aims at identifying if TBSS systems can be a source of creating competitive or even sustained competitive advantage.

1.2 DELIMITATION

Our research mainly focuses on the Swedish food retail industry and its use of TBSS systems in the checkout process. This means that we will focus on the in-store TBSS systems: self scanning and self checkouts. We have chosen this delimitation because it is relatively easy to compare the differences in results between stores with regard to this type of in-store TBSS systems. The results of other types of in-store TBSS systems such as multimedia kiosk are much more difficult to measure the results of. Sweden was chosen for practical reasons. The research will only focus on stores in the super- and hypermarket segments of the Swedish food retail industry, since the use of TBSS systems has been most prevalent in those segments.

1.3 DEFINITIONS

- **Resources:** *Anything owned or controlled by a firm, which could be thought of as a strength or weakness.*
- **Competencies and Capabilities:** *The firm's ability to deploy resources and the collective learning of how to coordinate diverse skills and integrate multiple streams of technologies.*
- **In-store Technology-Based Self-Service (in-store TBSS):** *High customer involvement services, where the customer to various extents performs some of the value adding activities herself through the use of technology when shopping in physical retail stores.*
- **Supermarket:**
 - *10 000 – 15 000 items*
 - *Located in the city centre or in residential areas*
 - *Concepts in Sweden: Hemköp, Vi-butiker, Coop Konsum, Coop Extra, Ica Supermarket and Ica Kvantum*
- **Hypermarket:**
 - *More than 12 000 items*
 - *Located in the outskirts of cities*
 - *Concepts in Sweden: Ica Maxi, Coop Forum, City Gross*

1.4 OUTLINE

Our thesis will have the following outline; in Chapter 2 we will discuss the theoretical framework, which will be the base for our research model that will be presented at the end of that section. In Chapter 3 our chosen methodology will be presented. This will be followed by an empirical background of in-store TBSS systems in the Swedish food retail industry in Chapter 4. Chapter 5 presents an operationalization of our research model. In Chapter 6 we will present the empirical findings of our multiple cases along with within case analysis of each case. Chapter 7 will combine our research model and the empirical base to form our cross-case analysis. The analysis will then be developed in a synthesis in Chapter 8. In Chapter 9 we will present our conclusions and the managerial implications of this study. In the final chapter, Chapter 10, we will further discuss our findings and suggest interesting topics for future research.

CHAPTER 2. THEORETICAL FRAMEWORK

In this section we will clarify our chosen theoretical framework for this study. The first part will present the development of the Resource Based View (RBV) and thereafter discuss chosen parts of relevant earlier research on RBV. Finally, this discussion will lead to the development of our research model.

2.1 EARLIER RESEARCH ON THE RESOURCE BASED VIEW

2.1.1 ORIGIN AND DEVELOPMENT OF THE RESOURCE BASED VIEW

In contrast to the generic perspective on strategy, the Resource based view (RBV) on strategy recognizes "...that firms own or control sets of resources that support unique strengths, allowing the firm to perform activities better or at lower cost than rivals" (Fleisher & Benssoussan, 2003, p.207). This link between a firm's resources and the creation of competitive advantage is a starting-point for all research on the RBV. The way a firm acquires, accumulates or develops its resources will have an impact on its strategic success (Slack & Lewis, 2008). The idea of looking at firms as broader set of resources goes back to the influential work of Penrose in 1959. However, this theory gained very little attention until the mid 80's. In 1984, Birger Wernerfelt wrote the article "A Resource-based View of the firm", arguing for the usefulness of analyzing firms from the resource side rather than the product side, which can be said to be one of the first articles describing the RBV in its modern form. However, it was not until the beginning of the 90's that this perspective gained recognition in the academic world (Wernerfelt, 1995). The RBV has now gained wide popularity throughout the strategy literature (Priem & Butler, 2001).

2.1.2 DEFINING RESOURCES

The inside-out perspective on strategy is common for all research on the RBV, but there are differences among researchers concerning the definition of resources. Two broad definitions of resources are for example, "...anything which could be thought of as a strength or weakness of a given firm" (Wernerfelt, 1984, p. 172) and "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm to conceive of and implement strategies that improves its efficiency and effectiveness"(Barney, 1991, p. 101). Amit and Schoemaker (1993) have a more specific definition and distinguish between resources and capabilities, where resources are defined as "stocks of available factors that are owned or controlled by the firm" (p. 35) and capabilities are defined as "the firm's ability to deploy resources" (p. 35). The concept of resources is further developed to include a third aspect – competencies. Capabilities and competencies are formed when resources are combined (Lowson, 2003). Prahalad and Hamel (1990) define core competencies as "...the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies" (p. 82). They argue that, unlike physical resources, competencies grow as they are applied and shared, instead of deteriorating.

2.1.3 RESOURCE ATTRIBUTES

Regardless of how you define what resources, competencies or capabilities are, and despite the fact that firms possess many resources, competencies and capabilities, only a few of these have the potential to be a source of creating sustained competitive advantage (Wade & Hulland, 2004). To handle the matter of finding these resources, competencies and capabilities, RBV theorists have different sets of attributes to determine whether or not a resource, competence or capability is strategic, i.e. a source of creating sustained competitive advantage.

Heterogeneity and immobility

Barney (1991) argues that in the search for sources of creating competitive advantage one must focus on resource heterogeneity and immobility. Resource *heterogeneity* means that firms have different amount and kinds of strategically relevant resources, competencies and capabilities

and this gives the firms different conditions for competing. Peteraf (1993) describes it in terms of productive factors, which have “intrinsically differential levels of ‘efficiency’” (p. 180). For example, some firms might have recruited more talented personnel than others, which give these firms advantages. If this difference is stable over time it can, in addition to being a source of creating competitive advantage, also be a source of creating *sustained* competitive advantage. *Immobility* implies that resources, competencies and capabilities cannot be transferred between firms without cost, i.e. resources are sticky. An example of immobile resources could be something that is interconnected with other resources in the firm and therefore hard to trade. These two conditions are the truisms of the RBV according to Priem and Butler (2001).

The VRIN-attributes

One of the most common and influential frameworks, when it comes to finding sources of sustained competitive advantage, is Barney’s (1991) VRIN-attributes and therefore we will elaborate more thoroughly on this particular set of attributes. The **VRIN-attributes** states that a resource should be *Valuable, Rare, Imperfectly imitable and Non-substitutable* to be strategically important for a firm.

Valuable: A resource is said to be valuable when they can contribute to implementing a strategy that improves a firm’s efficiency and effectiveness. In other words it can exploit opportunities and/or neutralize threats (Barney, 1991).

Rare: A resource should be rare among its current and potential competitors in order for the firm to develop a competitive advantage. How rare a resource, competence or capability must be to generate a competitive advantage is however a difficult question. Barney (1991) argues that, as long as the number of firms that has a particular valuable resource, competence or capability is less than the majority of competing firms, that resource has the potential to generate a competitive advantage.

Imperfectly imitable: A resource can be imperfectly imitable for one or a combination of three reasons; (1) history dependence, (2) causal ambiguity, and (3) social complexity. What a firm has done previously will affect its ability to exploit and acquire resources in current and future periods of time, which builds a barrier of imitation. Causal ambiguity refers to when the link between a resource and the competitive advantage it confers is not understood or is only imperfectly understood by the firm. This ambiguity creates barriers to imitation and may lie in uncertainty about *which* resource or *how* a resource leads to sustained competitive advantage (Wade and Hulland, 2004). Resources that can be considered as socially complex are for example interpersonal relations among managers, organizational culture, reputation, etc. A socially complex phenomenon is very difficult to imitate, since it is inherently complicated for a firm to manage and influence. Barney (1991) notes that although physical technology by itself is easy to imitate, some firms can through combining socially complex firm resources and physical technology create barriers to imitation, “Several firms may all possess the same physical technology, but only one of these firms may possess the social relations, culture, traditions, etc. to fully exploit this technology in implementing strategies” (p. 111).

Non-substitutability: The existence of a substitute itself does not mean that a firm resource, competence or capability cannot be a source of creating sustained competitive advantage. The substitute has to be either common or highly imitable or both for the last criterion of non-substitutability to be fulfilled (Barney, 1991).

Other sets of attributes

In addition to Barney’s (1991) set of attributes, Dierickx and Cool (1989), for example uses the following attributes to determine if a resource, competence or capability is a source of creating sustained competitive advantage; *non-tradable, non-imitable and non-substitutable*. Another example is Amit and Schoemaker’s (1993) set of attributes; *non-tradable, complementary, scarce, appropriable and firm specific*. Worth noticing is their complementarity attribute which

emphasize the dependence between resources to become strategically important for a firm. "The combined value of the firm's resources and capabilities may be higher than the cost of developing or deploying each asset individually" (Amit & Schoemaker, 1993, p. 39). The idea of complementarities was originally introduced by Dierickx and Cool (1989), but Amit and Schoemaker (1993) further developed the notion. In other words, this attribute claims that an individual resource might not fill the criteria of being a source for creating competitive advantage. However, in combination with other resources, competencies and/or capabilities it might become strategically important. Eisehardt and Martin (2000) state that, when resources and their related processes have complementarities, their potential to create sustained competitive advantage, is improved.

2.1.4 THE DIFFERENCE BETWEEN ATTAINING AND SUSTAINING COMPETITIVE ADVANTAGE

Barney (1991) distinguishes between competitive and sustained competitive advantage. He states that a competitive advantage can be attained if the current strategy is value creating, and not currently being implemented by present or possible future competitors. In other words, a resource only has to be valuable and rare to be a source of competitive advantage. Although a competitive advantage has the ability to become sustained, this is not necessarily the case. Sustained competitive advantage is not dependent on the time frame according to Barney (1991). Rather, a competitive advantage is sustained when competitors have ceased their efforts to duplicate that competitive advantage.

Wade and Hulland (2004) also highlight the importance of distinguishing between resources, competencies and capabilities that help the firm to *attain* competitive advantage and those that help the firm to *sustain* the advantage. They think that it is central to separate these two phases and argues that many RBV theorists have mixed them. To be able to separate attributes connected to competitive advantage from attributes connected to sustained competitive advantage they add, in contradiction to Barney (1991) a time aspect to the RBV. They use the terminology of Peteraf (1993) and call the two types of resource attributes *ex ante* and *ex post* limits to competition.

The *ex ante* limits to competition include attributes that indicate sources of competitive advantage. Peteraf (1993) uses the following terms to explain *ex ante* limits to competition: "prior to any firm's establishing a superior resource position, there must be limited competition for that position." If any firm can acquire and deploy resources for that position it cannot by definition be superior. Attributes in this category includes *value*, *rarity* and *appropriability* (Wade and Hulland, 2004).

Peteraf's (1993) explanation for *ex post* limits to competition is based on Barney's (1991) reasoning regarding resource heterogeneity (see above). She argues that the condition of resource heterogeneity has to be relatively long lasting to add value. In accordance with Wade and Hulland's (2004) reasoning the possibility of creating sustained competitive advantage will then only occur if there are *ex post* limits to competition. Attributes in this category include *low imitability*, *non-substitutability* and *immobility*.

The *ex ante* and *ex post* attributes are interrelated. For example, if a resource is imitated, more of that resource will be present in the market and hence it becomes less rare. The same reasoning also holds for substitutability and value. If there are multiple substitutes for a certain resource, then the value of the resource will deteriorate as substitute resources are developed (Wade and Hulland, 2004).

2.1.5 CRITICISM OF THE RBV

Although the RBV has gained large impact in the field of strategic management it has been subject to criticism. According to Priem and Butler (2001) the RBV have some weaknesses. They argue that it is difficult for practitioners to use, since virtually anything associated with the firm

can be seen as a resource. This makes some resources, e.g. tacit knowledge, very difficult for practitioners to measure and evaluate and therefore they are hard to exploit. Foss (1997) argues that the main problem with the RBV is the “terminological soup”, i.e. theorists use names such as “resources”, “capabilities” and “competencies” for what is virtually the same thing(s). Another highlighted issue is that the RBV is tautological, which is argued by both Priem and Butler (2001) and by Porter (1994). The latter states, the resource based view can be circular. Successful firms are doing well because they have unique resources, and they should nurture these resources to continue flourishing. But the question is then what is actually a unique resource? (Porter, 1994) Barney (2001) has responded to this criticism by arguing that all strategic management theories can be reduced to a tautology, since their primary assertions are by definition true and subject to empirical test. However, Barney (2001) argues that the propositions derived from a tautology can be parameterized in a way that makes empirical testing possible. The tautological argument of the critics is therefore not important, rather it is the possibility of empirical testing that is relevant (Barney, 2001).

2.2 OWN IMPLICATIONS AND RESEARCH MODEL

In this section we will explain our chosen definitions and construct our research model based on the theory section presented above. The research model is a concretization of how the problem area of this thesis will be analyzed.

2.2.1 DEFINITIONS

Since the RBV suffers from terminological confusion it is important to clarify our chosen definitions. We have decided to use broad definitions.

We use two different sub groups as possible sources of competitive advantage and sustained competitive advantage; one group is resources and the other group is competencies and capabilities.

We base our definition of resources on Wernerfelt (1984) and define **resources** in the following terms:

A resource can be seen as anything owned or controlled by a firm, which could be thought of as a strength or weakness.

Our definition of competencies and capabilities originates from Amit and Schoemaker (1993) and Prahalad and Hamel (1990). **Competencies and capabilities** are therefore defined as:

The firm’s ability to deploy resources and the collective learning of how to coordinate diverse skills and integrate multiple streams of technologies.

2.2.2 RESEARCH MODEL

Research model - Part 1

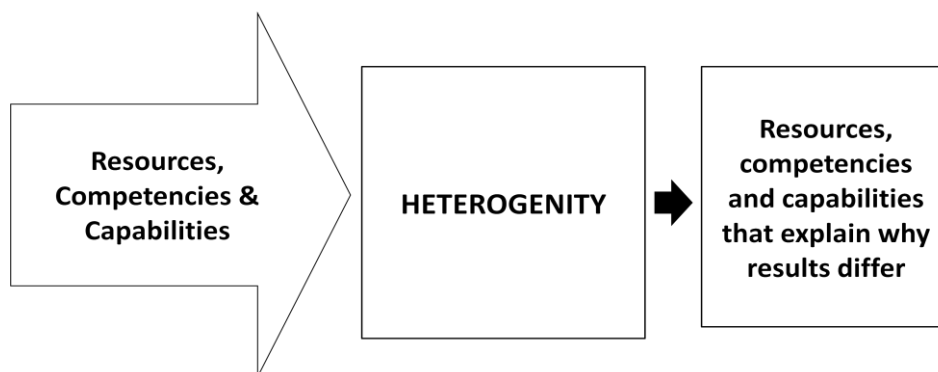


Figure 1. Research model – Part 1

The first part of our research model is a tool for explaining why different results of using TBSS systems occur between stores, based on how their internal resources, competencies and capabilities differ. Barney (1991) argues that in the search for strategically important resources, one must focus on resource heterogeneity. That is, firms have different amount and kinds of strategically relevant resources, competencies and capabilities and this gives the firms different conditions for competing. Hence, when searching for possible explanations for why the results of using in-store TBSS systems differ, the heterogeneity aspect is a relevant starting point.

Research Model – Part 2

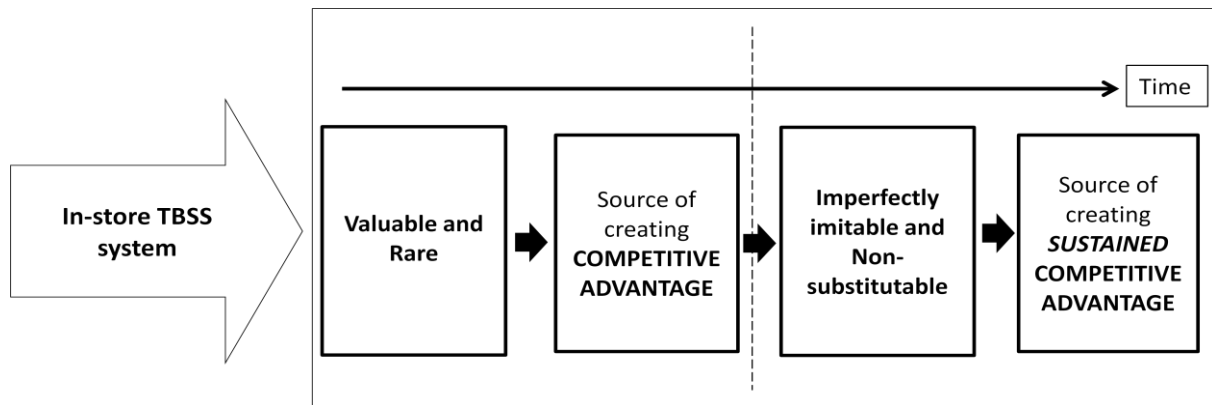


Figure 2. Research Model – Part 2

As mentioned above, the link between a firm's resources, competencies and capabilities along with the creation of competitive advantage is a starting-point for all research on the RBV. However, this becomes relevant when assessing if TBSS systems can be a source of creating competitive advantage and possibly even sustained competitive advantage. We emanate our research model from Barney's (1991) VRIN-framework, since this is the most widely accepted framework for assessing if a firm resource, competence or capability is strategically important, i.e. if it can be a source of creating sustained competitive advantage. We have also chosen to add the time aspect, that Wade and Hulland (2004) introduce, to our model. This is to be able to empirically separate between competitive advantage and sustained competitive advantage. Wade and Hulland's (2004) grounds are used to divide the VRIN-attributes. For a resource, competence or capability to be a source of competitive advantage it has to be both valuable and rare. The appropriability attribute used by Wade and Hulland (2004) is left out, since our definition of resources already includes this aspect (see above). However, for this resource, competence or capability to be a source of sustained competitive advantage the fulfillment of the valuable and rare criteria is not sufficient. It also has to be imperfectly imitable and non-substitutable. According to Barney's (1991) framework the immobility aspect serve as an underlying assumption when searching for sources of sustained competitive advantage. Therefore, we have also chosen to handle the immobility aspect as an underlying criterion for the imperfectly imitable and non-substitutability criteria to be fulfilled. The logic behind this is that if a resource, competence or capability is non-substitutable and imperfectly imitable, then there will always be some kind of transaction cost when transferring this to another firm. To conclude, the logic of our model is as follows: for a valuable and rare resource to create long-lasting competitive advantage they have to be imperfectly imitable and non-substitutable. Hence, for in-store TBSS systems to be a source of sustained competitive advantage it must fulfill the four criteria of being valuable, rare, imperfectly imitable and non-substitutable.

CHAPTER 3. RESEARCH METHODOLOGY

In this chapter we will describe the methodology used in this thesis as well as motivate why it was chosen to provide the readers with means to judge the reliability and validity of the study. We will start by covering the different elements of our research approach. This will be followed by a motivation of the selection of our cases. Our research process will be presented after the motivation of the selection of our cases. Finally, the data collection process and the quality of research will be discussed.

3.1 RESEARCH APPROACH

3.1.1 A QUALITATIVE APPROACH

A starting point when designing a study is to determine if the purpose can be fulfilled through a quantitative or a qualitative approach. In quantitative methods the researcher has to be able to identify specific research variables in advance, since the primary aim is to test the causality of these links in the study. This is often done through use of statistical modeling, mathematics or using arithmetical formulas (Meredith, 1998). Our chosen field of research is relatively unexplored and the aim of our study is to explain why the results of using in-store TBSS systems differ between stores and to assess if in-store TBSS systems can become a source of creating competitive advantage for firms. Andersen (1998) argues that when the aim is more of an explanatory character the qualitative approach is the most suitable approach. Furthermore, since the data in this study does not have the character of statistics, mathematics or results of formulas, there is even a stronger case for us to choose a qualitative research approach.

3.1.2 A MULTIPLE CASE STUDY

This thesis aims to explain *why* some firms can take greater advantage of their in-store TBSS systems than others, based on *how* their internal resources, competencies and capabilities differ. When “how” or “why” questions are being asked Yin (2009) argues that the case study method is a suitable method. Furthermore, when the study focuses on contemporary events over which the investigator has little or no control, which is the case for this study, the suitability of the case study method is further promoted. The case study method offers an understanding of “...a contemporary phenomenon in depth within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2009, p. 13). He further adds that case studies cope with situations where there are many variables of interest and it relies on multiple sources of evidence.

Since the purpose of our thesis aims at explaining differences between firms, it seems natural to use a multiple case study approach. Meredith (1998) argues that the multiple case study approach is appropriate when there is some knowledge about the phenomenon but much is still unknown, which is also the case for this study. There are many advantages with a multiple case study compared to a single case study. Yin (2009) argues that whenever there is a choice and enough resources available, a multiple case design is preferred over a single case study design. Some of the major benefits of a multiple case study are that it increases the external validity and helps to guard against observer biases. This approach also augments the generalizability of the study (Leonard-Barton, 1990). However, there are some limits to the multiple case study approach. Since the time and resources are constrained, choosing to use multiple case study approach means that we will obtain comparative insights from several different organizations, instead of a deep understanding of a single organization. In other words our focus is on breadth instead of depth. This is a limit of the multiple case study approach as described by Voss et al (2002).

3.2 SELECTION OF CASES

Eisenhardt (1989) argues that choosing a number between 4 and 10 cases usually works well when doing a multiple case study. She argues that with fewer than four cases the empirical grounding is likely to be weak and it is often difficult to generate theory with complexity. Having more than 10 cases on the other hand will be quite difficult to cope with the volume and complexity of data. We have used this as a guideline and chosen to include five cases in our study, which seemed to be reasonable number given the scope of this thesis.

The relevant population for our study is organizations within the retail industry that use in-store TBSS systems. In Sweden the use of in-store TBSS systems is only present at the furniture retail chain IKEA and in several food retail concepts. We have chosen to solely focus on the food retail industry in order to do a cross case analysis. The comparability of a furniture retailer and a food retailer is limited which is why we have chosen to exclude IKEA from our study.

The replication logic for a multiple case study is analogous to that used in multiple experiments. According to Yin (2009), each case must be selected so that it either (a) predicts similar results, a literal replication or (b) predicts contrasting results but for anticipative reason, a theoretical replication. Since the aim of this study is to explain differences in results of using in-store TBSS systems between stores, we chose to use these results as the selection criteria of our cases. Three cases were selected, which were renowned for having extraordinary positive results from using in-store TBSS systems. These cases represents Group A. The other group - Group B - consists of two cases which had a reputation of having an average result from using in-store TBSS systems. This approach of choosing extreme cases and polar types is often described as highly desirable (Meredith, 1998).

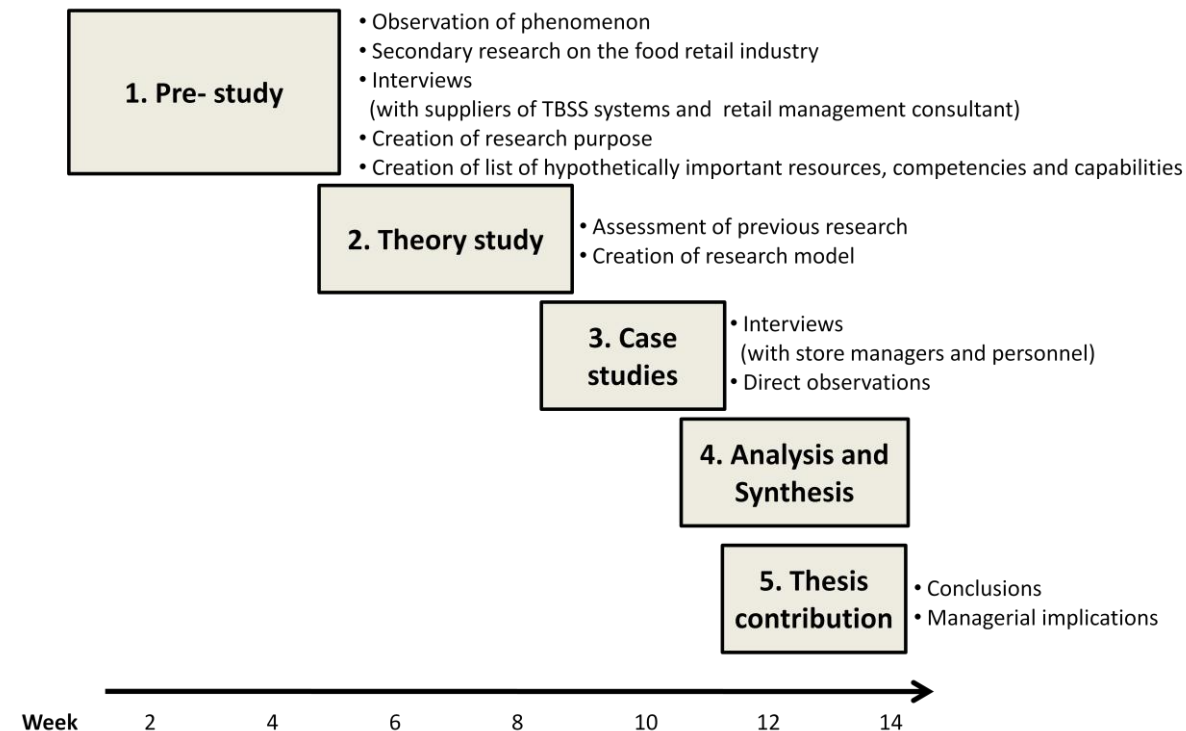
Furthermore, the majority of the cases selected are all located in a small geographic area, in a suburb of Stockholm. Selecting cases in a specific district make us avoid to some extent the differences between the stores that could be caused by geographic variations. These selected cases are immediate competitors to each other and in other words face the same competition. This aspect becomes important for the assessment of whether or not in-store TBSS systems can be a source of creating competitive advantage or even sustained competitive advantage, since the VRIN-attributes are put in relation to the competition. But since we wanted to capture the two different types of in-store TBSS systems, self scanning and self checkout, we included a store located in a metropolitan area as well. This store is the only store of our cases that uses self checkout system. Including this case means that we have two cases in the supermarket segment and three in the hypermarket segment. Three of the largest players in the Swedish food retail industry, ICA, Coop and Bergendahls, are represented in our selected cases.

3.2.1 RETROSPECTIVE AND REAL-TIME CASES

Since the purpose of our study is to explain the different results of using in-store TBSS systems, one criterion in the selection process of our cases was that the stores had used these kinds of systems over a period of time. Otherwise, they would not be able to evaluate their result of using in-store TBSS system. This brings a retrospective aspect to the study. At the time of the study, all of the stores still use these systems, implying that these are real-time cases as well. For retrospective cases, there is always the risk that participants may not recall important events, and even if they do, these recollections may be subject to bias (Voss et al, 2002). Since these are also real-time cases the respondents' memory should not be a problem, however, the bias aspect cannot be ignored.

3.3 THE RESEARCH PROCESS

The following figure illustrates our research process:



Figur3. Our research process

The first step of the *pre-study phase* was to observe an interesting phenomenon in today's society, namely the increasingly spread of TBSS systems in different industries, especially within the food retail industry, and to observe how these kinds of systems can be a source of creating competitive advantage for a firm (see Chapter 1 Introduction). The resource-based view on strategy was chosen as it provides an inside-out perspective. In the pre-study phase we aimed to gain a deeper understanding of the topic and identify interesting problem areas for us to further focus on. This was carried out through both secondary research about the Swedish food retail industry and open interviews. From the overview of the food retail industry's use of in-store TBSS systems we were able to create a research purpose. We also generated a list of hypothetically important resources, competencies and capabilities, which might serve as possible explanations for why the results of using in-store TBSS systems differ. The purpose of this list is to serve as input variables for our Research Model – Part 1.

In the next phase, *the theory study phase*, we made an assessment of the RBV on strategy. Based on this assessment of the previous research on RBV in combination with the purpose of this thesis, we formed our research model, which is divided in two parts. Research model part 1 serve as a tool for collecting data of our cases and answer the first part of our purpose which is to explain why the result of using in-store TBSS systems differ based on how the internal resources, competencies and capabilities between stores differ. Research model part 2 serve as a tool to analyze the second part of our purpose, namely, to assess if in-store TBSS systems can be a source of creating competitive or even sustained competitive advantage. *The case studies* were conducted through direct observations in the stores and interviews with store managers and personnel. The guideline for collecting data during this phase was the list of hypothetically important resources, competencies and capabilities. *The analysis* was then derived from combining the data collected from our case studies with our research model. *The synthesis* was created by taking the analysis a step further, to a more holistic theoretical view. *The contribution of this thesis* stemmed from the analysis and synthesis phase and could be divided into two levels of abstraction ranging from the highest level of abstraction, discussing conclusions in relation to

the purpose of the thesis, to the lowest level of abstraction, discussing practical managerial implications.

3.4 COLLECTION OF DATA

Four different methods for collecting data were used in this study. Interviews, direct observations and physical artifacts constitute the primary sources while documentations made out the secondary sources.

3.4.1 INTERVIEW DATA

The majority of our data was collected through interviews, which is one of the most important sources of case study information Yin (2009). For the pre-study phase, we conducted three open-ended interviews to gain a broad understanding of the food retail industry as well as its use of in-store TBSS systems. First we interviewed a Key Account Manager of Visma Retail AB, which is one of the largest suppliers of in-store TBSS systems to the food retail industry in Sweden. Then, we interviewed the CEO of Information Factory, which is another supplier of in-store TBSS systems to the Swedish food retail industry to gain an additional view. The final interview conducted in the pre-study phase was with a Management Consultant specialized in the food retail industry. He was chosen because of his long experience of being in the top management team of both Ica and Coop. Therefore, he could contribute with valuable inputs about the Swedish food retail industry in general and also its use of in-store TBSS systems.

For the case study phase, we carried out five more focused interviews with the store managers of our selected cases. During these semi-structured interviews the questions evolved around the list of hypothetically important resources, competences and capabilities that can serve as explanations for gaining different results of using in-store TBSS systems, that was developed from our pre-study. The interviews still remained open ended and assumed a conversational manner. They lasted around 1.5 h each. During these interviews we continually posed prompt questions such as “Can you explain?” and “What do you mean?” In this way, we were able to notice particular groups of resources, competencies and capabilities that seemed to be important and related to the use of in-store TBSS systems. In addition to interviewing the store managers, we interviewed two to three cashiers in each store to gain an additional perspective. These interviews were much shorter and followed a more structured set of questions, along the lines of a formal survey. Examples of these types of questions were:

Example 1: Did your daily work change when the store installed the in-store TBSS systems?

Example 2: Have you received any internal education about the use of in-store TBSS systems when the store installed these systems?

Notes were taken during all of the interviews, and they were recorded on an electric device as well. We listened to the contents of the recordings after each interview and complemented our notes.

3.4.2 DIRECT OBSERVATION AND PHYSICAL ARTIFACTS

Two other sources of information were direct observations and physical artifacts. These were collected when we visited the selected stores. The methods were carried out in a casual manner where we before each interview spent 20 minutes of walking around in the store. During this time we looked at store features such as how the interior of the store was arranged, how the checkout area was arranged, how many customers used self-service system respectively traditional checkouts and the condition of the store in general. We also observed how many employees we met during the time we spent in the store and how they dealt with the customers at the checkouts. Additionally, we collected information brochures about how to use the in-store TBSS system and watched the instruction video on the television screens in the self-service area. Yin (2009) argues that casual observations of these kinds are useful in providing

additional information of the topic being studied. These methods are especially useful if the study regards new technology, since observing the technology at use provides invaluable aids for the understanding the actual use of the technology and potential problems being encountered according to Yin (2009). To increase the reliability of observational evidence, we took individual notes of our observations and compared these notes afterwards.

3.4.3 DOCUMENTATIONS

We have used published news articles and academic articles about in-store TBSS as well as the Swedish food retail industry. The news articles were found online, in the daily press or in retail specific papers. Most of them concerned the controlling aspects or risks connected to the installation of in-store TBSS systems. The news articles and the academic articles were used in the pre-study phase to increase our understanding of the phenomenon in general. However, in this thesis, the previous academic research about TBSS systems was not used directly as this research is mostly conducted from a marketing perspective and focuses on internet or customer's experience and attitudes towards TBSS systems.

There were plenty of different kinds of documentation about the Swedish food retail industry in general. These secondary data were very useful for gaining an understanding of the industry in general. Examples of sources of information we used were annual reports and screening of websites of the major actors in the food retail industry in Sweden.

3.5 ANALYSIS OF DATA

The analysis approach in our thesis followed the one proposed by Eisenhardt (1989) and was done in two steps: (1) analysis of within case data and (2) searching for cross-case patterns. First, within case analyses were made where pattern of data were analyzed for each case. The overall idea of this process is for investigators to become familiar with each case as a stand-alone entity, and to allow the unique patterns of each case to emerge before we seek to generalize across cases (Eisenhardt, 1989). In the within case analyses we analyzed possible reasons that could explain the particular store's result from using an in-store TBSS system, based on the list of hypothetically important resources, competencies and capabilities. Different abbreviations for each group on the list were used to code the data.

In the second step of our analysis, a systematic search for cross-case patterns was carried out. We started this step with applying our Research Model – Part 1. To look for heterogeneity we grouped the cases into Group A and Group B, which differ in their result of using in-store TBSS systems. As a measure of the result from using in-store TBSS systems we have chosen to use the *utilization degree* of the system. This is because it is the most common evaluation measure used in the food retail industry for evaluating the result of investing in an in-store TBSS system (Key Account Manager, Visma Retail AB). This measure indicates to what extent the traditional checkout process can become more efficient, and hence, how these systems can create opportunities to save cost or reallocate the personnel. Having a high utilization degree thus gives the opportunity to reduce a relatively larger share of the costs than a store having a lower utilization degree.

The utilization degree of an in-store TBSS system is either measured as the percentage of a store's turnover going through the in-store TBSS checkouts or the percentage of the total number of customers who use these checkout systems. The higher the percentage, the higher will the utilization degree of the system. Thus, the higher is the result of a store in using its in-store TBSS system. According to the interviewed Key Account Manager of Visma Retail, the break-even point of an investment in a self scanning system is reached when 30% of a store's turnover goes through the self scanning checkouts. Stores that have reached break-even of their investment are therefore classified in the first group of our cases, Group A. The other cases make up Group B.

A comparison between the two groups was made to find characteristic resources or competences and capabilities found in Group A. These could then be seen as possible explanations for why Group A has gained better results from using the in store TBSS system than Group B. The rationale for this screening is that if a certain resource, competence or capability does not differ between the groups, then it is impossible to say if they have an impact on the utilization degree of the TBSS system or not.

In the last step, we applied Research model – Part 2. This is to assess if in-store TBSS systems can be a source of creating competitive or even sustained competitive advantage, according to the VRIN-framework.

3.6 PRESENTATION OF DATA

We have chosen to divide the data collected into two main sections. The first section presents the empirical background on in-store TBSS systems in the food retail industry. This is to give the reader an understanding of the context in which our specific research topic is embedded. This background also serves as a base for generating the list of hypothetically important resources, competencies and capabilities that can serve as possible explanations for why differences in result of using in-store TBSS systems occur. This list is hence presented in connection to the empirical background in tabular form.

The second empirical section presents our main study - the multiple case study. Each case is presented individually in the same manner. The presentation of each case follows the list mentioned above. Each empirical case description is followed by a within-case analysis. This is to make it easier for the reader to compare the cases and to follow the core analysis, which is the cross case analysis.

3.7 QUALITY OF STUDY

To assess the quality of our research we will use Yin's (2009) four tests of quality. These are construct validity, internal validity, external validity and reliability.

3.7.1 *CONSTRUCT VALIDITY*

The aim of construct validity is to identify correct measures for the studied concepts (Yin, 2009). To improve the construct validity of the research, Yin (2009) suggest three case study tactics. The first tactic suggested, is to use multiple sources of evidence. We have used multiple sources of data both from an internal perspective through direct observations, interviews with managers and interviews with personnel, and from an external perspective through secondary research and interviews with external actors (see 3.4 Collection of Data). The second tactic suggested is to establish a chain of evidence. We have made sure that the research process is coherently structured to be able to establish a chain of evidence. The final tactic is to have key informants reviewing drafts from the case study report. This has been done continually throughout the whole research process by letting the interviewees give feedback on our composition of their empirical contribution. Through the feedback we have made sure that our interpretation of situations are similar to the informant's.

3.7.2 *INTERNAL VALIDITY*

The internal validity test tries to find causal relationships between certain conditions. When an event cannot be observed directly it is difficult to prove that some third, unknown, factor has caused the final event. However, Yin (2009) advocates that internal validity can be addressed through the analytical tactics of pattern matching, explanation building, addressing rival explanations and using logic models. We have used the majority of these tactics by some means to strengthen the internal validity of this study. Through the cross case analysis of the different stores we have been able to detect patterns of which internal resources, competencies and/or

capabilities that can serve as possible explanations for why the result of using in-store TBSS systems differ. Finally, our research model has been a useful tool for identifying patterns and explanations from our data. This is because it addresses clear valuation criteria for discovering if an in-store TBSS system can serve as a source of creating competitive or even sustained competitive advantage.

3.7.3 EXTERNAL VALIDITY

To define the field to which a study's findings can be generalizable beyond the immediate cases studied the third test of external validity is conducted. It is important to obtain good external validity to reduce the risk of producing local theories which only can be used for the specific study objects (Eisenhardt, 1989). Case studies rely on analytical generalizations which mean that the investigator strives to generalize a particular set of results to some broader theory. However, the generalization is not automatic. The theory must be tested on several cases using a replication logic to obtain generalizable results (Yin, 2009). We have conducted five case studies using the same procedure of collecting data for each case. The replication logic has, in other words, been followed. The generalizability of our results is then relatively high, since our selection of cases has been focused on reflecting the whole Swedish food retail industry that uses in-store TBSS systems. The results can most certainly be applied to other organizations within the food retail industry and most likely also to other retail industries, but possibly not outside this scope of industries. Concluding, the external validity of this thesis is high and would be even higher if further research were conducted in other industries including different types of TBSS systems.

3.7.4 RELIABILITY

The final reliability test aims to demonstrate that the processes of a study can be repeated arriving at the same results. A prerequisite for allowing other investigators to repeat an earlier case study is the need for documentation of the procedures followed in the earlier case (Yin, 2009). To increase the reliability of this study we have used a systematic procedure for both documentation and our references. The interviews conducted with store-managers have all followed the same structure and we have used a tape-recorder. This was also the case for the interviews conducted with the store personnel. What must be remembered though is that when discussing reliability using interviews for collection of data, the interviewees' response can change due to the time factor and because of a change of interviewer.

CHAPTER 4. EMPIRICAL BACKGROUND OF IN-STORE TBSS SYSTEMS IN THE FOOD RETAIL INDUSTRY

In this section we will present background information about in-store TBSS systems in the Swedish food retail industry. We will start by describing the two systems included in our study. Then, the history and development, the advantages and disadvantages with using the system, along with the investment in in-store TBSS systems, will be presented.

4.1 TWO IN-STORE TBSS SYSTEMS FOR THE CHECKOUT PROCESS

Self scanning: With the self scanning system the customer uses a portable scanner to scan and bag items while shopping. Items such as fruits and vegetables are manually weighed on special scales, which print out tags that the customer then can scan before bagging their groceries. When the customer has finished shopping the portable scanner is brought to a special checkout, where the information from the scanner is downloaded to the checkout. There are two types of self scanning checkouts; manned checkouts where the cashier is charging the customer and the unmanned checkouts where the customer is not served by a cashier. The self scanning system is tied to customer loyalty cards. When registering to use self scanning at a store, the customer approves of occasional audit of the customers' shopping. In the case of a control, customers are chosen at random and taken to a specialized checkout. All their shopping is then scanned by the cashier in the traditional way. This is to prevent theft and make sure that the customer understands how to use the system.

Self checkout: When customers choose to use self checkouts, they do not have to use a loyalty card, scan their items with a portable scanner or bag their items while shopping. The self checkouts are similar to traditional checkouts with the difference that these self checkouts are reversed and there is no cashier scanning the items. The customers scan the barcodes on their own items, and manually identify items such as vegetables and fruits, which are weighed and placed into a bagging area. The weight observed in the bagging area is verified against previously stored information to ensure that the correct item is bagged, allowing the customer to proceed only if the observed and expected weights match. Various methods of payments are accepted in this kind of system including debit/credit cards, cash, in-store gift cards and coupons. Normally, there is an attendant watching over several self checkout machines.

4.2 HISTORY AND DEVELOPMENT

The Swedish food retail industry was pioneers using in-store TBSS systems, where self scanning systems was first introduced at Coop's hypermarket B&W in the late 90's. Five years later, Ica followed Coop's lead ("Fyra av tio scannar själva", 2009).

The original motives for implementing self scanning, according to the TBSS suppliers, was to give the customers a more VIP shopping experience, where the customer could control their own time and avoid queuing. It was an experimental "future store" in Holland in the early 90's which was the role model (Key Account Manager, Visma Retail AB). During the following decade the two market leaders of the Swedish food retail industry, Coop and Ica, implemented and further developed the usage of in-store TBSS systems. The self scanning systems are now becoming more widespread in the Swedish food retail industry and are especially common in the super- and hypermarket stores.¹ Still, Ica and Coop are leaders when it comes to using in-store TBSS systems (Key Account Manager, Visma Retail AB). However, actors such as Axfood and Bergendahls, which used to have a very negative attitude towards self scanning, now feel

¹ **Supermarket:** 10 000 – 15 000 items and Located in the city centre or in residential areas
(Concepts in Sweden: Hemköp, Vi-butiker, Coop Konsum, Coop Extra, Ica Supermarket and Ica Kvantum)

Hypermarket: More than 12 000 items and located in the outskirts of cities
(Concepts in Sweden: Ica Maxi, Coop Forum, City Gross) Source: Axfood, Annual Report 2009, p.13

like they have to offer this service to their customers. For example Bergendahls is implementing TBSS systems in all of its stores for the concept City Gross in the time of writing this thesis (CEO, Information Factory). Axfood has also started to implement self scanning in Willy's concept stores ("Fyra av tio scanner själva", 2009). This means that the four major actors, Ica, Coop, Axfood and Bergendahls all use in-store TBSS systems to some extent today. Together these actors have over 90 % of the total market share of the Swedish food retail industry (KF, Annual Report 2009).

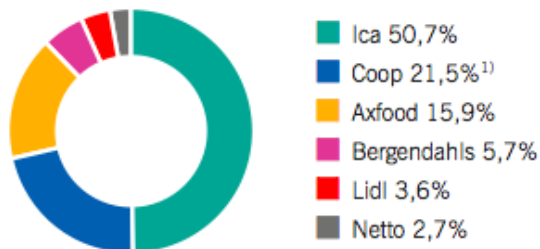


Figure 4. Market shares of the largest actors in the Swedish food retail industry. *Source: KF, Annual report 2009, p.11*

The next step in the development of in-store TBSS systems was the implementation of self checkouts. These self checkouts has gained popularity relatively recently with the main focus on larger cities and smaller stores (Key Account Manager, Visma Retail AB).

4.3 ADVANTAGES

A general advantage with implementing in-store TBSS systems is that the need for having personnel staffed at the checkouts is lowered, since the customers will be responsible for doing much of the cashier's work. This advantage could either result in cutting personnel costs by employing fewer cashiers in general, or the store could choose to staff the personnel in other areas instead ("Matbutiker låter kunderna göra jobbet", 2009). In addition, the working environment for cashiers is improved by having self scanning checkouts. This is because the variety of work tasks is increased and the work itself is less laborious at those checkouts compared to traditional checkouts ("Självscanning väcker starka känslor", 2009).

Self scanning

The CEO of Information Factory explains that having self scanning offers the store several advantages. For example he mentions that an advantage of offering self scanning in food retail stores is that the technology ties customers to the store or the store chain, since a loyalty card must be used for this system and therefore customer loyalty could increase. Moreover, he says that self scanning customers tend to spend more time in the store and these customers in general make larger purchases than ordinary customers. Therefore the self scanning customers are often seen as the most profitable customers, thus the most important customers for a store. This reasoning was confirmed in our case studies as well.

Furthermore, since the self scanning customers are responsible for scanning and bagging their goods directly, the time consuming part in the traditional checkout process, where the customer puts their goods on the counter for the cashier to scan and then bag their purchases, could be eliminated. This means that the time for self scanning customers to checkout is significantly shorter than customers going through the traditional checkouts, in other words, a self scanning checkout has a larger capacity in handling flows of customers than traditional checkouts (Key Account Manager, Visma Retail AB). In an interview with the IT manager of Bergendahls, he further strengthens this view, "Every unmanned self scanning checkout replaces 20 traditional checkouts." ("Modern självutcheckning ger klirr i kassan", 2010, p. 9). Hence, queues can be reduced significantly by offering self scanning systems.

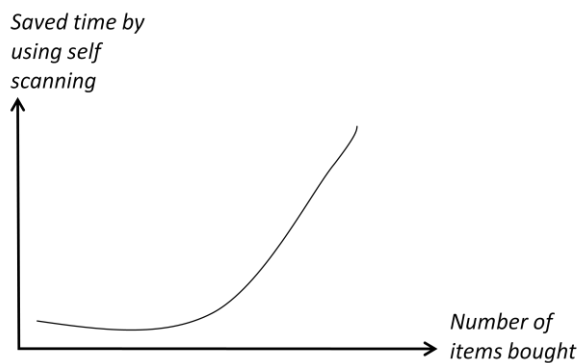


Figure 5. The more items the customers buy, the more time is saved from using self scanning instead of a traditional checkout (*Key Account Manager, Visma Retail AB*).

The main benefits perceived by the customers are convenience and increased control over both time and their spending, as they could shop in their own pace, avoid queuing and see the sum of their purchases in real time (*Key Account Manager, Visma Retail AB*). The customers using self scanning are often very happy with the system and some would not do their grocery shopping without these systems. In general, the shopping behavior is mostly done on routine, and if customers get used to this system and like them, they will continue to use self scanning (*Management Consultant, Sevensco*). Self scanning customers also tend to have a quite rational shopping behavior. For example, they often have a shopping list when going to the hypermarket or supermarket, and they especially value the possibility to take control of the time it takes to shop (*Key Account Manager, Visma Retail AB*).

Self checkouts

The main advantages with offering self checkouts are that the store can manage those customers with few items and small purchases in a fast way. However, this type of checkouts demands more service-minded personnel to help the customers with potential problems (*Management Consultant, Sevensco*). The self checkouts could be especially advantageous for stores that have a high variety of number of customers over the day. Moreover, since no loyalty card is needed, all customers could use this system. According to the interviewed *Management Consultant*, convenience and avoidance of queuing are the main benefits for customers when using this system.

4.4 DISADVANTAGES

Nevertheless in-store TBSS systems have some disadvantages. Installing a self scanning system is a large investment and the need for maintenance is quite high. If the store does not get enough customers to use this system instead of the traditional checkouts it will be a costly investment (*Key Account Manager, Visma Retail AB*).

Self scanning

The self scanning system is sensitive to disruptions. If there are any disruptions in the system, for example scanners that do not work properly or coupons that cannot be scanned by customers themselves at the unmanned checkouts, the advantages of convenience and time control perceived by the customers will be lost completely. In that case, the risk of unsatisfied self scanning customers could increase, which in turn could affect the utilization degree of the system negatively (*Management Consultant, Sevensco*). Another disadvantage with self scanning is the control aspect and the fear of having customers stealing (*CEO, Information Factory*). However, in our study, no store manager thinks that the control aspect is a major issue.

Self checkouts

From the store's point of view, there are not that many disadvantages with self checkouts except for the large investment cost and maintenance costs. But, a potential drawback from a customer's point of view is the system itself, which is sometimes perceived as complicated ("Matbutiker låter kunderna göra jobbet", 2009)

4.5 THE INVESTMENT

One important reason for installing an in-store TBSS system is the potential cost-saving aspect associated with it. However all stores that have installed these systems have not been able to make the investment profitable or reach breakeven (CEO, Information Factory). The Key Account Manager of Visma Retail, one of the largest suppliers of in-store TBSS systems, estimates that for a middle-sized food retail store with 10-12 ordinary checkouts, approximately three to four checkouts can be replaced with one self scanning or self checkout system. This would require an investment of approximately one million SEK. He further adds that the yearly maintenance cost is approximately 25% of the initial investment. The utilization degree of an in-store TBSS system is commonly used as a measure for the result of investing in these systems. This measure indicates to what extent the traditional checkout process can become more efficient, and hence, how these systems can create opportunities to save cost or reallocate the personnel. Having a high utilization degree thus gives the opportunity to reduce a relatively larger share of the costs than a store having a lower utilization degree. As a benchmark, for a self scanning system to be cost saving, more than 30 % of the store's total revenue has to go through the self scanning system to reach breakeven.

When installing the in-store TBSS systems, there are some aspects that the stores need to consider. According to the interviewed suppliers of in-store TBSS systems, the store has to make sure that the customers can scan all of the items in the store. For those goods that are unpacked, the store needs to have scales where the customer's can weigh the goods and obtain a tag with a barcode to scan. The store design and the maintenance hence become very important (CEO, Information Factory; Key Account Manager, Visma Retail AB). Furthermore, the in-store TBSS systems add new work tasks to cashiers, as they have to learn how to handle the new checkout systems in addition to the traditional ones. For this purpose, the suppliers offer half-day or a whole day courses to teach the personnel the functions of the in-store TBSS system. There are also informative films available for purchase that shows how to use the systems from a customer's point of view. The interviewed management consultant further adds some aspects that he thinks are important to consider when implementing a new TBSS system. He emphasizes the importance of having a leader that shows great engagement and puts up clear goals. He also emphasizes the importance of having service-minded personnel. Finally, he mentions that marketing, innovation and the location are very important factors to succeed when investing in an in-store TBSS system.

CHAPTER 5. OPERATIONALIZATION OF RESEARCH MODEL

In this section we will present a list of hypothetically important resources, competencies and capabilities that can serve as possible explanations for why the result of using in-store TBSS systems differs. This list will enable us to gather empirical data more efficiently. The purpose of the list is for it to serve as a research guideline along with our research model- Part 1. Hence, this list consists of the input variables of our Research model – Part 1, which will be illustrated in the end of this section, in the figure “Operationalization of research model – Part 1”.

5.1 LIST OF HYPOTHETICALLY IMPORTANT RESOURCES, COMPETENCIES AND CAPABILITIES

This list is based on the empirical background as well as widely accepted organizational aspects such as, organizational structure and corporate culture. The organizational structure of a firm can be seen as its backbone and acts as a support for decision-making and other processes in a firm. For example, the structure determines the responsibilities and tasks for individual employees and works as a mean to coordinate the different activities performed in the organization (Jacobsen and Thorsvik, 2008). The corporate culture can be seen as a resource that contributes to a firm’s performance in general (Jacobsen and Thorsvik).

Resource or competence and capability		Description
In-store TBSS system (TBSS)		The type of in-store TBSS system used in the store and also the result of having the system, where for example the current utilization degree of the system will be investigated.
Store Features (SF)	<i>Type of location</i>	The type of location where a store is situated, e.g. inside a shopping mall or in a metropolitan area.
	<i>Physical store design</i>	The interior and exterior physical design of the store.
	<i>Maintenance</i>	The overall appearance of the store that reflect the maintenance of the store. E.g. the routines of keeping the store tidy and in well order.
Customer Service Approach (CSA)		How the store has chosen to serve its customers, e.g. kind of assortment, service level etc.
Organizational structure (O)		The organizational structure of the store.
Corporate Culture (C)		The corporate culture of the store. E.g. core values and atmosphere between colleagues.
Leadership (L)	<i>Decision and background</i>	Concerns who was responsible for the decision and the reasons for investing in an in-store TBSS system.
	<i>Goals and commitment</i>	Concerns how and what kind of goals that the store manager has set for the use of the in-store TBSS system.
Human Resources (HR)	<i>Staffing</i>	Concerns how the store staffs their TBSS checkouts.
	<i>Internal education</i>	Concerns the amount and type of internal education for cashiers.
Innovation (I)		How the store prioritizes and works with development of the store.
Marketing (M)		The marketing efforts to retain current users of in-store TBSS system and attract new users.

As mentioned above this list will be used to gather the data in an efficient and replicable manner. In the first part of our cross case analysis we will compare the different variables across the cases, to find possible explanations for why some firms has gained a higher utilization degree of their in-store TBSS systems than others. The rationale for this screening is that if a certain resource, competence or capability does not differ between the groups, then it is impossible to say if they have an impact on the utilization degree of the TBSS system or not.

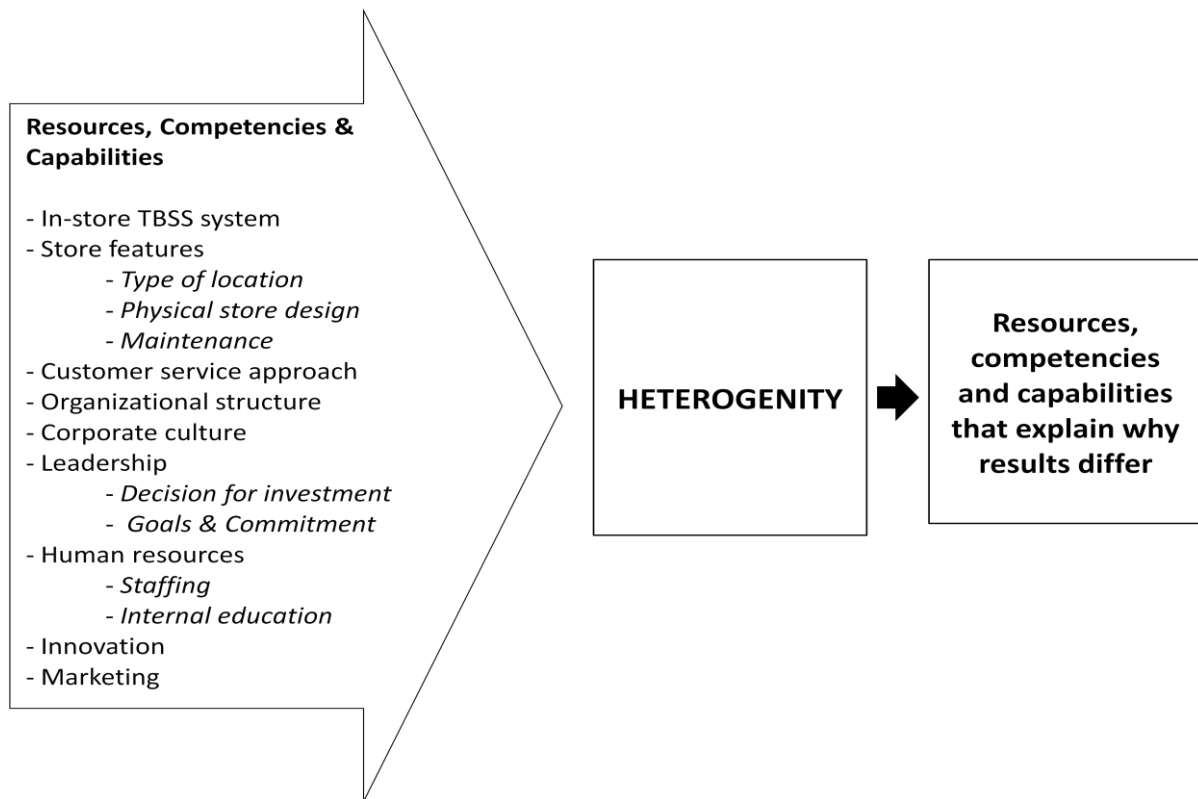


Figure 6. Operationalization of Research model – Part 1

CHAPTER 6. EMPIRICAL FINDINGS AND WITHIN-CASE ANALYSIS

This section will present the five cases individually in chronological order with regard to when the interviews were conducted. Each case is described following the operationalized Research model – Part 1 (See Figure 6 above). After each case description a short within-case analysis follows, that focuses on highlighting possible reasons for their result of using the in-store TBSS system.

6.1 SUPERMARKET 1

In-store TBSS system (TBSS): Supermarket 1 installed the self checkout system in the fall of 2008. The self checkout area has a clear sign saying *Express checkouts* and at the time of our visit most customers used the self checkouts instead of the one traditional checkout which was open. Today approximately 54 % of the store's total number of customers uses the self checkout system. Since the installment of the self checkouts they have been able to save personnel hours that correspond to one cashier working full-time. They have chosen to use these hours to increase the service level of the store. The assistant store manager explains that "Many customers think that the checkout process is the only job in a store, but there are always other things to improve. For example, it is important to always keep the shelves filled with groceries. To keep a high maintenance level of the store is more demanding than one might think."

Store Features (SF): Supermarket 1 is a rather old store which opened in the 70s and it is situated in the city centre of Stockholm. The store is quite small and offers a wide assortment of snacks and ready-cooked food. You can clearly tell when walking around in the store that most of their customers buy few items at each visit. This is not very surprising since the store is situated in a metropolitan area. . The overall impression of the store is a bit cramped, but everything is tidy and the store has a clear structure.

Customer Service Approach (CSA): According to the assistant store manager, the customer service approach is focused on offering convenience, fresh foods and having service minded personnel.

Organizational structure (O): The organization is very flat and everybody has got their own responsibility area. The assistant store manager says that job rotation is used to avoid that the work gets monotonous and also to handle fluctuations in the flow of customers. For example, no one solely works as a cashier.

Corporate Culture (C): The corporate culture is described as "jokey" by the assistant store manager. She also emphasizes that they help each other and that they work as a team. Their store principles are to always be friendly and service-minded.

Leadership (L): The assistant store manager has worked in the food retail business since 1989, always within the same chain. The decision to install self checkouts was made by the headquarters, but the store managers welcomed the change. The assistant store manager is particularly committed to the new checkouts and says that she thinks that this development is inspiring and fun, despite some negative reactions from the customers. She adds, "We actively work to educate our customers to use the self checkouts. The main reason for installing the system was to reduce queues, which they have managed to do. The store deals with great fluctuations in the flow of customers during a day, having a lot of customers in the morning and during lunch hour. According to the assistant store manager the self checkout system can handle these fluctuations better than the traditional checkout system. Another reason was to improve the working environment for the personnel.

Human Resources (HR): An interviewed employee says that her work is less stressful since they implemented the self checkout system and she also believes that she will avoid getting work-related injuries, since her work is now less monotonous. She also adds that they had a day

to learn about the new checkouts before the installment, which have been valuable for her she says. In the beginning, the new checkouts were generously staffed to educate and inform the customers of how to use this new system and the negative attitudes among their customers have changed with time.

Innovation (I): Self checkout systems are still relatively uncommon among food retailers and the assistant store manager says that the store chain works actively with innovation. She also points out that the store is in the front line of testing new types of ready cooked food.

Marketing of in-store TBSS system (M): Supermarket 1 did not make any external marketing efforts when implementing the new self checkouts. This was a decision made by the headquarters. The assistant store manager mentions that the label used for the self checkout *Express checkouts* could be misleading and a source of irritation from customers, since the checkout process actually might be more time consuming for the customer than a traditional checkout. This is however only the case if there are no queues to the traditional checkouts. Therefore traditional marketing for this type of TBSS system is less suitable, the assistant store manager says, since many customers have an initial negative attitude towards the system,. Instead the marketing efforts are more of the character to change the negative attitudes through being very service minded and to educate the customers when they are in the store.

Additional information: The assistant store manager sees the covered market nearby as their closest competitor. There is however no supermarkets nearby which they view as immediate competitors.

6.1.1 WITHIN-CASE ANALYSIS SUPERMARKET 1

The store design is well-adjusted to suit the store concept of offering convenience in the way that it aims to serve customers that buys few items at each visit. The store's central location also serves the convenient concept. The self checkouts further strengthen the store's concept as the system contributes with handling the queues to the checkouts (SF&CSA). The self checkout system is not seen as an additional service in itself, but as a means to handle the capacity fluctuations which indirectly increase the service level during busy hours. This could explain why the marketing of self checkouts has been limited. However, they have put effort in changing negative customers' attitudes towards the self checkouts (M). Their way of rotating the personnel between different tasks during the day is an efficient way to handle the fluctuations in customer streams. This way of organizing its personnel also contributes to increase the team spirit, which is important factor when it comes to running the store (O&C). In addition, the assistant store manager is very engaged in the subject of how to benefit from the in-store TBSS system. This engagement is probably also part of the explanation for why this store has such high utilization degree of the system. In this case the personnel have been very successful in changing the customers' attitudes towards using the self checkouts which shows in the high utilization degree of the system. This partly might be because of the engaged leader and her priority in trying to change their customers' initially negative attitude towards using the self checkouts (L&M).

6.2 SUPERMARKET 2

In-store TBSS system (TBSS): The self scanning system of Supermarket 2 was installed in 2006. The self scanning pick up area is situated in the entrance of the store. The store have both manned and unmanned self scanning checkouts. Today 25 % of the store's total revenue goes through the self scanning system which corresponds to 15 % of their total number of customers.

The store manager says that they have not been able to save any personnel hours, but when rebuilding the checkout area the investment in checkouts was smaller than it otherwise would have been, as the total number of checkouts needed was reduced by having a TBSS system.

Store Features (SF): Supermarket 2 is a store that has a thirty year long history, but was recently renovated and is therefore very modern and clean. The store is located inside a shopping mall. The store layout is designed in accordance with a new concept called *The Food market*. This means that Supermarket 1 is divided into separated sections or “rooms” where all the groceries that belong to that particular room are located. For example there is a special “bread room” where you can find bread as well as sandwich spreads in the same area. This layout has received mixed feelings among the employees as well as the customers. One interviewed cashier explains that customers find the new layout confusing as they sometimes have difficulties finding groceries. There are currently no maps or brochures available over the new layout. The atmosphere is inspiring and for example, there are large flat screen TVs showing special offers at the entrance and a fishpond in the fresh grocery room.

Customer Service Approach (CSA): The store manager says that the customer service approach is focused on having service minded personnel and to offer a wide assortment which was confirmed during our observations. The store was generously staffed and we saw 25 different types of just salt.

Organizational structure (O): The organizational structure of the store is structured like most food retailers, i.e. structured by sections. The hierarchical level below the store manager consists of managers for the different sections. For example, there is one manager for the dairy section and another manager for the fruit and vegetables section.

Corporate Culture (C): The service minded personnel and their customer focus is one of the store’s strengths and something that characterizes the corporate culture of the store, according to the store manager.

Leadership (L): The store manager has worked in the food retail industry since 1995 and has been the store manager of Supermarket 2 for five years. The self scanning system was installed a few years ago when the current owners took over the store. They saw the benefits with the system, especially the opportunity to increase customer loyalty. Another reason was that they had received many requests from customers who liked this way of shopping. Supermarket 2 has not met their original goal of getting 30 % of their total revenue to go through the TBSS system. The manager explains this by saying that “the ideal self scanning customer is someone who either buys few items or a large amount of items, but most of our customers buy something in between”. Nevertheless, the store manager emphasizes that the self scanning customers are the most important ones because they shop the most and are more loyal than other customers. However, he says that they have future plans to work more actively to get more customers to use the self scanning system.

Human Resources (HR): The store manager tries to staff the self scanning checkouts with particularly service minded personnel, since he believes that these customers are the most profitable and hence the most important customers. He believes that it is important for these cashiers to have a “split vision” as they are required to deal with several customers at the same time. Nonetheless, all the cashiers get the same half day internal education. The interviewed cashiers states that the majority of them like the self scanning system, especially since the risk of work related injuries are reduced.

Innovation (I): The store manager says that “we are always among the first stores to try out new ideas”. The store features with *The Food market* concept show signs of their intention of being an innovative store.

Marketing of in-store TBSS system (M): Despite the fact that the store manager thinks that the self scanning customers are the most important ones, they do not have any targeted marketing towards these customers or any campaign to attract new self scanning customers. However, they give the existing self scanning customers a lottery ticket as a treat if they pass the random controls correctly.

Additional information: The store manager sees Hypermarket 1, Hypermarket 2 and Hypermarket 3 as their main competitors.

6.2.1 WITHIN-CASE ANALYSIS SUPERMARKET 2

The new store design, *The Food market*, shows a spirit of innovation, but Supermarket 2 fails in their communication of the new store design to their customers causing confusion and irritation. In addition, the new concept is not aligned with offering the customers a convenient shopping experience, since it sometimes might take time to find groceries. The benefit of offering the customers convenience through the self scanning system is therefore lost with *The Food market* concept (I&SF). There seems to be two main reasons for why the utilization degree of the self scanning system is moderate in Supermarket 2. First, the store location inside a shopping mall makes it difficult for the store to reach a high utilization degree. This is most likely due to the fact that larger parts of the store's customers buy neither very many nor very few items. This type of customers does not see the benefit of self scanning to the same extent as the typical Hypermarket customer who buys very many items. Therefore it is difficult for Supermarket 2 to increase the utilization degree (SF). The second reason why the self scanning utilization degree is moderate is probably due to the limited marketing of the system. Although both personnel and management are positive and understands the benefits of the system, they do not work actively to gain greater advantages from the system. The marketing of the self scanning system is only focused on pleasing the existing self scanning customers in the actual checkout area. This shows in the fact that they give a lottery ticket when there is a random control and that they try to staff these checkouts with particularly service minded personnel. Pleasing the existing self scanning customers is of course positive, but trying to attract new ones would probably be a more efficient way to increase the utilization degree. In addition to this, the store also needs to become better at communicating the benefits that self scanning gives to all kinds of customers. The customer saves time by using self scanning in the actual checkout process no matter how many items they choose to buy (L, HR&M).

6.3 HYPERMARKET 1

In-store TBSS system (TBSS): Hypermarket 1 has used a self scanning system since the store opening. The self scanning pickup area is clearly situated by the main entrance and store offers both manned and unmanned self scanning checkouts. Today 40-48 % of their total revenue goes through the self scanning checkouts. They have been able to cut personnel hours in the checkout area. These personnel hours have been reallocated to other parts of the store to increase to overall service level, the store manager says.

Store Features (SF): Hypermarket 1 is a quite large store that was built from scratch in a suburban marketplace a few years ago. The overall impression of the store is that it is clean, spacious and clearly structured. For example, there are brochures with maps showing the different sections in the store and above each section there are large signs. The focus of the store is on clarity and convenience rather than on having a warm atmosphere.

Customer Service Approach (CSA): The store manager describes the customer service approach as focused on having a wide assortment of ecological products, convenience, and fresh foods.

Organizational structure (O): The organizational structure is structured by store sections (c.f. Supermarket 2).

Corporate Culture (C): The manager describes the corporate culture as being quite “raw but warm” at the same time. They work actively with creating engagement among the personnel, by for example running sales competition between the different sections.

Leadership (L): The current store manager has worked there for approximately one year, but she has over twenty years of experience from working in the food retail industry. She decided to take on the role as store manager of Hypermarket 1 because she likes new challenges. She adds that “running a new store is always challenging, and the competition in this area is particularly high. But that is what makes running this store extra fun”. Hypermarket 1 is part of a larger chain and most strategic decisions concerning IT and marketing are made by the headquarters. To have self scanning in this store from the start was therefore a central decision. The store manager thinks that it would be very old-fashioned for a new store not to have self scanning from the start. She adds that self scanning makes it fun for customers to shop, because the queuing time is significantly reduced through the usage of this technology. The manager is well informed with the potential benefits of in-store TBSS systems and how the store can take advantages of these benefits and she is very engaged in trying to increase the utilization degree of the system.

Human Resources (HR): The manager believes that it is more important to maintain a high level of service for its self scanning customers than for its regular customers, because the TBSS customers are more profitable customers. They therefore prioritize to always staff the TBSS checkouts adequately. However, the internal education of the staff is limited to a general introduction. The two interviewed cashiers share the manager’s positive view on the usage of self scanning. However, they think that it could be troublesome sometimes when the customers complains over the store’s use of specific coupons that the customers cannot scan in themselves and the random controls of the self scanning customers purchases.

Innovation (I): The store chain that Hypermarket 1 is part of, works actively with innovation, the store manager says. This showed in their particularly innovative ecological concept, with shopping carts made out of a recyclable plastic material.

Marketing of in-store TBSS system (M): Hypermarket 1 has been successful in reaching the chain’s goal of having 40 % of the store’s turnover going through the TBSS systems. The manager believes that the main reason for their success is that they actively work in the store with increasing this share. For example, they have store specific coupons with special offers targeted to self scanning customers. Occasionally, they also run in-store campaigns where they try to attract customers to start using self scanning. When there is a random control, the store gives out a candy bar as a treat to the customer if the control is correct.

Additional information: The store manager sees Hypermarket 2 and Hypermarket 3 as their main competitors.

6.3.1 WITHIN-CASE ANALYSIS HYPERMARKET 1

The typical self scanning customer values convenience and time. The store design of Hypermarket 1 seems to be an important resource to gain a high utilization degree of the self scanning system, since both the store design and the customer service approach focuses on convenience. (SF&CSA) The store manager is engaged and result-oriented. Her sales focused leadership style, most likely, affects the

corporate culture. However, the corporate culture is not described in result-focused terms. The manager's personality, competence and engagement in working with the self scanning system is probably of great value when trying to increase the rate of customers using self scanning. (C&L) A competence is the store's active marketing of the self scanning, which might be another reason for the high utilization degree of the self scanning. Nevertheless, the example of store specific coupons as a part of the store's aggressive in-store marketing of the self scanning system shows how sensitive the system is to disruptions (M).

6.4 HYPERMARKET 2

In-store TBSS system (TBSS): Hypermarket 2 has used a self scanning system since the store opening. The self scanning pickup area is clearly situated by the main entrance and the store has both manned and unmanned self scanning checkouts. Today 45 % of their total revenue goes through the self scanning checkouts which correspond to approximately 40 % of their total number of customers. The store manager says that the system is somewhat cost saving, since the investment in checkouts is smaller as the total number of checkouts needed is reduced when having a TBSS system. He adds that they have saved some personnel hours, which they have reallocated to other working tasks.

Store Features (SF): Hypermarket 2 was built from scratch on a suburban marketplace north of Stockholm. They opened a few years ago and have the largest turnover among our cases in the chosen area. In general, the store is tidy and easy to navigate in. There is for example a map over the store at the main entrance near the self scanning pick up area. We got the feeling of being in a shopping mall rather than a grocery store.

Customer Service Approach (CSA): The store manager says that the one-stop-shop concept, affordability and convenience are important parts of their customer service approach. The one-stop-shop concept showed in the fact that they offer for example babysitting and fast food in the entrance area. The affordability part of their customer service approach also showed on several signs in the store with cost saving messages such as "save money".

Organizational structure (O): This store has a highly developed organizational structure. For example they have a human resource manager and an administration manager, which is rather unusual in the organization of a food retail store. The store manager says that they used to organize themselves as a small store, despite the fact that they have a turnover almost as large as a listed company. "The store manager then had to be an expert of everything, which of course is very difficult". Consequently, they have realized that they need to organize themselves much more like other large companies do. The manager adds that Hypermarket 2 is "in the front line when it comes to organization" among food retailers.

Corporate Culture (C): The store manager uses six core values, where for example joy, efficiency and order are mentioned, to describe the corporate culture. These values were decided upon together with the whole work force during a one-day workshop. The manager says that these values are very important and that the corporate culture is something that they value highly. "If a person does not fit into the core values then they will not fit in, no matter if they have the right experiences or skills." To show their employees how important these core values are, they have made a film to illustrate them and there is also a painting in the staff room showing the core values. The store manager believes that the store's strong corporate culture is what makes most of their employees enjoy the work.

Leadership (L): The two managers of Hypermarket 2 have both worked in the food retail industry for many years and they have been running a store together previous to Hypermarket 2. The previous store was very successful but did not offer any new challenges. For that reason they chose to open Hypermarket 2. The store manager that we interviewed seems to be very business-minded and talked about how to develop and lead the business to long lasting success.

The self scanning system was installed from the store opening and the manager says that there are several reasons for why they have chosen to invest in the system. For example he mentions that it offers convenience for the customer and that these customers buy more. The result of implementing the self scanning system is better than expected. Already the managers have put up a new goal to increase the utilization degree to over 50 % of the total turnover and to have the highest share in Stockholm and even in Sweden.

Human Resources (HR): Having self scanning is perceived by the store manager, as a strong competitive advantage and they therefore think that it is important to staff the TBSS checkouts adequately. He adds that all their cashiers get a general introduction when they start working in the store. The personnel points out that the systems are positive from a working environment perspective, since the monotonous work of scanning items is reduced. The downside of using the systems is when the customers complain about the random controls, says the head of customer service.

Innovation (I): The store manager says that they are in the front-line when it comes to testing new products and new technology. Like mentioned above, he also thinks that they are in the leading-edge with regard to organizational structure.

Marketing of in-store TBSS system (M): Hypermarket 2 has a lot of special offers for their self scanning customers. To increase their share of self scanning customers they run advertisements and in-store campaigns for this purpose only.

Additional information: The store manager sees Hypermarket 1 and Hypermarket 3 as their main competitors.

6.4.1 WITHIN-CASE ANALYSIS HYPERMARKET 2

Hypermarket 2 is a very successful store in general and this also shows in their high utilization degree of the self scanning system. As in the case of Hypermarket 1, the store design of Hypermarket 2 also seems to be an important resource when it comes to the usage of TBSS systems, since it focuses on convenience through the one-stop-shop concept (SF&CSA). The business-minded leadership style is shown in both the highly developed organizational structure and the clearly communicated core values. The core value of efficiency is well aligned with the type of benefits that a TBSS system offers and is one example of this store's particularly high competence when it comes to organization and leadership (L, O&C). Hypermarket 2 promotes the self scanning system actively and it seems to be one reason for their high utilization degree of the system (M). Another reason is most likely the store manager himself, who is highly committed to reach the goal of having the highest utilization degree of their TBSS system in Stockholm (L).

6.5 HYPERMARKET 3

In-store TBSS system (TBSS): The self scanning system was installed a few years ago. The self scanning pickup area is located on the wall inside the store and the store only has manned self scanning checkouts. Today, approximately 25 % of Hypermarket 3's total revenue goes through the self scanning checkouts which correspond to 12 % of their total number of customers. They have not been able to save any personnel hours since they installed the self scanning system.

Store Features (SF): Hypermarket 3 in its present form was launched a month ago, but the previous owners had run the store for about fifteen years before the new owners took over in the beginning of this year. This store is quite large and is located inside a shopping mall. The overall impression is that the store is quite bare and disorganized. For example some of the shelves are not fully stocked with groceries and there is no map over the different food sections. However, these impressions could be caused by the ongoing renovations of the store to fit its new store concept.

Customer Service Approach (CSA): The store manager describes their new service approach as focused on having service-minded personnel and fresh foods. The store exemplified this by saying that “We help our customers the whole way to the shelf and we have received a lot of positive feedback about our helpful personnel.”

Organizational structure (O): Although the store has recently changed its concept, there has not been any major change in the organizational structure that is structured by sections (c.f. Supermarket 2).

Corporate Culture (C): The store manager describes the corporate culture of the store chain instead of the store specific culture when asked. He says that the store chain is a family owned business, which is reflected in the whole organization. “The atmosphere is warm and everyone should feel welcome here”, he says. He adds after a while that the atmosphere among the personnel is good, that they enjoy working together.

Leadership (L): The store manager has over twenty years of experience working in the food retail industry and has been the manager of this store for six years. During his ten years in this particular store, it has undergone four concept changes. He is hopeful that the new concept will become successful, as the new owner is a food retail chain that has good track record. One reason for installing the self scanning system was pressure from their customers to do so. Another reason was that the store wished to offer this service before the establishment of another hypermarket close by, that they knew would have this service. They wanted to be one step ahead of this upcoming competitor. The original expectations of saving costs and facilitate for customers to shop has been partly met. It has become more convenient for customers to shop, but like mentioned above the store has not saved any personnel costs. He says that “it is very difficult to reach a sufficiently utilization degree of the self scanning system so that the store would actually save costs”. Especially since this store is located in a shopping mall, many customers only drop by to buy few items and do not understand that using self scanning for small purchases is beneficial as well. He adds that with the launch of the new concept, they aim to work more actively with increasing the utilization degree, and he is hopeful that this can be done.

Human Resources (HR): Hypermarket 3 tries to staff the self scanning checkouts with cashiers who are perceived as being particularly service-minded, since the store manager prioritizes these customers as they are the most profitable ones according to the manager. The personnel get a general cashier introduction.

Innovation (I): The store chain that Hypermarket 3 now is a part of wants to be in the front line of testing new ideas, says the store manager. However, this does not show yet.

Marketing of in-store TBSS system (M): In general, the marketing of the self scanning system has been quite limited, but they offer a “first-time discount” for new users.

Additional information: The store manager sees Hypermarket 1 and Hypermarket 2 as their primary competitors, and also Supermarket 2 as a competitor to some extent.

6.5.1 WITHIN-CASE ANALYSIS HYPERMARKET 3

Hypermarket 3 is not designed to fully take advantage of the self scanning system. For example, it is difficult for customers to navigate inside the store, which diminish the convenience aspect of using self scanning. The moderate utilization degree of the self scanning system seems to have been affected by the store's location inside a shopping mall. As the manager pointed out, many of their customers buys few items at each visit, and do not understand why they should use self scanning (SF). The primary reasons for installing self scanning were not because of the possibilities to benefit from the system itself (e.g. increase loyalty,

save personnel costs etc.) but to meet the customers' demands and to match upcoming competitors. These facts could indicate that the store manager's commitment to installing the system was not as high as it might have been if there was not a threat of an upcoming competitor. This lack of commitment could have affected the moderate utilization degree of the self scanning system (L).

CHAPTER 7. CROSS- CASE ANALYSIS

This section will present the cross-case analysis in two steps. In the first step, we aim to explain why different results of using TBSS systems occur between stores, based on how their internal resources, competencies and capabilities differ. In the second step, the purpose is to assess if an in-store TBSS system can be a source of creating competitive advantage or possibly even sustained competitive advantage.

7.1 ANALYZING RESOURCE, COMPETENCE AND CAPABILITY HETEROGENEITY

In this step of the analysis, the resources, competencies and capabilities will be compared between the cases to identify possible explanations for why the results of using in-store TBSS systems differ. The comparison is made by sorting the cases into two groups. Group A composes of those stores which have a high utilization degree (over 30 %) of their in-store TBSS system. Group B consists of those stores that have not been able to reach a break-even in their investment in the in-store TBSS system.

Group A: Supermarket 1 (S1), Hypermarket 1 (H1) and Hypermarket 2 (H2).

Group B: Supermarket 2 (S2) and Hypermarket 3 (H3).

Those resources, competencies or capabilities that are characteristic for Group A can be seen as having an impact on the utilization degree of the in-store TBSS systems. Consequently, the differences between the groups can serve as explanations for why the results of using in-store TBSS systems differ. To clarify this step of the analysis it will be summarized in a benchmark table.

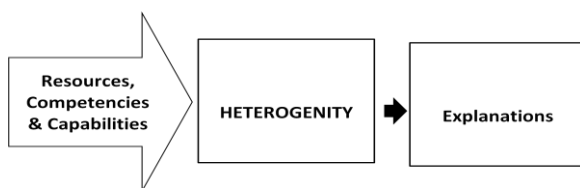


Figure 7. Research Model – Part 1

7.1.1 IN-STORE TBSS SYSTEM

The self scanning systems used in four of our cases have similar appearance as well as functionality from a customer perspective. However, the self scanning checkout areas differed slightly. H1, H2 and S2 offer both manned and unmanned self scanning checkouts, while H3 only has manned self scanning checkouts. Since we have only looked at one store with a self checkout system we cannot determine if the physical system itself plays an important role for the result of using this type of in-store TBSS system. However, the self scanning systems along with these checkout areas are almost identical and can hence not serve as an explanation for why the results of using them differ significantly.

7.1.2 STORE FEATURES

Type of location

Placing a store in a certain type of location attract customers with different types of shopping behavior. Stores placed inside a shopping mall attracts more customers who buys few items compared to freestanding hypermarkets where most customers buy many items at each visit. Customers, who only buy few items, do not perceive the self scanning system as very time-saving, and hence, might not choose to use it. Being located in a place, which primarily attract customers who purchases many items, the probability to reach a high utilization degree of the system increases, which is shown in the cases of H1 and H2. Moreover, stores located inside a shopping mall are surrounded by numerous stores, which do not use an in-store TBSS system.

Since customers have to use traditional checkouts in all other stores in the shopping mall, the time saving aspect of using self scanning in just the grocery store hence becomes marginalized.

For the self checkout systems, the relationship between saving time and number of items purchased is reversed compared to the self scanning system. The fewer items a customer purchases, the quicker will the checkout process take. Therefore, store locations in places where many customers buy few items at each visit, can have a positive effect on the utilization degree on self checkout system, which is shown in the case of S1. Hence, the type of location a store seems to have an effect on the store's result of using in-store TBSS system and can consequently serve as part of the explanation for why the results differ.

Physical store design

In-store TBSS systems are mainly a solution for handling long queues. Customers who choose to use in-store TBSS systems value their time. By using in-store TBSS systems, the time it takes for the checkout process is not determined by the efficiency of the cashier. Instead, the customers can directly affect the speed of the checkout process. In most cases, the time it takes for the checkout process is shorter when using in-store TBSS systems. To strengthen the potential time saving aspect that in-store TBSS offers, it is important to make the whole shopping experience convenient. Having a clearly structured store is one way to make it more convenient. The clarity in the layout and structure of a store facilitates for customers when shopping since groceries can be found more easily, and thereby, the customer can save time. Although having an innovative design or an inspiring atmosphere in a store can make the shopping experience more pleasant for customers, these features alone does not necessarily suit self scanning or self checkout customers, since the convenience aspect is diminished, as shown in case S2. Having a clearly structured store design can thus have an effect of the store's result of using in-store TBSS system and thus can serve as part of the explanation.

Maintenance

Keeping a high quality of maintenance in the store significantly affects the convenience when shopping. For example, this involves making sure that there are groceries on the shelves, that the store is tidy and that the scales necessary for self scanning are well-functioning. This competence of keeping a high level of maintenance is especially important for serving self scanning customers. For customers to be able to perform the checkout process themselves in the first place, the store must for example make sure that all items have price tags marked on them and that the prices of the items are marked correctly. Or else, the customers cannot perform this activity at all, and the benefits of offering the system are then lost. The room for disruptions is thus smaller for in-store TBSS systems than traditional checkouts. Keeping a high quality of maintenance in the store is necessary to strengthen the convenience advantage when using in-store TBSS systems, thus, have a positive effect on the result of using the systems. This means that the competence of maintenance can serve as part of the explanation for why results differ.

7.1.3 CUSTOMER SERVICE APPROACH

The store's chosen customer service approach is an intention to set the customers' expectations when shopping in that particular store. A customer service approach focused on convenience is conveyed in different ways depending on the store concept. For hypermarkets, convenience is primarily linked to the concept of being a one-stop-shop, where customers can find everything they need in one place, while convenience for supermarkets is mostly offered through the close at hand locations or their generous opening hours. These convenience aspects can be strengthened through their use of in-store TBSS systems. Hence, having convenience as a part of the customer service approach, seems to have a positive effect on the utilization degree an in-store TBSS system. Therefore the customer service approach can serve as part of the explanation for why the results of using in-store TBSS systems differ.

7.1.4 ORGANIZATIONAL STRUCTURE

Most food retail stores are structured in the same way, by sections. Therefore it is hard to determine whether or not this affects the result of using in-store TBSS systems. However, worth noticing is the flexible organization structure of S1 where no employees solely work as cashiers. Having this kind of structure where the organization can quickly allocate its employees to the different sections of the store makes it flexible to adapt its capacity to meet to the fluctuations of customer flows throughout the day. Just like S1, H2 has a slightly different organizational structure compared to the traditional section structure, since they have added support function to their organizational structure. How these support functions affect the result of using in-store TBSS systems is impossible to say, but it most likely have an impact on the store's performance in general.

7.1.5 CORPORATE CULTURE

Although the corporate culture can be seen as a resource that contributes to a firm's performance in general, it is not obvious in this study that the corporate culture has an impact on the store's result of using in-store TBSS systems. Both the store managers and the personnel describe the corporate cultures very differently and no clear patterns can be found across our cases. Nevertheless, the store manager of H2 views the corporate culture as one of their most important resources. He says that their culture is very strong and they have several core values which all of the employees participated in determining. The strong corporate culture he believes is what makes most of their employees enjoy their work. This is one aspect that might explain their relatively high general performance, but it is not possible to determine whether or not their strong corporate culture affects the result of using self scanning. S1 has a corporate culture characterized by a strong team spirit where everyone helps each other, which most likely add to their successful implementation of self checkouts. However, since there are no obvious similarities with regard to the corporate culture between the cases in Group A, it is impossible to say if it has any impact on the result of using in-store TBSS systems.

7.1.6 LEADERSHIP

Decision and background for investing in in-store TBSS system

There is no clear pattern as to why the stores have decided to invest in in-store TBSS systems, therefore, it is difficult to say that the background for investing in the system has any effect on the utilization of the system. However, primarily investing in in-store TBSS to meet customers' demand does not seem to be a sufficient reason to be able to reach a high utilization degree of the systems. A possible explanation for this might be that if investing in an in-store TBSS system just to meet customers' requests, the understanding of how you can benefit from using the technology in other ways is limited and as a result the efforts to exploit the technology also will be limited.

Goals and commitment to increase the utilization of in-store TBSS system

The more committed the manager is to actively increase the utilization degree of the in-store TBSS system the higher the utilization degree the store seems to reach. Although it is very difficult to measure commitment, an indication of commitment is the store managers' attitudes towards reaching a high utilization degree of the in-store TBSS system. The store managers at H1 and H2 have continuously put up new goals of what utilization degree of the systems they want to reach. Hence, this also seems to have a positive effect on the result. This finding is not that surprising since underlying assumptions in much organizational research are that having a goal or a committed leader to reaching the goal can have motivational and directing effects on how the employees thinks and work in the organization, and in turn, their commitment on reaching that goal (Jakobsen & Thorsvik, 2008). However, our study shows that all store managers are not equally committed to increase the utilization degree of their systems. The managers of Group B were less committed than the managers of Group A. The store manager's goal and commitment to increase the utilization degree of the in-store TBSS system seems to

have a positive effect on the actual result of using the systems. Therefore this can serve as part of the explanation for why the stores show different results of using in-store TBSS systems.

7.1.7 HUMAN RESOURCES

Staffing

All of the stores have a policy of making sure that the self scanning checkouts or self checkouts are adequately staffed. From our direct observations this also seemed to be the case, as the queues for the self scanning checkouts and self checkouts were shorter in general compared to the traditional checkouts. Since this was the case for all of the stores, it is difficult to say if the competence of staffing the in-store TBSS checkouts adequately has an obvious impact on the utilization degree of the systems. Contrary to what one might expect, staffing cashiers who are perceived as being especially service-minded does not seem to have a significant effect on the result of using the system. This was shown in the cases of H3 and S2 who apply this policy, and still have not reached a very high utilization degree. What the managers mean by service minded personnel is however difficult to determine exactly. Since, there are no clear patterns of how the staffing affects the result of using in-store TBSS system it cannot serve as part of the explanation why some stores benefit more than others.

Internal education

There were no apparent differences between the stores on how the internal education for cashiers on the use of in-store TBSS systems. The general introduction for cashiers in all of our cases included more or less the same content. The general introduction is most likely of great value, but since there are no differences between the stores that have a positive result from using in-store TBSS systems and the others we cannot directly determine if internal education can serve as an explanation for having a high utilization degree of the in-store TBSS system.

7.1.8 INNOVATION

In our study, all the stores pointed out that they actively work with innovation and that they were in the front line of trying out new ideas. However, the actual degree of innovation among the stores is quite difficult to determine directly from our interviews or direct observations. A sign of an innovative spirit was the unique *the Food market* store design of S2, which was completely different from the other stores. However, S2 has not been able to gain a high utilization degree of their in-store TBSS system. This indicates that innovation in that sense does not seem to have an effect on the utilization degree of in-store TBSS system. In the case of S2, it might even have a negative effect since the convenience aspect is diminished (c.f. 7.1.2 Store Design)

7.1.9 MARKETING OF THE IN-STORE TBSS SYSTEM

Running in-store campaigns aimed at attracting new self scanning users or continuously working with changing negative customer attitudes towards the self checkout systems are some examples of efficient marketing efforts when trying to increase the utilization degree of the systems. H1, H2 and S1 all actively promote their in-store TBSS systems. Other types of efforts can for example take form as price reductions of goods especially targeted at self scanning customers to give the customers incentive to keep on using the system. These ways of actively promoting in-store TBSS systems seem to have a positive effect on the utilization degree. However, marketing efforts is highly dependent on the financial resources of a store, which also can explain why there are differences in the actual marketing efforts between the stores. Not very surprisingly, active marketing efforts related to in-store TBSS systems can serve as part of the explanation for why the result in using in-store TBSS system differ between the stores.

Benchmark Analysis 1(4)							
		Group A: A high utilization degree of in-store TBSS system (over 30% of the store's total revenue goes through the in-store TBSS checkouts)			Group B: A low utilization degree of in-store TBSS system (less than 30% of the store's total revenue goes through the in-store TBSS checkouts)		Implications for the result of using in-store TBSS systems
		Supermarket 1	Hypermarket 1	Hypermarket 2	Supermarket 2	Hypermarket 3	
In-store TBSS system (TBSS) * percentage of total revenue going through in-store TBSS system ** percentage of total number of customers using in-store TBSS system		Self checkout 54%**	Self scanning 40-48%*	Self scanning 45%* 38-39%**	Self scanning 25%* 15%**	Self scanning 25%* 12%**	Has no obvious impact: The self scanning systems have the same functions and similar appearance in all stores.
Store Features (SF)	Type of location	Metropolitan area	Freestanding building on suburban marketplace	Freestanding building on suburban marketplace	Inside suburban shopping mall	Inside suburban shopping mall	Has impact: Type of location has an impact on the result of using in-store TBSS system. Being located inside a shopping mall is not ideal for self scanning.
	Physical Store Design	Clear structure but cramped	Clear structure and spacious	Clear structure and shopping mall "feeling"	Unclear structure, but inspiring and modern	Unclear structure	Has impact: Having a clear structure facilitates when shopping and hence, strengthens the convenience aspect of in-store TBSS systems
	Maintenance	Tidy	Tidy and clean	Tidy	Clean	Bare	Has impact: Tidiness is an indicator of a high maintenance competence, which is important when offering in-store TBSS systems since the room for disruptions is smaller.
Customer Service Approach (CSA)		Convenience, fresh foods & service-minded personnel	Convenience, fresh foods & ecological products	Convenience, one-stop shop & affordable	Wide assortment & service-minded personnel	Fresh foods & service-minded personnel	Has impact: Convenience is a focus that is strengthened by offering TBSS systems

Benchmark Analysis 2(4)							
		Group A: A high utilization degree of in-store TBSS system (over 30% of the store's total revenue goes through the in-store TBSS checkouts)			Group B: A low utilization degree of in-store TBSS system (less than 30% of the store's total revenue goes through the in-store TBSS checkouts)		Implications for the result of using in-store TBSS systems
		Supermarket 1	Hypermarket 1	Hypermarket 2	Supermarket 2	Hypermarket 3	
Organizational Structure (O)		Flexible	By store sections	By store sections and support functions	By store sections	By store sections	<i>Has no obvious impact: A developed and well-adjusted organizational structure to the store's conditions seems to benefit the store in general, but if it has an impact on the result of using in-store TBSS systems cannot be determined</i>
Corporate Culture (C)		"Everybody helps each other"	"Raw but warm"	Highly prioritized, Six core values e.g. "Joy, efficiency, order"	"Customer focus"	"Family business with warm atmosphere"	<i>Has no obvious impact: A corporate culture with clear values seems to benefit the store in general, but if it has an impact on the result of using in-store TBSS systems cannot be determined</i>
Leadership (L)	Decision and background	"Implemented the self checkouts to reduce the queues and to improve the working environment for cashiers"	"Would be 'off' not to have self scanning in 2010"	"We have used self scanning in another store and it definitively offers a competitive advantage"	"We wanted to have the system, and our customers requested it. Self scanning creates loyalty, especially among the big spenders"	Implemented the system to meet customer demand and to match upcoming competitors	<i>Has no obvious impact: If the decision and background for investing in in-store TBSS systems has an impact on the result of using in-store TBSS systems cannot be determined. However, to implement the system to meet customers' demands does not seem to be a sufficient reason for doing it.</i>

Benchmark Analysis 3(4)							
		Group A: A high utilization degree of in-store TBSS system (over 30% of the store's total revenue goes through the in-store TBSS checkouts)			Group B: A low utilization degree of in-store TBSS system (less than 30% of the store's total revenue goes through the in-store TBSS checkouts)		Implications for the result of using in-store TBSS systems
		Supermarket 1	Hypermarket 1	Hypermarket 2	Supermarket 2	Hypermarket 3	
Leadership continued (L)	Goals and commitment	Highly committed "We actively work to educate our customers to use the self checkouts."	Highly committed "I see it as a sport to see how high the utilization degree can become"	Highly committed "We have set a target to reach the highest utilization degree in Stockholm and even in Sweden."	Historically not very committed "We have plans to work with increasing the utilization degree through more active marketing"	Moderately committed "We want to increase the utilization degree of the system." "It is very difficult to reach a sufficiently high level."	Has impact: The more committed a store manager is when it comes to working with increasing the utilization degree of the in-store TBSS system, the higher the utilization degree seems to be. Having clear goals also seems to have a positive effect.
Human Resources (HR)	Staffing	Staffed extra personnel at self checkouts in the beginning. Prioritize to keep the checkouts adequately staffed	Prioritize to keep the self scanning checkouts adequately staffed	Prioritize to keep the self scanning checkouts adequately staffed	Staffs especially service-minded personnel at self scanning checkouts and prioritize to keep the self scanning checkouts adequately staffed	Staffs especially service-minded cashiers at self scanning checkouts and prioritize to keep the self scanning checkouts adequately staffed	Has no obvious impact: All the stores have similar staffing policies, therefore, it cannot be determined if it has any impact on the result of using in-store TBSS systems.

Benchmark Analysis 4(4)							
		Group A: A high utilization degree of in-store TBSS system (over 30% of the store's total revenue goes through the in-store TBSS checkouts)			Group B: A low utilization degree of in-store TBSS system (less than 30% of the store's total revenue goes through the in-store TBSS checkouts)		Implications for the result of using in-store TBSS systems
		Supermarket 1	Hypermarket 1	Hypermarket 2	Supermarket 2	Hypermarket 3	
Human Resources continued (HR)	Internal Education for cashiers	General introduction to handle checkout systems	General introduction to handle checkout systems	General introduction to handle checkout systems	General introduction to handle checkout systems	General introduction to handle checkout systems	Has no obvious impact: The general introduction for cashiers is most likely of great value for the store in general. However, since there are no differences between the store, it cannot be determined if it has an impact on the result of using in-store TBSS systems
Innovation (I)		"The store chain works actively with innovation and our store is in the front line when it comes to ready cooked food."	"The store chain works actively with innovation"	"We are in the front line when it comes to testing new technology, products and processes"	"We are always among the first stores to try out new ideas"	"The store chain wants to be in the front line of testing new ideas"	Has no obvious impact: Being innovative is in general positive, but if it has an impact on the result of using in-store TBSS systems cannot be determined.
Marketing of in-store TBSS system (M)		No targeted marketing, but continuously work with changing negative customer attitudes	Store specific coupons, in-store campaigns and centrally controlled campaigns	In-store campaigns, advertisements, special offers to self scanning customers	No targeted marketing	Limited marketing, but has a special offer to new self scanning customers	Has impact: For self scanning, the more targeted marketing efforts the higher utilization degree

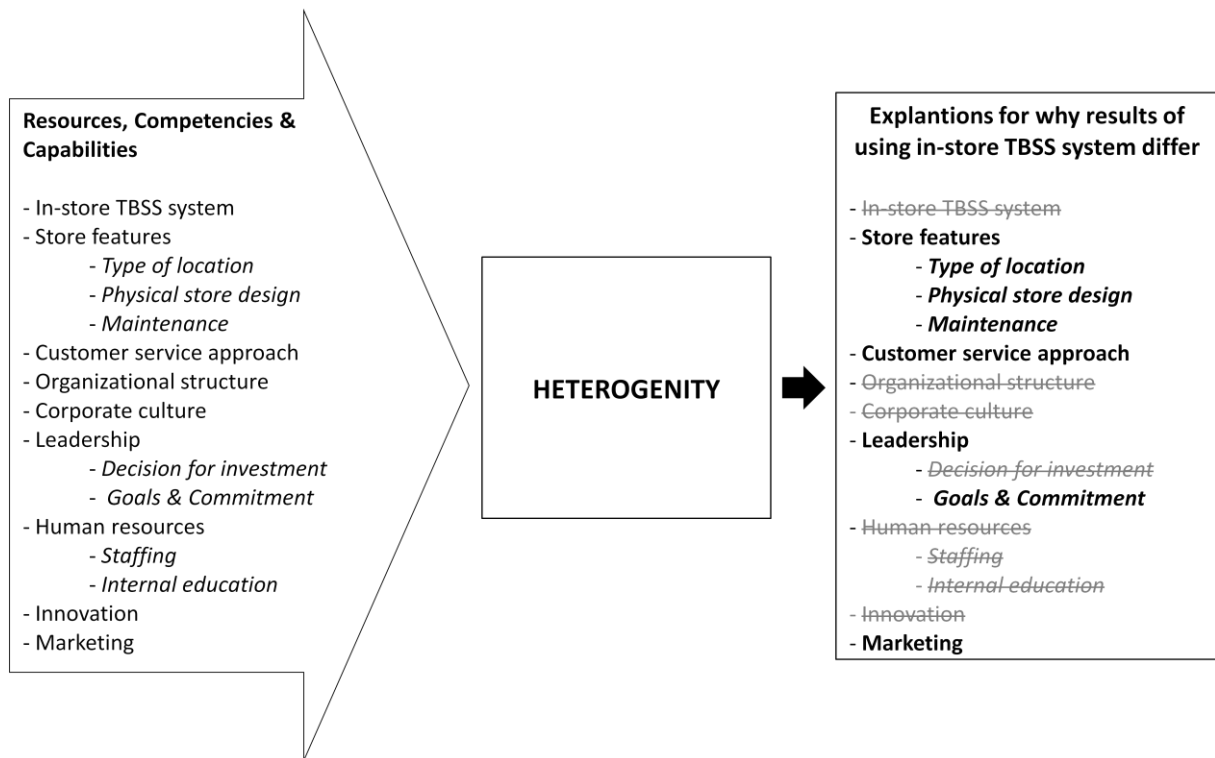


Figure 8. Summary of benchmark analysis

7.2 ASSESSING IF IN-STORE TBSS SYSTEMS CAN BE A SOURCE OF CREATING COMPETITIVE OR EVEN SUSTAINED COMPETITIVE ADVANTAGE

In this step, the purpose is to assess if an in-store TBSS system can be a source of creating competitive advantage or possibly even sustained competitive advantage by applying the VRIN-framework according to our Research model – Part 2.

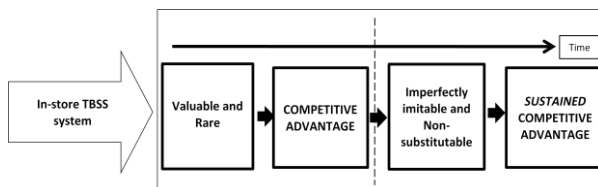


Figure 9. Research Model – Part 2

7.2.1 COMPETITIVE ADVANTAGE

Valuable

A resource is said to be valuable when they can contribute to implementing a strategy that improves a firm's efficiency and effectiveness. In other words the resource can exploit opportunities and/or neutralize threats (Barney, 1991).

A self scanning or a self checkout system can contribute to improve a firm's efficiency and effectiveness in several ways and thus it is a valuable resource. First of all, the need for cashiers is lowered, since the customers will be responsible for doing much of the cashiers work. This means that personnel costs can be reduced or the store may choose to reallocate these personnel hours to improve the overall service level of the store. This might indirectly increase the store's revenues. Second, in-store TBSS systems reduce queues significantly at busy hours, since they have a higher capacity in handling customer flows compared to traditional checkouts. This is especially the case for unmanned self scanning checkouts, since the time of the checkout

process is minimized. However, when there are random controls of self scanning customers, the time saving aspect is lost for both the store and the customer. Third, the working environment for cashiers is improved, since it involves less monotonous physical work. This can in the long run have a positive effect on profitability of the store because the probability of work related injuries and consequently sick leave is reduced. Fourth, self scanning customers tend to spend more time and money in the store than other customers. Having self scanning systems can therefore tie these customers to the particular store. This is however not the case for self checkouts, since this system primarily is a way to handle customers who buy few items. In addition to all these advantages, many customers prefer self scanning systems over traditional checkouts and see it as an extra service.

Worth noticing is that the investment and maintenance costs are quite large and if the store is unable to get a sufficiently large share of their revenue to go through the TBSS checkouts, most of the advantages mentioned above are lost.

Rare

A resource is said to be rare if it is uncommon among its current and potential competitors. How rare a resource, competence or capability must be to generate a competitive advantage is however a difficult question. Barney (1991) argues that as long as the number of firms that has a particular valuable resource, competence or capability is *less* than the majority of competing firms, that resource, competence or capability has the potential to generate a competitive advantage.

The self scanning systems are, like mentioned earlier, almost identical regardless of the supplier. Four of our cases are competitors and they all use the self scanning system. Hence, in this geographic area, self scanning system cannot be seen as a rare resource. This means that self scanning systems cannot be seen as sources of creating competitive advantage in our study. However, as in this case, Barney (1991) argues that valuable and common firm resources can help insure a firm's survival when they are used to keep up with its competitors. A clear example of this is H3's background for investing in a self scanning system, which was primarily to keep up with its competitors.

S1, is the only store among our cases that has a self checkout system. They are also the only one among its competitors that has this system. Therefore their self checkout system can be seen as a rare resource and hence a source of creating competitive advantage. Since, this type of in-store TBSS system is still relatively new and uncommon among Swedish food retailers, this result is not very surprising. Nevertheless, since it seems to offer relatively many advantages, it has to be imperfectly imitable and non-substitutable for this competitive advantage to last.

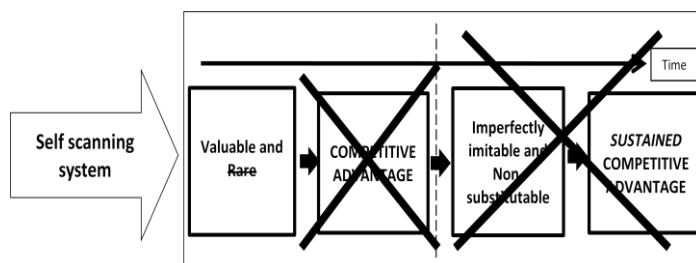


Figure 10. A self scanning systems is a valuable resource, but not rare. Therefore it cannot be a source of creating competitive advantage.

7.2.2 SUSTAINED COMPETITIVE ADVANTAGE

Imperfectly imitable

Worth noticing is that the imperfectly imitable criteria will only be tested for the self checkout system. This is because the self scanning system did not fulfill the rare criteria and can hence not be a source of creating competitive advantage or sustained competitive advantage.

A resource can be imperfectly imitable for one or a combination of three reasons; (1) history dependence, (2) causal ambiguity, and (3) social complexity (Barney, 1991).

“In general, physical technology [...] is *by itself* typically imitable”(Barney, 1991, p. 110). This is also the case for the self checkout systems, since they easily can be purchased in the open market. Therefore a self checkout system cannot be a source of creating sustained competitive advantage.

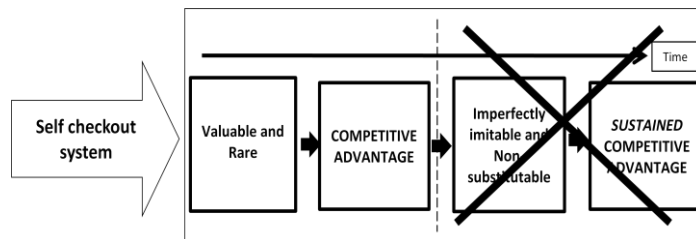


Figure 11. Self checkout systems are a source of creating competitive advantage, but not a source of creating sustained competitive advantage.

Non-substitutability

The existence of a substitute itself does not mean that a firm resource, competence or capability cannot be a source of creating sustained competitive advantage. The substitute has to be either common or highly imitable or both for the last criterion of non-substitutability to be fulfilled (Barney, 1991).

Since none of the in-store TBSS systems fulfills the imperfectly imitable criteria, there is no point in testing them for the non-substitutability criteria. This is very intuitive. If you can imitate a valuable and rare resource there is no obvious reason to find substitutes for it.

CHAPTER 8. SYNTHESIS

In this section a more holistic perspective will be taken on the findings of this study. The theory development will now be focused towards more generalizable findings of this specific study to explain implications when it comes to using the RBV on strategy.

8.1 CREATING SUSTAINED COMPETITIVE ADVANTAGE

According to Barney (1991) a firm's resource, competence or capability need to fulfill the criteria of being valuable, rare, imperfectly imitable and non-substitutable to be a source of creating sustained competitive advantage. We have found that the self checkout systems can be a source of creating short term competitive advantage under the condition that a sufficiently high utilization degree of the system is reached. However, neither the self scanning systems nor the self checkout system fulfills all of the VRIN-criteria and can therefore not be sources of creating *sustained* competitive advantage.

Nevertheless, Barney (1991) points out that "several firms may all possess the same physical technology, but only one of these firms may possess the social relations, culture, traditions, etc. to fully exploit this technology in implementing strategies" (Barney, 1991, p. 111). This means that the capability to exploit the in-store TBSS systems seems to be critical for the result of using in-store TBSS system. The capability of deploying in-store TBSS system might therefore be a source of creating competitive or even sustained competitive advantage. By adding Amit and Schoemaker's (1993) complementarity attribute (see Chapter 2 Theoretical Framework) to Barney's (1991) VRIN-attributes, we might find an explanation for how in-store TBSS systems indirectly can be seen as a source of creating sustained competitive advantage. Using this additional attribute, enable us to bundle different resources, competencies and capabilities, that in combination can be possible sources of creating sustained competitive advantage.

An illustration of this complementarity logic can be given by following example: the capability of running fast. This capability can be seen as a combination of different resources, competencies and capabilities, such as having good genes for running fast, special running shoes, and a good running techniques acquired from extensive education and training. These resources, competencies and capabilities together add up to the capability of running fast. In a similar way, the capability of deploying in-store TBSS systems can be seen as the bundle of the identified characteristics from Group A. This is because these six characteristics (see Figure 12 below) serve as explanations for why some firms have managed to gain a positive result from using in-store TBSS systems while other fails.

8.1.1 CAPABILITY OF DEPLOYING IN-STORE TBSS SYSTEM

We apply the VRIN framework on the capability of deploying in-store TBSS systems to assess whether or not it can be a source of creating competitive and possibly even sustained competitive advantage.

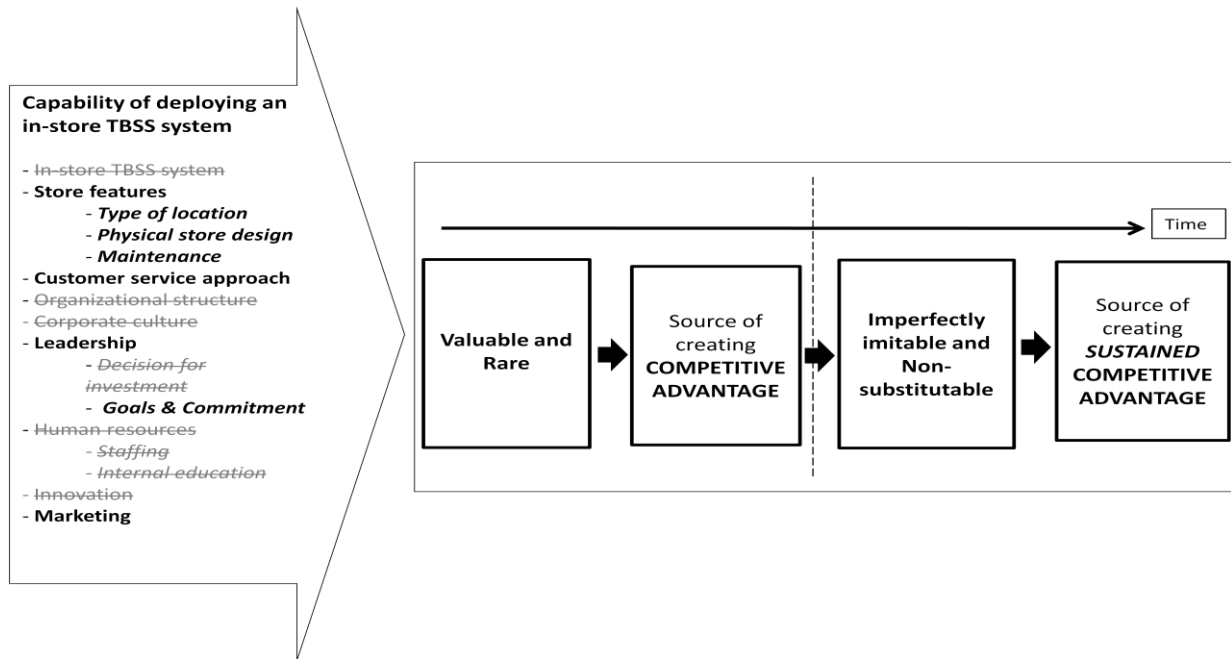


Figure 12. Combining the results from the first part of our analysis with the second part, towards a synthesis

Valuable

The benefits to the store of having in-store TBSS systems, such as reducing queue time for customers and saving costs, are in line with increasing the efficiency and effectiveness of the store. The higher the capability of deploying the system, the higher the utilization degree of the system will be, hence, the larger the benefits will be. For this reason, this capability can be seen as valuable to the store.

Rare

The question of rareness is more complicated. Our study shows that the capability of deploying the technology varies between the cases. If this capability can be seen as rare is then a matter of degree. It is difficult to measure this capability and must therefore be put in relation to the capability of competitors. Since, the cases of this study were chosen based on their results of using in-store TBSS systems, our sample shows an equal distribution of having a relatively high capability and having a relatively low capability among the four competing stores that use self scanning. In accordance with Barney's (1991) guideline, less than the majority of these competitors (i.e. 50% of these four cases) possess the relatively high capability in deploying the in-store TBSS system. Therefore, this capability can be seen as rare. Supermarket 1, which uses self checkouts, is the only store that possesses this capability, since it is the only store that uses in-store TBSS systems among its immediate competitors. Hence, this capability can be seen as rare. The capability of deploying in-store TBSS systems can thus be a source of creating competitive advantage.

Imperfectly imitable

The capability of how to benefit from the technology can be seen as imperfectly imitable, since it shows signs of causal ambiguity and social complexity. There seems to be quite a lot of *causal ambiguity* regarding how the capability of deploying in-store TBSS systems benefits the store. If the store managers and employees cannot articulate or do not know exactly how or why they manage to draw the benefits of the systems, it will be difficult for competing stores to copy. An example of this casual ambiguity was shown in our study. When the store managers in Group A were asked about why they think that they have gained a positive result from using in-store TBSS systems, features such as commitment and attitudes was never mentioned. Only the easily imitated features such as marketing were mentioned. The more causal ambiguity the harder it will be for rivals to imitate and hence the stronger the competitive advantage becomes. The capability of deploying the in-store TBSS seems to be *socially complex*, since it is dependent both on the leadership, the personnel and their relationship with each other and their customers. For these reasons, the capability of deploying in-store TBSS systems is imperfectly imitable.

Non-substitutability

It can be argued that there are substitutes to the capability of deploying in-store TBSS systems. A competing firm might possess a similar capability that enables them to increase the efficiency and effectiveness of the checkout process. However, this type of capability that would increase the efficiency and effectiveness of the checkout process as much as having a high capability of deploying in-store TBSS systems is not very common or easy to imitate. Therefore the non-substitutability criterion is fulfilled. The capability of deploying in-store TBSS systems fulfills the VRIN-criteria and can therefore be a source of creating sustained competitive advantage.

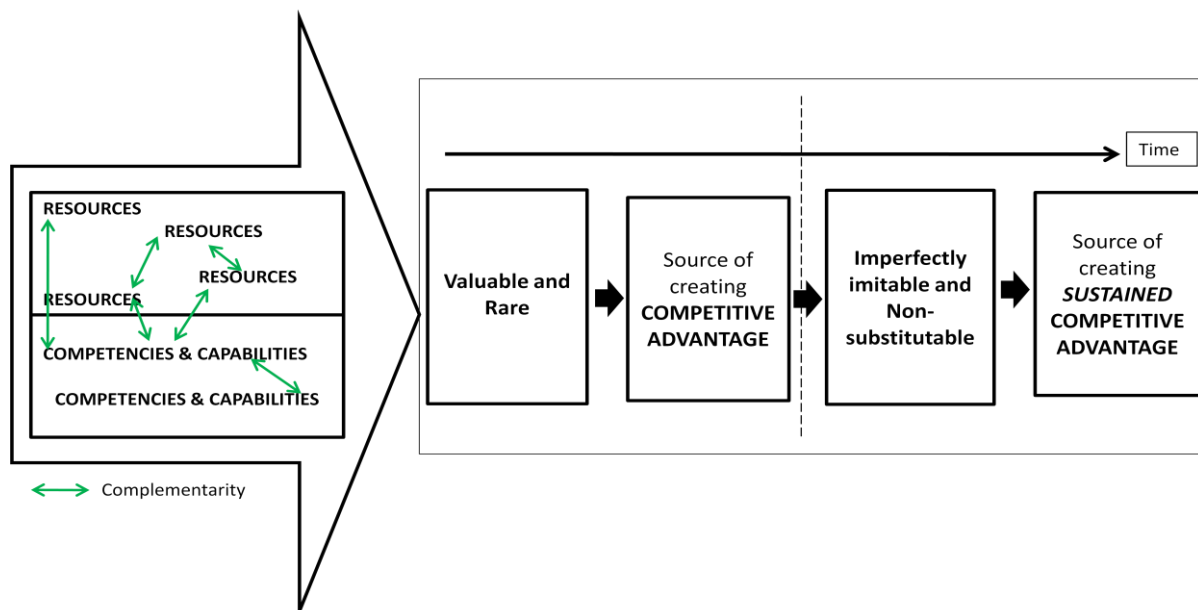


Figure 13. Synthesis model: Individual resources, competencies and capabilities might not fulfill the VRIN-criteria. However when combined, they can make up a bundle of complementary resources, competencies and capabilities. In this way they can be sources of creating sustained competitive advantage.

By this, we can conclude that most sources of creating sustained competitive advantage are not individual resources, competencies and capabilities, but a combination of many things. This reasoning can be applied to Hypermarket 2, which has the highest general performance among the cases in this study. The explanation for their high performance is most likely a combination of complementary resources, competencies and capabilities, where a high capability of deploying the in-store TBSS system is one of them.

CHAPTER 9. THESIS CONTRIBUTION

In this section we will sum up our findings. First, we will present our conclusions connected to the purpose of this thesis. Second, we will discuss our findings from a store manager's perspective.

9.1 CONCLUSIONS

Explanations for why different results of using TBSS systems occur between stores based on how their internal resources, competencies and capabilities differ

The main purpose of this thesis was to explain why different results of using TBSS systems occur between stores, based on how their internal resources, competencies and capabilities differ. The study shows six clear differences in internal resources, competencies and capabilities between the stores with a relatively positive result from using an in-store TBSS system (Group A) and the stores with a relatively modest result (Group B). These six characteristic resources, competencies and capabilities can hence serve as explanations for why different results of using in-store TBSS systems occur. The following six explanations were found:

1. **Type of location:** Being located inside a shopping mall is not ideal to gain a high utilization degree of an in-store TBSS system, as was seen in the cases of Group B.
2. **Physical store design:** A clearly structured store strengthens the convenience aspect of using in-store TBSS systems and this was especially apparent in Group A.
3. **Maintenance:** Tidiness and having fully stocked shelves with goods, correctly priced items, well-functioning scales etc. are indicators of a high maintenance competence, which is an important competence when offering in-store TBSS, since the room for disruptions shrinks. The stores in Group A kept a higher level of maintenance than the Group B stores.
4. **Customer service approach:** Convenience is a focus that is strengthened by offering TBSS systems. The stores in Group A focus on this aspect as an important part of the store's chosen customer service approach, while Group B does not see convenience as one of their main focuses in their customer service approaches.
5. **Goals and Commitment to increase the utilization degree of the in-store TBSS system:** Having clear goals and a highly committed manager when it comes to working with increasing the utilization of the in-store TBSS system seems to have a positive effect and this competence were less obvious in Group B than Group A.
6. **Marketing of in-store TBSS system:** Active promotion of the in-store TBSS system, either by external channels or in-store campaigns, is a competence that the stores in Group A seem to put more effort and financial resources on, compared to the stores in Group B.

Assessing if TBSS systems can be a source of creating competitive or even sustained competitive advantages

To assess if an in-store TBSS system can be a source of creating competitive or even sustained competitive advantage, we applied Barney's (1991) influential VRIN-framework. When applying this framework on the self scanning system and the self checkout system we found that:

- *A self scanning system* is a valuable resource, if the store manages to gain a sufficiently high utilization degree of the system. It can then contribute to increase the store's efficiency and effectiveness in a number of ways: Personnel costs can be reduced and/or the overall service level can be improved by reallocating the personnel. It helps to reduce queues at busy hours. The self scanning customers are more profitable customers because they tend to spend more time and money in the store. However, self scanning is not a rare resource among the stores' current and potential competitors and it can therefore not be a source of creating competitive advantage.

- *Self checkout systems* are both valuable and rare and can thus be a source of creating competitive advantage. Self checkout systems are valuable for almost the same reasons and under the same condition as the self scanning systems, i.e. if the store manages to gain a sufficiently high utilization degree of the system. The only difference is that self checkout customers do not spend more money than other customers who use traditional checkouts. However, a self checkout system is neither imperfectly imitable nor non-substitutable and can therefore not be a source of creating sustained competitive advantage.

However, as discussed in the synthesis we can conclude that although the physical technology itself cannot be a source of creating sustained competitive advantage, the capability of deploying that system can be seen as a source of sustained competitive advantage. There is a strong link between the value of the physical system and the capability of deploying that system. Without a sufficiently high capability to deploy the system the physical system will be less valuable. Thus, it all comes down to gaining a high utilization degree of the system for it to be valuable. The capability of deploying the TBSS system is the bundle of complementary characteristic resources, competencies and capabilities found in Group A (see above). A high capability of deploying in-store TBSS system, relative to its competitors, fulfills the VRIN-criteria and can therefore be a source of creating sustained competitive advantage.

9.2 MANAGERIAL IMPLICATIONS

Do an inventory of the firm's strengths and weaknesses before making an investment in TBSS systems

For managers in the food retail industry to simply invest in an in-store TBSS system and expect it to bring the possible benefits automatically is not realistic. Our study clearly shows that these in-store TBSS systems cannot work their magic on their own. As a matter of fact, installing these systems actually demand quite a lot from the store management to be able to reach a satisfactory utilization degree of the system. This reasoning can be applied in more general terms. Before making a large investment in a technological system that will affect the operations of the firm, it is important to do an inventory of the firm's strengths and weaknesses in addition to merely a capital budget. This is to find out if the combination of internal resources, competences and capabilities needs to be adjusted and if these adjustments are worth the effort, to be able to exploit the new opportunities that the investment might bring. This holds for all types of industries, not just for food retailers.

How to kill the queues – six internal aspects to consider when implementing an in-store TBSS system

Like mentioned in the conclusions the following six resources, competencies and capabilities can help to gain a high utilization degree of an in-store TBSS system;

- An in-store TBSS system well-adjusted to the store's type of location. If the store has a location where most customers only purchase few items at each visit a self checkout system might be better suited than a self scanning system.
- A clearly structured store design to make the shopping experience more convenient
- A high maintenance competence to minimize the disruptions for customers when shopping. Make sure goods are always correctly priced and available on the shelves and that there are enough scanners and scales, etc.
- A customer service approach that is aligned with the convenience aspect that in-store TBSS systems offer.

- A store manager that is highly committed to take advantage of the technology and thereby efficiently communicates this to the employees. Specific goals should be set up, followed up and restated continuously.
- Active marketing efforts to attract new users and to retain old ones. This can be done in several different ways. For example through advertising, special targeted offers, in-store campaigns or to actively educate customers when shopping inside the store.

Having an extraordinary high utilization degree of an in-store TBSS system offers several advantages which can create a sustained competitive advantage. For example, the capacity of the checkout process increases, which will reduce queues. This is an aspect highly valued by customers. In addition to this, personnel hours of cashiers can be reduced although the capacity of the checkouts is increased. These personnel hours can either save costs and/or be reallocated to improve the overall service level. Offering self scanning can also tie the most profitable customers to the store. This is because self scanning customers tend to spend more time and money in the store.

Customers as an internal resource – A win-win situation

When having self scanning and/or self checkout systems the operations of the store will change as the customers can perform some of the value adding activities themselves. Customers can in other words be seen as a *strategic resource* for the store - an important resource for the store to handle and nurture. The more customers that choose to conduct the checkout process by themselves, the more strategically important resources the store gets. But the question is *how* to do this. The answer is to adjust the store's operations in a way that makes it as convenient as possible for customers to perform the process themselves, in this way, a win-win situation between the store and its customers can be created

CHAPTER 10. DISCUSSION AND FUTURE RESEARCH

10.1 DISCUSSION

We have used the classical Resource based view on strategy in this study. This theory is criticized for being quite difficult for practitioners to use, and this is something that we have experienced as well. The main difficulty we found was to decide on what resources, competencies and capabilities to focus our study on, as virtually anything associated to the firm can be seen as a resource. For this reason we had to do a rather extensive pre-study from which we derived a list of hypothetically important resources, competencies and capabilities for gaining a positive result from using an in-store TBSS system.

It is important to note that the explanations we found in this study might not be the *only* explanations for why the results of using TBSS systems differ. For the resources, competencies and capabilities where no differences between Group A and Group B were found it is impossible to say if this still is an important aspect to consider when having an in-store TBSS system. In addition to this we might have excluded important aspects from our list that also can explain the difference in results of using in-store TBSS system between stores. This can be partly explained by the RBV itself, since resources, competencies and capabilities are said to be more valuable the more causal ambiguity there is. If the firm itself does not know what their strategically important resources are, it will be impossible for external investigators to find these. In other words, our findings are reliable but not collective exhaustive, since there may be additional explanations which we have not found. The internal validity of our study can therefore be questioned.

Another important aspect to highlight is that there are other ways than the VRIN-framework, to assess if a resource, competence and capability is strategically important, which might have been more suitable. For example, the concept of "Dynamic capabilities", which is a sub stream of the classic RBV might have been a useful framework. The concept of dynamic capabilities is an extension of Amit and Schoemaker's (1993) reasoning on complementarity. Teece (1997) define the concept of dynamic capabilities "...as the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece, 1997, p 516). However, worth noticing is that most set of attributes for assessing if resources, competencies and capabilities are strategically important, are more or less grounded in Barney's (1991) VRIN-framework. Since this framework is widely accepted, we chose to use it.

A final aspect to discuss is the weakness of a multiple case study, which is the loss of depth for the gain of breadth. Although we have made several direct observations and interviews with personnel, most of the empirical findings are based on the store managers' descriptions of the situation.

10.2 FUTURE RESEARCH

Our study has shown that firms possess different kinds and amounts of strategically important resources, competencies and capabilities, which give them different conditions for competing. Having a Resource based view on strategy can therefore give useful insights to managers. Furthermore, our study shows that it is vital for a firm to assess its internal resources, competencies and capabilities before making an investment, to be able to fully exploit the opportunities given by that investment. This is to find out if the combination of internal resources, competences and capabilities needs to be adjusted and if these adjustments are worth the efforts. It would be valuable to conduct this type of assessment for many types of companies, and not just for food retailers. Hence, future research could focus on other industries to find what internal resources, competencies and capabilities that are important to consider before

making certain strategic investments, and to assess if this investment can be a source of creating competitive advantage and possibly even sustained competitive advantage.

Furthermore, we have found that the topic of in-store TBSS checkout systems spark debates and seems to be a sensitive issue because of the shrinking need for personnel and the store's loss of control that the systems bring. Store managers are all very reluctant to explicitly state how large the efficiency gains from using the systems are, in terms of saved costs. This, we find very interesting, and could be an aspect for future research. For example, an operations and process management perspective could be used to quantify the exact efficiency gains. The loss of control or increased risk of shoplifting is another interesting topic. One suggestion is to make a before and after study of implementing an in-store TBSS checkout system to compare the level of wastage of stores. These kinds of studies would be valuable for the food retail industry.

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CEO	Information Factory	2010-02-25
Management Consultant	Sevenco	2010-03-11
Assistant Store Manager	Supermarket 1	2010-03-30
Cashier	Supermarket 1	2010-03-30
Cashier	Supermarket 1	2010-03-30
Store Manager	Supermarket 2	2010-03-30
Cashier	Supermarket 2	2010-03-30
Cashier	Supermarket 2	2010-04-08
Cashier	Supermarket 2	2010-04-08
Store Manager	Hypermarket 1	2010-04-08
Cashier	Hypermarket 1	2010-04-08
Cashier	Hypermarket 1	2010-04-08
Store Manager	Hypermarket 2	2010-04-08
Head of Customer Service	Hypermarket 2	2010-04-08
Cashier	Hypermarket 2	2010-04-08
Store Manager	Hypermarket 3	2010-04-08
Cashier	Hypermarket 3	2010-04-08
Cashier	Hypermarket 3	2010-04-08

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