



Master Thesis:

# **Matomera**

*A Case Study*

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# Abstract

In 1998 Bergendahl & Son AB, as the sole owner alongside with BTL as a partner, created Matomera. Matomera was unique in Sweden in its concept of selling groceries only on the Internet with no supporting physical store. Instead they used a dedicated warehouse especially designed for this purpose. In B2C e-commerce the buying decisions and the face-to-face communication between consumers and companies are separated in time or excluded. Therefore the possibility to interact with and to influence consumers is often restrained to the website and call-centres. Along with this there is an added responsibility of picking and delivering the goods to consumers. When selling groceries on the Internet there is a lack of knowledge concerning consumer response to websites and consumer requirements on home deliveries. Therefore logistics concerning home deliveries is an important part in fulfilling consumer demands as the responsibility of picking and delivering has been transferred from the consumer to the grocer. In the case of Matomera, the idea was to deliver groceries home to consumers without any additional distribution fees. However, implementing home deliveries without additional distribution fees for the consumer failed, and despite award winning websites and marketing campaigns Matomera was taken out of business in March 2001.

In logistical terms the activities that consumers perform when buying groceries in a traditional way, are picking and bringing the groceries home. In order to fulfil these activities there are many logistical solutions of distributing groceries to consumers and therefore meeting the consumer requirements. The purpose of this master thesis is to describe the chosen logistical solution of Matomera, the information, financial and physical flow, and how these elements relate to each other. The objective is also to analyse the logistical solution in the aspect of fulfilling the requirements of the consumers. The main questions to be answered in this thesis are therefore:

*How did Matomera consider the requirements of the consumers in order to create a logistical solution that would satisfy the chosen consumer segment and how did the logistical solution of Matomera fulfil these requirements?*

*How did the logistical solution of Matomera look like and what kind of logistical problems did Matomera face?*

We have chosen to do a case study on Matomera for this master thesis. Since the company no longer exists all facts are based mainly on interviews as no first hand observations could be made. In the case description we begin with a brief presentation of the Swedish grocery industry, continuing with some theories about e-commerce, logistics, and different distribution models. Further, the description of Matomera is based on both the company's functions and the processes connected to the company. When analysing the case, eight aspects connected to the consumer demands put on e-grocery solutions serve as starting points.

Matomera's consumers executed the orders through the website the day before delivery and the orders were sent to the warehouse to be picked. The fresh food was delivered daily to Matomera from the suppliers in consumer order sizes. The products were assembled and stored in boxes, which could maintain the preferred temperature. The boxes were picked up at Matomera by the drivers and delivered within allotted areas and certain delivery time windows. The groceries could be paid for with credit card similar to an ordinary store. After analysing the case we have identified several important aspects concerning consumer demands versus logistical efficiency.

The logistical solution of Matomera provided an outstanding possibility to sell the freshest groceries. Consumers had the opportunity to buy groceries that were fresh in every delivery, unlike groceries bought in an ordinary store. In this case, the logistics enabled the company to serve their consumers with special qualities. Quality in having the groceries delivered home, and quality in receiving the freshest groceries. It might be possible to combine high quality products,

i.e. daily deliveries with same day deliveries to consumers, but in order to get a simplified and cost efficient logistical solution, it is necessary to prioritise what aspect is the most important for the consumer.

The attended deliveries had several advantages such as the possibility to actually meet consumers and offer the added service of paying directly with credit card. The logistical consequence was that delivery time windows had to be managed, and the economical consequence was higher variables costs of the deliveries compared to unattended deliveries. Regardless the use of unattended or attended deliveries the packaging system plays an important part in keeping the groceries in good condition. Therefore the e-grocer has to take the aspect of using an adequate packaging system under consideration. Matomera managed to develop both a cheap and efficient packaging system that supported the whole logistical solution of Matomera.

The use of two-hour delivery time windows improved the efficiency in the logistical system compared to one-hour delivery time windows, but did not worsen the conditions of consumers to any great extent. The combination of home and company deliveries improved both the logistical efficiency and the conditions for consumers.

By using both a delivery fee and a reached order sum before offering free deliveries gives the possibility to affect both buying behaviour and the delivery costs per order for the e-grocer. The difficulty is to find a balance that will not scare the consumers away. However, a good balance will keep the preferred consumer segment and decrease the delivery costs for the e-grocer. Offering payment methods that resemble the ones used in ordinary stores is probably necessary in the beginning, in order to attract consumers to the e-grocer. However, as consumers become more used to shop on the Internet, payment methods that do not affect the deliveries in a negative way should be used.

The use of a dedicated warehouse is the preferred solution in terms of logistical efficiency, but requires a large consumer stock in order to compensate for the high fixed costs. This was also significant to Matomera, which obtained a high logistical efficiency within the dedicated warehouse, but had a problem reaching the break-even point regarding number of consumers. Therefore, the picking should have been performed in a store until a sufficient consumer stock was obtained.

To have a high logistical efficiency within the warehouse is crucial in keeping the logistical costs on a low level. With the restraints of using an existing building, Matomera optimised the usage of the building by computer simulating different layout alternatives, and continuously improve the picking routines together with the picking staff.

The aspects important for consumers are that the orders are accurate and that the assortment is fulfilling their needs. Maintaining high delivery accuracy is important as it builds up a confidence among consumers. As it is easier to blame someone else, the consumers probably has greater demands on the e-grocers than what would be the case if they forgot to pick the item or pick the wrong item themselves.

Matomera created a website and a Service-centre that were very much appreciated by the consumers. Although the Service-centre was very much appreciated, the function could have been used for additional purposes such as offering services that could inspire consumers. This, similar to the website, was used to simplify the logistics, i.e. giving instructions to the driver.

Matomera developed its concept all the time. Thorough pre-studies had been done in order to determine what segments that would use home shopping and what segments that would be most

profitable. As the time passed, Matomera gained new knowledge in different areas. As they were one of the first e-grocers they lacked similar companies to compare themselves with, which led to that they learned much by trail and error. This is significant for pioneers. If Matomera had this knowledge from the beginning they could have avoided some of the difficulties that they later confronted.

# Acknowledgement

This master thesis is written on behalf of the Department of Design Sciences, the Division of Packaging Logistics at Lund Institute of Technology. The thesis is a case study done on the former e-grocer Matomera where theories about different logistical solution within e-grocery are also considered.

In order to describe the company and later analyse it, we have been in contact with several people involved in Matomera. We would like to emphasise the very valuable help that we have received from Market Development Manager Johan Johnsson at BergendahlsGruppen AB, Managing Director Mattias Kettelhoit at Schenker Consulting AB, Managing Director Åke Kjellkvist at Schenker Parcel Malmö, and Logistics Co-ordinator Michael Cronberg at Posten Logistik. Without these people it would not have been possible to do a description of Matomera, and we want to give them a special acknowledgement. They have contributed with much valuable information about Matomera and it is important to understand that some information cannot be published due to its sensitive nature.

We would also like to thank Ingemar Hansson for giving us valuable critic throughout the whole case study.

Finally, we would like to thank our examiner Gunilla Jönson, Professor of Packaging Logistics at Lund Institute of Technology, and our supervisor PhD Student Mazen Saghir.

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# 1 Introduction

*This chapter describes the background to the problem which is the foundation of the objective which also is presented in the chapter. Furthermore, the delimitations are also considered.*

## 1.1 BACKGROUND

In 1996 the Internet penetration was expected to boom in Sweden from 500 000 users to 1.5 million in just 2 years.<sup>1</sup> Ten percent of the users had already done shopping over the Internet. According to SIFO 14 % of the Swedish population was willing to pay for home delivery of groceries and within five years 22 % of the Swedes would order groceries over the Internet.<sup>2</sup> Based on these statistics the Internet consultant Innovative, now Mind, identified that there was a potential in selling groceries on the Internet in Sweden. Innovative contacted BTL, now Schenker AB – a provider of logistical solutions and freight, and together they created a concept called EasyShop. Their business idea was to introduce a grocery store on the Internet with home delivery, with high quality on groceries and service but with lower prices than the average Swedish supermarket.<sup>3</sup> The same year, 1996, Innovative and BTL contacted Bergendahl & Son AB, now BergendahlsGruppen AB, about the idea of selling groceries on the Internet. The result was that Bergendahl & Son AB as the sole owner alongside with BTL as a partner created Matomera in 1998. Matomera was unique in Sweden in its concept of selling groceries only on the Internet with no supporting physical store. Instead they used a dedicated warehouse especially designed for this purpose. The idea was to deliver groceries home to consumers without any additional distribution fees.<sup>4</sup>

According to Innovative and BTL, theoretically it would be possible to sell groceries on the Internet for a cheaper price but with the same margins.<sup>5</sup> In order to obtain this goal the logistical<sup>6</sup> solution is a critical aspect, both between the producer and the retailer, and between the retailer and the consumer, in this case home deliveries. Furthermore, consumers have, through business to consumer (B2C) e-commerce<sup>7</sup> and home deliveries, put enhanced requirements on the logistics system such as being able to handle small quantities, delivering within narrow delivery time windows<sup>8</sup> and the ability to handle temperature sensitive products.<sup>9</sup>

When it comes to consumer demands concerning all the activities done in a physical grocery store, they are rather well surveyed. In an ordinary grocery store the physical meeting as well as many of the decisions concerning what to shop takes place in the actual store. This gives the grocer the possibility to interact with and influence consumers. In B2C e-commerce the buying decisions and the face-to-face communication between consumers and companies are separated in time or excluded. Therefore the possibility to interact with and to influence consumers is often restrained to the website and call-centres. Along with this there is an added responsibility of picking and delivering the goods to consumers. When selling groceries on the Internet there is a

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<sup>1</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>2</sup> Ibid

<sup>3</sup> Ibid

<sup>4</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>5</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>6</sup> See chapter 3.3.1 for definition.

<sup>7</sup> See chapter 3.2.1 for definition.

<sup>8</sup> See chapter 3.4.3 for definition.

<sup>9</sup> Schary, Philip B. & Skjøtt-Larsen, Tage, Managing the Global Supply Chain, Copenhagen Business School Press, 2001, pp. 242-243



lack of knowledge concerning consumer response to websites and consumer requirements on home deliveries. Therefore logistics concerning home deliveries is an important part in fulfilling consumer demands as the responsibility of picking and delivering has been transferred from the consumer to the grocer.

## 1.2 THE PROBLEM

Despite of the enhanced demands many dotcom companies failed to see the significance of logistics as a part of their strategy. Many of the dotcom companies either did not seem to consider logistics at all or built oversized distribution centres creating large fleets of delivery vans that did not match the demand.<sup>10</sup> In the case of Matomera, implementing home deliveries without additional distribution fees for the consumer was difficult to fulfil<sup>11</sup> and despite award winning websites and marketing campaigns Matomera was taken out of business in March 2001.

In order to maintain a business and develop it, grocers should consider principal competitive factors such as product selection, product quality, customer service, price and convenience.<sup>12</sup> These are some of the most important variables that the grocer can affect in order to create an attractive offer to consumers and thereby meeting their requirements. As for online stores there are new requirements to be met, for example the ease of use of the website and the responsibility to distribute groceries to consumers.<sup>13</sup> In logistical terms the activities that consumers perform when buying groceries in a traditional way, are picking and bringing the groceries home. These logistical activities have now been added to the responsibility of the e-grocer. In order to fulfil these activities there are several different logistical solutions in distributing groceries to consumers and therefore meeting the consumer requirements.

*How did Matomera consider the requirements of the consumers in order to create a logistical solution that would satisfy the chosen consumer segment and how did the logistical solution of Matomera fulfil these requirements?*

The logistical solution includes financial flow, information flow and distribution. Matters concerning the financial flow are payment security and the number of ways to pay for the goods. The chosen way of payment affects logistics and the consumer's willingness to shop over the Internet.

Matters concerning the information flow are the number of different communication channels and how these are managed. In order to compensate for the lack of face-to-face communication that is representative for an ordinary grocery store, the e-commerce grocery company creates websites, call centres, and e-mail services. How these communication channels are managed affects the fulfilment of the consumer needs.

Finally, matters concerning the distribution are how consumers get the goods delivered home. Aspects such as the necessity for consumers to be at home, the possibility to deliver in multiple timeframes et cetera affect the consumers' satisfaction towards the chosen distribution solution.

*How did the logistical solution of Matomera look like and what kind of logistical problems did Matomera face?*

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<sup>10</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Department of Transportation and Logistics, Chalmers University of Technology, 2000, p. 5

<sup>11</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>12</sup> Duval, Yann, Emerging Business Models in the E-grocery Industry, Washington State University, p. 2

<sup>13</sup> Ibid, p. 2

### 1.3 OBJECTIVE

The purpose of this master thesis is to describe the chosen logistical solution of Matomera, the information, financial and physical flow, and how these elements relate to each other. The objective is also to analyse the logistical solution in the aspect of fulfilling the requirements of the consumers. Finally, the questions asked in the previous subchapter will be answered.

### 1.4 DELIMITATIONS

Within the grocery business there are mainly two distribution flows between the producer and the consumer, see figure 1.1.<sup>14</sup> One flow is between the producer and the retailer and the other flow is between the retailer and the consumer. In this case study we will describe both flows but the focus and the analysis will be on the distribution flow between the retailer and the consumer. The fact that Matomera distributed groceries to the consumer makes them unique and therefore the focus will be on this distribution flow.

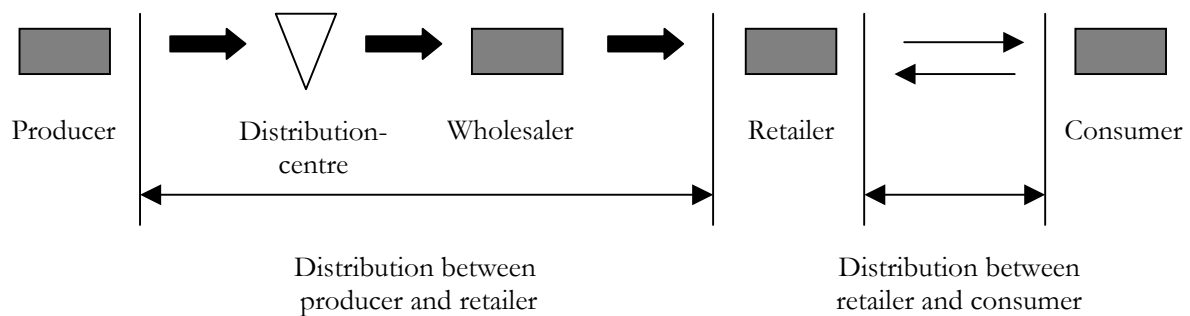


Figure 1.1: Distribution flows between the producer and the consumer.<sup>15</sup>

The distribution to the consumer can be done in many ways such as distribution to a delivery box, home delivery, et cetera. These will be presented in the master thesis but we will only analyse matters concerning home deliveries as this was the chosen solution of Matomera.

In order to get an accurate picture of Matomera the company will be described, but when it comes to the processes focus will be on the logistical processes concerning information flow between consumers – Matomera, Matomera – the distribution company, and consumers – the distribution company, financial flow between consumers – Matomera, and physical flow between consumers – Matomera. See table 1.1. These flows are the ones that affect consumers the most when distributing groceries to consumers.

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<sup>14</sup> Orremo, Fredrik & Wallin, Claes, IT, mat och miljö – En miljökonsekvensanalys av elektronisk handel av dagligvaror, Department of Packaging Logistics, Lund Institute of Technology, Lund, 1999, p. 2

<sup>15</sup> Ibid, p. 2

Financial flow	Information flow	Physical flow
Consumers – Matomera	Matomera – Consumers Matomera – The distribution company The distribution company – Consumers	Matomera - Consumers

*Table 1.1: Flows that affect consumers the most.*

When it comes to fulfil consumer requirements, different requirements are differently important to every consumer, but we have focused on eight key points which, in consultation with Annika Olsson<sup>16</sup>, we find as the most important ones, in general, when buying groceries online.

## **1.5 DISPOSITION OF THE MASTER THESIS**

Below, a brief description of the master thesis and its contents are presented.

### *Chapter 1 – Introduction*

This chapter describes the background to the problem which is the foundation of the objective which also is presented in the chapter. Furthermore, the delimitations are considered.

### *Chapter 2 – Methodology*

When working on the thesis certain choices and methods have been made respectively used. These, alongside with the course of action when performing the case study, are presented in this chapter.

### *Chapter 3 – Frame of reference*

The chapter contains four parts of frame of references, firstly, an brief presentation of the Swedish grocery industry, secondly, some theories about e-commerce are considered, thirdly, the frame of logistics is regarded, and finally, different distribution models possible to use are presented.

### *Chapter 4 – Case study Matomera*

In order to present the case study Matomera, the description is based on both the company's functions and the processes connected to Matomera. When analysing the case, eight aspects connected to the consumer demands put on e-grocery solutions serve as starting points.

### *Chapter 5 – Discussions and conclusions*

On the basis of the case study and the performed analysis, the most important issues are highlighted in order to reason and answer the purpose in the objective and the questions asked in the problem. In discussions and conclusions a deepened reasoning is presented. Based on the findings, the analysis, discussions and conclusions, and gained knowledge of the subject of home deliveries, further research is also presented.

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<sup>16</sup> Olsson, Annika, PhD Student, Department of Packaging Logistics, Lund Institute of Technology, consultation, Lund, 2002-05-22

## 2 Methodology

*When working on the thesis certain choices and methods have been made respectively used. These, alongside with the course of action when performing the case study, are presented in this chapter.*

### 2.1 MATOMERA – A CASE STUDY

We have chosen to do a case study on Matomera for this master thesis. Matomera was the first, both in Sweden and in Europe<sup>17</sup>, in its concept of being a pronounced e-grocery shop, meaning that it has no surrounding activities such as a physical shop. Even though Matomera is no longer in business, as it was taken out of business in March 2001<sup>18</sup>, the subject of delivering groceries to the consumer is still of great interest. Although historical activities that no longer exist are described, the research is not of historical kind, meaning that no primary data<sup>19</sup> is used.<sup>20</sup> In this case study it was possible to obtain primary data by conducting interviews with people involved with Matomera.

The case study is preferred when examining contemporary events where relevant behaviours cannot be manipulated.<sup>21</sup> In the case of Matomera, the company was started in 1998 and ended in 2001, which means that all the events are contemporary history, and therefore relevant behaviours cannot be changed in any way which might change any course of events. There is resemblance between case studies and descriptions of historical events, but in case studies it is also possible to do direct observations and systematic interviews. This means that you can deal with a full variety of evidence such as documents, artefacts, interviews and observations, which are beyond what might be possible in conventional historical studies.<sup>22</sup> In the case of Matomera there are no possibilities in doing direct observations of the processes in order to create an opinion of our own, which might limit the possibility in comparing the views of the interviewees with our views. As being more dependent on the interviews, enhanced demands were put on who we interviewed, how we conducted it and what questions we were asking, in order to get a variety of impressions on the course of events and a reasonably accurate picture.

#### 2.1.1 Reliability

The procedures must be described in a way that if an investigator would later conduct the same case study and followed the same procedures he or she would come up with the same findings and conclusions. The goal of reliability is to minimize the errors and biases in a study. In order to make it possible to repeat the case study, it is important to focus on the documentation of the procedures followed in the earlier case.<sup>23</sup> In this case it is possible to come up with the same description of the processes and functions of Matomera, but the conclusions are based on our personal perception of the situations. Therefore different conclusions could be obtained by other researchers with different backgrounds. However, every step taken has been described in an operational way, why we have taken them and how, in order to give the possibility to conduct a similar case study.

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<sup>17</sup> Internet, <http://www.svt.se/nyheter/2001/010326/127.html>, 2002-02-27, 4.50 p.m.

<sup>18</sup> Internet, <http://w1.sydsvenskan.se/Article.jsp?version=25488>, 2002-02-27, 9.00 a.m.

<sup>19</sup> Eriksson, Lars Torsten & Wiedersheim-Paul, Finn, *Att utreda, forska och rapportera*, Liber-Hermods, Malmö, 1991, p. 76

<sup>20</sup> Marriam, Sharan B., *Fallstudien som forskningsmetod*, Studentlitteratur, Lund, 1994, p. 23

<sup>21</sup> Yin, Robert K., *Case study research – Design and methods*, Sage publications, USA, 1994, p. 8

<sup>22</sup> Ibid, p. 8

<sup>23</sup> Ibid, pp. 36-37

### **2.1.2 Construct validity**

When performing a case study it might be difficult to develop or set up adequate measures that reflect the unit of analysis. Additionally, it might be hard to be “objective” during the gathering of data. Therefore, in order to maintain construct validity within a case study, the unit to be studied in relation to the objective must be specified, and one has to substantiate that the measurements used, reflect what is to be studied.<sup>24</sup> It is, of course impossible to be objective when collecting data, as in every situation and opinions are formed with this in mind. In order to secure the analysis starting points, persons with knowledge and experience about e-grocery logistics has been consulted.

### **2.1.3 Internal validity**

Internal validity is a concern for causal or explanatory case studies, in which an investigator is trying to determine whether event x led to event y.<sup>25</sup> If the investigator incorrectly concludes that there is a relation between x and y and does not know that an event z might have caused event y, then the research design might have failed to deal with some threats to the internal validity. The concern for internal validity, for case study research, may be extended to the broader problem of making conclusions. A case study involves a conclusion every time an event cannot be directly observed. Thus an investigator concludes that a particular event resulted from some earlier occurrence, based on an interview and documentary evidence collected as part of the case study. Is the conclusion correct, have all the rival explanations and possibilities been considered? Is the evidence convergent? A research design that has anticipated all these questions has begun to deal with the overall problem of making conclusions and therefore the specific problem of internal validity.<sup>26</sup> In this master thesis multiple persons within the same area have been interviewed. The interviews have confirmed, complemented or rejected matters and facts and therefore they have been supplementing each other.

### **2.1.4 External validity**

External validity concerns whether the results of a case study are able to generalise beyond the immediate study. Critics claim that single case studies offer a poor basis for generalisation. But when criticising the contingency to generalise a case study’s result, the comparison is made with survey research. Survey research, however, relies on statistical generalisation; meanwhile case studies rely on analytical generalisation. When performing an analytical generalisation the researcher tries to generalise a particular result from a study to a broader theory, and when the theory has been tested in additional situations in which the theory has been specified that the same result should occur, external validity may be obtained.<sup>27</sup> As generalised starting points has been used in order to analyse the case, the possibility to generalise the results increases. However, using the results on other cases should be done carefully as Matomera is a unique case. Even though the results as a whole cannot be implemented in similar cases, some parts of the result might be utilised.

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<sup>24</sup> Yin, Robert K., Case study research – Design and methods, Sage publications, USA, 1994, p. 34

<sup>25</sup> Ibid, p. 35

<sup>26</sup> Ibid, p. 35

<sup>27</sup> Ibid, p. 36

## 2.2 THE PROFILE OF THE INVESTIGATION

In a case study you are able to show an overall picture which enables an increased understanding for the processes and the consistency (system approach).<sup>28</sup> In the thesis we will describe the background of Matomera and its activities and we will discuss some alternative ways of handling deliveries to the consumer. Finally we will evaluate and do an analysis of its performance.

When doing case studies it is possible to choose between a single-case design and multiple-case design, see figure 2.1. A single-case design has been chosen. One argument for using a single-case design is that the case represents an extreme or unique case.<sup>29</sup> Matomera was unique in the sense that there had not been such a dedicated commitment in using a dedicated warehouse solely for selling groceries on the Internet in the European countries<sup>30</sup> and therefore it would be difficult to find another example that operated or operates under similar circumstances. There were similar initiatives taken in the US, but there are too many geographical and demographical factors that are different between Matomera and the American companies in order to compare them and turn the study into a multiple-case study. Furthermore, an embedded view<sup>31</sup> has been chosen, as attention is also given to the subunits of Matomera, in this case, the processes and functions. These processes have to be considered in order to get a full understanding of Matomera, as they are the core activities of Matomera. However, one have to be aware of not to put focus on the subunit level only and therefore fail to return to the larger unit of analysis,<sup>32</sup> in this case Matomera.

	Single-case designs	Multiple-case designs
Holistic (Single unit of analysis)	Type 1	Type 3
Embedded (Multiple units of analysis)	Type 2	Type 4

Figure 2.1: Basic Types of designs for Case Studies.<sup>33</sup>

## 2.3 THE DESIGN OF THE INVESTIGATION

When using a qualitative approach one is able to adjust the design during the realization of the investigation.<sup>34</sup> This flexibility concerns two matters. Firstly, the design is flexible in the relation

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<sup>28</sup> Holm, Idar Magne & Krohn Solvang, Bernt, *Forskningsmetodik – Om kvalitativa och kvantitativa metoder*, Studentlitteratur, Lund, 1997, pp. 79-80

<sup>29</sup> Yin, Robert K., *Case study research – Design and methods*, Sage publications, USA, 1994, p. 39

<sup>30</sup> Internet, <http://www.svt.se/nyheter/2001/010326/127.html>, 2002-02-27, 4.50 p.m.

<sup>31</sup> Yin, Robert K., *Case study research – Design and methods*, Sage publications, USA, 1994, p. 41

<sup>32</sup> Ibid, p. 44

<sup>33</sup> Ibid, p. 39

to the experiences which have been made during the phase of information gathering. If discovered, during the investigation, that certain questions at issue have been forgotten or wrongly formulated they would have been changed. Secondly, the design was flexible in relation to the way the different objects of investigation were approached, both in which questions that were brought up and in which order they were asked. These two matters can be seen as strengths or as weaknesses. The strength is that it gives a continuously improved and profound understanding of the question at issue. The flexibility is also a weakness as it makes it more difficult to compare information between the different objects.

### **2.3.1 Case study design**

The distinct advantage with the case study strategy is when “a ‘how’ or ‘why’ question is being asked about a contemporary set of events over which the investigator has little or no control.”<sup>35</sup> This strategy fits this thesis quite well as we are going to investigate how the logistical solution of Matomera looked like and how it fulfilled the consumer requirements.

When designing a case study certain aspects must be taken under consideration:<sup>36</sup>

- A study’s questions – The case study is most appropriate for “how” and “why” questions.
- Study propositions – Point out what to study as the “how” and “why” questions does not say what is the right direction to move on to. You have to make a proposition. If you do not have a proposition at least you need a purpose.
- Unit of analysis – What is the case about?
- The logic linking of data to the propositions.
- The criteria for interpreting the findings.

The first three points tell you what data should be collected, the last two, what is to be done after the data have been collected. In this case, the problem of the master thesis describes the primary questions raised to be investigated. The problem cannot solely serve as the starting point for the thesis and therefore an objective was settled which defined the problem and specified the questions within. Additional specifications were made throughout the delimitations, which describe what to be analysed and investigated more precisely. These subchapters together serve as a starting point for what kind of data that should be gathered and what knowledge that should be obtained. In the analysis, the case study of Matomera is analysed on the basis of certain key points which links the data collected to the objective of the thesis.

## **2.4 INFORMATION GATHERING**

Information in a scientific report is without value if there is no information of why, how and in what context the information was collected. The reliability of a thesis is depending on the information collected for the project and how it is used in the analysis. Therefore, to maintain a good validity and reliability, the quality of the information should be judged on the basis of the source of information, the role of the originator, and definitions.<sup>37</sup>

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<sup>34</sup> Holm, Idar Magne & Krohn Solvang, Bernt, *Forskningsmetodik – Om kvalitativa och kvantitativa metoder*, Studentlitteratur, Lund, 1997, pp. 80-81

<sup>35</sup> Yin, Robert K., *Case study research – Design and methods*, Sage publications, USA, 1994, p. 9

<sup>36</sup> *Ibid*, p. 20

<sup>37</sup> Wallén, Göran, *Vetenskapsteori och forskningsmetodik*, Studentlitteratur, Lund, 1996, pp. 85-86

### 2.4.1 Sources of evidence

There are many sources of evidence, for example; documentation, archival records, interviews, direct observations, participant-observation, and physical artefacts.<sup>38</sup> In this case the focus has been on documentation and interviews. The possibility of doing direct observations is an advantage, as using many different kinds of sources will make the findings and conclusions in a case study more likely to be convincing and accurate.<sup>39</sup> In this case it was not possible to do any direct observations as the company had ceased to exist. The options left were documentation and interviews.

### 2.4.2 Primary data and Secondary data

Data collected for an investigation can be of two kinds, primary and secondary.<sup>40</sup> Primary data are those data that are obtained for the first time and by the researcher. The data can be obtained mainly in two ways,<sup>41</sup> by interviews and by questionnaires, used in combination or individually. To capture the uniqueness of this individual object and its special life situation certain interviews with people involved has been made. As the company does not exist anymore it has not been possible to make observations of our own in order to describe the processes and their relation to each other. Therefore we had to rely solely on interviews regarding primary data.

Secondary data are data gathered through already made investigations. The investigations are documented and the acquisition is made through literature studies of newspapers and journals, statistic sources, books and dissertations, et cetera. The majority of all investigations include literature studies, but the literature studies have different purposes;<sup>42</sup> to obtain an overall picture of how the subject is presented in the literature, to map different approaches to a certain problem, and to collect data for the actual investigation. The literature studies are not only about determining the answers about what is known on a topic, but should also be used to develop sharper and more insightful questions about the topic.<sup>43</sup> In order to understand the situation of Matomera and their logistical solution, different ways of how to store the groceries and how deliveries to the consumer are handled have been studied. We have also read articles and reports which describe or mention Matomera in order to get background knowledge about the company and to verify some information. This due to the fact that for case studies, the most important use of documents is to corroborate and augment evidence from other sources.<sup>44</sup> Finally, inference can be made from documents.

#### 2.4.2.1 Literature studies

The strengths of documentation are that it is stable – it can be reviewed repeatedly, unobtrusive – not created as a result of the case study, exact – contains exact names, references, and details of an event, broad coverage – long span of time, many events, and many settings. The weaknesses are the access – which can be low, biased selectivity – if collection is complete, reporting bias – reflects bias of author, and access – may be deliberately blocked.<sup>45</sup>

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<sup>38</sup> Yin, Robert K., Case study research – Design and methods, Sage publications, USA, 1994, p. 93

<sup>39</sup> Ibid, p. 92

<sup>40</sup> Eriksson, Lars Torsten & Wiedersheim-Paul, Finn, Att utreda, forska och rapportera, Liber-Hermods, Malmö, 1991, p. 76

<sup>41</sup> Ibid, p. 84

<sup>42</sup> Ibid, p. 77

<sup>43</sup> Yin, Robert K., Case study research – Design and methods, Sage publications, USA, 1994, p. 9

<sup>44</sup> Ibid, p. 81

<sup>45</sup> Yin, Robert K., Case study research – Design and methods, Sage publications, USA, p. 80



The literature studies in this thesis have been focused on three different areas; e-commerce, logistics, and grocery industry. The studies have consisted of previous studies, such as dissertations and books, of articles and journals, of annual reports, and of websites. The studies were made in order to create an understanding of the three different areas and to find models applicable in the analysis of the thesis. To obtain a broad perspective and the possibility to compare the information of the different sources, the search for literature was made in various databases. Some information gathered would fit into more than one of the three mentioned areas, and to define this information better, three more areas that would cover the combinations were added. Every source gathered, was marked with a specific number depending on what categories it would cover. By categorizing the sources, it became easier to get an overview on how many sources each category contained, and if there were categories that were short of sources, see figure 2.2. The categories are:

- 1 E-commerce.
- 2 Logistics.
- 3 Grocery industry.
- 4 E-commerce – Logistics.
- 5 E-commerce – Grocery industry.
- 6 Logistics – Grocery industry.

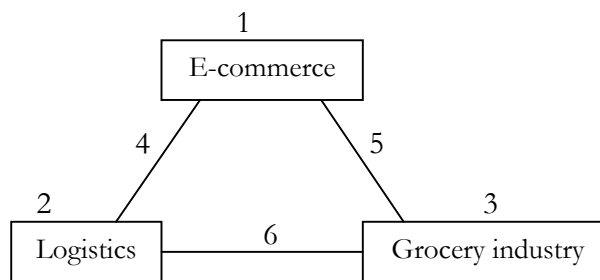


Figure 2.2: Categorisation of information gathered.

## 2.5 INTERVIEW METHODOLOGY

The purpose of interviews is to make it possible for us to understand a perspective of another human being.<sup>46</sup> In the case of Matomera, the interviews were conducted in order to get an accurate description of the processes and functions, and to receive opinions from different parties concerning the activities. To obtain a complete understanding and correct reproduction there is a need to design the interviews in different ways.

### 2.5.1 Different types of interviews

Depending on what to be investigated and what is already known about the subject the interviews should be of differing characters.<sup>47</sup> The structure of the interview affects the design of the questions. Interviews with a very strict structure and a specific questionnaire are normally

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<sup>46</sup> Marriam, Sharan B., Fallstudien som forskningsmetod, Studentlitteratur, Lund, 1994, p. 86

<sup>47</sup> Marriam, Sharan B., Fallstudien som forskningsmetod, Studentlitteratur, Lund, 1994, p. 88

made on a large selection of people in order to test a specific hypothesis or if a quantitative result is important. There are four assumptions<sup>48</sup> made for the schematic interview:

1. The respondents have a mutual language.
2. The questions are designed in order to have the same meaning to all the respondents.
3. The context, including the context of the interview, in which the questions are to be asked, has to be of the same meaning to all the respondents.
4. The three assumptions above can be fulfilled through a pilot survey.

When the researcher does not have the sufficient knowledge of an occurrence, unstructured, also called open, interviews can be useful. In extreme cases there are no formulated questions and the interviews are called explorative. To carry out an unstructured interview the researcher must be very flexible and be ready to handle incoherent information. These types of interviews are often insufficient as the only way of collecting data and they are often needed to be complemented with more structured interviews.<sup>49</sup>

The two types of interviews described are two extreme kinds but the two examples frame all other types of interviews. Often the interviews can not be assigned to be totally structured or open but are somewhere in between.<sup>50</sup>

In order to describe and to understand all processes and functions, and their connections to each other, so called open-ended interviews were used in the current study. This type of interview allows the interviewer to ask the interviewee for facts of the matter as well as his or her opinion about it.<sup>51</sup> It is also possible to ask for the interviewee's insights into certain occurrences and to use such propositions as the basis of further inquiries. However, the interviewee may not necessarily co-operate fully in answering the questions.<sup>52</sup> A similar type of interview is the focused interview<sup>53</sup> where the interviewee is interviewed for a shorter period, one-hour for example. With this approach it is more likely to be following a certain set of questions derived from the case study protocol. Certain facts, that are thought to have been already established earlier, may be confirmed, and focus can be on subjects that is more in the person's field of knowledge. This was the case in the last interviews as most of the processes had been established and therefore the concentration could be on areas where it might lack information. In other words, we went from open-ended interviews to focused interviews as our knowledge got broader and deeper. One should also remember that due to the lack of experience of conducting interviews among the authors, the type of interview could in one or two cases vary from the chosen one.

### **2.5.2 The case study interviews**

The case study is based mainly on interviews with people closely connected to Matomera. The people are mainly from the company which owned Matomera, BergendahlsGruppen AB, and their partner, Schenker AB, who was responsible for the distribution.

The interviews were conducted on the basis of comprehensive interview questions composed by the authors. Before the first interview a questionnaire was designed (shown in appendix 1), which has served as the starting point for every interview. To get specific information in certain areas, though, some of the questions were categorised before every single interview. The specification

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<sup>48</sup> Ibid, p. 88

<sup>49</sup> Ibid, pp. 87-88

<sup>50</sup> Lantz, Annika, Intervjumetodik, Studentlitteratur, Lund, 1993, p. 21

<sup>51</sup> Yin, Robert K., Case study research – Design and methods, Sage publications, USA, 1994, p. 84

<sup>52</sup> Ibid, p. 68

<sup>53</sup> Ibid, p. 84

was made on the basis of who was to be interviewed and what information that was thought to be lacking, this in order to maintain a good validity and due to the limited time during the interview. The questions that were asked were focused on his or her field of knowledge and the specific responsibilities given at Matomera. Also, during the interview, follow-up questions were asked in order to clarify or to confirm certain statements. In order to confirm or complement certain statements that were lacking, supplemented telephone interviews were conducted. These interviews were based on direct questions about a certain reasoning or certain facts.

The interviews took place in an ordinary office or conference room. Both authors have participated in every interview, one communicating with the respondent and one making notes of comments. The interviews were also recorded and afterwards written down as adequately as possible. The interviewee was from the beginning informed about the purpose of the thesis and under what conditions it was made and they have had the possibility to review a print-out based on the interview in order to have the possibility to correct or clarify certain issues. This was done in order to reassure that the given answers were reliable and correct and to make the participant feel more comfortable with the situation. The telephone interviews have not been recorded as the purpose has been to confirm certain facts or statements.

One should take into consideration that even if we could not affect the course of actions of Matomera, we could have affected the interviewees in the way that if a similar case study were made the persons involved may act different. This can appear due to the fact of how the participants remember the situation, better or worse, and their willingness to participate, increased or decreased. Finally, what also could affect the reproduction is that the interviews were performed in Swedish which can affect the interpretation, both by the authors of this master thesis and any eventual following researchers. For example, such things as quotations and special expressions can be difficult to reproduce in English.

## **2.6 COURSE OF ACTION IN THE CASE STUDY MATOMERA**

Figure 2.3 shows a comprehensive picture of the course of action made during the case study of Matomera. To get an overall description of the situation of the problem to be investigated, search for literature and documents were done in a way that has been described above. From the literature studies different ways of handling deliveries of groceries to consumers were described. When basic knowledge about Matomera and how to deliver goods to consumers were obtained, contacts with persons to be interviewed were made. On the basis of the interviews and the literature studies, a description of Matomera was made.

On the basis of the knowledge obtained through interviews and reports during the work of the master thesis, certain aspects influencing the willingness of doing grocery shopping on the Internet were identified. These aspects were taken under special consideration and feedback was received from people involved in the matter of delivering groceries to consumers. The reviewed aspects were very important as they served as starting points in the work of the analysis. From these starting points the information gathered through literature studies and interviews was analysed. In order to get a separate opinion, consultations with independent sources were conducted during the work of analysis. These discussions gave the possibility to debate the analysis and conclusions made and with this approach achieve valuable and accurate conclusions.

Personal viewpoints and “objective” descriptions of the actual development have been taken into consideration. To get an accurate picture of the processes, the interviews have supplemented each other as different persons have different field of knowledge and therefore described the processes differently. The opinions are valuable to consider as it might give indications about

areas of problem and what might be reflected over. Through other interviews, these opinions could later either be confirmed or rejected.

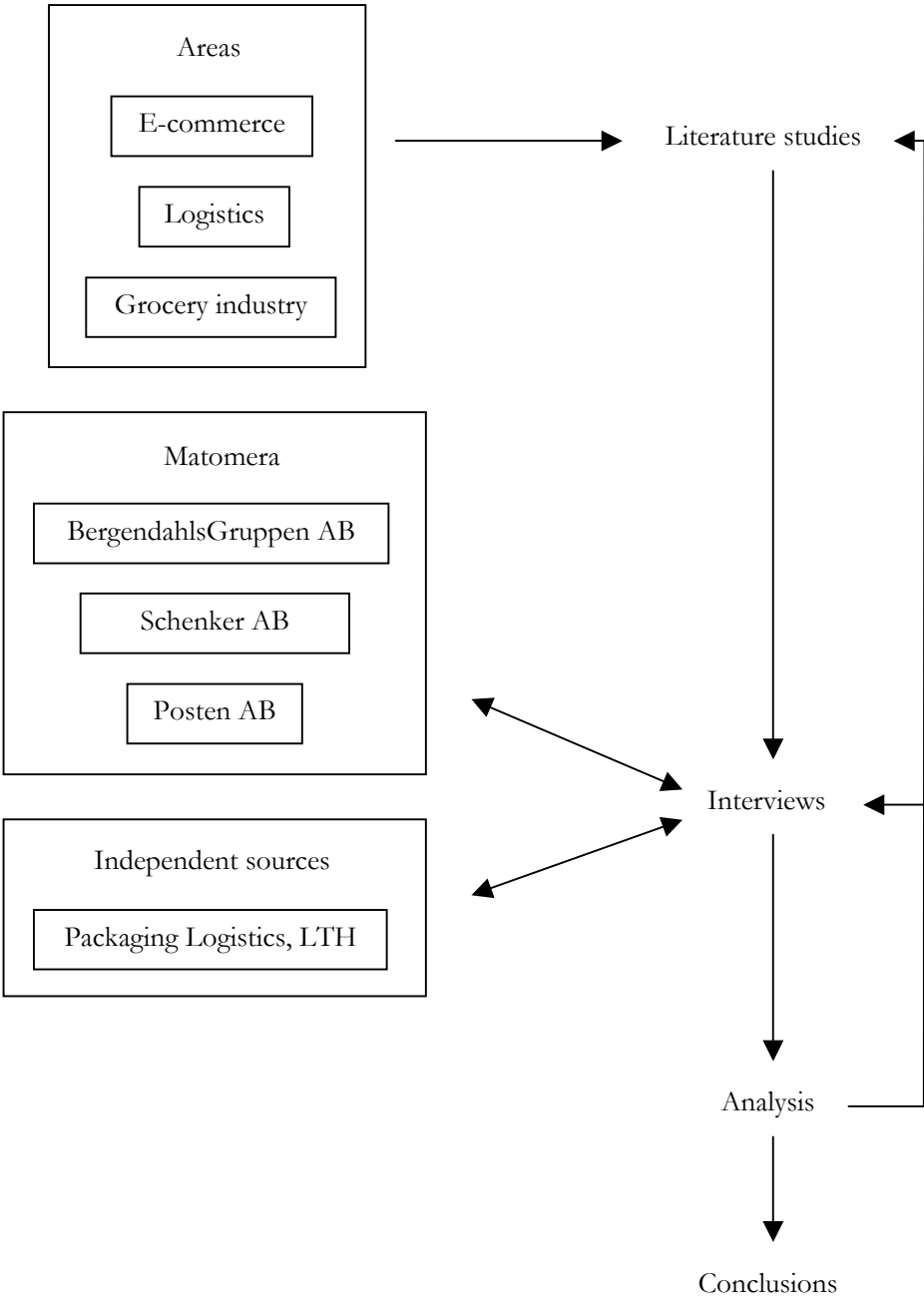


Figure 2.3: The course of action made during the case study of Matomera.

## 3 Frame of reference

*This chapter contains of four parts of frame of references, firstly, an brief presentation of the Swedish grocery industry, secondly, some theories about e-commerce are considered, thirdly, the frame of logistics is regarded, and finally, different distribution models possible to use are presented.*

### 3.1 GROCERY INDUSTRY

#### 3.1.1 Roles in the grocery industry

In the grocery industry different roles are identified depending on where in the supply chain the actors are to be found and are carrying out their business. Below, four roles with different focus on the business are described.

##### 3.1.1.1 *The producer*

The producer receives a steady flow of small incoming deliveries which often comes from several suppliers. While the inbound flows are converged from many suppliers the outbound flows are diverged to serve many customers over large geographical areas and different markets. However, in the grocery industry, depending on what type of grocery to be delivered the distribution channels and the performer of the distribution are quite different. For fresh groceries and liqueurs the delivery to the retailer is direct and accomplished by the producer itself. For colonial products the distribution is usually handled by the wholesaler.

##### 3.1.1.2 *The wholesaler*

Traditionally the role of the wholesaler has included two main tasks; to offer an assortment from several different suppliers and to decompose the big packages received from the producers into smaller units in order to fulfil the requirements of the retailer.<sup>54</sup> The aim is to decrease the amount of deliveries from the producer to the retailer by performing distribution with gathered goods from several producers. However, direct deliveries from the producer to the retailer are becoming more usual due to the increased capability of distributing quantities adapted to the customer. Due to these changed conditions new tasks arises and the role of the wholesaler is therefore modified. The wholesaler becomes skilled in acting as intermediary and controlling the distribution, and the goal is to use the warehouses of the suppliers as a complement to their own and to coordinate the information and physical flow between producer, wholesaler and retailer.<sup>55</sup> In the grocery industry, due to the fact of dealing with groceries which have different restrictions considering freshness and durability, both scenarios described above are used in the distribution.

##### 3.1.1.3 *The shipping company*

The shipping company tasks are several and include organising international transportations, clearing through customs, providing for storage and distribution, watching over ordered goods until delivered, and offering special services.<sup>56</sup> Due to the fact that the shipping company acts over large areas the responsibility of maintaining a well developed international network is very important.<sup>57</sup> In order to correspond to the increased amount of packages and shipments and to

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<sup>54</sup> Pewe, Ulf, Lönsam logistik, Exportrådet, Förlags AB Industrilitteratur, Värnamo, 1993, p. 79

<sup>55</sup> Ibid, p. 80

<sup>56</sup> Tarkomski, Jerzy, Ireståhl, Bo & Lumsden, Kenth, Transportlogistik, Studentlitteratur, Lund, 1995, p. 127

<sup>57</sup> Pewe, Ulf, Lönsam logistik, Exportrådet, Förlags AB Industrilitteratur, Värnamo, 1993, p. 69

maintain a good transportation economy, the shipping company needs to combine and coordinate the flows of the different customers.<sup>58</sup>

#### 3.1.1.4 The retailer

The final actor in the distribution channel before the consumer takes over the transportation responsibility is the retailer. The retailer receives merchandises from both wholesalers and producers, and the amount of deliveries from producers and wholesalers respectively is based on the size of the shop and the type of goods delivered. Due to factors as price, size, and assortment the retail trade is divided into several categories such as supermarkets, hypermarkets, service and duty shops, low price shops, and traditional retail shops.<sup>59</sup>

### 3.1.2 Group of actors in the Swedish grocery industry

ICA Ahold AB, COOP and Axfood are the three biggest actors in Swedish grocery retailing and they control almost 90 % of the total market.<sup>60</sup> The fourth biggest company is Bergendahls-Gruppen AB which mainly acts in the south of Sweden.<sup>61</sup> In table 3.1 the market shares in the retailing market are shown. All four of the actors and even a couple of minor operators have pursued e-commerce towards consumers,<sup>62</sup> but due to the difficulty of making this profitable, today the interest in running an e-grocery shop is rather low.<sup>63</sup>

Table 3.1: Market shares in the retailing market, year 2000.<sup>64</sup>

	Number of stores	Sales, million SEK	Sales change 99-00	Market share
ICA Handlarnas	1 987	63 441	+4,4 %	35,6 %
Kooperationen	1 005	33 065	+1,9 %	18,5 %
Axfood Sverige	973	32 558	+0,4 %	18,2 %
BergendahlsGruppen	39	3 052	+7,7 %	1,7 %
Other retail stores	2 330	14 510		8,1 %
<b>Sum</b>	<b>6 300</b>	<b>146 625</b>	<b>+2,9 %</b>	<b>82,2 %</b>
Other sales channels		31 750		17,8 %
<b>Total retail market</b>		<b>178 373</b>	<b>+3,4 %</b>	<b>100,0 %</b>

#### 3.1.2.1 ICA

The Dutch grocery company Ahold is the biggest owner and has a 50 % ownership of ICA Ahold AB<sup>65</sup> and ICA Ahold AB is the biggest company in the grocery business in Scandinavia. ICA Handlarnas AB, which runs the activities of retail and wholesale trade of the group,<sup>66</sup> is connected to about 2000 stores all over Sweden which are generally owned by the retailer.<sup>67</sup> The shops are ranging over all categories described in the subchapter about the retailer, but the

<sup>58</sup> Ibid, p. 81

<sup>59</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 10

<sup>60</sup> Ibid, p. 31

<sup>61</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 53

<sup>62</sup> Ibid, p. 54

<sup>63</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 76

<sup>64</sup> Ibid, p. 28

<sup>65</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 53

<sup>66</sup> Internet, <http://www.ica.se/>, 2002-06-01, 5.25 p.m.

<sup>67</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 55

biggest earnings are made throughout traditional retail shops.<sup>68</sup> The shops of ICA Handlarnas AB go under the names ICA and Rimi.<sup>69</sup>

The ICA group has a couple of alternative ways of doing grocery shopping on the Internet. The first alternative started in September 2000 when some of ICA retailers joined and created Handla Enkelt, a website owned mainly by the retailers but also by Quest Technology Ventures AB. The website is run by the retailers and there is no central distribution, instead you will be forwarded to your nearest grocery shop which will be responsible for the delivery.<sup>70</sup> The second alternative is to visit the homepage [www.ica.se](http://www.ica.se) and there chose "Netshopping". Through the website you can also go further to websites of shops associated with ICA and do shopping on their websites respectively.<sup>71</sup>

### 3.1.2.2 COOP Sverige

The retail business of Kooperativa Förbundet, KF, is run by COOP Sverige which in Sweden is done through COOP Forum and COOP Konsum.<sup>72</sup> The cooperation is owned by 2.7 million members in 67 associations<sup>73</sup> and the shops range over low price shops, hypermarkets, supermarket, and traditional retail shops. The biggest earnings are made throughout traditional retail shops<sup>74</sup> but future investments will be in hypermarkets<sup>75</sup>.

Contrary to ICA, COOP Sverige operates with only one grocery shop on the Internet, Express Food, which is located in Stockholm.<sup>76</sup> No further investments in this area are planned in the nearby future.<sup>77</sup>

### 3.1.2.3 Axfood Sverige

Almost 1000 stores in Sweden are connected to Axfood Sverige. Most of the shops are economical detached from the group and operates on agreements.<sup>78</sup> The company runs both retail and wholesale trade within its activities.<sup>79</sup> The retail trade range over traditional retail shops, service and duty shops, low price shops, and supermarkets, and the latter is the type with the biggest turnover.<sup>80</sup> Hemköp, Willy:s, SPAR, Matex/Exet, Vivo, and Tempo are well-known grocery store-brands in Sweden.<sup>81</sup>

Axfood's retailing on the Internet is entirely managed by the subsidiary Axfood Direkt, which turnover is the largest among e-grocery businesses.<sup>82</sup> Due to the belief of a strong brand-name the previous Spar Direkt is replaced by a new e-commerce website called [hemkop.nu](http://hemkop.nu). The warehouse of 4000 square meters, which is an increased area of 2000 square meters compared to the warehouse of Spar Direkt in Västerås, is located outside Stockholm and serves customers in

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<sup>68</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 84

<sup>69</sup> Ibid, p. 89

<sup>70</sup> Internet, <http://www.handlaenkelt.com>, 2002-03-21, 2.10 p.m.

<sup>71</sup> Internet, <http://www.ica.se/>, 2002-06-01, 5.32 p.m.

<sup>72</sup> Internet, <http://www.coopforum.se/se/articles/article.jhtml?menuLocation=1&utilLocation=133&articleId=371&pageIndex=1>, 2002-06-01, 6.04 p.m.

<sup>73</sup> Internet, [http://www.coopforum.se/se/pdf/Press/kf\\_ek\\_for.pdf](http://www.coopforum.se/se/pdf/Press/kf_ek_for.pdf), 2002-06-01, 6.05 p.m.

<sup>74</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 93

<sup>75</sup> Ibid, p. 95

<sup>76</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 55

<sup>77</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 76

<sup>78</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 55

<sup>79</sup> Internet, [http://www.axfood.se/om\\_axfood/index.htm](http://www.axfood.se/om_axfood/index.htm), 2002-06-01, 6.35 p.m.

<sup>80</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 103

<sup>81</sup> Internet, <http://www.axfood.se/butiker/index.htm>, 2002-06-02, 7.48 a.m.

<sup>82</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 55

the Stockholm city area.<sup>83</sup> The assortment range over 6000 merchandises and the company is expected to have a turnover of 150 million SEK.<sup>84</sup>

#### 3.1.2.4 BergendahlsGruppen AB

The shops called AG:s Favör, Ekohallen, City Gross, and Matöppet<sup>85</sup> are connected to BergendahlsGruppen AB which mainly acts in Skåne in the south of Sweden, where the company possesses market shares of about 20 %.<sup>86</sup> The total number of shops included is around 117<sup>87</sup> and they range from traditional retail shops, service, low price shops, to supermarkets which also makes the biggest earnings.<sup>88</sup> BergendahlsGruppen AB is the company of the four described that expands and increases its turnover the most and during January to April, year 2002, the increase was 6.3 %.<sup>89</sup>

The e-commerce business of BergendahlsGruppen AB was managed by Matomera, which will be described later.

## 3.2 E-COMMERCE

### 3.2.1 Definitions

E-commerce or electronic commerce is not a clear-cut concept and there are several definitions of e-commerce. In the so called government bill of IT in Sweden the following definition is suggested:

*“Alla situationer där parter utväxlar affärsinformation via olika former av telekommunikation och där minst en part har ett ekonomiskt intresse av kommunikationen.”<sup>90</sup>*

This can be translated into English as follows:

*“All situations where parties exchange business information via different forms of telecommunication and where at least one party has an economical interest in the communication”.*

Another definition is made by whatis.com:

*“E-commerce (electronic commerce or EC) is the buying and selling of goods and services on the Internet, especially the World Wide Web. In practice, this term and a newer term, e-business, are often used interchangeably. For online retail selling, the term e-tailing is sometimes used.”<sup>91</sup>*

The third and fourth definition considered is from OECD<sup>92</sup> which defines e-commerce in a broad and narrow definition. The broad definition is defined as:

*“An electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other public or private organisations, conducted over computer-mediated*

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<sup>83</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 76

<sup>84</sup> Ibid, p. 109

<sup>85</sup> Internet, [http://www.bergendahls.se/fakta/fakta\\_profil.htm](http://www.bergendahls.se/fakta/fakta_profil.htm), 2002-06-02, 8.06 a.m.

<sup>86</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 110

<sup>87</sup> Internet, [http://www.bergendahls.se/fakta/fakta\\_profil.htm](http://www.bergendahls.se/fakta/fakta_profil.htm), 2002-06-02, 8.08 a.m.

<sup>88</sup> Supermarket, No. 6-7, ICA Förlaget AB, Västerås, 2001, p. 110

<sup>89</sup> Internet, [http://www.dlf.se/Branschinformation/marknadsutv\\_2001.htm](http://www.dlf.se/Branschinformation/marknadsutv_2001.htm), 2002-06-02, 8.32 a.m.

<sup>90</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 12

<sup>91</sup> Internet, [http://searchebusiness.techtarget.com/sDefinition/0,,sid19\\_gci212029,00.html](http://searchebusiness.techtarget.com/sDefinition/0,,sid19_gci212029,00.html), 2002-03-20, 3.35 p.m.

<sup>92</sup> Organisation for Economic Co-operation and Development



*networks. The goods and services are ordered over those networks, but the payments and the ultimate delivery of the good or service maybe conducted on or off-line.”<sup>93</sup>*

The narrow definition is similar and defined as:

*“An Internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other public or private organisations, conducted over the Internet. The goods and services are ordered over the Internet, but the payment and the ultimate delivery of the good or service will be conducted on or off-line.”<sup>94</sup>*

The observed definitions above are fairly similar. Some of the definitions include all electronic networks and do not restrict the business conducted only to computer-mediated networks. The definition taken from the government bill of IT suggests that any kind of telecommunication can be used in e-commerce. In real life though, the computers are associated with e-commerce and if you are able to order by phone or fax e-commerce has in fact been a reality since the 70's.<sup>95</sup> The third definition considered above allows e-commerce to involve all computer-mediated networks and do not limit any actor's participation. However, due to the fact that this master thesis is focused on grocery shopping and e-commerce performed over the Internet the forth definition, which has captured the essentials of e-commerce, alongside with the second definition, are the ones used in this master thesis.

E-commerce range over the whole value chain and can be divided into four categories as shown in table 3.2:<sup>96</sup>

*Table 3.2: E-commerce divided into four categories.*

	B2B	B2C
Weightless	A	B
Non-weightless	C	D

Non-weightless products, such as food, CDs etc are ordered through the Internet and are in need of physical transportation from one point to another. On the contrary weightless intangible products, such as music and computer programmes, and services do not need any physical transportation. The term B2B or Business to Business is related to transactions between companies and the term B2C or Business to Consumer refers to transactions between companies and consumers. Grocery retailing and therefore the case, Matomera, range over the two categories C and D; the products are not weightless and the transactions are made both between companies and between the company and consumers, even though the main transactions are made between the latter.

### **3.2.2 B2B market definition**

In general, B2B can be characterized as any system that effectuates commerce between two or more businesses, and especially B2B e-commerce which is B2B commerce facilitated by the

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<sup>93</sup> Internet, <http://www.oecd.org/pdf/M00018000/M00018264.pdf>, 2002-06-03, 11.41 a.m.

<sup>94</sup> Ibid, 2002-06-03, 11.41 a.m.

<sup>95</sup> Cederholm, Lena, Consultant in organisational development and leadership, ivio: internal values in organisations, Ljungskile, 2002-02-13

<sup>96</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 13

Internet electronically.<sup>97</sup> There are other ways in conducting electronic commerce, though, between companies besides using the Internet as a network.

### 3.2.2.1 EDI

The first initiative in conducting e-commerce between companies was introduced in the 80's when the EDI, Electronic Data Interchange, was introduced.<sup>98</sup> EDI is a 100 % computer-to-computer communication and does not require any types of human intervention when set up. On the Internet the communication is sent in real time but EDI sends the information in batches over a VAN, Value Added Network, provided by a service provider. The EDI communication is conducted in a standard format developed by the parties or in an EDIFACT standard, a standard set up by the United Nations. The relative high costs in setting up EDI systems have prevented a wide acceptance in many industries, but the system is still growing among industries in which it has a strong installed base.<sup>99</sup>

### 3.2.2.2 Extranets

Extranets are based on Internet technology and used by organisations to link up their external partners. The extranet mostly addresses the downstream information flow in the supply chain, i.e. to the clients. Even if it is run on the Internet the extranet is still protected from the outside world by, for example, a password and could be incorporated into the company's general website where it can be a specific section that only business partners have access to. Internet banks, for example, are strictly speaking extranets.<sup>100</sup>

### 3.2.2.3 Electronic procurement

The principle aim of e-procurement is to exploit the Internet as a way of buying in a more strategic way. A lot of procurement in companies is done in a low-tech way, based on paper-based purchase orders that circles in the company in order to get the right approvals. The purchase department will then make the actual purchase and when this is done the data has to be entered into the company's administrative system. This is both time consuming and costly. An e-procurement system formalizes the procurement flow within the organisation and the requests for purchases are entered by the employees directly into the e-procurement system through a web-based interface. The request is directly sent, for example, by e-mail to the responsible person who authorises the purchase. The actual authorisation is made online through a web browser and the order is sent to the supplier. The employee is presented to a buyer endorsed catalogue which makes it possible for the company to ensure that the employees are buying from partners with whom the company have signed contracts. This could lead to savings as the company can negotiate larger discounts if they do business with fewer suppliers. E-procurement is especially used when purchasing MRO<sup>101</sup>-products as they do not move further down the supply chain, but are used within the company as a support for its business functions.<sup>102</sup>

### 3.2.2.4 E-marketplaces

B2B e-commerce can be performed between two companies in an isolated environment and has mostly been synonymous to the so called B2B e-marketplaces, which is an online web-based

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<sup>97</sup> Roskill, Andrew W. & Cocroft, Constance, Business-to-Business e-commerce; Making the B2B Connection, Warburg Dillon Read, 2000, p. 7

<sup>98</sup> Arnbjerg, Mikael, The first generation: Business-to-Business Internet Commerce in Europe, IDC, 2000, p. 16

<sup>99</sup> Ibid, p. 16

<sup>100</sup> Ibid, p. 16

<sup>101</sup> Maintenance, Repair, and Operations

<sup>102</sup> Arnbjerg, Mikael, The first generation: Business-to-Business Internet Commerce in Europe, IDC, 2000, pp. 17-18

exchange for a wide range of goods and services. B2B e-marketplaces offer communities with services and industry specific contents, and include buyers and sellers in order to improve product lifecycle management, supply chain management, customer relationship management, and enterprise resource planning, see figure 3.1.

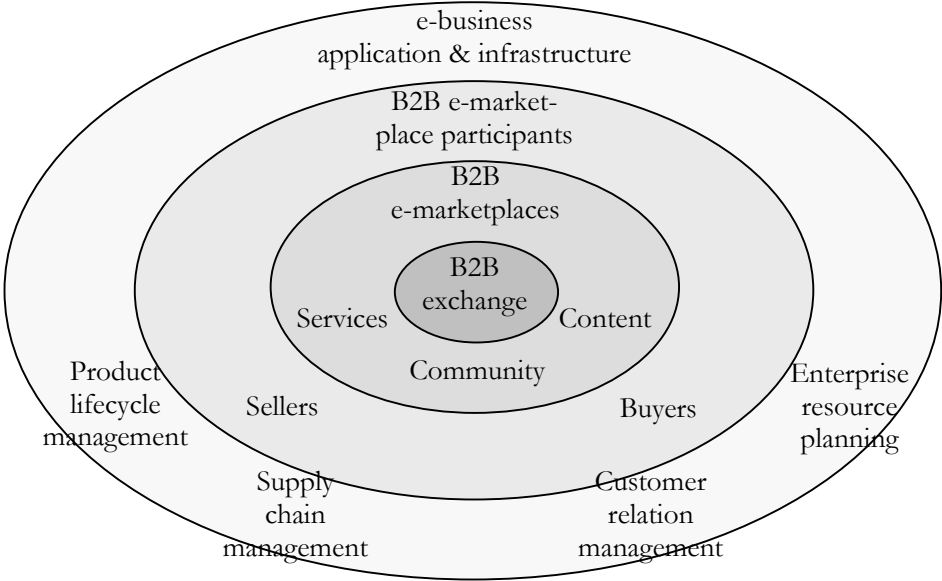


Figure 3.1: B2B e-marketplaces.<sup>103</sup>

**3.2.3 B2C Market definition**

There are no distinct differences between B2B and B2C regarding business models applied on e-commerce, but there is a distinction between business models depending on if their primary focus is on contents and community or orders and transactions. There is also a distinction between whether they are serving a single market or multiple markets.<sup>104</sup> See figure 3.2. All the different models in the figure are explained, but the concentration is on the online exchanges and the commerce destinations as these models are the ones that focus on the transactions.

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<sup>103</sup> Roskill, Andrew W. & Cocroft, Constance, Business-to-Business e-commerce; Making the B2B Connection, Warburg Dillon Read, 2000, p. 7

<sup>104</sup> Martinez, Pete, Models made “e”: What business are you in?, IBM, 2000, p. 2

Multiple markets	<p align="center"><b>Gateway</b></p> <ul style="list-style-type: none"> <li>- Portals</li> <li>- Shopping agents</li> <li>- ISPs</li> </ul>	<p align="center"><b>Online exchange</b></p> <ul style="list-style-type: none"> <li>- Auctioneers</li> <li>- Market makers</li> <li>- Financial exchanges</li> </ul>	
Single market	<p><b>Offline facilitator</b></p> <ul style="list-style-type: none"> <li>- Product brands</li> </ul>	<p><b>Context provider</b></p> <ul style="list-style-type: none"> <li>- Affinity groups</li> <li>- Content aggregators</li> </ul>	<p align="center"><b>Commerce destination</b></p> <ul style="list-style-type: none"> <li>- Online store</li> <li>- Direct brand sellers</li> <li>- E-malls</li> </ul>
	Content and community focused		Transaction focused

*Figure 3.2: Distinction between focus and market scope among e-business models.<sup>105</sup>*

Gateway – search engines, Internet Service Providers, ISP, or shopping agents are all companies that provide an easy way for users to find what they need on the Internet. As a frequent and often first stop for web-users, these online businesses derive most of their income from advertising.<sup>106</sup>

Offline facilitator – these companies promote their brands online but it is not possible to order any products online as they try to avoid channel conflict.<sup>107</sup>

Context provider – known also as affinity providers or content aggregators, these businesses are typically experts in a particular domain, and are aligned with a specific value proposition. Their businesses might be based on subscriptions, advertising or transaction fees.<sup>108</sup>

Online exchange – different businesses like auctioneers, financial exchangers or market makers are all bringing together buyers and sellers to help sealing deals.<sup>109</sup> Auctions on the Internet offer an electronic implementation of the bidding mechanism also known from traditional auctions. The auctioneers may also offer integration of the bidding process with contracting, payments, and delivery.<sup>110</sup> The revenues for the auction provider come from selling the technical platform, and transaction commissions, but can also be supplemented by advertising or subscription fees.<sup>111</sup> The benefits for the supplier and customers are increased efficiency and time-savings, no need for physical transport until the deal has been made, and global sourcing. It is also possible to reduce surplus goods for suppliers due to the low costs involved in selling small quantities of low value over the Internet compared to traditional channels. The suppliers will benefit from better utilisation of production capacity, and lower sales overheads. The buyers will benefit from

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<sup>105</sup> Martinez, Pete, Models made “e”: What business are you in?, IBM, 2000, p. 2

<sup>106</sup> Ibid, p. 3

<sup>107</sup> Ibid, p. 2

<sup>108</sup> Ibid, p. 2

<sup>109</sup> Ibid, p. 2

<sup>110</sup> Timmers, Paul, Business models for electronic markets, EM – Electronic markets, Vol. 8 No. 2, 1998, p. 5

<sup>111</sup> Martinez, Pete, Models made “e”: What business are you in?, IBM, 2000, p. 2

reduced purchasing overhead costs and reduced costs of goods or services purchased.<sup>112</sup> An example of a B2C-auction site is eBay.

#### **3.2.3.1.1 Commerce destination**

These direct sales channels exist primarily to sell products and services of a company or a shop.<sup>113</sup> The web marketing is done to promote the company and its goods or services and to offer the possibility to order and in some cases also paying for the goods online. This is often combined with traditional marketing channels. The benefits for the company are increased demand, a less expensive way of reaching global presence, and cost-reduction of promotion and sales. The benefits for the customers can be wider choice, better information, 24-hours availability, sometimes lower prices compared to traditional marketing channels, and the convenience of selecting, buying and delivery. Seller revenues come from reduced cost, increased sales, and possible advertising.<sup>114</sup> Most commercial websites are B2C electronic shops and Matomera would fit in to this model as it was an online store selling groceries to consumers. An e-mall consists of several e-shops. The operator does not have an interest in an individual business being hosted. The e-mall may seek benefits instead by selling the supporting technology or selling advertising space.<sup>115</sup>

### **3.2.4 Transitions due to e-commerce**

#### *3.2.4.1 Marketing channels transitions*

Due to the development in e-commerce the roles of the actors are changing. For a company who intends to enter a “virtual” market channel such as conducting business on the Internet, the roles are depending on if the company is a new actor on the market or if they already have a physical marketing channel.<sup>116</sup> Organisations can either mix entering physical marketing channels with entering virtual marketing channels or chose to change position among virtual marketing channels. Figure 3.3 shows different approaches to expand in marketing channels or changing marketing channels. Transition A shows companies which already have a physical marketing channel while entering a virtual marketing channel. Matomera was an example of this. The majority of the new actors in e-commerce enter one virtual marketing channel by having their own Internet site, shown by transition B. Other ways are to participate in several virtual channels through presence at several portals, transition C, or first entering a virtual marketing channel and then later enter a physical marketing channel, transition D.

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<sup>112</sup> Timmers, Paul, Business models for electronic markets, EM – Electronic markets, Vol. 8 No. 2, 1998, p. 5

<sup>113</sup> Martinez, Pete, Models made “e”: What business are you in?, IBM, 2000, p. 2

<sup>114</sup> Timmers, Paul, Business models for electronic markets, EM – Electronic markets, Vol. 8 No. 2, 1998, p. 5

<sup>115</sup> Ibid, p. 5

<sup>116</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportations & Logistics, Chalmers University of Technology, Gothenburg, 2000, p. 9

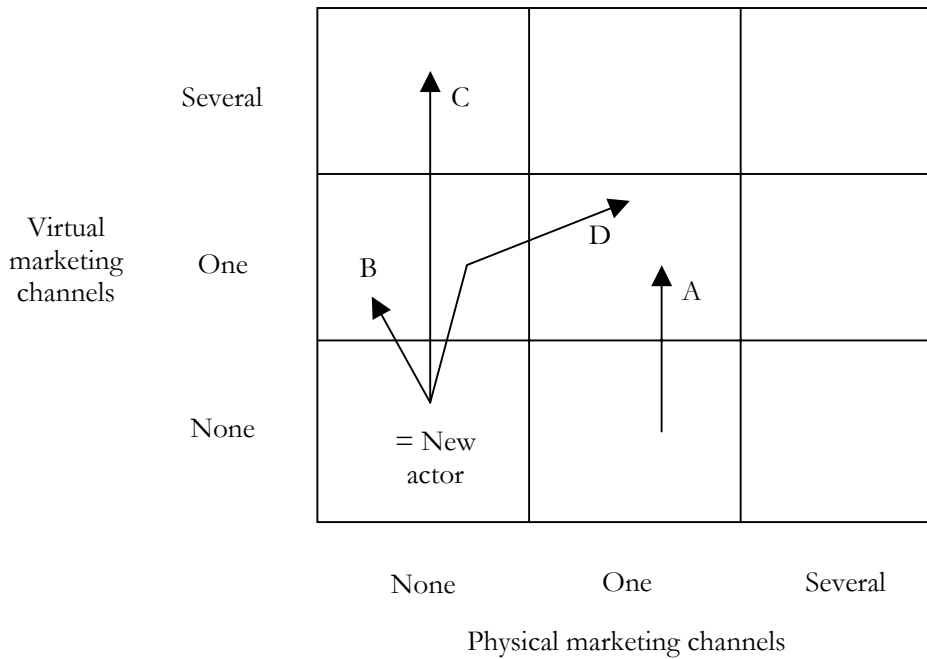


Figure 3.3: Transitions in virtual and physical marketing channels.<sup>117</sup>

### 3.2.4.2 Company transitions

#### 3.2.4.2.1 From retailer to e-tailer

When retailers are entering e-commerce they can either launch the website as an operating unit independent from the rest of the company (A in figure 3.4), or they can incorporate it into the existing organisation (B in figure 3.4).<sup>118</sup> The arguments for separating the two are two; firstly it allows the company to go outside its usual corporate sphere for recruiting engineers, programmers and marketers, and possibilities to offer options, warrants and shares to attract talented people can be used. Secondly, the parent company's balance sheet will not suffer. The new company can go public and let the capital markets fund the competition with other online retailers. Arguments for incorporating the website into the existing organisation are the possibility to use competences within the company and the possible synergy effects.

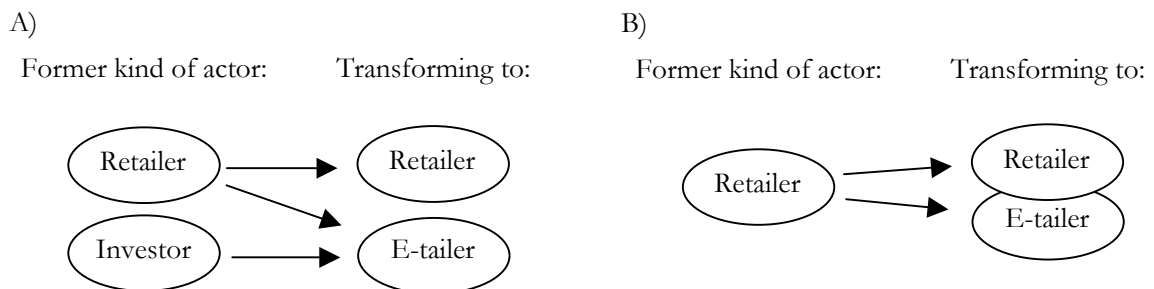


Figure 3.4: Retailer to e-tailer transition.<sup>119</sup>

<sup>117</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportations & Logistics, Chalmers University of Technology, Gothenburg, 2000, p. 9

<sup>118</sup> Ibid, p. 10

<sup>119</sup> Ibid, p. 10

### 3.2.4.2.2 Catalogue firms expanding or changing roles

Among the most successful e-commerce actors are the catalogue firms. The reasons for this are the already fully developed logistics platforms, the experience in managing consumer deliveries, and the handling of returns. Already possessing the infrastructure the use of e-commerce in fulfilling their business is well suited.<sup>120</sup> Some catalogue firms now seem to be using their capabilities and widening their scope as the following models in figure 3.5.

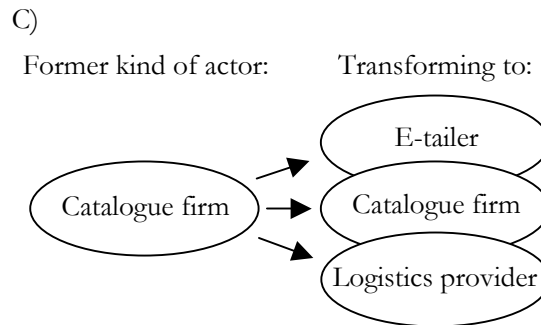


Figure 3.5: Catalogue firm transition.<sup>121</sup>

### 3.2.4.2.3 Logistics provider

The use of third-party fulfilment companies among traditional retailers without catalogue operations is common in order to fulfil the strategies. The companies are leasing skills and facilities instead of owning them in-house. Many transportation companies have created divisions that operate fulfilment centres for electronic retailers and catalogue operations.<sup>122</sup>

## 3.2.5 Shopping on the internet

The reason for carrying out shopping on the Internet differs between consumers, and what products to sell or buy, e-commerce are more or less suitable. Performing shopping on the Internet could also bring about obstacles.

### 3.2.5.1 Products

Not all products are suitable to sell on the Internet. Preferably the products should be of interest for many consumers otherwise it can be difficult to make the business profitable, unless the profit margins on the products are high. Furthermore, due to the limitation of not being able to show the product in reality, it must be easy to describe in words or pictures.<sup>123</sup> Therefore, products in need for a demonstration or the consumer appreciates to touch before the purchase, are not suitable to sell on the Internet. Selling low quality products can perhaps be done the first time, but the consumer will not return as a customer. Finally, the product should be easy to transport and is so in most cases.<sup>124</sup> However, some products require special handling or fast transportation due to, for example, temperature sensitivity.

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<sup>120</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportations & Logistics, Chalmers University of Technology, Gothenburg, 2000, p. 10

<sup>121</sup> Ibid, p. 11

<sup>122</sup> Ibid, p. 11

<sup>123</sup> Internet, <http://www.posten.se/ehandelsguiden>, 2002-06-04, 8.51 a.m.

<sup>124</sup> Ibid.

Groceries are regarded as one of the most difficult products to trade by using e-commerce. Due to that groceries contains fresh goods and therefore perishable the distribution must be fast, well organised with well suited delivery system and delivery equipment.<sup>125</sup> This also makes the consumer segment more local due to the limitations within the delivery time. Furthermore, the flows of information and physical goods are separated, and the weight of the products is high compared to its value. Finally, the number of different products that can be offered is large and the unit can vary substantially which causes an increased administration.<sup>126</sup> Due to the complexity of the goods, the information about the groceries available for the consumer is often insufficient.<sup>127</sup>

### 3.2.5.2 *Shopping reasons*

The reasons for shopping on the Internet vary from consumer to consumer, but there are some common attributes that differentiates it from traditional shopping. Firstly, the convenience – consumers can perform their shopping everywhere as long as they can connect to the Internet. Secondly, the freedom of choice – the range of suppliers the consumer can choose between is significantly large. Thirdly, the speed – the consumer can see what the supplier can offer them and relatively fast receive an answer when the goods are expected to arrive. Fourthly, the information – the possibility of obtaining product description or other information about concerned products is immense, which is important as the customer cannot touch or see the product in real life. Finally, the range – it does not matter where the shop is located in relation to the home.<sup>128</sup>

Shopping reasons also vary due to what products that are asked for. Regarding groceries, the most common reason for doing shopping on the Internet is the expected benefit of convenience as it is possible to order 24 hours a day, ease, and speed of the task, but aspects such as time saving, easiness to order, and the convenience of not having to pick the groceries in the shop are also of significance. Finally, there are also those that just want to try something different and new by buying it online.<sup>129</sup> <sup>130</sup> A lot of consumers appreciate the possibility to do the shopping whenever it suits the individual needs, for example, it is possible to do the shopping after the children's bedtime.<sup>131</sup> The most common shoppers of groceries on the Internet are in fact families with children. Their experience in using computers is high and their income is above average.<sup>132</sup> Elderly are also a potentially large consumer group but the purchase of the elderly are often taken care of by, for example, a home care taker.<sup>133</sup>

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<sup>125</sup> de Koster, René B.M., The logistics behind the enter click, Rotterdam School of Management, Erasmus University Rotterdam, Rotterdam, p. 13

<sup>126</sup> Raijas, Anu, The consumer benefits and problems in the electronic grocery store, Journal of retailing and consumer services, Vol. 9 issue 2, 2002, p. 107

<sup>127</sup> Frostling-Henningsson, Maria, Dagligvaruhandel över nätet... vad innebär det?, School of Business, Stockholm university, 2000, p. 68

<sup>128</sup> Internet, <http://www.posten.se/ehandelsguiden>, 2002-06-04, 8.51 a.m.

<sup>129</sup> Raijas, Anu, The consumer benefits and problems in the electronic grocery store, Journal of retailing and consumer services, Vol. 9 issue 2, 2002, p. 108

<sup>130</sup> Morganosky, Michelle A. & Cude, Brenda J., Consumer response to online grocery shopping, International Journal of Retail & Distribution Management, Vol. 28, No. 1, 2000, pp. 17-26

<sup>131</sup> Frostling-Henningsson, Maria, Dagligvaruhandel över nätet... vad innebär det?, School of Business, Stockholm university, 2000, p. 45

<sup>132</sup> Ibid, p. 37

<sup>133</sup> Raijas, Anu, The consumer benefits and problems in the electronic grocery store, Journal of retailing and consumer services, Vol. 9 issue 2, 2002, p. 109



### 3.2.5.3 Obstacles

Many people today have access to the Internet but far from everyone, which limits the number of potential consumers. Additionally, there are some obstacles due to security threats which is a problem for both e-tailers and consumers when shopping groceries on the Internet. Netscape points out six threats that are important to consider.<sup>134</sup> These are unauthorised access – someone intercepts transmissions and steal sensitive information, data alteration – someone alters the content of a transaction, monitoring – someone eavesdrops on confidential information, spoofing – someone creates a fake site pretending to be yours in order to steal data from the consumers or just interrupt your business, service denial – someone shuts down your site or denies access to visitors, and repudiation – a party to an online purchase denies that the transaction has occurred or was authorised. These are obstacles that must be taken under consideration and the business must be secured from these possible infringements.

If e-commerce is considered to be difficult or not, is a matter of the user's gained experiences in this area. Most consumers who have a wide experience of using the Internet when buying groceries complain about the difficulty in finding the wanted products and the uncertainty of the product quality.<sup>135</sup>

Furthermore, a survey made by Jan Edward Skaug in 1991 shows that consumers' uncertainty is increased when shopping through mail order than in an ordinary store.<sup>136</sup> Although the survey is based on mail order impressions the uncertainty among consumers are likely to remain, this due to the similarity in uncertainties of information, product quality, and goods deliveries.<sup>137</sup> Additionally, the Swedes are, according to The Swedish Consumer Agency, suspicious about doing payments on the Internet. Generally, they think it is more convenient doing payments through invoices.<sup>138</sup>

## 3.3 LOGISTICS

### 3.3.1 Definitions

Logistics is originally a military expression and involves the science of planning and carrying out the movement and maintenance of forces. Today the word logistics is to be the same as business logistics. Therefore in the following definitions of the word logistics equals business logistics.

*“Logistics means having the right thing, at the right place, at the right time.”*<sup>139</sup>

This is a often used expression, and it explains the basics of logistics well. However, certain perspectives which need to be mentioned in the context of logistics are left out. The following quotation is more adequate in its definition of logistics and includes inbound, outbound, internal and external flows, and return of materials for environmental purposes. It also considers the important aspect of the perspective of the customers' needs and requirements.

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<sup>134</sup> Internet, <http://digitalenterprise.org/security/security.html>, 2002-06-04, 11.40 a.m.

<sup>135</sup> Raijas, Anu, The consumer benefits and problems in the electronic grocery store, Journal of retailing and consumer services, Vol. 9 issue 2, 2002, p. 111

<sup>136</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 20

<sup>137</sup> Ibid, p. 22

<sup>138</sup> Ibid, p. 29

<sup>139</sup> Internet, <http://www.logisticsworld.com/logistics.htm>, 2002-03-25, 3.45 p.m.

*“Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements.”<sup>140</sup>*

The first definition taken under consideration is, as mentioned above, a common used expression, but leaves out the important perspective of information flow and the customers’ requirements. The second definition takes the information flow under consideration, and emphasises the perspective to fulfil the customers’ demands as the foundation in logistics. This customer emphasising is one of the most important aspect in logistics as the ultimate aim is to deliver products and services that satisfies the customers.<sup>141</sup>

Writing a thesis about deliveries to consumers we want to point out that the customers in our case are in fact consumers. A consumer-oriented company need to focus on the consumer relations due to the fact that the consumers have certain characteristics such as the need for direct service and the requirement of handling small quantities. The service focuses on product inventory and delivery, and the company may need to offer individual options for different consumers.<sup>142</sup>

### **3.3.2 Logistical system**

The logistical system is a network of related activities with the purpose of managing the orderly flow of material and personnel within the logistics channel.<sup>143</sup> It is important that a system approach is used in order to optimise the whole system and to avoid sub optimisation.

All functions or activities need to be understood in terms of how they affect and are affected by the other elements and activities with which they interact.<sup>144</sup> It is not possible to understand the whole system by just observing certain actions in isolation. It will then be difficult to see how such actions affect, or are affected by, other activities. The outcome of a series of activities is greater than its individual parts.

There are many models that describe a logistical system. We have chosen a model that is focusing on five main logistical subsystems that we believe will cover the main components of the logistical system of Matomera. The model will also show how these components are related to each other. See figure 3.6.

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<sup>140</sup> Internet, <http://www.clm1.org/about/purpose.asp#definitions>, 2002-03-25, 3.40 p.m.

<sup>141</sup> Schary, Philip B. & Skjøtt-Larsen, Tage, *Managing the Global Supply Chain*, Copenhagen Business School Press, 2001, p. 322

<sup>142</sup> Ibid, pp. 323-324

<sup>143</sup> Lambert, Douglas M., Stock, James R. & Ellram, Lisa M., *Fundamentals of Logistics Management*, The McGraw-Hill Companies Inc, Singapore, 1998, p. 7

<sup>144</sup> Ibid, p. 9

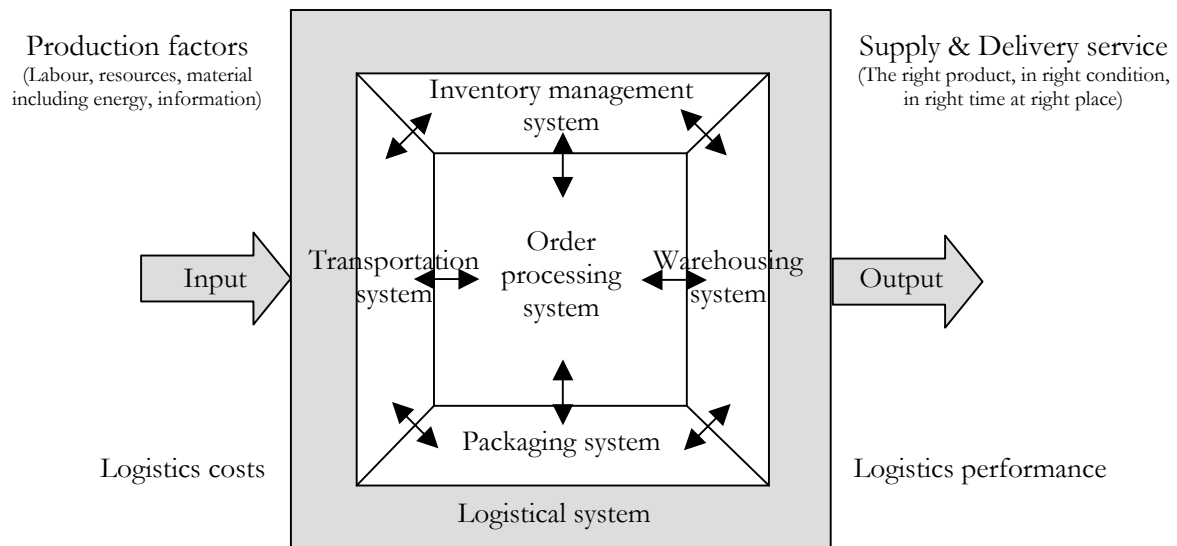


Figure 3.6: The logistical system and its components.<sup>145</sup>

### 3.3.2.1 Inventory management system

Inventory management involves compromises between the level of inventory held to achieve high customer service levels, with the cost of holding inventory, including capital tied up in inventory, variable storage costs, and obsolescence. These costs are quite significant and could reach from 14 to over 50 % of the value of inventory on an annual basis. This is significant for industries that deal with seasonal items or high-tech merchandises.<sup>146</sup> Grocery retailers are affected by this when it comes to surplus of fresh groceries.

### 3.3.2.2 Order processing system

Order processing includes the systems that an organisation has for getting orders from consumers, checking the status on orders and the communication with consumers about these issues, and actual fulfilling of the order and making it available to the consumer.<sup>147</sup> Important issues of the order processing are to check inventory status, consumer credit, and invoicing. These check-ups can be highly automated. The order process is a key area when the consumer interface with the organisation and therefore it has a great impact on the consumer's perception of service and it will therefore affect the satisfaction.

### 3.3.2.3 Packaging system

The packaging is valuable both as a form of advertising/marketing, and for protection and storage from a logistical point of view. Packaging can convey important information to inform the consumer. Aesthetically pleasing packaging can also attract the consumer's attention. Logistically, packaging provides protection during storage and transport. The packaging can ease

<sup>145</sup> Pfohl, Hans-Christian, Logistiksysteme, Springer-Verlag, Germany, 1990, p. 18

<sup>146</sup> Lambert, Douglas M., Stock, James R. & Ellram, Lisa M., Fundamentals of Logistics Management, The McGraw-Hill Companies Inc, Singapore, 1998, p. 17

<sup>147</sup> Ibid, p. 18

the movement and storage by being properly designed for the warehouse configuration and materials handling equipment.<sup>148</sup>

### *3.3.2.4 Transportation system*

A logistical key activity is to provide for the movement of materials and goods from point of origin to point of consumption and, in some cases, to its ultimate point of disposal. Transportation involves selection of how to transport the goods, for example by air, water, and truck, the route planning of the shipment, assuring of compliance with regulations in the region of the country where shipment is occurring, and selection of the carrier. It is often the largest single cost among logistical activities.<sup>149</sup>

#### **3.3.2.4.1 Route planning**

With the means of route planning the physical flow can be optimized on the basis of which facts to be measured.<sup>150</sup> Several issues, when it comes to route planning, must be known in order to perform an economical and efficient distribution such as the selection of vehicles at one's disposal, the costs for the route in terms of driver salaries etcetera, and which vehicle serves which customer in what order. The final route is determined on the basis of the knowledge of the distance and time of driving. Planning the route is made in different ways due to what the planning is based upon and what unit of measurement is wished to be used.<sup>151</sup> The measurements are of two kinds; firstly, the minimising of kilometres, amount of routes, amount of vehicles used, vehicle time used, and delivery time to certain or all customers. Secondly, maximising delivered amount goods, number of visited customers, and degree of filling of the vehicle.<sup>152</sup>

The calculations are seldom complicated and can often be executed manually. However, if the amount of customer is great and many restrictions are to be considered, the calculations can become rather complex and preferably done by a specialised computer software.<sup>153</sup>

### *3.3.2.5 Warehousing system*

Warehousing supports time and place utility by allowing an item to be produced and held for later consumption. It can be held near the location where it will be needed, or transported later. Warehousing and storage activities relate to warehouse layout, design, ownership, automation, training of employees, and related issues.

#### **3.3.2.5.1 Warehouse layout**

The shelves within a warehouse can be organised in different ways depending on the goods' turnover rate. In general, low frequent goods are placed in long corridors, while high frequent goods are placed in short corridors.<sup>154</sup> Additionally, when dealing with high frequent goods the height of the shelves are low, meanwhile, the shelves of the low frequently goods are high.<sup>155</sup> The important issue is to find the optimal correlation between the demand of access and the demand

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<sup>148</sup> Lambert, Douglas M., Stock, James R. & Ellram, Lisa M., *Fundamentals of Logistics Management*, The McGraw-Hill Companies Inc, Singapore, 1998, p. 19

<sup>149</sup> *Ibid*, pp. 20-21

<sup>150</sup> Internet, [http://www.vv.se/miljo/tq/atgarder/ruttplanering\\_3.pdf](http://www.vv.se/miljo/tq/atgarder/ruttplanering_3.pdf), 2002-06-01, 10.12 p.m.

<sup>151</sup> Persson, Göran & Wirum, Helge, *Logistik för konkurrenskraft*, Liber-Hermods, Malmö, 1996, p. 107

<sup>152</sup> Lumsden, Kenth, *Logistikens grunder*, Studentlitteratur, Lund, 1998, p. 584

<sup>153</sup> Persson, Göran & Wirum, Helge, *Logistik för konkurrenskraft*, Liber-Hermods, Malmö, 1996, p. 107

<sup>154</sup> Johnsson, Mats, *Materialhanteringskompendium*, Course literature, Department of Engineering Logistics, Lund Institute of Technology, 1998, p. 64

<sup>155</sup> *Ibid*, p. 70

of utilisation.<sup>156</sup> There are different ways of placing the shelves or blocks of shelves, and the different ways affect the accessibility, the possibility to expand the warehouse, and where loading and unloading are performed.

#### **3.3.2.5.2 Fixed placement versus flexible placement**

When the placement is fixed every commodity is addressed to specific storage places. The advantages with fixed placement are that (1) the finding of the correct storage place when insertion or removal is often facilitated, (2) the picking routines can be simplified when picking from storage place, (3) direct and physical overview what the warehouse contains is possible to perceive, and (4) it decreases the risk for incorrect placing.<sup>157</sup> Flexible placement gives the opportunity to place the commodity at any free place. When using this alternative the warehouse can be utilised more efficient, but the complexity of the warehouse system increases.

### **3.3.3 Logistical efficiency and effectiveness**

An organisation must be both efficient and effective in order to succeed in its businesses.<sup>158</sup> The terms are quite similar but have a different meaning. Below the definitions of the terms are presented. In summary, one is efficient when doing the things right while one is effective when doing the right things.

*“Efficiency is the ratio of outputs to inputs, or the amount per unit of input.”<sup>159</sup>*

*“Effectiveness is the relationship between a responsibility centres’ outputs and its objectives. The more these outputs contribute to the objectives, the more effective the unit is. Since both objectives and outputs are often difficult to quantify, measures of effectiveness are difficult to come by. Effectiveness, therefore, is often expressed in non-quantitative, judgemental, terms.”<sup>160</sup>*

Logistical efficiency and effectiveness can, as shown in figure 3.7, be divided in three different areas; service, costs, and capital binding. The result of the profitability is affected by the three different areas individually and its components which they can be divided in. A change of the conditions in one area could also affect another area and result in a negative or positive output.<sup>161</sup> Therefore, having an overall picture over the logistics and the measures made in order to improve the logistics is essential. However, too much focus on the overall picture could easily mislead the benefits and importance of improvements made in every single part.<sup>162</sup> In this master thesis the part of delivery service is in focus together with the aspect of customer orientation.

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<sup>156</sup> Johnsson, Mats, Materialhanteringskompendium, Course literature, Department of Engineering Logistics, Lund Institute of Technology, 1998, p. 65

<sup>157</sup> Ibid, p. 25

<sup>158</sup> Anthony, Robert N. & Govindarajan, Vijay, Management Control Systems, IRWIN, USA, 1995, pp. 109-110

<sup>159</sup> Ibid, pp. 109-110

<sup>160</sup> Ibid, pp. 109-110

<sup>161</sup> Lumsden, Kenth, Logistikens grunder, Studentlitteratur, Lund, 1998, p. 225

<sup>162</sup> Lumsden, Kenth, Logistikens grunder, Studentlitteratur, Lund, 1998, p. 225

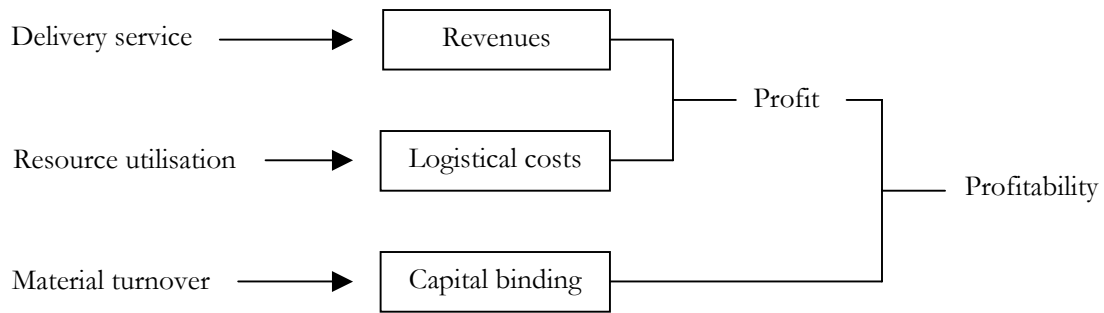


Figure 3.7: The connection between logistical efficiency and effectiveness, and profitability.<sup>163</sup>

### 3.3.3.1 Delivery service

As mentioned in the previous subchapter when defining logistics, an important aspect in logistics is to meet the customers' requirements. How the service level affects the revenues can theoretically be described with the so called S-curve shown in figure 3.8. Depending on the level of the actual performed service level the outcome of an increased service is varying. If the service level, compared to the service level of the competitors, is high an increased service would be an unnecessary investment, and in similar ways, if the service level is low an increased service would not increase the revenues due to the fact that you are still far behind your competitors in terms of service level. On the contrary if the service level is on the same level as the competitors' an investment in a higher service could be a competitive advantage.<sup>164</sup>

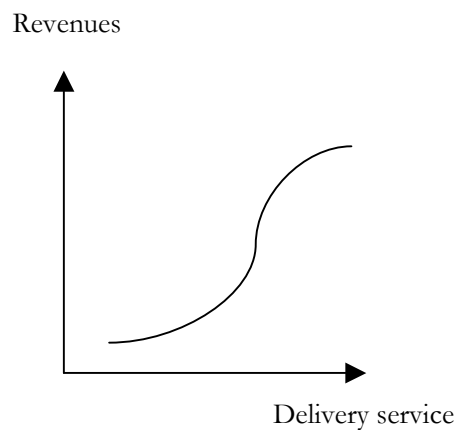


Figure 3.8: The relation between revenues and delivery service.<sup>165</sup>

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<sup>163</sup> Ibid p. 225

<sup>164</sup> Ibid, p. 227

<sup>165</sup> Ibid, p. 227

Knowing the company's service level and performance of logistics is essential for conducting business successfully. But how are the performance and the efficiency of the logistics measured? In logistics there are seven issues of service:<sup>166</sup>

- Service level – the probability that the product is in store when it is asked for.
- Lead time – the time from order to delivery.
- Delivery reliability – the reliability of the lead time.
- Delivery certainty – the right product is delivered in the right quantity without damages.
- Information – the information exchange between the parts involved.
- Customer adjustment – the ability to fulfil the demands of the customer.
- Flexibility – the ability to adapt to changed conditions.

The first issue, service level, is often used and one of the reasons is that it is simple to measure the safety stock. Lead time, however, is the most common used service issue. The most important thing about delivery service is the lead time interval and the fulfilment of the stated lead time.<sup>167</sup> The lead time has decreased considerably throughout time due to reduced use of warehouses and therefore the lead time consists mainly of production time and time spent on other logistical activities.<sup>168</sup> Delivery reliability is related to the lead time and the exact delivery at the determined point of time. Due to the increased amount of just-in-time deliveries and the optimisation of the material handling, the deliveries become more vulnerable. As a consequence the delivery certainty is becoming increasingly important. The aspect of information exchange is also becoming more important as the communication must work both ways so the customers get the opportunity to express their demands and requirements. This gives the company the possibility to develop a delivery service on basis of customer needs.<sup>169</sup> Due to that different customers require different service the profit can increase throughout individual development of the delivery service. The focus of the information issue is therefore to communicate what the customers really want and what the supplier can offer. Another important issue of information is to inform the customer about deviations and divergences. Customer adjustment involves issues such as packing and delivering the products in different batch sizes and to deliver from the same order to different distribution centres or shops.

It is always a matter of what the customer requires, so what should we give them? On the basis of what type of product and its complexity the customer has different expectations on service level, lead time etc. Therefore it is important to know the company's performance in logistics and how this matches the demands and requirements of the customer, see figure 3.9. If the expectations of the customer are not fulfilled the customer will feel neglected and the failure will be remembered.<sup>170</sup> The customer always remembers the failures better compared to when the expectations of the customer were met. However, it is important to be aware of what the measures of delivery service costs and to know the effect on the sales of an enhanced delivery service level.

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<sup>166</sup> Persson, Göran & Wirum, Helge, *Logistik för konkurrenskraft*, Liber-Hermods, Malmö, 1996, p. 53

<sup>167</sup> *Ibid*, p 53

<sup>168</sup> Lumsden, Kenth, *Logistikens grunder*, Studentlitteratur, Lund, 1998, p. 25

<sup>169</sup> *Ibid*, p. 230

<sup>170</sup> Persson, Göran & Wirum, Helge, *Logistik för konkurrenskraft*, Liber-Hermods, Malmö, 1996, p. 58

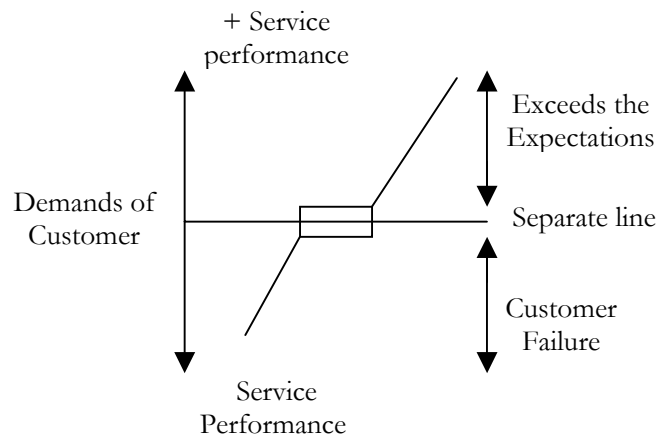


Figure 3.9: Performance of service and customer demands.<sup>171</sup>

The delivery service of the competitors is also a good measurement of how the company's service fulfils the expectations of the customer.<sup>172</sup> Therefore the awareness of whom you compete with and the competitiveness of your services and products is fundamental.

One should always be aware that the information of what the customer requires and expect from the quality of logistics can be misleading due to errors that can occur in the chain of information. The errors can occur in four different interfaces, shown in figure 3.10, where the information transference can be affected.<sup>173</sup> The first interface is between the customer's real demands on the distribution and the perceived customer demands by the distributor. It is important that customer demands are interpreted correctly, as it will affect the whole chain. If this interpretation is incorrect the outcome will be wrong even if everything else is done correctly. The second interface is the interpretation of the perceived customer demands and the planning of the distribution. This is the interface where the customer demands are specified and implemented. When implementing the specification of what to be executed into a performed distribution and if the performed distribution does not match the specification the third source of error occurs. Finally, the last source of error occurs in the fourth interface where the performed distribution must be communicated to the customer in a way that he or she understands what has been delivered. All together, these four sources of error constitute the difference between what the customer requires and his or her understanding of how they have been fulfilled.

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<sup>171</sup> Persson, Göran & Wirum, Helge, *Logistik för konkurrenskraft*, Liber-Hermöds, Malmö, 1996, p. 58

<sup>172</sup> *Ibid*, p. 60

<sup>173</sup> Lumsden, Kenth, *Logistikens grunder*, Studentlitteratur, Lund, 1998, p. 67



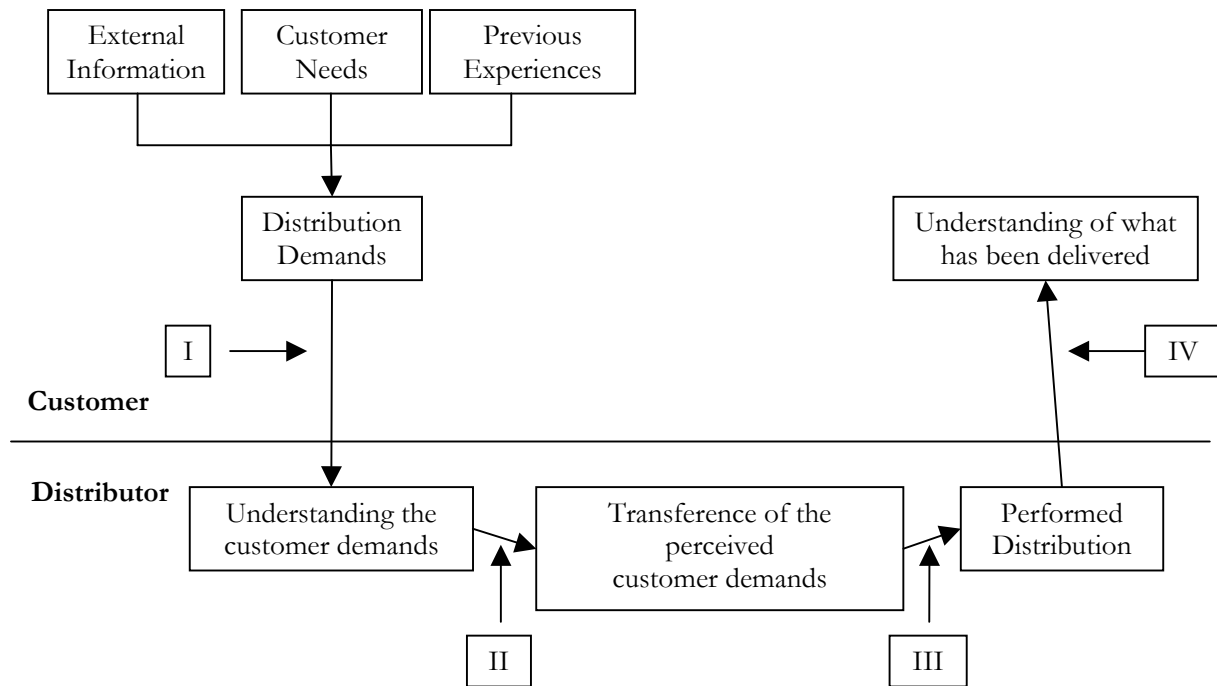


Figure 3.10: Possible occurrences of sources of error.<sup>174</sup>

To maintain a company which uses preventative measurements instead of measurements in reducing the effects of made mistakes and therefore having a high quality of logistics, it is important to constantly review and develop the delivery service. The development can be summarised in four steps<sup>175</sup>:

- 1.) Identifying the demands of the customers – for every group of customer and product, identifying the critical service issues and the demands on these.
- 2.) Identifying the company's actual service – identifying the performance of the critical service issues and comparing the results with the demands of the customer. A comparison of the competitors' performance is also informative.
- 3.) Identifying improvement opportunities – improvements in two different ways; [A] constant improvements as a permanent task and [B] process reengineering that stretch over departments and sometimes even suppliers and customers. The two issues of improvements do not counteract each other and both are of significance in order to guarantee a high delivery service.
- 4.) Continuously work with improvements – supervising the performance of the offered service, the change in customer demands, and change in service strategies among competitors.

<sup>174</sup> Lumsden, Kenth, Logistikens grunder, Studentlitteratur, Lund, 1998, p. 67

<sup>175</sup> Persson, Göran & Wirum, Helge, Logistik för konkurrenskraft, Liber-Hermods, Malmö, 1996, p. 61

### 3.3.4 Logistics in grocery retailing

#### 3.3.4.1 Distributions channels within grocery retailing

Before the use of e-commerce within the grocery-business the supply chain was more or less identical for the majority of the grocery stores.<sup>176</sup> The characteristic of the grocery retailing is that many small supply flows from many producers are to be distributed to many stores as final destination. In order to obtain high efficiency it is necessary to assemble all these small flows into larger, more efficient flows. One simplified way in describing the distribution channels within grocery retailing is using the X-system model, see figure 3.11.

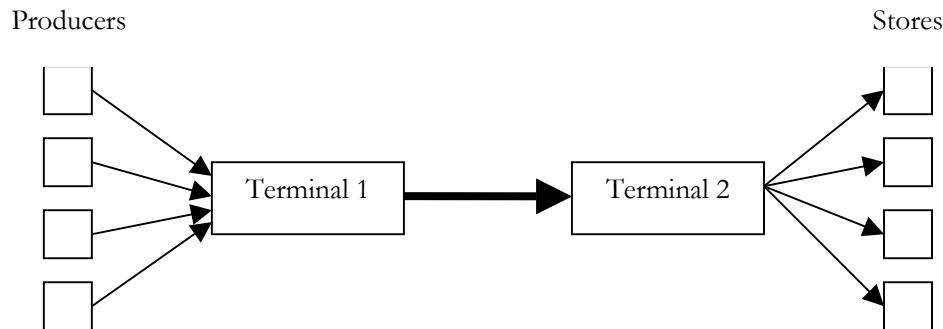


Figure 3.11: The X-system.<sup>177</sup>

The flow from the producers converges to terminal one. The goods are then transported efficiently to terminal two and from there distributed to the stores in a divergent flow. This system is used when goods from several producers within a certain area are to be distributed to customers in another area. The flow will be consolidated between two points, in this case terminal one and two. This system is used in order to transport the goods assembled as far as possible. However, the supply flow within Swedish grocery retailing is more complex compared to the X-system, see figure 3.12.

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<sup>176</sup> Orremo, Fredrik & Wallin, Claes, IT, mat och miljö – en miljökonsekvensanalys av elektronisk handel av dagligvaror, Department of Packaging Logistics, Lund Institute of Technology, Lund, 1999, p. 11

<sup>177</sup> Tarkomski, Jerzy, Ireståhl, Bo & Lumsden, Kenth, Transportlogistik, Studentlitteratur, Lund, 1995, p. 218

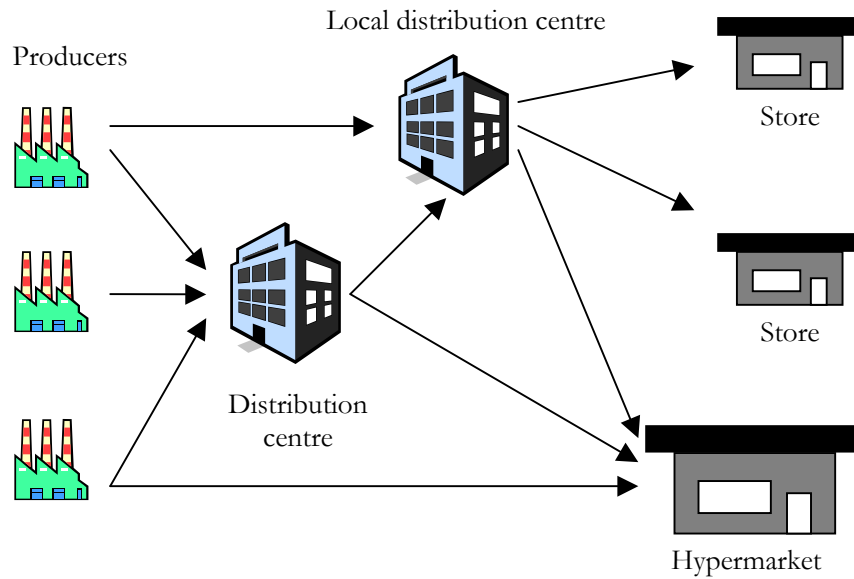


Figure 3.12: The Supply flow within Swedish grocery retailing.<sup>178</sup>

The goods come from the producers and will go to the local distribution centre, the distribution centre or directly to the hypermarket. The role of the local distribution centre is to store goods which will be distributed to the stores. The role of the distribution centre is to collect the goods from different producers and then in a consolidated way distribute it to the local distribution centres or the stores. From which centre the stores are getting their supply is depending on the size of the store. The final transport, from the store to the home, will be accomplished by the consumer after buying the goods in the store.

However, distribution of consumer goods is undergoing radical transformation. The traditional distribution channel involves inventories in the retail store, local distribution centres, and inventories at the central distribution centres and probably at the end of the production. The channel produces low levels of service and is often out of stock on high-demand items due to that it is slow in responding to changes in demand. The transformation involves centralised inventories in fewer stock locations, minimized in-store inventories, eliminated local distribution centres, and direct distribution from factory to store and, in some cases, to final consumer.<sup>179</sup>

Due to the fact that the final transportation traditionally and in most cases is made by the consumer the costs of distribution in retail industry is located to the physical flow to the store, shown in figure 3.13. With the possibility of buying groceries over the Internet consumers may be expecting the groceries to be distributed to the home or some other preferred place, see figure 3.14. This gives the companies increased responsibility and increased costs concerning the distribution to the consumer. In return it will be possible to elaborate with different ways how to organize the logistics further back in the supply chain as it is possible to ignore the store structure

<sup>178</sup> Orremo, Fredrik & Wallin, Claes, IT, mat och miljö – en miljökonsekvensanalys av elektronisk handel av dagligvaror, Department of Packaging Logistics, Lund Institute of Technology, Lund, 1999, p. 8

<sup>179</sup> Schary, Philip, B. & Skjøtt-Larsen, Tage, Managing the Global Supply Chain, Copenhagen Business School Press, 2001, pp. 112-113

in a way that wasn't possible before. In chapter six different philosophies in managing the warehousing, DC-centres and distribution will be presented.

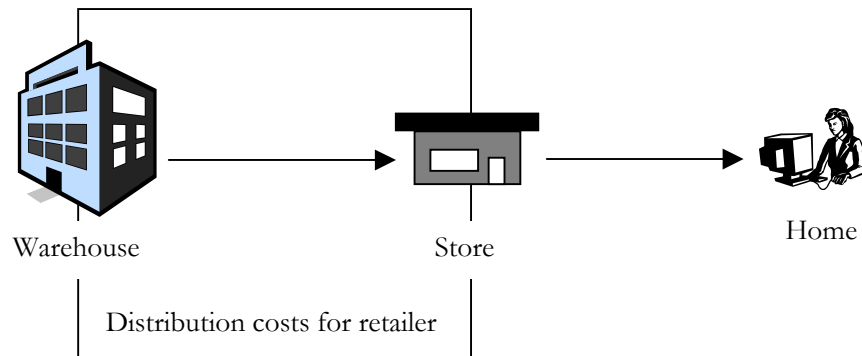


Figure 3.13: Distribution costs for retailer.<sup>180</sup>

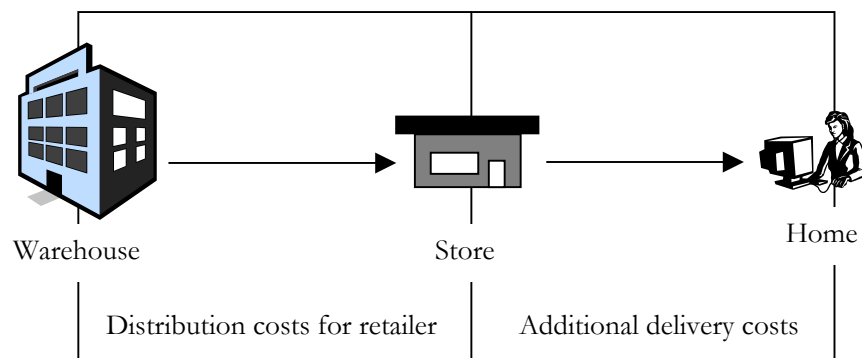


Figure 3.14: Additional delivery costs for retailer when performing consumer deliveries.<sup>181</sup>

The aspect of getting the groceries delivered home is very much appreciated by the consumers who tried the concept of buying groceries on the Internet.<sup>182</sup> In some cases due to the extra distance to be driven retailers charge the consumer for the delivery. However, many consumers consider the fees for having the groceries delivered home as well invested money. They are aware of the alternative costs for their own time and their own transportation to the ordinary grocer's

<sup>180</sup> Kallio, Jukka, Kempainen, Katariina, Tarkkala, Mikko & Tinnilä, Markku, New distribution models for electronic grocery stores, LTT – Tutkimus Oy, Julkaisuja, 2000, p. 2

<sup>181</sup> Ibid, p. 2

<sup>182</sup> Frostling-Henningsson, Maria, Dagligvaruhandel över nätet... vad innebär det?, School of Business, Stockholm university, 2000, p. 53

## 3.4 E-GROCERY LOGISTICS

Due to the possibilities which come with e-commerce consumers is now able to order the goods from the computer at home or other places and the demand for home deliveries will increase. This could change the conventional supply chain and the responsibility of bringing the goods to the home may change from the consumer to the retailer. However the distribution can be performed in several ways which will affect the fulfilment of consumer needs.

### 3.4.1 Warehousing

When it comes to warehousing this could be managed mainly in four different ways which includes in-store model, existing warehouse/distribution centre, dedicated warehouse/distribution centre, and the hybrid model. Depending on what kind of role the actor plays in the supply chain and the size of the company the choice of model will vary.

#### 3.4.1.1 In-store model

In the in-store model picking and packing is made in a conventional store. The model is often a start-up model intended to keep the investments in infrastructure at a low level. Many Swedish e-commerce solutions in the grocery sector take this approach and some companies in the US used this model early before expanding to distribution centres.<sup>183</sup> Depending on the store layout and size, groceries are picked either from store shelves or from backroom inventory where a packing station might be set up. This approach is implemented mostly at retailers who are just getting started or have excess space in one or more stores, and the approach minimizes the initial investment and it is quick to set up. There are some negative aspects that should be mentioned. The retail space which is utilized is expensive, the system is highly manual, there are limits to the sales volumes this model can handle, and the approach adds operational complexity and limits the consumer offering to existing stock keeping units.<sup>184</sup>

#### 3.4.1.2 Existing warehouses/Distribution Centres

Using existing warehouses/Distribution Centres (DC) to handle the “virtual” channel means minimal investment, but there might be a problem with small package shipments to consumers simultaneously when handling the shipments to companies. Most grocery retailers’ warehouses and distribution are not designed for home shopping fulfilment.<sup>185</sup> Due to the fact that the warehouse product flow is designed to ship large quantities to stores it is not suitable to handle small drop sizes to consumers. Neither the information systems are designed to track orders at a consumer level nor may the routing software programme handle household locations. Finally it may be required to change the order lead times offered to stores as they may not be acceptable for some consumer segments.<sup>186</sup>

It is also possible to create a fulfilment area to complement an existing warehouse. Depending upon the warehouse setup and flexibility this option can be reasonably costly. Geographic locations of distribution centres are usually chosen for efficient distribution to existing stores, but

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<sup>183</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportation and Logistics, Chalmers University of Technology, Gothenburg, 2000, p. 15

<sup>184</sup> de Koster, René B.M., The logistics behind the enter click, Rotterdam School of Management, Erasmus University Rotterdam, Rotterdam, p. 8

<sup>185</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportation and Logistics, Chalmers University of Technology, Gothenburg, 2000, p. 15

<sup>186</sup> Ibid, p. 15

e-commerce market is dynamic in terms of changing destinations of the consumer. The possibility to change operations is also restricted to the existing warehouse infrastructure.<sup>187</sup>

#### *3.4.1.3 Dedicated warehouse / Distribution Centre*

On the contrary to existing warehouses and stores, dedicated warehouses are designed to handle small orders sizes which match the consumers' requests.<sup>188</sup> This solution is more efficient in the aspect of picking and packing the groceries due to increased operational speed when handling the orders.<sup>189</sup> When operating with a high volume demand this would be the solution to choose due to the decreased costs in fulfilling each order.<sup>190</sup> This model requires considerable investments, especially if automated picking is used.<sup>191</sup> These systems are also designed to serve a particular amount of orders per day which limits the flexibility to manage differences in demand.<sup>192</sup> If the demand is higher than what the system is designed for the limits of the system will restrain the amount of orders that could be handled or if the demand drops to unexpected levels the system will become very expensive in relation to the number of orders handled. Due to the investments made there is a critical mass of sales to achieve in order to make it profitable.

#### *3.4.1.4 Hybrid model*

The hybrid model is a combination of a warehouse and a store. This model is designed to handle low amount of orders but still be efficient when picking and packing. Investing in the hybrid model is less risky due to the fact that the investments are rather low because of the usage of the existing store and backroom inventory.<sup>193</sup> Depending on the demand predictability of the product, it will be picked and packed in the store or in the warehouse space.<sup>194</sup> Products with a predictable demand and an even consumption should be stored in the warehouse. These products are often sold in large volumes with low margins. On the contrary, products with an unpredictable demand and sold in low volumes with high margins are picked in the shop.

### **3.4.2 Distribution Centre structure**

The location and the size of the DC play an crucial role to what purpose and assignment the DC will have. Due to the uncertainties in the environment the DC must be flexible in order to handle the eventual sudden matters. Three kinds of flexibility types within different areas are defined.<sup>195</sup> The first type concerns volume flexibility which includes the ability to increase or decrease the capacity. The second type concerns product flexibility which includes the ability to handle new or non-standard products, orders, and services and finally, the third type concerns time flexibility which includes the ability to handle different lead time demands.

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<sup>187</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportation and Logistics, Chalmers University of Technology, Gothenburg, 2000, p. 15-16

<sup>188</sup> de Koster, René B.M., The logistics behind the enter click, Rotterdam School of Management, Erasmus University Rotterdam, Rotterdam, p. 7

<sup>189</sup> Kämäräinen, Vesa, The reception box impact on the home delivery efficiency in the e-grocery business, International Journal of Physical Distribution & Logistics management, Vol. 31 No. 6, 2001, p. 416

<sup>190</sup> Bennis, Safouane & Vallejo, Alvaro, Recreating the Concept of E-Grocery Business – A Logistics Approach, Department of Transportation & Logistics, Chalmers University of Technology, Gothenburg, 2001, pp. 15-16

<sup>191</sup> de Koster, René B.M., The logistics behind the enter click, Rotterdam School of Management, Erasmus University Rotterdam, Rotterdam, p. 7

<sup>192</sup> Bennis, Safouane & Vallejo, Alvaro, Recreating the Concept of E-Grocery Business – A Logistics Approach, Department of Transportation & Logistics, Chalmers University of Technology, Gothenburg, 2001, pp. 15-16

<sup>193</sup> Ibid, pp. 15-16

<sup>194</sup> Fisher, Marshall L., What is the right supply chain for your product?, Harvard Business Review, Vol. 75 issue 2, 1997, pp. 105-107

<sup>195</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportation & Logistics, Chalmers University of Technology, Gothenburg, 2001, p. 17

In order to fulfil these flexibility types, four different kinds of local DC structure have been identified and used in several e-grocery projects,<sup>196</sup> see figure 3.15. The first, example A, is a single DC supplying the whole area; Matomera is an example of this structure. If the geographic area expands the delivery routes will be longer, but an alternative, example B, might be to add more DCs in the same area, thus avoiding long routes, but at the same time increased fixed costs in warehousing and inventory carrying costs. This solution is said to have poor flexibility and could be a result from lacking capacity from the start. A more sophisticated solution, example C, which is used when distributing in larger area is to add docking stations. Large refrigerated trucks deliver the groceries from the central warehouse to the docking station and from there the groceries will be reloaded onto smaller vans which distribute them to the consumer. A fourth solution, example D, is to distribute the groceries to pickup points where the consumer picks them up. The pick up points could be gas stations, offices or the distributors van and they must have the facilities to store the groceries in temperature controlled facilities.

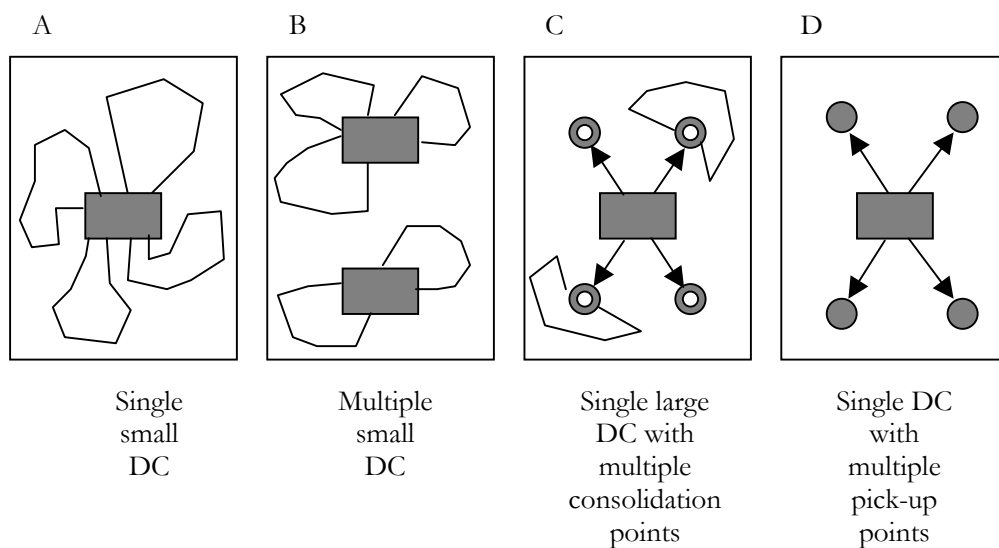


Figure 3.15: Different kinds of local DC-structures.<sup>197</sup>

### 3.4.3 Delivery models

Deliveries to consumers can be divided into two categories, attended and unattended deliveries. With attended deliveries means that the consumer is present and the products are handed over directly to the consumer. Unattended deliveries do not require the consumer to be present and the goods are therefore left at a predetermined place.

There are three main ways of handling distribution to consumers; collection, distribution to a collecting point, and home delivery.<sup>198</sup> Picking-up the groceries at a warehouse or a store means that the consumer does the driving itself and collects the picked groceries at a warehouse or a shop. Groceries picked by the consumer at a collecting point such as a gas station or places of employment are distributed by the retailer to this meeting place. Home delivery means getting the

<sup>196</sup> Hultkrantz, Ola & Lumsden, Kenth, E-commerce and logistical consequences, Transportation & Logistics, Chalmers University of Technology, Gothenburg, 2001, p. 17

<sup>197</sup> Ibid, p. 17

<sup>198</sup> E-handel i Sverige – en explorativ studie, Konkurrensverkets rapportserie 2001:1, Konkurrensverket, 2001, p. 64

groceries distributed all the way home to the front door, often at a time settled in advance. These are the three main ways of handling the distribution to consumers, but there are mixed variations and combinations of the three which serve as a base for other solutions.

The delivery models can vary in three aspects; delivery lead time, reception type and delivery time window.<sup>199</sup> The delivery lead time is a measure of how soon you can receive the grocery to the home or other preferred places from the time you send the order. The reception type is whether you need to be present or not at the time of delivery. The delivery time window is the gap between two points in time that you could expect the delivery to arrive.

### 3.4.3.1 Home deliveries

Home deliveries can be performed both with attended and unattended reception but this thesis will only consider the former reception type. The unattended deliveries will be described in the next subchapter.

Home deliveries i.e. attended deliveries is the most common alternative of receiving grocery deliveries today. This due to the low investment needed in reception technology.<sup>200</sup> This alternative is also considered as the most convenient form for the consumer.<sup>201</sup> The goods are delivered usually to the consumer's front door. To make sure that the consumer is at home when delivering certain time windows are set when the delivery are expected to arrive. Depending on where the home of the consumer is located and what other stops to be made during the route the windows are set differently for different consumers. Additionally, the time windows have to match the hours when the consumers are at home so the delivery hours are limited to late afternoons and evenings.<sup>202</sup> Due to this limitation in time the deliveries can be inefficient and costly, but the wider the time window, the more efficient the deliveries can be planned by the grocer. However a more narrow time window will decrease the consumer's waiting time and the interest of shopping on the Internet will therefore increase. Finally, the alternative of home deliveries gives the opportunity to offer face to face service to demanding consumers and to handle additional payment methods such as cash and credit cards.

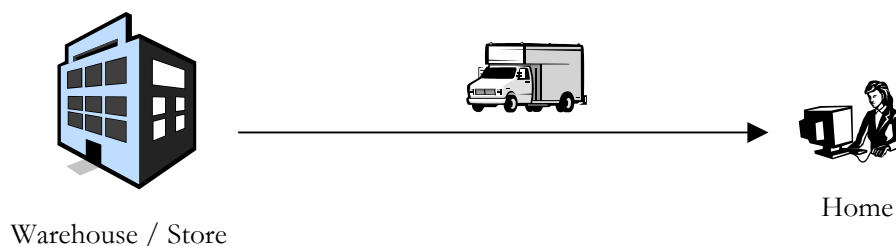


Figure 3.16: Home deliveries.<sup>203</sup>

<sup>199</sup> Müller-Sarmiento, Patrick, E-Grocery Shopping – E-Fulfilment the Key to Success – Defining an e-Logistic Concept for a Traditional Retailer, p. 4

<sup>200</sup> Kämäräinen, Vesa, The reception box impact on the home delivery efficiency in the e-grocery business, International Journal of Physical Distribution & Logistics management Vol. 31 No. 6, 2001, p. 418

<sup>201</sup> Müller-Sarmiento, Patrick, E-Grocery Shopping – E-Fulfilment the Key to Success – Defining an e-Logistic Concept for a Traditional Retailer, p. 15

<sup>202</sup> Kallio, Jukka, Kemppainen, Katariina, Tarkkala, Mikko & Tinnilä, Markku, New distribution models for electronic grocery stores, LTT – Tutkimus Oy, Julkaisuja, 2000, p. 10

<sup>203</sup> Kallio, Jukka, Kemppainen, Katariina, Tarkkala, Mikko & Tinnilä, Markku, New distribution models for electronic grocery stores, LTT – Tutkimus Oy, Julkaisuja, 2000, p. 9



### 3.4.3.2 Delivery box and Reception box deliveries

One way of making the interaction between the delivery and the consumer being present less necessary is to install a reception box or as it also called, locker, with cooling facilities. Another way is to deliver the goods in a delivery box which holds the groceries fresh for a certain amount of time. Both the reception box and the delivery box can handle different temperatures and will in that way keep the groceries in a good condition for as long as a normal refrigerator would.<sup>204</sup> There is, meanwhile, one difference between the two options; the reception box is consumer-specific and it is installed in or nearby the house of the consumer while the delivery box in which the goods are delivered in is left and secured to a wall or similar, and collected the next time goods are delivered.<sup>205</sup> Both boxes are accessible with a code known only to the driver and the consumer. One advantage of using these boxes is that it makes it possible to drop of many orders at one stop, if using distribution to a collecting point, which would reduce the delivery time per consumer and in that way make the delivery more efficient.<sup>206</sup> To install a reception box or use a collecting point for delivery boxes would be relatively easy nearby villas or department houses but all department houses might not have the space necessary which can make this solution difficult to implement. Some initiatives have though been taken to plan for these facilities while constructing new houses and department houses. In either way large investment costs are necessary which raises the question of who is going to pay for these investments; the consumer, the e-grocery or someone else.

For the consumer these ways of receiving the groceries are the most convenient ones due to the option of being at home or not, no waiting time spent, and closeness to the collecting point.<sup>207</sup> The unattended delivery models may require consumer adaptation and will decrease the number of payment alternatives which can affect the consumer willingness of shopping the groceries over the Internet. For the distribution which can be made by a third party flexible delivery hours and delivery time windows gives them more freedom to route optimization and all consumers will be accessible on each delivery route.

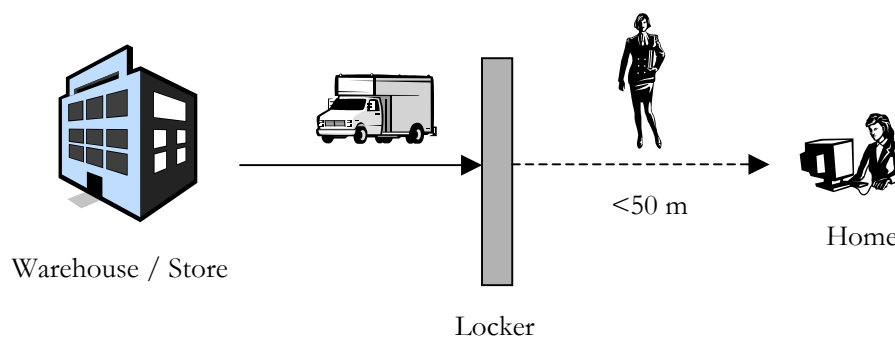


Figure 3.17: Delivery box and Reception box deliveries.<sup>208</sup>

<sup>204</sup> Kämäräinen, Vesa, The reception box impact on the home delivery efficiency in the e-grocery business, *International Journal of Physical Distribution & Logistics management*, Vol. 31 No. 6, 2001, p. 417

<sup>205</sup> Bennis, Safouane & Vallejo, Alvaro, *Recreating the Concept of E-Grocery Business – A Logistics Approach*, Department of Transportation & Logistics, Chalmers University of Technology, Gothenburg, 2001, pp. 22-23

<sup>206</sup> Kämäräinen, Vesa, The reception box impact on the home delivery efficiency in the e-grocery business, *International Journal of Physical Distribution & Logistics management*, Vol. 31 No. 6, 2001, p. 417

<sup>207</sup> *Ibid*, p. 418

<sup>208</sup> Kallio, Jukka, Kempainen, Katariina, Tarkkala, Mikko & Tinnilä, Markku, *New distribution models for electronic grocery stores*, LTT – Tutkimus Oy, Helsinki, 2000, p. 9

### 3.4.3.3 *Centralized reception box- and pick-up systems*

Another option in performing unattended deliveries is the use of centralised reception boxes or a pick-up system. Similar for the two alternatives is that the e-grocer leaves the goods at a collecting point where the consumer later on will collect the delivery. The advantages of these two systems are analogous to delivery box and reception box deliveries described above, but there are differences and the main difference is the distance to the home of the consumer has increased. Another difference is that the groceries are delivered to a locked reception box that is allocated to a specific consumer only for that certain route, which makes it possible for many consumers to use the same reception box. The consumer receives the number of the box and the code needed to unlock the box, for example to his mobile phone by text message.<sup>209</sup> Examples of places that could be used as facilities to store groceries are offices, schools, universities, day nurseries, and petrol stations. From these places consumers would pick up their grocery orders which are delivered by the e-grocer. All these places could be considered to be potential options for delivery points but they all have some specific advantages and disadvantages.

For example, offices are a good alternative for the delivery company. Orders of several households could be delivered to one address and the delivery efficiency is therefore significantly higher.<sup>210</sup> Companies however, may find this impractical although it saves time for their employees, as the deliveries may cause needless hassle at the main entrance of the company. The consumer might find some limitations to this solution as delivery time is centralized, one has to go straight home after work in order to keep the groceries fresh, and during weekends one might want it delivered to another place. Additionally it could be difficult for consumers without a car.

Considering the utilisation of trucks and lockers these two alternatives of delivery are very efficient. However centralised investments are needed and the distance between the consumer and the pick-up point are longer than the alternatives described above.

Another alternative of a pick-up system is the possibility to arrange pick-up points at the store or warehouse. In this case consumers will do all the driving themselves and will only pay for fees concerning the picking the groceries. Using this model requires that the warehouse or store is located within reach of the consumer which could affect the costs of the warehouse due to higher rents if it is located nearby the city. See figure 3.18 and 3.19.

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<sup>209</sup> Kämäräinen, Vesa, The reception box impact on the home delivery efficiency in the e-grocery business, *International Journal of Physical Distribution & Logistics management*, Vol. 31 No. 6, 2001, p. 417

<sup>210</sup> *Ibid*, p. 418

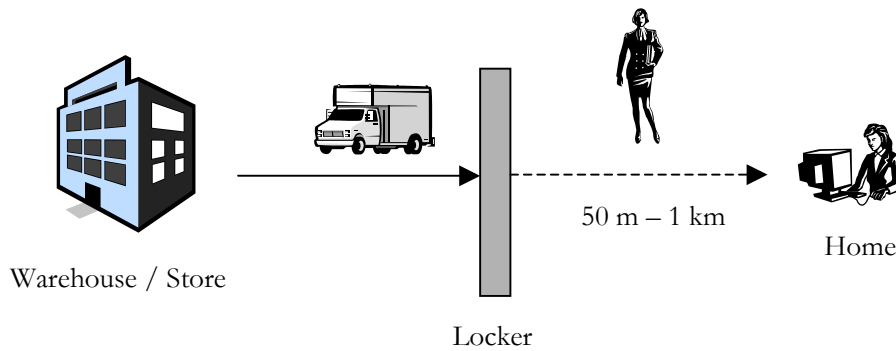


Figure 3.18:

*Centralized reception box / locker system.*<sup>211</sup>

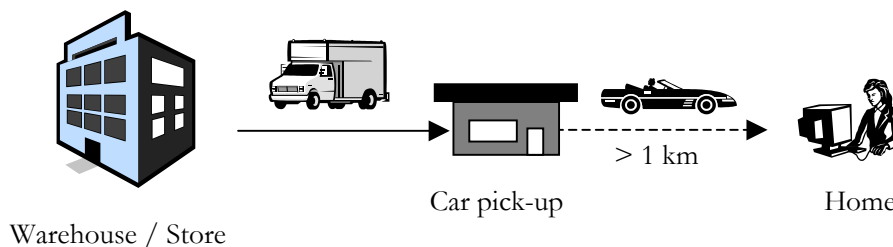


Figure 3.19: *Pick up system.*<sup>212</sup>

There are several different distribution models used in e-commerce. Even if it is much easier to reach customers globally and nationally through e-commerce most supply models emphasise on regional models. Models concerning groceries are no exception; most supply models used in e-commerce concerning groceries are regional as groceries are perishable and therefore not suited to distribute nationally or globally. Meanwhile, there is examples e-grocers that distributes non-perishable groceries nationwide.<sup>213</sup>

### 3.4.4 Payment Alternatives

The most common payment methods used in e-grocery shopping are credit card, checks and cash<sup>214</sup> which are the same methods used in traditional retailing. These methods can be used in almost every e-grocery shop. Dealing with e-grocery, the use of electronic cash should be considered. However, that is not the case today; the possibility of using electronic cash is only available in few shops.<sup>215</sup> The lack of trust in safe money transactions over the Internet is one of the reasons.

<sup>211</sup> Kallio, Jukka, Kempainen, Katariina, Tarkkala, Mikko & Tinnilä, Markku, New distribution models for electronic grocery stores, LTT – Tutkimus Oy, Helsinki, 2000, p. 9

<sup>212</sup> Ibid, p. 9

<sup>213</sup> Internet, <http://www.netgrocer.com>, 2002-06-05, 9.52 p.m.

<sup>214</sup> Nyman, Kai & Raijas, Anu, Electronic grocery stores – evaluation of the websites, LTT – Tutkimus Oy, Elektronisen Kaupan Instituutti, Helsinki, 2000, p. 19

<sup>215</sup> Ibid, p. 19

As home deliveries are in most cases an attended deliveries all payment methods mentioned above could used when paying for the goods. The use of unattended deliveries such as reception box deliveries, centralised reception box deliveries, and pick-up system deliveries will limit the number of alternative payment methods. Among the alternatives above unattended deliveries are limited to the use of electronic cash and credit cards that are charged when ordering on the Internet. There are other alternatives of doing payments such as the use of in advance authorised billing of a person's credit card or bank account, or invoice.

One advantage with attended deliveries is that the consumer will know exactly how much the cost of the groceries will be. If the consumer has ordered other things than colonial products, the real sum hardly ever matches the sum that was given to the consumer when ordered on the webpage.<sup>216 217</sup> The reason for this is that some of the groceries' price is dependent on weight, for example vegetables, fresh fish and meat et cetera with its difficulties in getting the exact weight. Another advantage with the attended delivery alternative is the possibility to pay with credit card offline or cash which might attract consumers that, due to the perceived insecurities of using other payment methods, are anxious over buying on the Internet.<sup>218</sup>

There is however a couple of disadvantages when using the cash alternative. It increases the time used for administration for the driver that could be used more effectively to more value added activities, and it heightens risk of being a target for criminal elements if carrying around large amount of money.<sup>219</sup>

### **3.4.5 Determining the logistical model**

In order to change their shopping behaviour, customers expect additional benefits by using a new service provider.<sup>220</sup> One way of offering superior service is to improve the functionality of the deliveries from the consumers point of view. When analysing which delivery model to use in order to create a cost efficient supply chain one have to take under consideration which consumer segment to reach, what are the daily routines of the consumers, and where they live.

Choosing one logistical model out of the different types described above can be difficult. There are several aspects needed to be considered how they affect the fulfilment of the deliveries. The aspects are judged differently depending on how the chosen ordering process, the warehouse logistics, and the delivery logistics will be performed. Figure 3.20 shows a checklist of the key factors affecting the fulfilment of the task of e-commerce grocery retailing.

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<sup>216</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>217</sup> Nyman, Kai & Raijas, Anu, Electronic grocery stores – evaluation of the websites, LTT – Tutkimus Oy, Elektronisen Kaupan Instituutti, Helsinki, 2000, p. 20

<sup>218</sup> Ibid, p. 19

<sup>219</sup> Ibid, p. 20

<sup>220</sup> Kallio, Jukka, Kempainen, Katariina, Tarkkala, Mikko & Tinnilä, Markku, New distribution models for electronic grocery stores, LTT – Tutkimus Oy, Helsinki, 2000, p. 5

e-order processing	e-warehouse logistics	e-delivery logistics
<p><i>Order channels</i></p> <ul style="list-style-type: none"> <li>• Manual processes <ul style="list-style-type: none"> <li>- Fax</li> <li>- Phone</li> </ul> </li> <li>• Automatic processes <ul style="list-style-type: none"> <li>- Internet</li> <li>- Internet/Extranet</li> <li>- m-Commerce</li> </ul> </li> </ul> <p><i>Data Check</i></p> <ul style="list-style-type: none"> <li>• Credit check</li> <li>• Plausibility check</li> <li>• Availability check</li> <li>• CRM check</li> </ul> <p><i>Order confirmation</i></p> <p><i>One-to-One capability</i></p> <p><i>Payment method</i></p> <ul style="list-style-type: none"> <li>• Cash</li> <li>• Credit card</li> <li>• Automatic debit transfer system</li> <li>• Check</li> <li>• Invoice</li> <li>• Paybox</li> </ul> <p><i>Return handling</i></p> <ul style="list-style-type: none"> <li>• New delivery</li> <li>• Returning acceptance</li> <li>• Refund now</li> <li>• Refund on delivery</li> </ul>	<p><i>Warehouse model</i></p> <ul style="list-style-type: none"> <li>• Store picking (items are picked in an existing supermarket)</li> <li>• Dedicated warehouse (the warehouse serves only for home delivery)</li> <li>• Combination of store picking and dedicated warehouse</li> </ul> <p><i>Transport</i></p> <ul style="list-style-type: none"> <li>• Spokes and hub model</li> </ul>	<p><i>Service level</i></p> <ul style="list-style-type: none"> <li>• Number of delivery windows</li> <li>• Number of repeated deliveries</li> <li>• Size of delivery windows in hours</li> <li>• Number of delivery days</li> <li>• Order lead time</li> <li>• Flexibility (changes)</li> </ul> <p><i>Handover of goods</i></p> <ul style="list-style-type: none"> <li>• Attended</li> <li>• Premium-Service-Express delivery</li> <li>• Unattended</li> </ul> <p><i>Point of handover</i></p> <ul style="list-style-type: none"> <li>• Office</li> <li>• At home</li> <li>• Pick point-to pick up goods</li> <li>• Store picking</li> </ul> <p><i>Additional services</i></p> <ul style="list-style-type: none"> <li>• Third party pick-up</li> <li>• Return options</li> </ul> <p><i>Fleet</i></p> <ul style="list-style-type: none"> <li>• Dedicated</li> <li>• Partly used/shared</li> </ul> <p><i>Outsourcing</i></p> <ul style="list-style-type: none"> <li>• Drivers</li> <li>• Fleet</li> <li>• e-logistics Management</li> </ul>

Figure 3.20: The e-fulfilment key process checklist.<sup>221</sup>

## 4 Case study Matomera

<sup>221</sup> Müller-Sarmiento, Patrick, E-Grocery Shopping – E-Fulfilment the Key to Success – Defining an e-Logistic Concept for a Traditional Retailer, p. 4

*In order to present the case study Matomera, the description is based on both the company's functions and the processes connected to Matomera. When analysing the case, eight aspects connected to the consumer demands put on e-grocery solutions serve as starting points.*

In 1998, the 19<sup>th</sup> of October, Matomera was released on the Internet.<sup>222</sup> This was the first e-grocery store in Europe that was serving their consumers from a dedicated warehouse, designed for picking consumer orders ordered only from the Internet.<sup>223</sup> The founders of Matomera were Bergendahl & Son AB and BTL.<sup>224</sup> <sup>225</sup> Bergendahl & Son AB was the owner of Matomera and BTL was a partner responsible for the distribution. Matomera was a pioneer in different areas such as performing home deliveries from a dedicated warehouse and offering the consumer to pay with credit cards directly via portable hand-terminals.<sup>226</sup> Two and a half a year later, in 2001 the 29<sup>th</sup> of March, Matomera was closed down due to the limited consumer stock.<sup>227</sup>

## **4.1 DESCRIPTION**

### **4.1.1 Business concept**

Translated into English the business concept<sup>228</sup> of Matomera was:

*“To serve and simplify our customers’ daily life by offering a time and cost efficient alternative to shop provisions and other related goods the Internet.”<sup>229</sup>*

The concept brings out that the alternative of shopping groceries through Matomera was to be time saving for the consumer and therefore having time over for something else, and that the goods and services are bought over the Internet. The price of the goods was meant to be about the same as in a hypermarket. The most important issue about the strategy of Matomera was to have a logistical solution that maintained the quality of the groceries and to offer a high consumer service level.<sup>230</sup>

### **4.1.2 Company functions**

We have chosen to describe Matomera on the basis of the model presented by Matomera at their press release in 1998.<sup>231</sup> Matomera was divided into different functions showed in figure 4.1. The arrows between the functions represent the different physical and information flows that connect the activities between the functions. We have modified the model so that the physical flow between the functions will be stressed and some of the info flows has been modified according to the management of Matomera.

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<sup>222</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>223</sup> Internet, <http://www.svt.se/nyheter/2001/010326/127.html>, 2002-02-27, 4.50 p.m.

<sup>224</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>225</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>226</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>227</sup> Internet, <http://www.bergendahls.se/matomera/index.html>, 2002-06-24, 8.00 p.m.

<sup>228</sup> “Att serva och förenkla våra kunders dagliga liv genom att erbjuda ett tids- och kostnadseffektivt sätt att handla livs medel och andra relaterade varor och tjänster över Internet”

<sup>229</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>230</sup> Internet, <http://www.bergendahls.se/matomera/index.html>, 2002-06-24, 8.00 p.m.

<sup>231</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

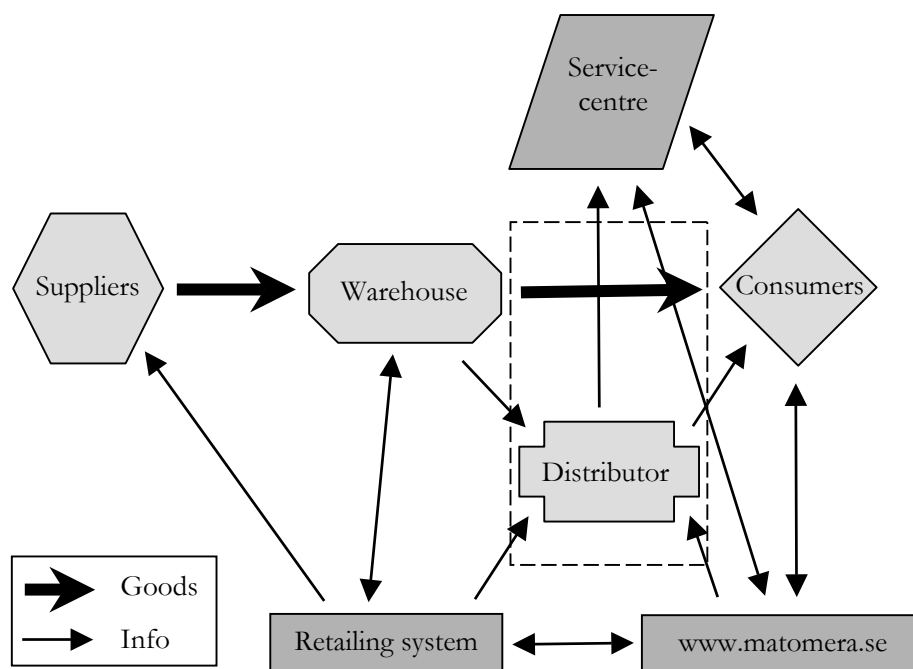
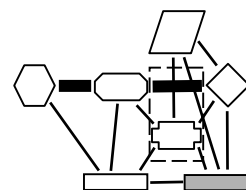


Figure 4.1: The flows and activities of Matomera.<sup>232</sup>

#### 4.1.2.1 *www.matomera.se*

The website was constructed and designed by Netch in collaboration with Teknik i Media and Brand Management, now Satama.<sup>233</sup> Netch was responsible for the technical platform, the implementation of the website and the integration between the website and the different processes. Netch was based in Lund and had previously done the website for Bokus.com in 1997 which was one of the first sites in Sweden to sell literature over the Internet.<sup>234</sup> Netch was chosen by Matomera because their concept was the closest to what the management wanted.<sup>235</sup> They were also one of the few on the market that had built a site with this magnitude since they had constructed the website for NK-hallen, the first Swedish e-grocery store.<sup>236</sup> The difference with NK-hallen and Matomera was that the groceries in NK-hallen were picked in the actual store, not in a dedicated warehouse. To create a brand strategy and a communication platform for the concept, Matomera worked together with Brand Management in developing such a solution.<sup>237</sup> The role of Teknik i Media was to function as an intermediary between Brand Management and Netch in translating the ideas and the concept of Matomera into a user friendly web design that would communicate the values.<sup>238</sup> However, after instructions given by Teknik i Media, the daily updates of the website regarding introduction of new products in the assortment were managed by the department responsible for media at Bergendahl & Son AB in Hässleholm.



<sup>232</sup> Ibid

<sup>233</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>234</sup> Internet, <http://www.bokus.com/se/info/aboutbokus.shtml>, 2002-06-01, 11.07 a.m.

<sup>235</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>236</sup> Internet, <http://www.netch.com>, 2002-05-31, 6.32 a.m.

<sup>237</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>238</sup> Rosengren, Jörgen, Business Area Manager, Teknik i Media, telephone interview, 2002-06-13

#### 4.1.2.1.1 Strategy

The key word of the website was simplicity. The webpage should be easy to use and to understand and there should not be any time consuming procedure of registration before shopping. The registration was not made until the consumer had decided what to shop and was ready to confirm the order. Therefore, the consumers could visit the shopping pages right away. Furthermore, in an ordinary store consumers can be guided in a more or less logical way in order to find the preferred item, but on the web the web designer only has two dimensions and a small screen to one's disposal in order to guide the consumer. To translate this way of thinking into web-design some new categories had to be introduced in order to simplify the shopping for the consumer. For example, Matomera created a new category for child care products which did not exist on its own as a category in an ordinary grocery store before.<sup>239</sup>

The webpage should also be fast to download when using a slow Internet connection. Therefore, there were not many banners or big pictures that could affect the downloading time in a negative way. This limitation might have been a restriction when designing the website making it more attractive and descriptive for consumers.

Matomera had the opinion that creating a website based only on simplicity and stability was not enough. A more varied shopping experience, providing the consumers with inspiration would enhance impulse buying behaviour.<sup>240</sup> This would also make the consumer wanting to return to the website creating loyalty between Matomera and the consumer. Providing functionalities that would inspire the consumer was therefore important.

#### 4.1.2.1.2 Functionalities

Below, some of the functionalities are described that would simplify the shopping for and the distribution to the consumer.

*Collection of recipes* – Matomera introduced collections of recipes for every day of the week making it possible for the consumer to click on the desired recipe, fill in the number of people intended to cook for and then receive the groceries in the webpage shopping cart, but presented in a way making it possible to delete the ingredients that the consumer already had at home. This functionality was not unique for Matomera as it has been used by other e-grocers too.

*Food themes* – During some occasions, for example during holidays, Matomera together with certain suppliers presented a theme that included recipes containing products from that specific supplier.

*Shop-in-shop* – Matomera created shop-in-shop solutions together with certain suppliers, for example GB Glace, making it possible for the supplier to design a page promoting and selling their products within the boundaries of Matomera. The main advantage with this approach was that the supplier had a deeper knowledge about their consumers than Matomera and therefore better knowledge of how to attract them to buy their products.

*Offers* – On the front page Matomera would offer products with reduced prices for certain limited time, for example a weekly offer. The offers were also sent to consumers by e-mail if allowed.

*Consumer's information to the driver* – This functionality was at the time unique for Matomera and gave consumers the possibility to inform the driver about relevant issues concerning the distribution, for example, if it is difficult to find the way, they might give instructions on how to

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<sup>239</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>240</sup> Ibid

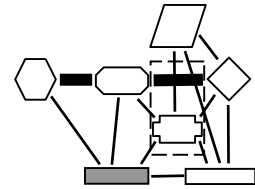


find the way or if they were not at home, the driver would be instructed where to put the groceries.

*Shopping list* – The consumer could save the shopping list at Matomera with groceries that were repeatedly bought in order to simplify the shopping.

#### 4.1.2.2 Retailing system

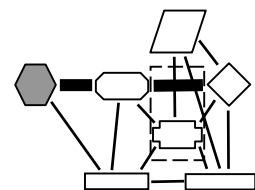
The website was integrated with the retailing system which included a warehouse inventory system, provided by ADS-Ankers.<sup>241</sup> Together with Netch these were Matomera's two providers of technical solutions. The integration between the website and the retailing system had not been done before and it required a lot of effort in making it work. The main idea with this integration was that the consumer should not be able to order anything that was not in stock, as the item would not even be displayed on the website. On other websites the items that were out of stock might still have been displayed on the website. The consumer would often be notified and sometimes be asked whether to order a similar item or not. Matomera had the opinion that if an item was out of stock in their existing assortment it should not even be displayed on the website as this would be more like the experience that consumers have when shopping in a grocery store. Consumers would then decide for themselves whether to buy a replacing item or not instead of being disappointed that the item was not in stock. The website was updated by the retailing system on the basis of the stock level every fifth minute.<sup>242</sup> A truly dynamic integration between the retailing system and the website means that the website would be instantly updated when a stock level change occurred. Due to the limitation in performance of the server the website could not be updated more than every fifth minute. However, this update was performed whether a change in the stock level had occurred or not. If a consumer were ordering a larger amount of an item that was kept in stock, the system would reply with the remaining number of items in stock.



The retailing system also received the orders submitted on the website, processing these in order to fit the needs of the warehouse, the suppliers, and the distribution. When the last order was executed and electronically sent to the server after the consumer order deadline, every item in the consumer order was sorted to create an efficient picking. These picking lists, including addresses, were then sent to the warehouse. Another compiled list with the ordered quantities of fresh groceries was sent to the suppliers. Finally, the addresses to each consumer, chosen delivery time window, and in some cases instructions to the driver were sent to the distributor. A delivery time window is the stated time span when the consumer could expect the distributor to arrive.

#### 4.1.2.3 Supplier

Depending on what groceries to deliver the distribution to Matomera was managed differently. The frozen food and the colonial products were delivered from the warehouse of Bergendahl & Son AB in Hässleholm.<sup>243</sup> The dry and frozen goods were delivered every third day, but to offer first class fresh groceries to the consumers, Matomera made the decision that these groceries had to be delivered every day to the warehouse.



*Daily deliveries* - Due to the different properties and demands of the goods, the physical flow from the suppliers of fresh groceries such as meat, fruit, vegetables, bread, and dairies were distributed

<sup>241</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>242</sup> Hed, Martin, Team Member, Netch, telephone interview, 2002-06-11

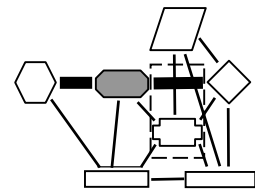
<sup>243</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

separately to Matomera.<sup>244</sup> The meat, fruit, and vegetables could only be ordered in predetermined sizes, for example 1.0 kg or 2.0 kg, as this simplified the handling for the supplier. These groceries arrived to Matomera in ready packed sizes. The meat was for example supplied by AGs Favör in Malmö and the fruit and vegetables were supplied by Global Färskvarugrossisten AB, also in Malmö. AGs Favör had a line of cutting-up and packaging exclusively for Matomera. After the consumer order deadline, AGs Favör started packing the meat in the ordered sizes beginning around 5.00 a.m. and the meat were then delivered around 09.30 a.m. to the warehouse of Matomera. The last delivery of fresh groceries, to be delivered the same day to consumers, arrived to Matomera no later than 9.30 a.m. Global Färskvarugrossisten also packed the fruit and the vegetables in predetermined sizes. The different suppliers were connected to the extranet of Matomera which enabled them to check how much the consumers had ordered. This made the suppliers independent of Matomera sending those orders.<sup>245</sup> Choosing suppliers that were based in Malmö was intentional as this would shorten the delivery time of the groceries to the warehouse, but also to promptly be able to correct any mistakes made by the supplier.

#### 4.1.2.4 Warehouse

##### 4.1.2.4.1 Warehouse location

The main idea with Matomera was to support the consumers from a dedicated warehouse from which the company would solely deal with orders from their website. Matomera found the solution with picking the groceries in an existing store not to be cost efficient enough and it was a too lengthy picking procedure to motivate such a solution. Matomera did not want to build a new warehouse due to the time and money involved in such a project. They had to find an existing warehouse that would fit their purposes. One of the criterions was that the warehouse would be located nearby an area with sufficiently concentrated population. Matomera would then be able to offer fast deliveries to a low mileage costs. The warehouse should also be located nearby one of BTL's distribution terminals in order to simplify and fasten the access to BTL's distribution fleet. Additionally, the warehouse should initially, with short lead-times, be easily supported with groceries from the central warehouse of Bergendahl & Son AB in Hässleholm.<sup>246</sup> Bergendahl & Son AB also wanted to become more established in Malmö, they did not have many grocery stores in the city. Malmö also fitted all the other criterions with closeness to a large population, BTL terminals, and to the central warehouse in Hässleholm. Åke Kjellkvist at BTL was responsible for the location of the warehouse<sup>247</sup> and he located an old factory at approximately 1400 m<sup>2</sup> on Skrittgatan<sup>248</sup> in the industrial estate of Fosie, nearby the centre of Malmö and also nearby the distribution terminal of BTL. BTL paid for the equipment and rented the warehouse.



The warehouse was put in order and fridge facilities were installed so it could handle groceries that were cold and frozen. There were eight employees who were responsible for the picking and the daily maintenance of the warehouse. When the demand was peaking, there could be as many as twenty people working in the warehouse. The additional personnel were, in the beginning, transferred from the warehouse of Bergendahl & Son AB in Hässleholm, but after a while they got trained people from two temporary staffing companies.<sup>249</sup> As consumers ordered groceries

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<sup>244</sup> Ibid

<sup>245</sup> Ibid

<sup>246</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>247</sup> Kjellkvist, Åke, Managing Director, Schenker Parcel Malmö, interview, Malmö, 2002-05-13

<sup>248</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>249</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

mostly on Wednesdays so that the delivery would arrive on Thursdays, the workload would peak on Thursdays, followed by Friday, Monday, Tuesday, and Wednesday.

#### **4.1.2.4.2 Warehouse layout**

Bergendahl & Son AB had the main responsibility for the design of the warehouse since they had the experience in warehousing groceries. The difference between Matomera's warehouse and others run by Bergendahl & Son AB was that this was designed to handle single items. Ordinary warehouses dealing with groceries handle much larger batch sizes and volumes, and these groceries are mostly not handpicked, they are handled with trucks. The total volume of the warehouse designed for handpicking can not be used optimally as the warehouse can not utilise the possibility of storing items in many levels due to the time consuming aspect of getting an item that is placed high up. Matomera had to focus on the shape and size of the warehouse space, not the volume.<sup>250</sup> The restriction in using the height of the building when storing items will increase the renting costs compared to a warehouse that can store the same amount of items using more levels which leads to increased volume utilisation.

In Matomera's warehouse the shelves were placed in long corridors for both much- and less frequently picked items, see Appendix B. Usually, less frequently picked items are stored in long corridors and much frequently picked items in short corridors, see chapter five. The management was aware of the limitations in the boundaries of the warehouse. To create an optimal warehouse layout solution, in time and space utilisation, they had to run computer simulations trying out different types of layouts and picking routes. The result of this was that long corridors were used for both types of picked items and a fitting picking route was also given. The computer optimized solution is given in Appendix B. Depending on the goods, they used two different kinds of shelves. Pallet shelves were used for heavy dry goods that came in large quantities, such as sugar and flour, which would make it easy for trucks to place the goods on the shelf, and ordinary shelves for smaller quantity items. The pallet shelves were also higher than the ordinary shelves. Frozen products were placed on shelves that were leaning towards the picker in the freezer so that the item always would be reachable even if the item were in the back of the shelf from the beginning.

#### **4.1.2.4.3 Warehouse philosophy**

Due to the restrictions in the boundaries of the warehouse, with its joint space for in- and outgoing goods, it was necessary to adopt the philosophy of the T-shaped warehouse. This philosophy gives the possibility to expand the warehouse in three different directions without disturbing the function on the in-and outgoing goods. Matomera's warehouse only had the possibility to expand in one direction as there were other buildings on both sides of the building. It was only one direction left for Matomera to expand in. Matomera had the option of taking over a building located on the right side of the warehouse if they needed to expand, but this was never realized.

#### **4.1.2.4.4 Item location**

The items had fixed shelf locations, the advantages with this solution is presented in chapter five. The most frequently ordered groceries were located nearby the starting point of the picking route in the right part of the warehouse and least frequently ordered ones were located in the left part. This item location decreased the walking distances when picking the groceries which minimised the picking time. The location of an item was also dependent on its weight so the heaviest and most frequently bought items were picked first in order to make the paper bags stable and to decrease the damage of the groceries that were lighter and picked later. There is also the

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<sup>250</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, telephone interview, 2002-06-28

dimension of placing the item on different heights depending of the picking frequency. The most picked items were placed in the middle of the shelf so that the picker would not have to bend the back in order to reach for the item. This would be more ergonomically correct for the picker and it would also save time.

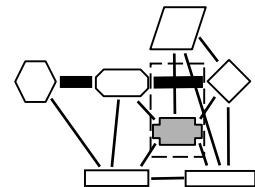
#### 4.1.2.4.5 Inventory management

Matomera could not offer the same amount of different products in their assortment compared to an ordinary grocery store. The reason was that one of the main costs in a warehouse is the interest on the value of the products in stock. To keep the stock down in order to minimize the interest it is necessary that the turnover rate on the products is high and therefore it is essential to focus on storing the products that are the most popular. The compromise is between having a large assortment and a high turnover rate. The assortment strategy of Matomera in order to keep the stock down i.e. having limited assortment was to offer the leading brand for all the important product categories but also to offer a cheaper non-brand alternative.<sup>251</sup> For example instead of offering seven kinds of ketchup Matomera offered Heintz's and Felix's ketchup, which are the leading brands, and a low price alternative. It was important to have well-known brands which the consumers were familiar with in order to make them feel comfortable about shopping groceries but also a low price brand to keep the general price level down. The initial number of different products was around 2500 but increased continuously until they reached 5000 in the end. In an ordinary store the number of different products is around 6000 to 8000 products.<sup>252</sup> The assortment was continuously modified as the consumer sometimes demanded a deeper assortment in certain categories of products. Some of these demands were surprising to the management as it would differ in percentage share compared to their previous experiences in grocery retailing. For example, the turnover percentage share of vegetables was around 15 % compared to 8 to 10 % in an ordinary store, the same conditions for meat. It was thought that this percentage of share would be lower than in an ordinary grocery store due to the lack of opportunity to examine the fresh groceries by yourself, but this percentage of share were higher than normal from the beginning and the reason for that it was kept that way was that the consumers appreciated the high quality of the fresh groceries according to the service-centre.<sup>253</sup>

#### 4.1.2.5 Distributor

##### 4.1.2.5.1 Distribution companies

BTL was responsible for the distribution during the main part of Matomera's existence. As a partner, BTL had members in the board and were involved in the development of Matomera. The main task of BTL was to contribute with knowledge of logistics in all levels, which means in a strategic, tactical, and operational level. BTL handled all administration and planning of the distribution but did not perform the actual transportation. For this task BTL contracted local distributors which often had assignments managed by BTL. For managing the distribution BTL received payment based on a percentage rate of the turnover of Matomera while the distributors got paid per stop by BTL.



In December 2000, BTL and Matomera could no longer agree on the terms of collaboration and Matomera chose to collaborate with Posten AB about the distribution instead. The responsibility of Posten AB was limited compared to BTL's as the role of Posten AB was only on an operational level, not strategic or tactical. Similar to the distributors of BTL, Posten AB got paid per stop.

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<sup>251</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>252</sup> Ibid

<sup>253</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25.

#### 4.1.2.5.2 Delivery time windows

Matomera chose to serve their consumers with attended home deliveries carried out in the evening. The other solutions with reception boxes mentioned in chapter six was refused as these would require larger investments in supplying the consumer with these.<sup>254</sup> In the beginning the deliveries were carried out six days a week, but receiving the groceries on a Saturday turned out to be less attractive to the consumers, so the deliveries were then limited from Monday to Friday. The reason for choosing to deliver in the evening was that these were the hours when the consumers would be at home, and the distribution fleet was also free to be used. Initially, Matomera performed the deliveries between the hours of 5.00 p.m. and 10.00 p.m. Due to consumer demands the consumers considered it too late to receive the groceries at 10.00 p.m. The delivery hours were later changed and the deliveries were carried out between 5.00 p.m. and 09.00 p.m.

In the beginning, Matomera was aiming for one-hour delivery windows but soon discovered that it was difficult to fulfil these undertakings. Rather soon, in order to increase the service quality in the aspect of delivering within the time limits, two-hour delivery windows was set instead. As a consumer, depending on how much the people in the area you lived in were shopping on Matomera, the choice between one or two delivery time windows was given. If the people in the area bought groceries for large amounts from Matomera there was the possibility of choosing between two delivery time windows, one in the beginning and one in the end of the time span between 5.00 p.m. and 09.00 p.m. For others there was only one delivery time window option. The total amount of delivery time windows was three, from 5.00 to 7.00 p.m., from 6.00 to 8.00 p.m., and from 7.00 to 9.00 p.m.

Posten wanted to reduce the waiting hours for the consumers by sending an e-mail, fax or SMS to the consumer informing them, when the route planning was made, the expected delivery time plus minus 30 min. This was however never implemented due to the short time of collaboration between Posten and Matomera before the closedown of Matomera.

#### 4.1.2.5.3 Geographical aspects

To fulfil the delivery time windows and maintain a rational and effective distribution it was necessary to restrict the geographical area for the distribution. Matomera selected certain postal codes covering approximately 35 postal code areas<sup>255</sup> which mean an area of about 25 kilometres around Malmö.<sup>256</sup> In order to make the distribution more efficient and economical the area was modified in some cases as some addresses in some postal code areas were too remote for efficient distribution. But some areas were also added as groups of people would get together asking Matomera to deliver even if the postal code area initially was not included. These groups of consumers also ordered in profitable quantities.

#### 4.1.2.5.4 Educating drivers

The management identified the drivers as an important part in the concept of Matomera.<sup>257</sup> The drivers were the only representatives of Matomera that consumers would meet face-to-face and therefore many of the impressions that the consumers would obtain about Matomera would be based on how the drivers behaved. BTL were using local distribution companies and in order to make a reliable and professional appearance all the drivers that would be involved in the distribution had to go through a one-day course about the values Matomera were representing, the whole concept, and how to act and react towards consumers in certain situations. In order to

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<sup>254</sup> Ibid

<sup>255</sup> Internet, <http://w1.sydsvenskan.se/Article.jsp?version=29664>, 2002-02-27, 9.05 a.m.

<sup>256</sup> Internet, <http://elisabet.tripod.com/texter/28mat.html>, 2002-02-26, 4.35 p.m.

<sup>257</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

impersonate Matomera and create uniform appearance the drivers wore uniform clothing with Matomera logos on and had special IDs.<sup>258</sup> A new driver also had to accompany another driver for one week in order to observe how to conduct the routines. The average number of drivers used were about 5-6, but when Matomera was introduced the number could increase to about 22-23.<sup>259</sup> The drivers were also educated in how to handle the portable hand-terminals dedicated for payment so that the payments were executed in the right way.

#### **4.1.2.5.5 Delivery costs**

From October 1998 to June 1999 all deliveries home to the consumer were free of charge. The consequence of the free deliveries was that consumers would buy often and to small order amounts which was suboptimal in an economical and logistical point of view. In order to decrease the logistical costs per order Matomera started to charge the consumer with a fee of 59 SEK if the order amount was below 500 SEK. After implementing this approach the total number of orders decreased but a majority of the lost orders was represented by low value orders. This meant that average order sum increased and the total turn over was not affected to any great extent.<sup>260</sup> Later this charge was raised to 69 SEK regardless the sum bought for. If the order sum exceeded 2000 SEK during a month period the consumer would get one delivery for free. When delivering to companies there were no fees charged, as the total order amount often exceeded the limit for free deliveries.

#### **4.1.2.5.6 Company deliveries**

Initially, Matomera were focusing on delivering groceries to consumers' homes, but in the end they started to deliver to companies. There were two types of orders that were delivered to companies. Firstly, the type when the delivery was aimed for the consumer and secondly the type when the company itself ordered groceries, for example a larger quantity of coffee for a small canteen. However, the aim was never to compete with companies managing large dining rooms at companies as they did not have the assortment necessary for these establishments.

Company deliveries were executed on Tuesdays and Thursdays during the afternoon, beginning around 1.00 p.m. Matomera had plans to offer deliveries to companies five days a week but this was never realised due to the close down.<sup>261</sup> The companies preferred to get the groceries delivered during office hours instead of in the evenings so that the employees could receive the groceries before going home from work. In order to get groceries delivered the order had to be completed two days in advance for the company itself, but the employees could order one day in advance as usual for consumers of Matomera

The advantage for Matomera was that many consumer orders could be dropped of at one stop. This meant that the vans were used more efficiently as they could deliver more orders per hour so the ratio between time spent on the roads and the number of orders decreased. An additional advantage was also that the picking staff would obtain a more even workload as these orders were picked at different hours and with a longer lead time.<sup>262</sup> There was also the benefit of not to deliver within any certain delivery time window as the employees and the company did not have to attend the delivery to the same extent as the groceries would be kept fresh the whole day due to the isolated boxes.

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<sup>258</sup> Kjellkvist, Åke, Managing Director, Schenker Parcel Malmö, telephone interview, 2002-06-13

<sup>259</sup> Kjellkvist, Åke, Managing Director, Schenker Parcel Malmö, interview, Malmö, 2002-05-13

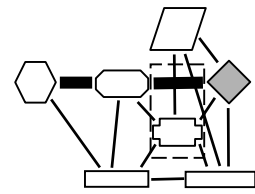
<sup>260</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>261</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, telephone interview, 2002-06-17

<sup>262</sup> Kjellkvist, Åke, Managing Director, Schenker Parcel Malmö, telephone interview, 2002-06-13

#### 4.1.2.6 Consumer

Before Matomera was established there had been surveys done in order to identify how large the potential market would be, which groups that would be interested in buying groceries online, and who would gain the most from buying groceries online.<sup>263</sup>



##### 4.1.2.6.1 Segmentation

When designing the concept of Matomera it was important to identify what were the preferred segments in order to be as profitable as possible. The segments that Matomera identified as important were firstly, people who had access to the Internet and thought that shopping groceries was time consuming. Secondly, the double income families that were short of time and had high demands on quality and price. This is a profitable segment as the double income family would shop much grocery at few occasions instead of a segment that would buy small quantities often. Buying much food regularly at few occasions means that the total cost for handling the order would be low compared to the order amount and the logistical solution would be put under less pressure for higher turnover. Matomera discovered that companies wanted to order groceries from Matomera and having them sent to the company. In order to serve this potentially new segment Matomera started to develop a solution that would fit the companies. The potential consumers were both the company itself and employees who wanted the groceries delivered to their work. Other potential segments were disabled and old people with difficulties in getting to a grocery store and would therefore by themselves or with the help of another person order the groceries via the Internet. Matomera did a pilot test with this segment but soon discovered that serving it was difficult. The intention of Matomera was that the person who ordered the groceries on behalf of the disabled or old person would also pay for the groceries and Matomera would just deliver the goods to the consumer. However, the home-help service would not take the responsibility for the payment, merely for ordering it. The result was that Matomera had to deal with both the payment at the consumer and the delivery of the goods which were more time consuming than it ought to be. Around 80 % of the consumer stock of Matomera would belong to the double income family segment.

##### 4.1.2.6.2 Surveys

To determine who was shopping at Matomera there was continuously consumer surveys made on existing consumers, but also external surveys about potential consumers and consumers in general. Every half year there was also a larger survey made about variables concerning lifestyles conducted by an external company.<sup>264</sup>

##### 4.1.2.6.3 Marketing

To attract consumers to the website it was necessary to market the website. In order to make people aware of the brand Matomera, they were initially working with Brand Management, now Satama, in Stockholm. Together, Matomera and Brand Management developed a brand strategy and a communication platform for the concept. Later Matomera started working with a local advertising bureau called Signell Annonbyrå, now called SandbergTrygg. They started to promote the motto of Matomera which was "Matomera – Maten hem utan att det kostar mer", in English "Matomera – the food to your home without spending more" showed in figure 4.2. The reason for this motto was that the home delivery was free of charge in the beginning regardless the order sum. Matomera advertised on buses, in daily newspapers, in papers folders to the local households, through promoting activities in stores and other places, and through web advertising. After half a year, Matomera reached an awareness of around 40 % when people were asked if

<sup>263</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>264</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

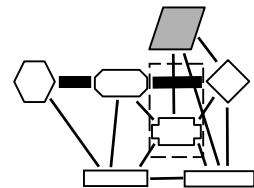
they knew an e-grocery site, and around 80 % when people were asked if they knew an e-grocery site named Matomera.<sup>265</sup> The main reasons that relatively few people visited and actually bought groceries on the website were that people preferred buying groceries in an ordinary store and that it was a big leap between visiting the site and actually using the services.<sup>266</sup> Matomera was also marketing themselves towards companies in the surroundings with folders, personal visits and happenings. Around 2000 Matomera changed advertising bureau to Navigator Advertising, with a local office in Malmö. Navigator modified the web design and they also changed their motto to ”Matomera – tid över till annat”, in English ”Matomera – Time left for something else”.<sup>267</sup> See figure 4.2. The reason for this was to refocus on the values of their main consumer segment, the double income families, and what they could gain by using Matomera, in this case time. The old motto was not all correct as the consumers were charged for the distribution at this point and the price level for the groceries were at the same level as in an ordinary grocery store, not lower in order to compensate in any way for the distribution fee.



Figure 4.2: The different mottos of Matomera.<sup>268 269</sup>

#### 4.1.2.7 Service-centre

Matomera had no face-to-face communication with the consumer until the goods were delivered by the driver, who was the only physical person representing Matomera. If consumers have any questions or problems during shopping in an ordinary grocery store, they are always able to turn to the personnel working there. In the case of Matomera the consumers did not have that possibility. In order to compensate for this lack of communication channel, they had to offer other ways of communication. Therefore, the management identified the service of handling several communication channels as crucial.<sup>270</sup> To establish trust among consumers in this new way in doing grocery shopping, the Service-centre was started. The purpose with the Service-centre was to support the consumers in case of problems or questions. Possible communication channels were the use of letters, phone, fax, or e-mail.<sup>271</sup> The Service-centre was open for phone calls between 9.00 a.m. and 9.00 p.m. but the other channels were accessible round the clock. It was important to use as many communication channels as possible to compensate for the lack of face-to-face communication so that every consumer would feel comfortable asking regardless the choice of communication channel.<sup>272</sup> The management thought that it was a strategically



<sup>265</sup> Ibid

<sup>266</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, telephone interview, 2002-06-17

<sup>267</sup> Rimton, Mats, Communication Consultant, Navigator Advertising, telephone interview, 2002-06-04

<sup>268</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>269</sup> Internet, <http://www.bergendahls.se/matomera/index.html>, 2002-06-11, 11.16 a.m.

<sup>270</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>271</sup> Internet, <http://web.archive.org/web/20001017142758/http://www.matomera.se/>, 2002-06-13, 4.40 p.m.

<sup>272</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25



important issue not to outsource the Service-centre, which is common nowadays, as it was identified as a key function of the business.<sup>273</sup>

The Service-centre was first located at the head office of Bergendahl & Son AB in Hässleholm. Tommy Stjernqvist, who had experience of customer service at IKEA and Telia, was in charge of the Service-centre with two employees that were answering the phones, faxes, letters, and e-mails.<sup>274</sup> Most of the questions were received by e-mail. The total number of calls, e-mails, faxes, and letters was significantly lower than expected.<sup>275</sup> In order to integrate the call centre further with the other activities concerning Matomera, such as website, grocery picking, and distribution, the Service-centre was later moved from Hässleholm to the warehouse in Malmö. The aim was to improve the internal communication within Matomera in order to facilitate the problem solving of the Service-centre. The Service-centre handled all kinds of questions and problems that the consumers would present. For example, if the consumer was not satisfied with a product the driver would refer to the Service-centre which would then solve the problem. In those cases when bad groceries were delivered the Service-centre would arrange for new ones at the next delivery. Matomera never executed any repayments. The Service-centre also managed and completed the authorised payments which will be described below. The Service-centre was awarded with the mark of respect “contact” in the year 2001 at the Web Service Award in Stockholm for best customer service in 2000.<sup>276</sup>

#### 4.1.3 Processes

By asking the interviewees what processes that had to be performed in order to fulfil a complete consumer purchase, three processes have been identified as the core processes of Matomera. The consumer order process which describes how to order, the warehouse process which describes the material handling and inventory issues, and the distribution process. Below, these three processes, showed in figure 4.3, will be described. In these processes all the components of the logistical system by Hans-Christian Pfohl, see chapter five, are included. The components are; order processing system, inventory management system, packaging system, transportation system, and warehousing system. Three of the components are included in the in the warehouse process; inventory-, packaging-, and warehousing-system. The other components are included in respectively process. The main idea with the logistical system model was to stress that all these systems affect each other in many ways. The processes are also affected by and dependent on each other and it is necessary to look at all processes as one unit in order to judge the total performance.

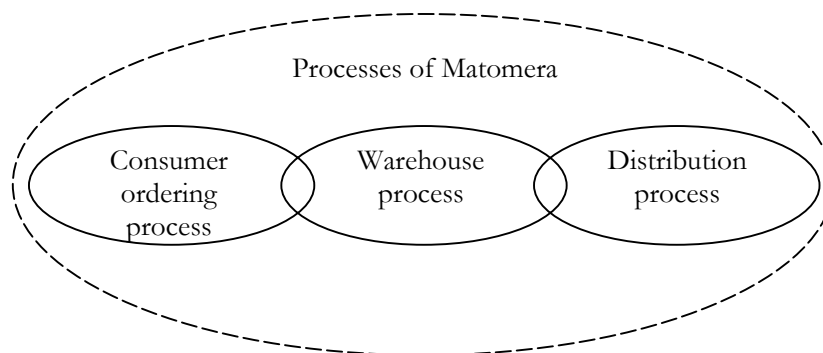


Figure 4.3: The core processes of Matomera.

<sup>273</sup> Ibid

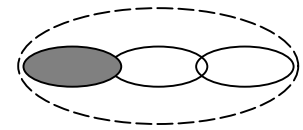
<sup>274</sup> Stjernqvist, Tommy, Customer Service Manager, BergendahlsGruppen AB, telephone interview, 2002-06-25

<sup>275</sup> Kettelhoit, Mattias, Managing Director, Schenker Consulting AB, interview, Malmö, 2002-04-09

<sup>276</sup> Internet, [http://www.bergendahls.se/aktuellt/aktuellt\\_arkiv\\_2001.htm#2](http://www.bergendahls.se/aktuellt/aktuellt_arkiv_2001.htm#2), 2002-02-26, 4.15 p.m.

### 4.1.3.1 The consumer ordering process

Ordering groceries from Matomera could only be submitted from their website [www.matomera.se](http://www.matomera.se). When entering the shop i.e. the website, the consumer could start collecting groceries at once. To find out if Matomera delivered to the address where the consumer lived, the postal cod number was typed in a special feature. The registration and login would not have to be done until the order was to be executed. To help the consumer to find its way in the shop the groceries were divided in different categories such as allergy assortment, children's food and nappies, meat, and tobacco, which would make it easier to locate certain products. The categories were also divided in subcategories such as pork and beef. To simplify the picking procedures of fresh groceries the consumer had limited alternatives of weights to choose between. From the starting page, the consumer could with a simple click gain access to shopping help, Service-centre, the menu of the week, recipes, and shopping conditions. When wanting to access previously saved and used shopping lists, the login procedure had to be executed in order to use them. The collected groceries were gathered in a special column which always was visible no matter what page of Matomera that was displayed. In the same column there was also the possibility to search for the groceries that the consumer needed. See figure 4.4.



**Different service offers**

**Search function where the whole shopping list could be entered**

**Categories with subcategories**

**Visible column with groceries in the shopping cart**

Vara	Pris	Jmf pris	Antal	
Källvatten Med Kolsyra 1,5l Torhult Inkl Pant 2kr	8.90	5.93 L	1	Köp
Källvatten Utan Kolsyra 1,5l Torhult Inkl Pant 2kr	8.90	5.93 L	1	Köp
Mineralvatten Ramlösa Original 33cl Profilflaska	6.90	20.91 L	1	Köp
Ramlösa Citrus 4x1,5l Inkl Pant +3 St Selterglas (Värde 30 Kr)	65.00	10.83 L	1	Köp
Ramlösa Citrus Mineralvatten 1,5l Inkl Pant 4kr	16.90	11.27 L	1	Köp
Ramlösa Original 4x1,5l Inkl Pant +3 St Selterglas (Värde 30 Kr)	65.00	10.83 L	1	Köp

Figure 4.4: Website layout.<sup>277</sup>

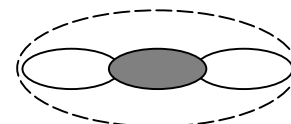
When finished shopping and the consumer were ready to order, the consumer would enter the cashier. If one was not registered, one had to fill in a form with delivery address and other useful information. Depending on in what postal code area the consumer lived in, different delivery time windows were displayed. When registered and the order was to be submitted useful information to the driver could be added, for example giving road directions and where to put the groceries. The consumer also stated at what date the groceries were to be delivered. If the consumer was registered for company deliveries one could choose between getting the groceries delivered to the company or to the home. This shows that the information given to the driver by the consumer could affect the distribution process to some extent.

Initially, the order had to be executed before at 1.00 p.m. if the order was to be delivered the same day. The deadline was later changed to 12.00 a.m. and then to 11.00 a.m. the same day as delivery, but was finally changed to 12.00 p.m. the day before delivery. These changes indicate difficulties in managing the warehouse- or the distribution processes which causes changes in the ordering process. When the order was executed the information was transferred to the retailing system. The management feared that there would be a significant loss of consumers when changing the deadline to the day before as 20 % of the turnover was placed between 12.00 p.m. and 12.00 a.m. They did not lose 20 % of the turnover as the consumers adopted their buying behaviour to current circumstances. The main segment was double income families and they were not affected by this change to any great extent, as they in general plan their purchasing more in advance.<sup>278</sup>

Matomera sent an order confirmation when the order was executed. In this way consumers had the possibility to discover any wrong doings. However, the consumers did not have the opportunity to change the order, not even before deadline. The only alternative consumers had, was to call the Service-centre and cancel the order.

#### 4.1.3.2 The Warehouse process

In the warehouse process we have focused on the physical flow through the warehouse. The ordering process is affecting the warehouse process when it comes to how many orders to be handled and when these should be handled. If the warehouse process can not deal with these factors in a satisfying way it will in turn affect the distribution process as they are all a chain of activities. The physical flow through the warehouse can be divided in several material handling activities<sup>279</sup> connected to each other. These basic functions are represented in the warehouse of Matomera.



##### 4.1.3.2.1 Ingoing goods

*Unloading of the goods* – When Matomera started the consumer order deadline was 1.00 a.m. This was later change to 12.00 a.m. and finally to 11.00 a.m. To carry out the deliveries the same day as the order was executed, would mean that two deliveries of fresh groceries to the warehouse was necessary, one in the morning and one after the consumer deadline, in the afternoon. The logistical consequences for the supplier concerning the afternoon delivery was that the supplier

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<sup>277</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>278</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, telephone interview, 2002-06-28

<sup>279</sup> Johnsson, Mats, Materialhanteringskompendium, Course literature, Department of Engineering Logistics, Lund Institute of Technology, 1998, pp. 17-25

would not have the same amount of time to assemble the consumer orders as it would have in the morning delivery. This due to the short time left until the distribution started. The result was that these afternoon deliveries often were late which caused problems further on in the supply chain. Matomera later changed the consumer order deadline to 12.00 p.m. the day before so that it would be possible to have just one delivery per day from each supplier. All the deliveries of the fresh groceries were arriving before 9.30 a.m. The deliveries came from the meat-, fruit and vegetables-, dairy-, and bread suppliers and they did not arrive at the same time so there were no queues for unloading the goods. The drivers unloaded the goods and placed it outside or inside the in- and outgoing area. There was no loading dock so the pallets and roll cage with groceries were lowered down onto the ground. The fresh groceries were then transported by the pickers directly via pallet loader, truck, or by hand to its right location. The colonial goods could arrive at different hours and were stored in special pallet shelves or on the floor in the in- and outgoing goods area if they were not transported immediately to its location. The unloading of the frozen groceries took the longest time, around 30 min.

*Receiving and quality control* – The receiving control were made when the placing of the goods were done. The delivery notes were then handed in to the office. Larger deliveries were spot checked in order to save time. The quality control was also spot checked when receiving the goods, especially the frozen food, that had to keep a certain temperature. The fruit and vegetables were checked visually, so this could be done more or less every time. If something was wrong the supplier had to deliver new groceries as soon as possible, which was a rare event.

*Placing items* – Each picker was responsible for different categories of groceries when placing it and doing inventory. To a high extent the incoming pallets where sorted after these categories so that there would be minimal reloading activities before placing the items. The picker would then transport the allotted groceries directly to the shelves. The bread was not unloaded at the in- and outgoing goods area, see appendix B, it was unloaded nearby the shelves used for bread storage and the drivers also did the placing of the bread themselves. The groceries were not marked to what shelf they were assigned to. There was a visual identification of the items and the pickers knew where they should be placed as they knew their category of items well. The placing of the frozen groceries took the longest time as it is a more difficult environment to work in. When the picker did the inventory of the allotted groceries a hand terminal was used to register the bar code on the shelf on the article and how many items there were left, if any.

#### **4.1.3.2.2 Picking**

Around 10.00 a.m. the picking started after the fresh groceries had been placed. The picker went into the office and took his picking list and a sheet of stickers with the consumer names and postal code to put on the boxes. The picking list was sorted in advance, based on postal code and time deliver window starting with the earliest one. The number of orders performed in the last half a year per picking round was around four orders per picker per round. With the increased risk of wrong picking when handling several orders Matomera was of that opinion that four orders per round was ideal. After getting the picking list the picker took a truck and got to the area in the in- and out going goods and started loading ordinary-, isolated boxes and paper bags, see appendix B. The reason for having the isolated boxes there was that sometimes the picker underestimated the amount of groceries when picking the frozen and fresh groceries and needed a new isolated box when getting to the chilled products nearby the in- and outgoing goods area.

After loading the truck, the picker started following the route that is mapped out in appendix B following the picking list. No confirmation was done when picking an item; the picker would just mark the item on the list with a pen. When picking the frozen food and vegetables the picker would take an isolated box beside the office, put the cooling block into the box and started picking the items. When company deliveries were performed these were the orders that were

picked the first as they were to be delivered during the day. After finishing the picking in the chilled storage the picker went to the cashier, entering the order number and filling in the weight difference of the meat and cheese. The delivery note would then be printed out and the boxes were then placed in the allotted row and time delivery section. This moment could sometimes cause queues if there were many orders waiting to be registered. The number of finished orders an hour per picker was pending between 3.7 and 4.2. The goal was to reach five orders an hour but it was never reached. Matomera had plans in making the picking more efficient by using portable terminals that could register every item including the weight difference of the meat. This would also lower the level of wrongly picked items and it would be possible to skip the registration of the weight difference. Other ways in saving time when picking was to fill the boxes with paper bags that had been pre expanded the night before which would make it possible to fill the bags with groceries directly in the morning instead of pre expanding the bags, time that could be used for picking.

There were two deliveries a day of fresh groceries when applying the consumer order deadline the same day. In order to reduce the workload later in the afternoon as it would peak at that time there were attempts in trying to pick the other groceries while waiting for the fresh ones to arrive. The collected groceries were in the meanwhile stored in the boxes and the orders were then completed afterwards when the fresh groceries arrived for the second time. However, this was not a successful way and was thought to cause too much work and complicated the administration with the boxes.<sup>280</sup> Later, the afternoon deliveries of fresh groceries were cancelled as the consumer order deadline was set to the day before.

#### **4.1.3.2.3 Outgoing goods**

The boxes were placed in one of the eight rows and the row was divided into delivery time window sections. The orders with the earliest delivery time windows were picked first and were placed in the back of the row. Gradually the row was filled with boxes and the boxes that were placed nearest to the front door were the ones to be loaded into the van the first and therefore delivered last. Sometimes there were so many orders that the row became too long which caused problem when passing the row and the wall near the door. Matomera was then testing how to prevent these situations by building shelves in order to utilise the height better. The boxes could also be stacked up to four times its height if the boxes were not too heavy. The area was considered sometimes to be too small. The boxes were not sorted according to the route within the delivery time window. When the driver arrived to collect the boxes he or she had to look at the route planning and sort the boxes within the allotted delivery time window before loading the van. This could take time for the driver. There was also only one front door which meant that there could be a queue of drivers waiting for their turn to get their goods.

A specially designed cooling clamp would be put in the bottom of the section which the bag with the frozen food were placed upon and another cooling clamp were put on top. These, in order to keep the groceries cool during the whole trip to the consumer. The carton boxes were in the size of 400\*600\*500 mm and they would be packed with bags in a total weight of about 10-12 kg. The average amount of carton boxes per consumer was estimated to 2.25.<sup>281</sup> The boxes were tested and developed for 4 months and it could keep the vegetables under 4 C° and the frozen groceries under -18 C° for a maximum of 12 h. This was necessary in keeping the groceries fresh during storage and transportation. The boxes would also simplify the handling of the groceries

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<sup>280</sup> Kjellkvist, Åke, Managing Director, Schenker Parcel Malmö, interview, Malmö, 2002-05-13

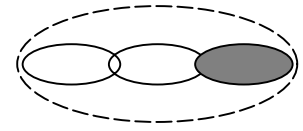
<sup>281</sup> Orremo, Fredrik & Wallin, Claes, IT, mat och miljö – En miljökonsekvensanalys av elektronisk handel av dagligvaror, Department of Packaging Logistics, Lund Institute of Technology, Lund, 1999, p. 23

instead of handling paper bags and they would also protect the groceries from unnecessary damage.

#### 4.1.3.3 Distribution process

##### 4.1.3.3.1 Home deliveries

Everyday at 12.00 p.m. a file which contained addresses, postal codes and delivery time windows was sent to BTL from Matomera. From this the route planning could be executed, which considered how many drivers that were needed, how the route would be planned for each driver in order to effectively distribute the groceries within the time limit, how many stops that would be made for each driver, and in what postal code area the drivers would operate in. The route planning was handled manually as an investment in a computer based system would cost too much in comparison to the number of existing consumers. Depending on the driver's wish the finished planning was sent either to the concerned driver or to the warehouse of Matomera where the driver would later collect it when arriving in order to load the van with groceries. The route planning was not sent back to Matomera in the sense that the pickers would know in what order the orders in every delivery time window would be like which would cause additional work for the driver. The driver was solely responsible for the loading of the van. When parked outside the front door the driver had to collect the boxes at the allotted line up, sorting them within the delivery time window, bring them back to the van and load it. When the van was loaded and the portable hand-terminals used for payment was collected, which altogether could take up to 40 minutes, the transportation could begin.



If suspecting a delay in the delivery, the driver would contact the consumer directly or contact the Service-centre in order to inform the consumer. When handing the groceries over to the consumer the paper bags were brought out of the box, as the boxes were reused. At the same time, since most consumers wanted to pay with their credit cards, the payment transaction was executed via the portable hand-terminal. If the consumer was using the alternative that authorized Matomera to credit their bank account, the groceries were just handed over. When the delivery had been paid for, but was unattended and instructions of where to put the groceries had been given, the driver just left the bags at the allotted place. If the consumer was not at home at the time of the delivery, no instructions were given, and the payment was to be done with credit card, the delivery was brought back to Matomera. The consumer would then be charged for the fresh groceries and a fee of 119 SEK for administration and delivery costs.<sup>282</sup> When everything had been delivered the driver returned to the warehouse in order to drop off the boxes and cooling clamps, the payment receipts, and the groceries that could not be delivered. To be able to use the cooling clamps in next day's deliveries they were put back into the freezer.

To reduce the time spent at each consumer the drivers were instructed not to go into any discussions about eventual complaints from the consumers. Instead, they should always refer the consumers to contact the Service-centre which would then solve any problems. The driver would however make a note of it so that direct feed back could be given to the concerned people, as the drivers were the only ones who could describe consumer reactions.

##### 4.1.3.3.2 Company deliveries

Before any deliveries to the company could be executed an agreement between the company and Matomera had to be signed in order to verify how the distributor should pass the entrance, where

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<sup>282</sup> Internet, <http://web.archive.org/web/20001017142758/http://www.matomera.se/>, 2002-06-14, 0.35 a.m.

to put the groceries and so on. As the groceries were delivered during the day to an allotted place and the people working there did not go home until late in the afternoon, it was important that the groceries stayed in the boxes in order to keep them fresh and cool. This meant that the boxes and cooling clamps were not brought back to Matomera until the next time they delivered to the company.<sup>283</sup> If any boxes or cooling clamps were missing at the time of collecting the company would be charged for them.

#### **4.1.3.3 Payment alternatives**

The number of possibilities in completing the payment for the groceries was for the consumer restricted to authorised payment and the use of credit card through the portable hand-terminals. There were no possibilities in paying with credit cards over the Internet or the use of cash. Matomera and BTL considered these options but concluded that it was a risk for the drivers, carrying a lot of cash, as they might be robbed. Payments via the Internet were also perceived by consumers to be too insecure in order to be trusted.<sup>284</sup>

Depending on which payment method used by the consumer the Service-centre or the driver managed the payment. The authorised payments were, as mentioned above, handled by the Service-centre which kept the authorisations in folders i.e. the authorisations were not saved digitally. The reason for this was that no account information or such should be stored digitally due to legal restrictions. The consequence was that the Service-centre personnel had to type down all the information needed from the authorisation when executing every payment which would mean added administrative work.

Credit card payments through the portable hand-terminals were managed by the drivers. When delivering the goods the payments were executed at the same time. The terminals functioned in the same way as the terminals used in an ordinary store but were connected wirelessly via the GSM-network to the bank. These portable hand-terminals were developed by Matomera as this solution did not exist at the time. This payment method is well-known to the consumer as it is a common way in conducting payments. However, the paying process could easily be time consuming as the terminal would not always succeed in connecting to the bank via the GSM-network, and even if the connection were successful at the first time the transfer itself could last a couple of minutes. This payment method was the most used by the consumers but the consumers were recommended by Matomera to change payment method.

## **4.2 ANALYSIS**

In the case of Matomera it was important to translate consumer demands into an efficient and effective logistical solution. On the basis of the problem and the objective we have decided to analyse the case of Matomera by using eight aspects connected to consumer demands put on e-grocery logistics. After examining the case we identified these eight aspects to cover the most important demands of what a consumer would put on an e-grocery store and its logistics. Six of these eight aspects are, according to Homegrocer.com, specific risk factors that would prevent widespread customer acceptance, if not fulfilled.<sup>285</sup> We have added two more aspects that we believe are crucial to consider, in order to meet the consumer demands. The added aspects are the consumer demands put on the website and consumer relations. These two aspects do not affect the physical flow within the logistics, they trigger and support it. The other six aspects do affect the physical flow in the logistical solution, and each other as they are connected in the

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<sup>283</sup> Cronberg, Michael, Logistics Co-ordinator, Posten Logistik, interview, Malmö, 2002-05-15

<sup>284</sup> Johansson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

<sup>285</sup> Duval, Yann, Emerging business models in the e-grocery industry, Washington State University, p. 2

logistical solution. How these should be prioritised depends on what consumer segments the e-grocer is reaching for. There will have to be trade-offs in order to get a logistical solution that will generate low costs and meeting the consumer demands at the same time. An optimisation of every consumer demand would mean a more costly logistical solution, for example distributing the groceries in many vans would mean fewer orders per van and tighter delivery time windows. In logistical terms inefficient use of loading volume and increased costs for larger distribution fleet. The eight aspects have served as starting points for analysing the case study of Matomera. The importance is how the chosen solution is adopted to these aspects. The aspects are sorted after where they influence the supply chain the most between ordering and receiving, and are presented below.

- Website,
- Delivery lead time,
- Product quality,
- Picking and delivery costs,
- Assortment,
- Accurate and timely deliveries,
- Consumer relations, and
- Payment.

#### **4.2.1 Website**

##### *4.2.1.1 Simplicity*

One problem with e-grocery stores is the difficulties in making people wanting to visit the website, even if they are aware of its existence, in order to try it out. It is then necessary to reduce the initial steps to take before starting shopping. Matomera did that by skipping all the registration before shopping to after the shopping. When Matomera was setting the main goal of the website, the keyword was simplicity. The simplicity was of two aspects, it should be easy to understand and navigate on the website and it should be easy to download the site. The simplicity also influenced the development of the categories which had to be carefully examined so that the consumer would find the preferred item easily. Additionally, one unique function, that Matomera introduced, was to give consumers the possibility to give instructions to the drivers via the website when ordering. This would simplify the work for the drivers but would also make it easier for them to reach high consumer satisfaction. Matomera made it easier for consumers to shop even further as they improved several of the existing functions in the new version of the website.

##### *4.2.1.2 Inspiration*

In order to make consumers wanting to return to the site and repeat their purchasing, Matomera needed to entertain and inspire the consumers. As Matomera could not use all the means used in an ordinary store in order to inspire, they tried to come up with new facilities that would promote and bring inspiration to consumers. However, facilities such as menu of the week, themes in food, offers, and recipes are pretty much the same as used in an ordinary store. Still, it is difficult to come up with new marketing concepts, and these facilities are still important even when selling over the Internet. Additionally, in this case the facilities are at the same place as where the shopping decisions are made, which should increase the impulse items. Besides making the consumer stick to the site, inspiration also generates impulse item and in an ordinary store impulse item is a significant source of income.



### 4.2.2 Delivery lead time

When it comes to delivery lead time, the time it takes from ordering the products to receiving them, all players in the supply chain from supplier to distributor affects it. To minimize the lead time, all activities within and between the players should be considered and reviewed in how much time the activities take to perform them. To create the most time-efficient supply chain it is important not to sub-optimize any activity. When Matomera entered the market, the consumer had to execute the order before 1.00 p.m., if it was to be delivered the same day. Later this was changed to 12.00 a.m., 11.00 a.m., and finally 12.00 p.m. the day before.

Matomera was focusing on offering the highest possible quality on the fresh food. In order to guarantee the supply of fresh food to every consumer, and to offer the highest quality, Matomera received daily deliveries of fresh food. This made the supply chain dealing with fresh food such as vegetables, fruit, bread, and meat, the most critical, as the consumer orders could not be completed until the fresh food had arrived.

As many grocery purchase decisions are made when the demand occurs, short delivery lead time is important. Additionally, consumers are used to receive the groceries directly after a purchase in the store. In the case of Matomera, there is a time gap between ordering groceries and receiving them. In order to resemble the advantage of a traditional store, it is necessary to minimize the gap. However, when shortening the gap, the logistical solution gets more complicated due to stressed time pressure on every player in the supply chain. Matomera tried to fulfil the consumer demands of delivering on the same day for the first half a year, but discovered that the logistical solution was more complex than expected.

Due to the fact that Matomera focused on the product quality, there was an additional aspect to consider. The trade-off was between fulfilling the consumer demands of delivering on the same day and managing a less complex logistical solution with daily deliveries of fresh food. Having the groceries delivered the same day as ordered would be easier to fulfil, if the aspect of keeping the highest product quality in fresh food was down prioritised. The deliveries from suppliers of fresh food could then be received a day in advance on the basis of prognosis. Matomera refused to down prioritise the product quality and therefore the need of daily deliveries of fresh food to the warehouse, and the offer of delivering the same day as ordered to consumers, strained the activities in the logistical system in such way that the deliveries to consumers were delayed. The choice of keeping the high quality as a prioritised requirement affected the logistical solution in two ways. Firstly, keeping the same day delivery meant two deliveries per day of fresh food deliveries to the warehouse. Secondly, prolonging the delivery lead time meant that only one delivery of fresh food to the warehouse was necessary. Matomera tested both alternatives, but chose to prolong the delivery lead time to the worse for consumers, but for the good of gaining a less complex logistical solution. When changing the deadline for the consumers, it required that the consumers planned their grocery shopping more in advance than earlier, which resulted in that some consumers stopped buying their groceries at Matomera. Double income families have, to some extent, planned their orders in advance, due to their shortage of time, and was not be affected in the same degree.

The daily deliveries brought along several advantages for Matomera. As daily deliveries of fresh food were based on consumer order sizes, there was not any surplus of fresh food and nothing did go to waste. In an ordinary store, the fresh food is the category of merchandises which generates the biggest losses due to surplus which later becomes waste.<sup>286</sup> When relating the increased cost of getting the delivery based on consumer order sizes than in ordinary sizes, it is

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<sup>286</sup> Johansson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

important to include the cost for surplus groceries. Matomera could also guarantee the supply of fresh food due to the consumer order sizes, which would not be possible if supplying on prognoses.

It should be mentioned that the delivery lead time was different depending on when consumers was ordering. If the consumer ordered on Friday the earliest one could receive the groceries, was on the following Monday, as there were no deliveries made on Saturday or Sunday. As mentioned in the case study Matomera chapter, company orders had to be executed two days in advance and were delivered on Tuesdays and Thursdays. This meant that if the company wanted a delivery on Tuesday, the order had to be executed on Sunday at the latest. As most employees do not work on Sundays, the order had to be executed on working hours on Friday the previous week. In reality, the delivery lead time would, in these cases, become four days.

### **4.2.3 Product quality**

One of the difficulties with selling groceries over the Internet is the fact that consumers are not able to look, feel, and smell fresh food like fruit, vegetables and meat. To convince and to compensate this weakness, Matomera's strategy was to offer fresh food of highest quality. If consumers believed that the fresh food was of great quality this would send the message that Matomera to some extent equals good quality. As Matomera got daily deliveries of fresh food, such as vegetables, fruit, bread, meat, and dairy products, the finest quality could be obtained. Consumer would always get the freshest products, which is not always the case in stores, where fresh food can be stored a couple of days, before being bought or thrown away. The quality of colonial products does not differ that much as it does with fresh food, therefore it was not a critical factor in terms of product quality for Matomera to receive deliveries every day. However, in terms of tied capital it is better to receive daily deliveries, but these costs should be compared with the costs of added deliveries.

The perceived weakness of not being able to touch and feel when buying could actually generate several advantages in the longer run. As no other people had felt or touched the fresh food besides the person who picked it into the bag, the product freshness could be maintained longer. In an ordinary store the fruit and vegetables have been touched in average by more than 11 people before consumers brings it home.<sup>287</sup> This treatment damages the product to some extent and will therefore not have the same ability to keep its freshness as long as less touched fresh food.

Additionally, when delivering the goods, the fresh food was kept cool all the way to the consumer with no interruption, due to the chilled carton boxes. In the cases when consumers transport the goods themselves from the store, the cool chain are broken, which also affects the product quality. Both the isolated boxes and the fact that supplier put the fruits and vegetables in plastic bags, helped to protect the fresh food. The use of isolated boxes also enabled Matomera to maintain the quality of the frozen food all the way to consumers, as it was kept frozen. In this way the packaging system maintained the product quality and therefore played an important role through the whole supply chain.

The result that 15 % of all sales were of fresh food compared to 8 % in an ordinary store shows that consumers had faith in the product quality. Furthermore, the complaints about the fresh food that the Service-centre received were mostly about quality problems during off-season, when the general quality on fruit and vegetables is usually lower on certain products.

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<sup>287</sup> Johansson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

#### **4.2.4 Picking and delivery costs**

Since Matomera wanted to maximise the logistical advantages when choosing warehousing models, they chose the dedicated warehouse model, over the other models. By choosing this model they got higher fixed costs and lower variable costs, compared to the in-store model where the relation is the opposite. However, the dedicated warehouse model requires a higher consumer stock compared to the in-store model in order to be profitable. This was one of the problems with Matomera; they did not have the consumer stock to cover for the investments made in the dedicated warehouse.

The dedicated warehouse was solely designed for efficient picking, which means short picking routes, and picking several orders at the same time. The fact that the picking lists were sorted and the placement of the groceries, made it possible to pick the products continuously without passing a shelf twice. In this way the picking route distance was minimised, resulting in minimised time used per picked order and therefore more orders picked per hour. Matomera simulated different alternatives of how the route should be designed, which resulted in that the design showed in appendix B was the best route to be used.

To increase the number of picked orders per hour, the pickers of Matomera executed several orders at the same time. However, the aspect of picking accurately can not be compromised and therefore the use of skilled pickers is important in order to maintain low picking costs.

One area to improve in order to increase the number of picked orders per hour, is to minimise the time used to register the weight difference on meat. Instead of having a centralised registration, handheld terminals that continuously registered the items picked would have been better as it would eliminate the waiting time at the registration. Additionally, the use of handheld terminals would also improve the picking accuracy due to the control system, which makes it possible to pick several orders more accurately. Matomera was aware of these problems and together with the pickers, Matomera tried to minimise every aspect that could prolong the picking.

Matomera chose to perform attended home deliveries as these required lowest fixed costs compared to the high investments needed to be made in different reception and delivery box models. Even though the variable costs for attended home deliveries are higher, due to extended use of drivers in terms of time and less optimised van utilisation, it was still a more cost efficient alternative for Matomera.

When performing company deliveries Matomera gained some of the advantages that are specific for the delivery box model, such as unattended delivery, which is time saving for the driver, and the delivery of many orders to one place, which increases the utilisation of the vans. In this case, the packaging system played an important role, since the boxes were functioning as a delivery box. Additionally, since Matomera already had developed the box, there were no considerable investments needed in order to perform these deliveries.

In the beginning Matomera did not charge anything for the picking and delivery of the groceries. The lack of delivery fee attracted consumer segments which were not profitable and they tended to order often and to low order amounts. Additionally, when Matomera introduced the free delivery they were calculating with higher numbers of orders than the actual result which led to that the costs were divided on fewer orders decreasing the profit margin even further. To cover some of the costs related to the distribution and picking Matomera started to charge the consumers with a fee, if they did not order over a fixed amount. This cause of action reduced the number of orders, but affected the turnover to less extent. The people who ordered often and to small amounts, who were not included in the chosen segment of Matomera, either stopped

buying or increased their order amount. Applying a fee as an instrument to sort certain consumer segments out and to attract the segment wanted is useful, but it is important not to set it too high. It is a delicate balance not to scare the preferred segment away. The fee could also affect consumers to buy additional products in order to exceed the required sum that will give free delivery.

The number of orders was not enough to cover the cost for the distribution and when the third increase of the fee, all orders, despite order amount, were charged. As Matomera was the first player on the market they had to try out every option for themselves and there was no one else to compare with. These changes of fee were a bit of a test to see how consumers would react and where the threshold would be. It is difficult to determine a reasonable fee that covers some of the cost related to the picking and distribution and at the same time do not scare consumers away. On the other hand, changing the conditions often on the expense of consumers creates bad-will which could leave them frustrated and make them stop buying. With this last increase of the fee, the number of orders dropped continuously and the consumer segment living in the downtown area of Malmö was dramatically reduced.<sup>288</sup> The reduction of orders in this area, as it is the densest population, increases the average distance driven between consumers. Loosing this area means an even greater strain on the profitability and it becomes more difficult to be profitable. Today most of the existing e-grocers charge their deliveries and the fees are about same as or more than Matomera's was charging in the end.<sup>289 290 291</sup> This shows that the actual delivery costs are on these levels and consumers can not expect the deliveries to be free of charge. As the concept of selling groceries on the Internet was rather new, there were no common delivery fee levels to compare with, and therefore consumers could not judge if the fee was high or low.

There is always the possibility to include the price of delivery by increasing the price of the food with a certain percentage. However, people that buy groceries are rather price sensitive to a certain extent and the additional charge can not be too great. Another alternative is to charge consumers for the delivery by adding an extra percentage based on the ordered sum. This would nevertheless counteract with the wish for increasing the order amount. Additionally, consumers want to know in beforehand how much it would cost to get the groceries delivered. In the case of Matomera, the possibility for consumers to collect the merchandises at the warehouse after they had been picked could have been offered, but then the picking cost would have to be presented separately.

When delivering to companies, both consumer orders and company orders, there was no fee. This made it possible for consumers to submit orders with lower order amount and still not get charged. It is likely that people would consider this alternative better as they could also do their supplementary purchases and therefore order solely to the company. The result of this behaviour would be fewer orders set to be delivered in the evening, which in turn increases the average distance driven between consumers, and puts greater stress on the profitability. Due to that the company deliveries were only performed the last three months of Matomera's existence, the discussion is speculative.

#### **4.2.5 Assortment**

To attract the right segment, it is important to know what kind of product categories the consumers prefer, the desired width and the depth in every category. In the case of Matomera

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<sup>288</sup> Cronberg, Michael, Logistics Co-ordinator, Posten Logistik, interview, Malmö, 2002-05-15

<sup>289</sup> Internet, <http://lund.handlaenkelt.com/P00.jsp>, 2002-06-18, 8.49 p.m.

<sup>290</sup> Internet, <http://www.ica.se/>, 2002-06-18, 8.51 p.m.

<sup>291</sup> Internet, <http://www.netxtra.se/nx/default.asp>, 2002-06-18, 8.53 p.m.

there was the choice between offering a wide and deep assortment versus the cost of having it in stock. In order to keep the number of stored products down, Matomera compromised with the depth in the categories, but maintained about the same width of products as in an ordinary store.

In general, to keep both a wide and deep assortment would mean that the necessity of having a larger warehouse, which could store all these products, would be greater. In the case of Matomera, with its limitation in storing products in high shelves due to fast picking accessibility, this meant that the warehouse could not expand on existing space by utilising the height of the building. However, one of the consequences with expanding in space is increased rent. Increasing the storage space also means longer distances for the pickers to walk, i.e. fewer orders are picked per hour. Larger assortment also means increased administration and low turnover rates on some products, which increases the warehousing costs.

The assortment was growing from being around 2500 different products in the beginning to 4000 in the end. The assortment grew gradually as Matomera could see in the statistics which categories that were the most popular and therefore widen the assortment where it was appreciated and needed. As these statistics showed on different best-selling products than were the ones in an ordinary store, it was, as it turned out, a wise decision. Additionally, due to the expectations of what categories to shop over the Internet were different to the actual ones, starting up with a wide assortment might have been a disadvantage if keeping products with low turnover rate. As mentioned in the description of Matomera, it was surprisingly high amount of fresh food shopped at Matomera. These differences in assortment demand between an ordinary and an online grocer was difficult to predict.

The warehouse of Matomera had the sufficient space to handle both the increase of the assortment and an increased consumer stock. If the number of consumers would grow to such an extent that an expansion would be necessary, Matomera had the option of taking over an adjacent building. This would mean an increased rent, but the increased number of orders should cover for this extra cost. The adjacent building had a similar design as the outgoing goods area together with the fridge storage, but was located on the opposite side of the building, see appendix B. The usage of this space would cause longer picking routes as the space has expanded.

The strategy of offering the best-selling products, often a famous brand, in every product category, and a cheaper alternative to keep the price level down, seems to be a wise priority. The famous brands sell themselves as consumers recognise the product and choose this brand. If every product in the assortment is unknown for consumers, they will not feel comfortable when making the decisions of what to shop. However, solely shopping products of well known brands and high quality products would have been expensive since these generally cost more, and therefore the low price alternative played an important role.

As the consumer segment of double income families was the largest and most loyal it was important that the assortment suited this segment. The focus should be on offering products in order to fit its needs and widen its choices. Matomera deepened some categories where it was necessary as consumers asked for certain products. By doing so, Matomera showed consumers that they listened to their needs, understood the needs, and did something about them.

#### **4.2.6 Accurate and timely deliveries**

As mentioned in logistics definition, the ultimate aim is to deliver products and services to satisfy consumers. The solution of Matomera was to perform attended deliveries in certain delivery time windows in order to serve their consumers. As the consumers had to be present when the driver arrives, it was very important that the deliveries were reliable, both in time and accuracy. If the

delivery in anyway would fail in what had been agreed upon, the consumers would probably feel disappointed and the trust to the company might have been damaged.

#### 4.2.6.1 *Accurate deliveries*

In order to minimize the sources of where an inaccurate number of received items or wrong products originate, it is important to identify the supply chain and analyse where the problem might occur.

**Ordering process** – Consumers of Matomera were in general not able to order an item that was not in stock due to the integration between the website and the retailing system. In rare cases, as the website were updated every fifth minute, two or more consumers that collected the same product and executed the order within this period of five minutes could together exceed the number of items of the product in stock. Then the ordered amount of that product would exceed the number in stock. This could only occur when ordering colonial products and frozen food as fresh food was consumer ordered. The consumer was never affected by this due to the fact that the Service-centre would shop the product in the nearest store and add it to the order.<sup>292</sup> If the collection and execution of the order was made in different periods there would appear a failure message which informed one of the consumers that it was not possible to order that amount of the product and one would have to change the amount. When the number of consumers is small this occurrence was rare, but as the number increases the probability that it occurs, increases. In the case of Matomera the problem was rather easily managed but should the number of complements increase it would become impractical to solve the problem this way. Therefore the cost of correcting the failures should be related to an investment that enables a more often update of the website, or to an increased number of every item in stock in order to cover uncertainty.

**Warehouse process** – Apart from the special circumstances that could occur when ordering, the accuracy of the delivery can be affected by two matters, either picking errors or delivery performed to wrong address. The picking errors could occur for fresh food both at the supplier and within Matomera, as fresh food was always consumer ordered. However, in case a supplier had picked the wrong item or the wrong amount of an item, the mistake would be corrected by the supplier as soon as possible. Due to that the suppliers of fresh food were located within the Malmö area they were able to adjust the fault before the start of the distribution to consumers.

As every order within Matomera was picked manually, the human failure could always arise. The reason for picking errors could be that wrong product or wrong amount of a product was picked, or the product was missed to be picked. When concentrating on just one order the number of picking errors should be low, but in order to make the picking procedure efficient more than one order were picked at the same time. When picking several orders at the same time the risk for failure increases as there are more items and more bags to keep in mind. Depending on the skill of the personnel the number of orders to be picked at the same time would be suggested individually.

In the case of Matomera, the picking accuracy was about 99.5 %<sup>293</sup>, which is as good as one can expect. As dealing with the human factor, errors can always be made. Even if the picking is automated, 100 % accuracy cannot be reached. An automated picking solution would also be too expensive compared to the improvements gained unless the number of orders is great. There was no need to automate the picking as the picking accuracy was good.

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<sup>292</sup> Hed, Martin, Project Leader, Netch, telephone interview, 2002-06-10

<sup>293</sup> Johansson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

**Distribution process** – As mentioned above, the delivery accuracy is also affected by whether the delivery is performed to the right address or not. In the case of Matomera the drivers were experienced and managing several orders within a delivery route was something they were used to. Therefore, the possibility that the driver delivers the wrong box to a consumer would be small.

#### 4.2.6.2 *Timely deliveries*

Timely deliveries, regarding attended home deliveries, would mean that the distributor would arrive to the consumer within the time limits set by the chosen delivery time window. To fulfil the different needs of the consumers, e-grocers have to offer, not only tight delivery time windows, but also several different delivery time windows to choose between. Furthermore, it is important at what time of day the deliveries are made in terms of delivering during the day or during the evening.

**One-hour delivery time window** – When Matomera started up the business, delivery time windows of one hour were set and the deliveries were performed within five different windows. Delivering within these time limits was however difficult to fulfil, due to made choices about the logistical solution earlier in the supply chain. By having fresh food delivered twice a day, due to same day deliveries, would cause delays when the distribution to consumers could start. Having a one-hour delivery time window makes it more difficult for the driver to compensate the delay as he or she has only one hour at one's disposal compared to a two-hour delivery time window. Additionally, if the delay is not compensated, Matomera would receive twice as many complaints about the delay, as delays arose in the end of every hour instead of every two-hour. There were problems from the beginning and the delays generated many complaints from consumers.<sup>294 295</sup> The attempt to fulfil consumer demands of delivering in a narrow delivery time window is a good ambition, but put greater demands on previous activities in terms of keeping time. The stated one-hour delivery time window could have been managed, but not enough concern was taken to the logistical effects earlier in supply chain.

**Two-hour delivery time window** – In the beginning of January in 1999 Matomera had to change the delivery time window from one hour to two hours in order to fulfil their undertakings about delivering within the time limits to consumers. When changing from one hour to two hours window, Matomera had no major problems in keeping the time limits, which resulted in much less complaints. There were some complaints about the change, but these complaints were fewer compared to the number of complaints about Matomera not delivering in time. Changing the conditions for the consumer in a subjective negative way might influence consumers' faith in the company negatively. However, failing to fulfil an agreement by not delivering in time is worse than having changed conditions. When widen the delivery time window, the number of delivery time windows also decreases, and consumers are given fewer alternatives to choose among. The effect of this was in general small, as the number of windows possible to choose among mainly depended on where the consumer lives.

One way in tighten the delivery time window is to try the solution that Posten suggested, using SMS and e-mail to notify the consumer about the delivery time. When the route planning is accomplished a more exact delivery time could be given to each consumer. Instead of the stated two-hour delivery time window, Matomera could give the consumer a time with a difference of plus minus 30 min. This way Matomera would offer the consumer a two hour delivery time window, but in reality Matomera would offer a flexible one-hour window. On the other hand, it

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<sup>294</sup> Kjellkvist, Åke, Managing Director, Schenker Parcel Malmö, interview, Malmö, 2002-05-13

<sup>295</sup> Johnsson, Johan, Market Development Manager, BergendahlsGruppen AB, interview, Hässleholm, 2002-04-25

is still a fact that the consumer must be prepared to stay at home the whole two hour set. If the consumer sits and waits for the delivery to arrive, as it seems in many reports, the method saves time for the consumer. We believe that few people just sit and wait for the delivery to arrive, but in the meanwhile do something else such as cook, pay bills, or dig in the garden. In those cases this method does not improve the situation much for the consumer. It could, however, increase the certainty among consumers that the delivery is on its way and that the distributor has them and their groceries in mind. Furthermore, Matomera could use the function internally when analysing the supply chain in order to detect where eventual problems occur.

The reason for changing the delivery time windows was partly to fulfil the undertakings to the consumers better and partly to utilise the vans better. The problem with having many and tight delivery time windows in combination with few consumers is that the filling of the vans will be low. The distance to every consumer is greater than expected which means fewer stops per hour and therefore fewer boxes delivered within the delivery time window. The actual delivery cost will then be divided on fewer orders which in return will increase the cost for every order. When widening the delivery time window, the route planning gained greater flexibility and therefore the stops per hour could increase as the distance to every consumer become shorter, which reduced the distribution costs per order.

**Delivering during the evenings** – In the case of Matomera the restriction was to deliver during the evenings between 5.00 p.m. and 10.00 p.m., later changed to 9.00 p.m. Since the consumers preferred having the groceries delivered in the evening, the consumer needs was fulfilled. Due to that the existing distribution fleet was more available during the evening as deliveries are mostly performed during daytime, the distribution was also gaining advantages as it was better utilised. This is an example where the consumer needs and the logistical interests cooperate.

#### **4.2.7 Consumer relations**

There were two main functions that personified and put human faces and voices to Matomera. These functions were the Service-centre and the drivers. As these people were representing Matomera it was important that they managed to perform a uniform and professional consumer service.

##### *4.2.7.1 Service-centre*

The Service-centre was at first located in Hässleholm, but was later moved to Malmö in order to be better integrated with the company. Having all functions at one place improves the ability to solve problems and answer questions faster due to the closeness to the other functions. The nearness was also important as Matomera, by receiving questions and critique, could improve themselves on issues that were important to the consumer. This critique has not only come from consumers, but also from other functions of the company. As the Service-centre was the function that assembled all critique given, it should not be looked at as a function to help consumers with their questions, but also be used as one of the most valuable sources on how to improve Matomera.

Consumers could call, e-mail, fax or send letters to the Service-centre. It is important that consumers do not feel any restrictions in what communication channel they would use in order to express themselves. The lack of face-to-face communication in the case of Matomera had to be reconciled with the communication channels that were offered. There are no other communication channels to use but the four alternatives offered. As e-mail was most common used, it was the most popular way to communicate. To send fax or letters is more complicated and takes more time. To call, however, might be considered easier in general and should therefore have been more used. Fewer phone calls could be the result of a poor availability, but in



the case of Matomera the Service-centre was open for phone calls from 9.00 a.m. to 9.00 p.m., which is considered as good.

#### *4.2.7.2 The drivers*

The drivers were the only ones that met the consumers face-to-face, which made it crucial that they could represent Matomera and its values. In order to do that, the drivers were educated in how to act and react to consumers. They had also special clothes with Matomera logos and special ID's in order to make a professional and uniform appearance. Once again Matomera did realise the importance of taking care of consumer relations, and identified the role that the drivers were playing as the only face-to-face representative of Matomera. It can be a problem that the drivers are from different distribution companies as it might confuse consumers in the aspect of who is coming in the evening. In the case of Matomera the drivers had uniform clothing, which was easily recognisable, when representing Matomera. The drivers' appearance was also the most appreciated among consumers and received most of the positive critique.

When consumers gave critique about Matomera in general, the driver was supposed to forward it further. However, if the consumer had any special questions or complaints the drivers were instructed always to refer to the Service-centre. This behaviour is good due to two aspects. Firstly, it saves time for the driver when performing the route, and secondly, the consumer gets to talk to the right people so that they can solve the problem or make a note of the criticism.

#### **4.2.8 Payment**

As mentioned in the chapter E-grocery logistics there are a number of alternatives in performing the payment. In the case of Matomera the deliveries were performed attended which did not limit the number of alternatives to electronic cash or the use of credit card over the Internet. Instead Matomera had the possibility to offer several alternatives for the consumer. Among the alternatives, Matomera offered two ways in which the consumer could pay for the groceries. Firstly they could pay with credit cards using the hand-terminal and secondly, they could pay by authorising Matomera to credit their bank account.

The hand-terminals were developed in order to offer the consumers a payment alternative when receiving the delivery. This, however, turned out to be very time consuming for the driver as one had to deal with an extra activity which would affect the number of stop made per hour negatively. The terminals were an innovative product as it was portable and used the GSM-system, but the time waiting for the terminal to connect to the bank was too long. Sometimes the terminals could not even connect to the bank due to limitations in the area coverage of the GSM-system. When these problems occur the time spent at each consumer is far too long, and therefore should the number of consumer using this method be as small as possible. Even though there have been improvements within GSM-technology, the fact remains that the driver has to spend extra time at the consumer.

As most consumers used this method, this alternative was the most appreciated one. However, as most consumers used this method, there is also a greater possibility that these problems occur. There will be a compromise between offering this payment method and distributing effectively. The distribution in e-grocery business is very important and must be efficient in order to survive, but in the meanwhile one should offer the payment method demanded. A probable reason for choosing this alternative by consumers could be that it is a familiar way to pay and it feels safe and secure, as the payment is performed in the same way in an ordinary store.

Matomera tried to convince consumers to give them authorization to credit their bank account. The authorization payment method would require much more work for the Service-centre staff

as they were the ones performing the payment. Additionally the credit card numbers could not be stored digitally due to legal regulations, which meant that the procedure was executed manually. This, of course, increased the risk for failure as the personnel had to type every credit card number each time a payment was to be performed. Even if the risk of human failure was increased compared to the other payment alternative this was more cost efficient and all together more confident.

When Matomera started, paying via the Internet was not common and there were a fear of being conned. Also Matomera did not believe that most people would dare to pay for the groceries through the Internet, due to their fear that the security systems could not prevent fraud. The possibility of being fraud is still a pressing issue as the development among hackers is as fast as the development of security software. However, paying via the Internet is more common today and the experience in shopping via Internet has increased for a larger proportion of the people.

Performing the attended deliveries makes the use of cash as a payment method possible. However it increases the danger for the driver radically. Knowing that the driver receives and therefore holds cash during the route in combination with the darkness in the evening could be very tempting for criminals. Offering this payment alternative could also draw fraud to the activity as the driver can pretend being robbed and not hand the money over to Matomera. The use of cash often decreases the security and the certainty, and therefore should the use of cash as a payment alternative not be accepted by Matomera.

Another payment method, however not used by Matomera, is the use of invoices which can be managed no matter what delivery model is used. The invoice could be either handed over directly to the consumer, when the deliveries are attended, or left in the bags, when unattended deliveries are performed. For the consumer, this alternative can be appealing as the payment could be performed at the same time as paying for other bills. The problems, however, with this alternative, are that it might take time before the invoice is paid for, the risk for unpaid invoices, and the administrative costs for every invoice. The alternative is therefore, understandable, not a preferred payment method for the company.

## **5 Discussions and conclusions**

*On the basis of the case study and the performed analysis, the most important issues are highlighted in order to reason and answer the purpose in the objective and the questions asked in the problem. In discussions and conclusions a deepened reasoning is presented. Based on the findings, the analysis, discussions and conclusions, and gained knowledge of the subject of home deliveries, further research is presented.*

### **5.1 PRODUCT QUALITY VERSUS DELIVERY LEAD TIME**

The logistical solution of Matomera provided an outstanding possibility to sell the freshest groceries. Consumers had the opportunity to buy groceries that were fresh in every delivery, unlike groceries bought in an ordinary store. In this case, the logistics enabled the company to serve their consumers with special qualities. Quality in having the groceries delivered home, and quality in receiving the freshest groceries.

As Matomera refused to compromise with the product quality, there was a compromise done between the delivery lead time, i.e. same day deliveries, and the complexity of the logistical solution, i.e. daily deliveries of fresh food from suppliers twice a day. This due to that Matomera could not manage the combination. The result was that Matomera changed the one-hour delivery time window to two-hour delivery time window in order to compensate for any delays made

earlier in the supply chain. As the one-hour delivery time window was not the actual problem, Matomera finally prolonged the delivery lead time to next day deliveries, which led to a more simplified logistical solution with one daily delivery of fresh food from suppliers.

As double income families plan their orders in advance, they are not affected by the changes of the delivery lead time to the same extent. For this segment, the quality of the products is more important. However, changing the conditions to the worse during the time of activity might create irritation among consumers. Therefore, the delivery lead time issue, such as when to order the groceries, should be stable and not changed too often. In the case of Matomera prolonging the delivery lead time was the right measure to take in order to fulfil the undertakings to consumers.

**Conclusion** – It might be possible to combine high quality products, i.e. daily deliveries with same day deliveries to consumers, but in order to get a simplified and cost efficient logistical solution, it is necessary to prioritise what aspect is the most important for the consumer.

## **5.2 DELIVERIES**

The attended deliveries had several advantages such as the possibility to actually meet consumers and offer the added service of paying directly with credit card. The logistical consequence was that delivery time windows had to be managed, and the economical consequence was higher variable costs of the deliveries compared to unattended deliveries.

After half a year Matomera changed the one-hour delivery time window to two-hour delivery time window. The advantage was that Matomera obtained an improved logistical efficiency, but consumers' waiting hours were prolonged. There is probably a difficulty in obtaining a high logistical efficiency when performing the deliveries within one-hour delivery time window, if the consumer stock is not great. Therefore, as Matomera and Posten considered in the end, a solution of notifying consumers a more exact time with tight margins, by the use of SMS or e-mail, within a longer delivery time window, is a good solution in both obtaining more efficient logistics and not compromising with the consumer demands too much. We believe that two-hour delivery time windows are not a long wait for consumers in any case, as they probably are at home during these hours anyway. In the case of Matomera, by using two-hour delivery time windows from the beginning, the undertakings with no delays could have been managed, which would have built up and restored the confidence between Matomera and the consumer.

When Matomera started with company deliveries the logistical advantages of unattended deliveries were obtained, but the investments that are usually connected to this solution could be avoided due to the packaging system and the security in leaving the orders unattended at the company. By offering both home and company deliveries, Matomera extended the number of choices of where to receive the goods for consumers. By adding this alternative both Matomera and consumers gained advantages.

Regardless the use of unattended or attended deliveries the packaging system plays an important part in keeping the groceries in good condition. Therefore the e-grocer has to take the aspect of using an adequate packaging system under consideration. Matomera managed to develop both a cheap and efficient packaging system that supported the whole logistical solution of Matomera.

There are two variables to vary in order to get an optimal balance between what consumers are willing to pay for a delivery so the real delivery costs can be reduced. Firstly, the delivery fee before exceeding a certain order sum, and secondly, the order sum to be reached before getting free delivery. The specific amounts for the variables are not in focus here, but it is important that

the balance will be accepted by consumers and that the conditions are not changed too often. As consumers are affected differently by the fee and order sum limits, it is an effective way of controlling consumer segments. Having an order sum to be reached before getting free delivery would also result in higher profitability as distribution costs per order sum would be lower. Therefore, we think that it is a good idea to have a certain amount to be ordered for before getting free deliveries.

Performing the payment at the same time as delivering the groceries is time consuming, and affects the delivery efficiency in a negative way. We think that the distribution should be prioritised and the hand-terminals should only be used the first time groceries were delivered to a consumer. After the first delivery, all the following orders should be paid by authorising Matomera to credit the consumer's bank account. By doing so, the time spent at each consumer would decrease and the delivery route would become more efficient. If Matomera would have started today the Internet payment method should be added to the payment alternatives in order to offer that possibility, but Matomera should recommend the alternative which authorises Matomera to credit the bank account. Even though it would take time for the Service-centre personnel, we would still recommend it, as paying via the Internet is still regarded among consumers as somewhat insecure.

**Conclusion** – The use of two-hour delivery time windows improve the efficiency in the logistical system, but do not worsen the conditions of consumers to any great extent. The combination of home and company deliveries improved both the logistical efficiency and the conditions for consumers.

**Conclusion** – An efficient packaging system supports the flexibility when choosing logistical solutions suited for e-grocers, as Matomeras packaging system supported both home and company deliveries.

**Conclusion** – By using both a delivery fee and a reached order sum before free deliveries gives the possibility to affect both buying behaviour and the delivery costs per order for the e-grocer. The difficulty is to find a balance that will not scare the consumers away. A good balance will keep the preferred consumer segment and decrease the delivery costs for the e-grocer.

**Conclusion** – Offering payment methods that resemble the ones used in ordinary stores is probably necessary in the beginning, in order to draw consumers to the e-grocer. As consumers become more used to shop on the Internet, payment methods that do not affect the deliveries in a negative way should be used.

### **5.3 DEDICATED WAREHOUSE**

The use of a dedicated warehouse is the preferred solution in terms of logistical efficiency, but requires a large consumer stock in order to compensate for the high fixed costs. This was also significant to Matomera, which obtained a high logistical efficiency within the dedicated warehouse, but had problems reaching the break-even point regarding number of consumers.

To have a high logistical efficiency within the warehouse is crucial in keeping the logistical costs on a low level. With the restrains of using an existing building, Matomera optimised the usage of the building by computer simulating different layout alternatives, and continuously improve the picking routines together with the picking staff.

The aspects important for consumers are that the orders are accurate and that the assortment is fulfilling their needs. Maintaining high delivery accuracy is important as it builds up a confidence

among consumers. As it is easier to blame someone else, the consumers probably has greater demands on the e-grocers than what would be the case if they forget to pick the item or pick the wrong item themselves. Matomera picked the consumer orders with an accuracy of 99,5 %, which is a high accuracy by any standard. By widening the assortment on the demands of the consumers, Matomera managed to keep a limited number of products, but also reach a high fulfilment of what products the consumers demanded.

**Conclusion** – The use of a dedicated warehouse was in the case of Matomera a good ambition, but due to the limited number of consumers, the picking should have been performed in a store until a sufficient consumer stock was obtained.

**Conclusion** – The aspects concerning warehousing such as warehouse layout and design, picking routines, picking accuracy, and assortment were all considered carefully and improved continuously.

## 5.4 SUPPORTING ACTIVITIES

By offering simplicity, fast loading time and freshness to the website, Matomera fulfilled three of the most important factors that consumers find important in order to return to the site. According to a study conducted in 1999 by Forrester Research, the three factors most likely to drive repeat visitors to a website are design related; ease of use, download time, and high quality content.<sup>296</sup> Matomera focused on the matters that were important for consumers concerning web design and functions. When the consumer made the leap and entered the site it was highly appreciated. The webpage of Matomera was awarded with the web service award in 2001 for being the best shopping site on Internet in Sweden,<sup>297</sup> which indicates that Matomera fulfilled the three important design related factors. As it was consumers who voted, the verdict was made by the ones who were concerned.

Matomera offered the possibility for consumers to give instructions to the driver on the website. This shows that Matomera did not only consider the activities in the processes, but also how the processes related to each other. Combining the processes and making them work together as a whole increases both the effectiveness and the efficiency. Therefore it is important to have activities that support the following processes.

Answer questions and attend to critique from consumers is highly valuable as they have taken the effort to contact Matomera and therefore shown an interest in using the services offered. The Service-centre of Matomera listened to the consumers and forwarded the information to the concerned people. Matomera did recognise the importance of taking care of consumer relations and created a professional Service-centre where the staff was able to solve problems quickly. The Service-centre was also awarded with the mark of respect “contact” in the year 2001 at the Web Service Award in Stockholm for best customer service in 2000. The price is based on what visitors to the website think and feel about the service level.<sup>298</sup>

The Service-centre was mainly used in order to answer questions and receive critique from consumers, and to manage the authorised payments. The Service-centre could also be utilised in the matter of inspiration. As it was difficult to inspire consumers via the website, maybe a living

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<sup>296</sup> Internet, <http://digitalenterprise.org/design/design.html>, 2002-06-18, 9.37 p.m., & Internet, [http://cyberatlas.internet.com/big\\_picture/traffic\\_patterns/article/0,1323,5931\\_152091,00.html](http://cyberatlas.internet.com/big_picture/traffic_patterns/article/0,1323,5931_152091,00.html), 2002-06-18, 9.37 p.m.

<sup>297</sup> Internet, <http://www.webserviceaward.com/wsa2000.asp>, 2002-06-18, 10.02 p.m.

<sup>298</sup> Internet, <http://www.webserviceaward.com/undersokn.asp>, 2002-06-18, 5.42 p.m.

voice could have been at help in order to inspire consumers when shopping on the website or in matters concerning cooking. He or she, preferably a real chef, could have given suggestions about menus, what to buy, and how to prepare the food and would also have been connected to the website in order to chat with consumers over the Internet. It could have given Matomera more of a personal touch, but also putting a voice and face to the company so that people could relate to it more easily.

The business concept of Matomera highlighted that shopping on Matomera would be time and cost efficient. But is it important to highlight that it is cost efficient for this consumer segment? Is it important to highlight that it is time efficient for this consumer segment? Are these the benefits that the consumers appreciate the most? We believe that cost efficiency was not the aspect that Matomera should have put most effort in promoting. Cost efficiency is of course important in making a business profitable and therefore an important issue for Matomera. It should however be an issue within the company. Instead Matomera should have highlighted quality; as the quality of the products was excellent. Together with gained quality time for consumers these should have been the most important issues.

**Conclusion** – Matomera created a website and a Service-centre which was very much appreciated by the consumers. Although the Service-centre was very much appreciated, the function could have been used for additional purposes such as services that would inspire consumers. This, similar to the website, that was used to simplify the logistics, i.e. giving instructions to the driver.

**Conclusion** – The focus of the business should be based on quality, in terms of time saved and products, for consumers.

## **5.5 SUMMARY**

Matomera developed its concept all the time. Thorough pre-studies had been done in order to determine what segments that would use home shopping and what segments that would be most profitable. As the time passed, Matomera gained new knowledge in different areas. As they were one of the first e-grocers they lacked similar companies to compare themselves with, which led to that they learned much by trail and error. This is significant for pioneers. If Matomera had this knowledge from the beginning they could have avoided some of the difficulties that they confronted.

## **5.6 FURTHER RESEARCH**

In this study we have identified the importance of having a balance between the delivery fee and the order sum to be reached before offering free deliveries. However, it has not been our objective to find the optimal balance between the two in order to decrease the logistical costs and keeping the preferred consumer segment. We suggest that a survey of what consumers are willing to pay and their attitudes toward fees and home deliveries in general is made. Other areas to investigate could be how the warehouse layout and the picking routines are optimised and compare this to how the picking is performed in other business, such as catalogue firms.

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# Appendix A

## INLEDANDE FRÅGOR

- Namn?

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- Vilket företag arbetar du på?

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- Vilken befattning har du idag?

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- Hur var du inblandad i Matomera?

- Position inom Matomera/Schenker BTL/Bergendahlgruppen?

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## UPPSTARTNING, AFFÄRSIDÉ OCH ÄGARSTRUKTUR

- Vem tog initiativ till Matomera och när?

- Varför startades Matomera?

- Varför vid denna tidpunkt?

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- När öppnades butiken?

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- Vilken var Matomeras affärsidé?

- Matomeras strategi?

- Under vilka premisser konkurrerade Matomera? (pris, plats, påverkan och produkt)

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- Vilka processer identifierades för Matomera i planeringsfasen?
    - Vad skulle ingå i processerna?
    - Vilka processer identifierades som kritiska?

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- 
- Vilka delar bestod Matomera av?
    - Kan du rita upp ett organisationsschema?
    - Vem var ansvarig för vad?

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- 
- Hur många var anställda vid Matomera?
    - Inom de olika delarna? (Se ovanstående fråga.)

- 
- 
- Vilka samarbeten hade Matomera?
    - IT? (Hemsida, betalningssäkerhet osv.)
    - Marknadsföring?
    - Logistiken? (Distribution och lager, orderhantering, finansiellt flöde.)
    - Kundservice? (Callcenter och så vidare.)
    - Övriga samarbeten?

- 
- 
- Vilka var Matomeras konkurrenter? (E-handelsföretag och vanlig affärer.)
    - Hur differentierade sig Matomera gentemot dessa?
    - Vilka var Matomeras starka sidor gentemot sina konkurrenter?
    - Vilka var dess svagheter?

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- Hur var Matomera kopplat till Bergendahlgruppen?
    - Varför ville man koppla bort Matomera från Bergendahlgruppen? (Börsnoteringsplanerna.)
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## KONSUMENTER

- Vilka typer av konsumenter ville Matomera ha?
  - Varför ville Matomera ha dessa konsumenter?
  - Vilka skillnader/likheter fanns med Bergendahlgruppens konsumenter i vanliga butiker?
  - Vilka (marknads-/konsument-)behov skulle i så fall uppfyllas?

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- Vilka typer av konsumenter hade Matomera?
  - I fråga om kön, ålder, inkomst, geografisk sträckning, familjesammansättning, utbildningsnivå.
  - Var det stamkonsumenter eller tillfälliga konsumenter?
  - Vilka skillnader/likheter fanns med Bergendahlgruppens konsumenter i vanliga butiker?
  - Hur ändrades kundsegmentet genom åren?
  - Vilka (marknads-/konsument-)behov uppfyllde Matomera?
  - Uppfyllde Matomera de behov som de/det valda kundsegmenten/et hade?
  - Har detta undersökts/utvärderats (under den verksamma tiden/efteråt)?

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- Varför handlade de konsumenter som handlade på Matomera på just Matomera?
  - Vilka var skälen till att handla på Matomera?
  - Var det ett val mellan en annan affär ägd av Bergendahlgruppen eller var det ett val mellan ex Matomera och ICA?
  - Var det ett val mellan Matomera eller en annan e-handelsbutik (dagligvaror)?

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- Hur välkänt var Matomera?
  - Besökande/Handlande på hemsidan?
  - Vem kände till Matomera i avseende ålder/geografi/kön/förälder?
  - Marknadsundersökningar?

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- Hur många konsumenter förväntades Matomera att få?
  - Första året och efter en femårsperiod?

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- Hur många konsumenter hade Matomera?
  - Per år?
  - Medeltal per vecka?
  - Medeltal per månad?

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- Vad handlade konsumenterna för varor hos Matomera?
  - Hur stora var köpen?
  - Ändrades detta över tiden?

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- Vilken feedback erhöles av konsumenterna om Matomera?
  - På vad gavs kritik?
  - Positiv?
  - Negativ?
  - Hur gavs feedbacken? Vilka kanaler fanns att ge feedback?

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## **ATT HANDLA PÅ MATOMERA**

### **Hemsida**

- Hur var hemsidan uppbyggd?
  - Vilka delar bestod sidan av?
  - Vilka funktioner fanns?
  - Varför fanns dessa funktioner?
  - Vilket budskap ville man förmedla med hemsidan?

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- Hur var hemsidan kopplad till nästa del/process inom Matomera?
  - Vilken (Vilka) var efterföljande del(ar)/process(er)?

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## Produktsortiment

- Hur stort var Matomeras produktsortiment?
  - Hört en siffra på 4000 artiklar jfr med en fysisk butik som har runt 6-7000?
  - Vilka varor valdes och varför?

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## Köpförfarande

- Beskriv vad som händer då en konsument handlar hos Matomera.
  - Registrering.
  - Inloggning och shopping.
  - Orderhantering.
  - Plockning och distribution.
  - Betalning.

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- Kan du berätta om det fanns begynnelse-/uppstarts-problem inom Matomera då någon handlade på Matomera?
  - Knyt detta till de olika delarna (processerna) av Matomera. En process eller del är sällan ett problem utan det interaktionen mellan de olika delarna som är ett problem.
  - Allmänt?
  - I gränssnittet hemsidan och konsument?
  - Hemsidan och företaget?
  - Order och plockning?
  - Order och distribution?
  - Plockning och distribution?
  - Leverans till konsument?

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- Fanns det något/några problem som bestod inom Matomera då någon handlade på Matomera?
  - Se kommentarer i ovanstående fråga.

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## **LOGISTIKFRÅGOR**

### **Schenker BTL**

- Varför valdes Schenker BTL som samarbetspartner?

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- Varför valde Schenker BTL att ta uppdraget?
  - När kom Schenker BTL in i samarbetet?
  - Kom de med på strategisk, taktisk eller operativ nivå?

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- Vad har Schenker BTL för liknande initiativ inom e-handelslogistik?
  - Vad finns det för paralleller och skillnader mellan de olika exemplen?
  - Kommer det in några fler aspekter då en logistisk lösning inom e-handel ska tas fram, anser Schenker BTL?
  - Varför är Schenker BTL duktiga på logistiska lösningar inom e-handel jämfört med sina konkurrenter?
  - Vilka är konkurrenterna till Schenker BTL inom e-handelslösningar?

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- Hur fakturerade Schenker-BTL Matomera?
  - Fast avgift?
  - Rörlig avgift?
  - Aktivitetsbaserat?

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## Den logistiska lösningen

- Vilka kriterier var viktiga vid dimensioneringen av logistiken?
  - Vad var utgångspunkten? (Förväntat antal konsumenter, omsättning?)

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- Hur stora var de initiala kostnaderna (uppstartningskostnader) för logistiken?

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- Hur stora var de löpande kostnaderna för logistiken?
  - Lager?
  - Lastbilsflottan?
  - Personalen?
  - Orderhanteringen?
  - IT-system? (Support, underhåll osv.)

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- Hur stor del av de totala kostnaderna (rörliga och fasta) stod den logistiska lösningen för?
  - Hur var de övriga kostnaderna inom Matomera fördelade?

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- Vad kostade en order från lager till konsument?
  - Hur stor del var fast och hur stor del var rörlig?

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- Hur många arbetade med logistiken?
  - Administrationen?
  - Lagret?
  - Distributionen?

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- Vilka delar av logistiken ansvarade Matomera för och vilka delar ansvarade andra samarbetspartners för?
  - Distribution och lager.
  - Informationsflöde.
  - Pengaflöde.

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## Distribution och lager

- Utifrån vilka data dimensionerades distributionen?
  - Antal och storlek på order, tidsintervallens inverkan, osv.

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- Utifrån vilka data dimensionerades lagret?

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- Vad var bakgrunden till den valda distributions-/lagerstrategin?
  - Varför valdes ett centralt lager?
  - Vilka var eventuella andra alternativ?
  - Fanns det några andra alternativ?
  - Utreddes det?

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- Hur upplevde du att distributions- och lagerlösningen fungerade?
  - Vilka fördelar hade den och vilka nackdelar?

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## Leveranser till konsument

- Vilka dagar i veckan utfördes utkörning?
  - Vid vilka tider skedde leveranser?
  - Varför valdes detta tidsspänn?
  - Hur upplevdes dessa tider av kunden?

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- Var kunden tvungen att vara hemma vid leverans?
  - Om inte vad, gjorde man istället?
  - Funderade man på andra lösningar såsom delivery box, reception box osv?
  - Vad baserades den valda lösningen på? Vad fick Matomera att välja denna lösning och vilka var argumenten till att utesluta de andra?
  - Hur upplevde konsumenten den valda lösningen?
  - Vilken lösning önskade konsumenten egentligen (enligt marknadsundersökningar och dylikt)?

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- Hur många leveranser hade Matomera?
  - Per dag? Variationer per veckodag?
  - Per vecka? Början eller slutet av månad?
  - Per Månad? Ex vintermånader kontra sommarmånader?
  - Per år? Hur varierade detta under Matomeras verksamma period?

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- Hur lång tid innan leveransen var konsumenten tvungen att göra sin beställning?
  - Hur upplevde konsumenten detta?

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- Hur lång framförhållning innan leveransen hade konsumenten?

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- Vem stod för själva körningarna och plockningen?
  - Vilken utbildning fick dessa i kundservice?
  - Vem hade kontakten med konsumenten?

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- Hur hanterades olika varor?
  - Kylvaror?
  - Frysvaror?
  - Var bilarna specialbyggda på något vis?

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- Vad kostade leveransen?
  - Betalades detta av konsumenten?
  - Anser ni att konsumenten bör se transport- och plockkostnader som ett mervärde och ska betalas fullt ut av denne eller ska det vara gratis?

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## **Reklamationer och servicegrad**

- Vad berodde reklamationerna på? Vilka reklamationer uppkom?
  - Defekter på grund av distributionen?
  - Defekter på grund av hantering i lagret?
  - I orderförfarandet? (Kund - hemsida, Matomeraadministration/Schenkerlager)
  - Bristande kvalitet på varorna?
  - Bäst före datum på fisk, kött, grönsaker, frukt? Fräschhet? Frysvaror?
  - Till fel adress?
  - Skedde leveransen utanför utsatt tidsspann?
  - Fel varor?

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- Hur var fördelningen av reklamationer utifrån varorna?

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- Hur hanterades reklamationer inom distributionen?
  - Hur hanterades returer?
  - Utfördes någon form av kompensation och i så fall hur?

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- Vilken servicegrad hade Matomera?

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## Informationsflöde

- Inom e-handel påtalas det ofta hur viktigt det är att all information genomströmmar hela organisationen. Hur upplevde du att det fungerade inom Matomera?

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## Pengaflöde

- Hur skedde betalning?
  - Kort/cash?
  - Internet?
  - Faktura?

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## EPILOG

- Hur var det tänkt att Matomera skulle expandera?
  - Hur hade man tänkt växa organiskt? (Växa i kostymen eller sy ut kostymen.)
  - Vad för typ av företag skulle vara intressanta att införliva?
  - Hur viktigt var ”first movers advantage”?

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- Vad låg fokus på inom Matomera?
  - Vad betonades mest inom Matomera? Vad satsade man på?
  - Marknadspenetrering? Få tillräckligt antal konsumenter?
  - Kostnadseffektiv logistik?
  - Hemsidan?

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- Vad skulle fokus ligga på enligt dig?
  - Vad skulle betonas mer enligt dig? Vad skulle man satsa på mer?
  - Överensstämmer detta med föregående fråga? Varför inte?

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- Vad tror du var anledningen till att Matomera lades ner?
  - Vilka svagheter och/eller hot var det som fick Bergendahlgruppen att lägga ner Matomera?
  - Var Matomera för tidigt ute med sitt koncept?
  - Hur tror du att e-handel med dagligvaror kommer se ut i framtiden?

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- Tror du att Matomera, om än i annan form, kommer att startas upp igen?
  - Väntar Bergendahlgruppen på att konjunkturen ska vända och att mogenhet för dagligvaruhandel via nätet ska mogna?
  - Har Bergendahlgruppen avslutat denna typ av verksamhet för gott?

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## **DEFINITIONER**

### **Logistik**

När vi säger logistisk lösning menar vi:

- Informationsflödet – orderhantering och orderflöde
- Det finansiella flödet – betalningar och överföringar mellan konsument och Matomera
- Fysiskt flöde – distribution (dvs utkörning av varor) samt lager och aktiviteter i lagret

# Appendix B

