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# Value creation from recycling waste into bioethanol

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## Value creation from recycling of waste into bioethanol

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Waste-streams are being utilized more and more in today's economies and are becoming valuable feedstock for many companies. In the past, there were not that many options to treat bio-waste and it was frequently disposed of in a closed treatment plant. Nowadays, however, waste-producers in many areas have multiple options for bio-waste disposal and utilization, with options typically being composting or biogas. Indeed, the supply of waste has now caused competition in waste-streams at some level. St1 Biofuels produces bioethanol from waste-streams and therefore the company wants to understand how value emerges in the customer's organisation through waste utilization.

The purpose of this thesis is to identify if the customer can create value by recycling waste into bioethanol and how value emerges. The thesis also aims to identify what is the role of customer and the provider in the value creation process. Traditionally, the customer's expectation of waste management services has been that the waste is collected promptly from their property and does not cause interruption to their daily business. Hence, this study examines if St1 Biofuel's waste-to-ethanol concept offers B2B- customers value beyond the usual waste management service.

An embedded Single case study design was chosen for this thesis. The study investigates the value creation process in separate waste-bread collection within HOK-Elanto's organization, within its shop-chains Alepa, S-Market and Prisma. The thesis is based on the theoretical framework of Customer-Dominant- Logic and therefore the focus of the study is on understanding how the service of separate waste-bread collection is embedded into the customer's processes and daily tasks. The data collection was performed by pre-interview questionnaires and semi-structured interviews.

The study identified that that the customer can create value by recycling waste into bioethanol. Value emerges as environmental value, process improvement, motivational and financial value, and to some extent, marketing potential was also identified. Value could be seen both at organizational and individual levels within HOK-Elanto's organization. Recycling waste into bioethanol offers customers an opportunity to handle their waste sustainably, which allows them to co-create environmental value. Additionally, recycling has eased employee's daily tasks, and knowing that waste is utilized sustainably to produce biofuel, has improved staff motivation to recycle. Some employees even mentioned that they now have a better conscience, since the waste-bread does not go to "waste."

Based on the relevant theory and research findings, the study identified that St1 Biofuels acts as a value facilitator, but at the same time as value co-creator in the waste-to-ethanol service concept. HOK-Elanto, as a customer, co-creates the value, but they also have a role within value creation.

Keywords: Service-Dominant logic, Customer-Dominant logic, Value-in-use, Value Creation, Value Co-creation

## Contents

Introduction.....	5
1.1 Background of the study .....	5
1.2 The case study company .....	6
1.3 Purpose of Research and Research Questions.....	7
1.4 Structure of the thesis report.....	8
2. Value in Service- Dominant Logic .....	9
2.1 Service- Dominant Logic .....	10
2.2 Customer-Dominant Logic .....	13
2.3 Customer Value-in-use .....	13
2.4 Value Creation .....	17
2.5 Value Co-creation .....	18
3 The waste-to-ethanol concept.....	20
3.1 The Biofuels directive .....	20
3.2 The Etanolix®- Concept.....	20
3.3 HOK-Elanto .....	21
3.4 The Separately collected bread-waste - service concept.....	22
4 Research methodology .....	24
4.1 Research design .....	24
4.2 Data collection process .....	25
4.3 Environmental values.....	27
4.4 Data analysis .....	29
4.5 Reliability and validity of the case study .....	32
5 Empirical findings .....	33
5.1 Waste management services .....	34
5.2 Waste management costs.....	35
5.3 Motivation to perform sorting & recycling.....	36
5.4 Waste utilization method - does it matter? .....	37
5.5 Why was separate collection of waste-bread started? .....	38
5.6 Implementation of the separate collection of waste-bread.....	39
5.7 Separate waste-bread collection - the gained benefits?.....	41
5.8 HOK-Elanto's public relations relating environmental issues .....	44
6 Discussion.....	45
6.1 RQ2: How does value emerge?.....	46
6.2 RQ3: What is the role of customer and provider in value creation? .....	51
6.3 RQ1: Can the customer create value by recycling waste into bioethanol? ....	53
7 Suggestions for further studies .....	54
References .....	56
List of Figures.....	58

List of tables..... 59  
Appendix 1. .... 60  
Appendix 2. .... 61

## Introduction

### 1.1 Background of the study

In recent years there has been increasing discussion in the literature about the value creation process (Vargo and Lusch, 2004; Grönroos, 2010; Prahalad and Ramaswamy, 2004) who creates value? Is value created by the provider, and is the customer invited to the process as co-creator? Or, is value created through value-in-use by the customer, where the provider acts as value facilitator?

In the early 2000s, Vargo and Lusch (2004) proposed the concept of Service-Dominant logic (S-D logic), a view, where all exchange is based on service, and if the goods are exchanged, they are purely used as tools to achieve required end results (Vargo, Maglio and Akaka, 2008). Service, according to Service-Dominant logic (S-D logic), is an act where specialized competences like know-how and skills can benefit of another party or entity of itself (Vargo and Lusch, 2008). According to Vargo and Lusch (2004) the customer is always a co-producer of value. Gummesson (2007), proposes that 'value actualisation' occurs during the consumption process and therefore value is co-created between provider and customers.

Korkman (2006, 49) argues that value cannot be delivered as if it was pre-packaged; it appears only in the dynamic of practice. Hence, verbs such as value delivery, value creation or value perception are not the right terms to be used. Korkman also argues that value is not created alone, because a certain practice requires the systematic agency of all elements in the practice, and is thus created by both human and nonhuman elements creating the arrangement of the practice. Thirdly, he explains that value is neither perceived, as this would assume that value is not related to actual practice, but the assessment of this, which logically comes after the practice. Grönroos (2008) agrees with Korkman's view that value emerges from usage or possession of resources, or even from a mental state. Hence, Grönroos (2008) defines value creation as the customer's creation of 'value-in-use'.

Heinonen et al (2009) argue that S-D logic is not sufficiently customer-focused, but rather represents a more advanced company-based view where the consumer/customer is seen as a partner. Thus, they propose a new way of thinking of customer-dominant marketing logic rather than service-dominant logic. In this approach, the customer becomes the centre of attention, rather than the service provider/producer or the interaction or the system. Instead of focusing on what companies are doing to create services that customers will prefer, they suggest that the focus should be on what customers are doing with services to accomplish their own goals.

The above views not only highlight important differences in perspective in the literature of where value emerges and how, but also leave open questions as to how companies should develop their service strategy to ensure that appropriate value is created with their customers. Therefore, to investigate this phenomenon, this thesis adopts a case study approach to examine value creation in practice. Specially, the thesis investigates if value emerges at the customer end through recycling of waste into bioethanol, and if so, how does value emerge and what is the role of the provider and customer in the value creation process.

## 1.2 The case study company

The case study focuses on the customer end of St1 Biofuels Oy's value chain. St1 is a Finnish energy company. It has an oil refinery in Sweden and over 1200 branded petrol stations in Finland, Sweden and Norway, under the brand St1 and Shell. The company also markets aviation fuels to Finnish airports. The company's vision is to be a leading producer and seller of CO<sub>2</sub>-aware energy. St1 researches and develops economically viable, environmentally friendly, sustainable energy solutions. The 'CO<sub>2</sub>-aware' energy company produces bioethanol from waste and produces wind power in co-operation with Tuuliwatti, which St1 jointly owns.

In this thesis, the case study concentrates on St1 Biofuels Oy, which was jointly established with VTT, the Technical Research Centre of Finland in 2006. Since then, VTT's share was bought by St1 Oy whom now owns 100% of St1 Biofuels Oy.

St1 Biofuels Oy developed the waste-to-ethanol concept, which is known as Etanolix®. The technology utilizes food and beverage industries bio-waste in an advanced fermentation process to produce bioethanol and liquid feed for animals as a process 'by-product'. Since 2006, the company has built 7 bioethanol plants in Finland, all using food and beverage industries waste-streams and bio-waste as a feedstock. The sustainable credentials of Etanolix® technology is that it does not use food-grade feedstock. The feedstock accumulates mainly from brewery and bakery bio-waste. St1 believes in sustainable bioethanol production and their strategy is not to use food crops as a feedstock.

In 2009, St1 Biofuels started discussions with the largest food retailer company in Finland, HOK-Elanto, to begin utilizing the supermarket's bio-waste-streams into ethanol. The idea was that St1 Biofuels could utilize the supermarket's bread-waste to turn it into ethanol and HOK-Elanto was interested in sustainable waste management and soon the companies agreed co-operation. St1 Biofuels wanted an experienced partner to organize the collection and transportation of waste-streams, and therefore developed the service-concept for separately collected bread-waste from supermarkets with SITA, a waste collection company in Finland. A couple years later, this new separately collected bread-waste service-concept has expand-

ed from 6-pilot shops in Helsinki, to now include around 100 different size shops and supermarkets in a wider region (Helsinki, Espoo, Vantaa, and Lahti). This case study investigates how St1 Biofuels' waste-to-ethanol concept can offer value for the customers. The study therefore concentrates on value creation within HOK-Elanto's business.

### 1.3 Purpose of Research and Research Questions

In many industries waste-management services have been seen as commodity services, in which value is typically created at the moment of service delivery - in other words, when waste is collected. Typically, the customer's expectation of waste management services is that the waste is collected promptly from the customer's property and does not cause interruption to daily business. Hence, this study examines if St1 Biofuel's waste-to-ethanol concept offers B2B- customers value beyond the usual waste management service.

The topic of research in the thesis is therefore divided into three questions. One main research question, followed by two sub-questions:

- Can the customer create value by recycling waste into bioethanol?
  1. How does value emerge?
  2. What is the role of the St1 Biofuels and the customer in value creation?

Through these research questions the study aims to identify how value emerges in the customers' organization and in daily processes. For example: Can the customer create 'value-in-use' through the service and what are the various dimensions of value? The study also aims to identify what is the role of customer and the provider in the value creation process.

This study investigates value-creation within the HOK-Elanto organization, specifically within HOK Elanto's supermarkets. Thus, HOK-Elanto is a customer in this study and St1 Biofuels is the service provider (Figure 1). Although the separate waste-bread collection is supplied to HOK-Elanto by SITA Suomi Oy, the service is dependent upon St1 Biofuels' processes, and therefore this thesis concentrates on the role of St1 Biofuels in this service. The roles of SITA Suomi and St1 Biofuels are described in greater detail in chapter 3.2.



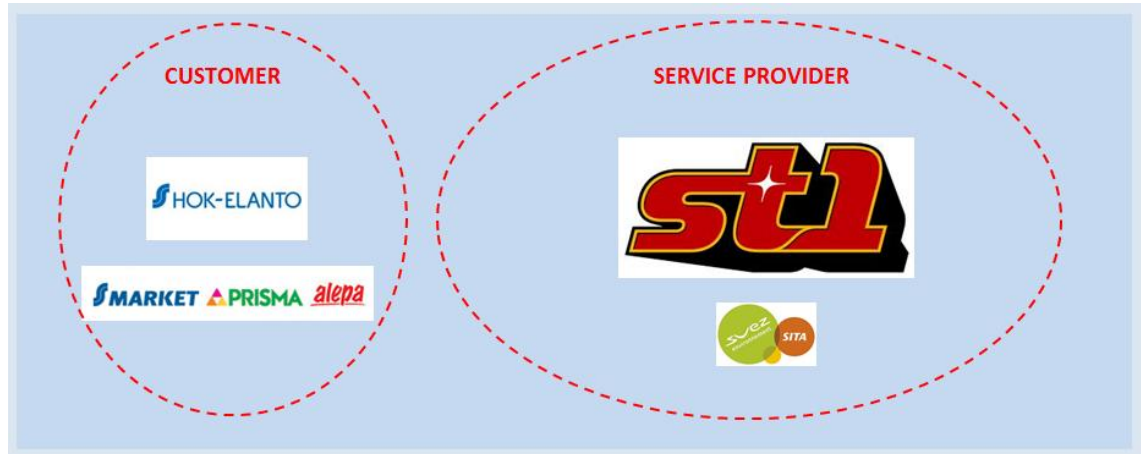


Figure 1: Roles within the case study

The waste-management business is changing rapidly and new innovative waste disposal technologies are being researched and developed continuously. Waste is becoming a valuable feedstock, in both recycling and in the energy sector. Already in many places in the Europe, waste-streams are no longer a cost for customers, but may offer profitable side-streams. St1's bioethanol production is based on waste-streams, thus it is extremely important that the company understands the customer's daily processes and how value emerges within customer's organization.

This study is also of interest to HOK-Elanto's management team since they receive feedback on how the implemented process change (separate waste-bread collection), has been received amongst its employees and managers in markets and supermarkets, and furthermore, how HOK-Elanto's organization has been able to benefit from the changes.

The study also provides SITA Suomi Oy important customer insights on the service, as the company is planning to expand the separately collected bread-waste service to other large cities in Finland; such as Turku, Tampere and Eastern Finland.

#### 1.4 Structure of the thesis report

The introduction gives a brief overview of the thesis background and sets out the research questions and the purpose of the study. It also describes the structure of the thesis. Chapter two comprises literature on the existing conceptualization of 'Service Dominant Logic' and 'customer value creation'. The literature review sets the foundations for the case study and findings. The third section describes St1 Biofuels' *waste-to-ethanol* and *separate bread-waste collection* concepts in more detail. The research methodology is described in the fourth

chapter, while the fifth chapter presents the empirical findings and conclusions. Finally, further potential areas of research are identified.

## 2. Value in Service- Dominant Logic

For decades, companies have been trying to understand their customers to be able to satisfy their needs better. Lusch et al. (2007) suggest that marketing advanced from Goods-Dominant (G-D) logic in the beginning of the 20<sup>th</sup> century. In G-D logic, value is created when goods are exchanged for money in the marketplace. In this case, value is measured by the exchange transaction (Vargo et.al 2008). Before 1996, marketing was seen as “transferring ownership of goods and their physical distribution and was viewed as the application of motion to matter”. (Vargo and Lush 2004).

In the 1970’s Kotler stated that *“marketing management seeks to determine the settings of the company’s objectives in the light of expected behavior of no controllable demand variables”*. (Vargo and Lush 2004). Lusch et al. (2007) state that competitive advantage was seen to be a function of utility maximization through embedding value in products by superior manipulation of the Four P’s with assumed a passive consumer in mind. The idea that *“service”* could increase competitive advantage was built upon this G-D conceptual foundation. Service was considered, almost simultaneously, as both a type of product and something of a fifth “P”, another tool for maximizing the value of the product.

In the 1980s, marketing literature was focusing more on relationship marketing, quality management, market orientation, supply and value chain management, resource management and networking (Vargo and Lusch 2004). Since then, marketing has shifted its dominant logic away from tangible goods to customer value creation. Grönroos (2000) points out that *“customers do not buy goods or services; they buy the benefits of goods and services.”* Marketing is often associated with getting to the market, but Grönroos (2000) defines marketing as *“management of customer relationships.”* Relationship marketing is about the relationship between company and customer. It is about the company understanding how to create value for the customer and with the customer.

Gummesson (2007) states *“that customers do not buy goods of services: they buy offerings which render services which create value”* The traditional division between goods and services is long outdated. It is not a matter of redefining services and seeing them from a customer perspective; activities render services, things render services. The shift in focus to services is a shift from the means and the producer perspective to the utilization and customer perspective. Kotler (1997, 8), already in 1990’s, identified the importance of obtaining

value from physical products, stating that the *“importance of physical products lies not so much in owning them as in obtaining the service they render”*.

## 2.1 Service- Dominant Logic

In the early 2000's, Vargo and Lusch (2004) opened up an international discussion on the output of marketing as value propositions rather than as goods and services. These authors came up with the concept of 'service-dominant logic' (S-D logic). Vargo et al. (2008) also highlight that this alternative view is based on the idea that all exchange is based on service, and if the goods are exchanged, they are purely tools for the delivery and application of resources. Knowledge and skills are key resources for competitive advantage.

Vargo and Lusch (2008) define service, in the S-D logic, as *“the application of specialized competences such as operant resources, knowledge and skills - through deeds, processes, performances and benefit of another entity or entity of itself”*. They point out that it is important to note, that, S-D logic uses the singular term; *service*, which indicates that certain act or process of doing something beneficial for or with other party, rather than exchanged goods as implied by the plural services. Thus, in S-D logic, goods and service are not alternative forms of products. Goods are appliances, such as tools and distribution mechanisms, which serve as alternatives to direct service provision. Service, then, represents the general case, the common denominator, of the exchange process; service is what is always exchanged. Goods, when employed, are aids to the service-provision process. In other words, S-D logic represents a reoriented philosophy that is applicable to all marketing offerings, including those that involve tangible output (goods) in the process of service provision (Vargo and Lusch, 2004).

Vargo and Lusch (2008) claim that the “service” is the only appropriate designator for the New Dominant logic; it could not be described by any other term. In their view, marketing occurs as parties exchange in markets. This exchange involves each party using its resources for the benefit of the other party. This use of resources for another party's benefit is precisely “service”. Gummesson (2007) proposes that the S-D logic suggests service as the core concept replacing both goods and services. A supplier offers a value proposition, but value actualization occurs in the usage and consumption process. Thus, value is the outcome of co-creation between suppliers and customers.

Lusch et al. (2007) describe the marketing evolution in Figure 2 by three stages. Accordingly to authors the marketing in USA moved to “market to” orientation soon after World War II. This means that products were pushed to the market based on market research to meet either customer or marketplace needs. In this marketing concept, the customer's role was as

resource to be acted on. In “market to” orientation goods-dominant logic was dominant and sellers were using heavy promotional programs using customer segmentation. The key element in this stage was value distribution. The authors argue that, in contrast the service dominant logic supports the view where customer is an operant resource - collaborative partner who co-creates value with the firm and promotes a market with philosophy. Vargo and Lusch (2004) define operant resource as co-producer and operand resource as a target.

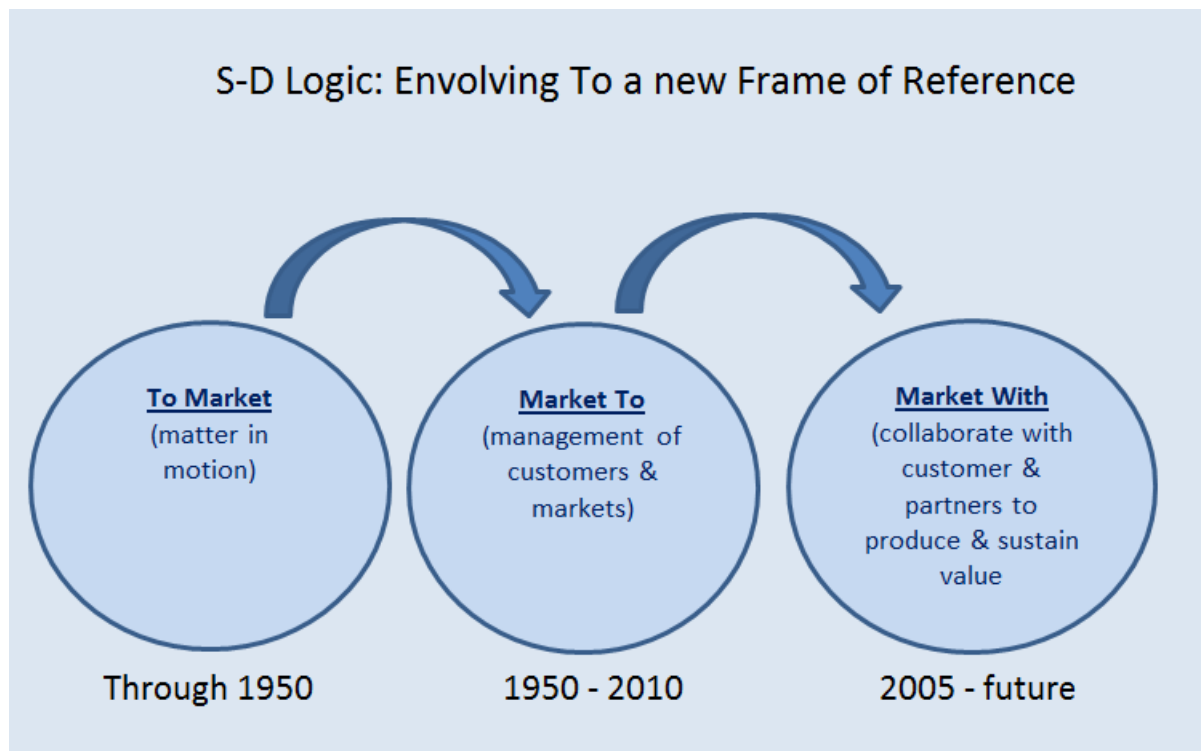


Figure 2: The evolution of marketing (Lusch et al. 2007)

Lusch et al. (2007) argue that competing through service is about more than adding value to products. Importantly, it is also more than the collective roles of marketing, strategic business, human resources, information systems, financial and operations management to produce and distribute better products. They claim further that; effective competing through service has to do with the entire organization viewing and approaching both itself and the market with a service-dominant logic. Based on Lusch et al. (2007) views, S-D logic is “*an understanding of the interwoven fabric of individuals and organizations, brought together into networks and societies, specializing in and exchanging the application of their competences for the applied competences they need for their own well-being*”. It is a logic that is philosophically grounded in a commitment to collaborative processes with customers, partners and employees; a logic that challenges management at all levels to be of service to all the stakeholders; a logic or perspective that recognizes the firm and its exchange partners

who are engaged in the co-creation of value through reciprocal service provision. It is about understanding, internalizing and acting on this logic better than the competitors.

Vargo and Lusch (2008) have introduced ten propositions that they believe captures important aspects of Service-dominant logic. These are described in table 1 below.

FP	Modified/new Foundational Premise	Comment/explanation
FP1	Service is the fundamental basis of exchange	The application of operant resources (knowledge and skills), "service," as defined in S-D logic, is the basis for all exchange. Service is exchanged for service.
FP2	Indirect exchange masks the fundamental basis of exchange	Because service is provided through complex combinations of goods, money, and institutions, the service basis of exchange is not always apparent.
FP3	Goods are a distribution mechanism for service provision	Goods (both durable and non-durable) derive their value through use - the service they provide.
FP4	Operant resources are the fundamental source of competitive advantage	The comparative ability to cause desired change drives competition.
FP5	All economies are service economies	Service (singular) is only now becoming more apparent with increased specialization and outsourcing.
FP6	The customer is always a co-creator of value	Implies value creation is interactional.
FP7	The enterprise cannot deliver value, but only offer value propositions	Enterprises can offer their applied resources for value creation and collaboratively (interactively) create value following acceptance of value propositions, but can not create and/or deliver value independently.
FP8	A service-centered view is inherently customer oriented and relational	Because service is defined in terms of customer-determined benefit and co-created it is inherently customer oriented and relational.
FP9	All social and economic actors are resource integrators	Implies the context of value creation is networks of networks (resource integrators).
FP10	Value is always uniquely and phenomenological determined by the beneficiary	Value is idiosyncratic, experiential, contextual, and meaning laden.

Table 1: Revised foundational premises of service-dominant logic, adapted from Vargo and Lusch (2008)

## 2.2 Customer-Dominant Logic

Heinonen et al. (2009) argue that S-D logic is still a very production- and interaction focused logic. They claim that approach in service research is either focused on analyzing an individual service system, from company's point of view, or on customer-provider interaction, over time. These points of view demonstrate that service co-creation is dominated by, and from the perspective of, the service provider. According to these authors, the current ideas in the debate concerning S-D logic are not sufficiently customer-focused, but rather represent a more advanced company-based view, where the consumer/customer is seen as a partner.

Therefore, Heinonen et al. (2009) propose a new way of thinking, which they term customer-dominant marketing logic rather than service-dominant logic. In this approach, the customer becomes the centre of attention, rather than the service provider/producer, the interaction, or the system. Instead of focusing on what companies are doing to create services that customers will prefer, these authors' approach suggests that the focus should be on what customers are doing with services to accomplish their own goals. However, this approach does not eliminate the service company's role. On the contrary, the service company's task is to support the customer's creation of value, and that the potential value of a service company's activities can be larger than traditionally considered. Given the relevance of the latter approach to my research, Customer-dominant logic is covered in a little more detail in the following section.

Heinonen et al. (2009) proposed the conceptual model of a customer-dominant logic as an alternative to the provider-dominant logic as they argue S-D logic is. The authors highlight that the key foundation is to understand how value emerges for customers, and how customers experience the value of a service provider's participation, in their activities and tasks. In customer-dominant logic, the focus of interest is on how a company's service is and becomes embedded in the customer's context, activities, practices and experiences, and what implications this has for service companies. Therefore, the main focus is not the act of service alone, but the customers' intentions, as well as the resultant activities and experiences. In this perspective, service companies should find out what the customer is doing or trying to do, and how a specific service fits into to their activities. This approach enables companies to build in-depth insight into customer's activities, practices, experiences and context, which will help service providers to develop and design new service offerings based on such insight.

## 2.3 Customer Value-in-use

Value is described in much of the service-marketing literature that customers have a need, which they want to fulfil, and value appears when these needs are satisfied taking into ac-

count price and quality of the service and product. Korkman (2006, 51), defines customer value as: *“Customer value is embedded in the practice, and can be enhanced through positive changes either by inventions in or other development of the practice”*. Practice, he further defines as: *“More or less routinized actions which are orchestrated by tools, know-how, images, physical space, and a subject who is carrying out the practice”*. Korkman (2006, 51) lists some examples of how to improve customer’s practices, in table 2 below.

<b>Element of practice</b>	<b>Possibilities for "positive" changes</b>
<b>Subject</b>	<ul style="list-style-type: none"> <li>- Change the subject of actions to somebody else who find the practice more valuable</li> <li>- Change the subject of actions to the service provider if the action is not valuable</li> </ul>
<b>Tools/Know-how</b>	<ul style="list-style-type: none"> <li>- Improve the current tools provided to the customer</li> <li>- Integrate the tools provided by the service provider better to other tools the customer is using in the practice</li> <li>- Provide totally new tools for making the practice more efficient of perhaps more interesting for the customer</li> <li>- Support the customer in developing new competences about possibilities</li> </ul>
<b>Images</b>	<ul style="list-style-type: none"> <li>- Develop the image of the practice in order to make the practice more desirable to carry out</li> <li>- Create a less desirable image of practice if the practice is not otherwise valuable for the customer</li> </ul>
<b>Physical spaces</b>	<ul style="list-style-type: none"> <li>- Develop the physical space to be more functional and interesting for the customer</li> <li>- Create a physical space for practices that have lacked a physical space</li> </ul>
<b>Action</b>	<ul style="list-style-type: none"> <li>- Reconfigure the actions needed for a certain practice to improve the value of the practice of the customer</li> <li>- Create new actions that are interesting and valuable for the customer</li> </ul>

Table 2: Examples of opportunities to improve of provider-initiated practices (Korkmann 2006, 52)

Secondly, Korkman (2006 51), argues that value is never created alone. Both human and non-human elements influence on value creation and certain practices require input of both of these elements. Author also argues that value is neither perceived; hence value is not related to actual practice but assessment of it.

Grönroos (2008) agrees with Korkman’s view that *“value emerges from usage or possession of resources, or even from mental state.”* Hence, Grönroos (2010b) defines ‘value-in-use’ as: *“value for the user is created or emerges during usage, which is a process that the customer as user is in charge of. Value is perceived throughout the service process and therefore not determined at the end of the process only.”*

Vargo, Maglio and Akaka (2008) describe two meanings for value; value-in-exchange and value-in-use. These concepts reflect different ways of thinking about value. In their view, Value-in-exchange refers to achieved value of traditional exchange of goods and money, whereas value-in-use means that value is always co-created jointly between producers and consumers.

So how value-in-use does emerge? If one considers a simple example of when a customer goes to a hair-dresser to have her haircut - how and where does the value emerge and for whom? Does value emerge during i.e. busy house-mum, having “own-time” away from children, relaxing by reading a magazine and drinking a cup of coffee during the haircut; or after the haircut feeling good, since her hair looks great or purely satisfied through a shorter cut since her hair no longer falls into her eyes or simply due to the fact that it was inexpensive; or was it all these factors? Moreover, value-in-use may even occur to other persons i.e. the customer’s husband is proud of his beautiful wife. As this example demonstrates, value-in-use is a very elusive concept, especially when the customer’s needs and goals are not understood.

Macdonald et al. (2011) define value-in-use as functional and/or *hedonic* outcome when the customer’s goals are served through the service/product consumption. Value-in-use changes by definition depending on the customer’s goals, therefore it cannot be assumed that all customers gain the same value-in-use experiences. Typically, value-in-use at the corporate level emerges at decision-maker level, whereas individual value typically can be seen within the users of the service. The authors imply that providers cannot assume that a customer’s value assessment is done at a specific single level of the organization, and therefore, value creation at the usage level has a high importance in the value assessment. Figure 3 describes the framework of Macdonald et al. (2011) for customer assessment of value-in-use. The framework suggests that the customer’s value-in-usage process is purposeful and goal-orientated, where service and relationship quality are part of quality assessment.



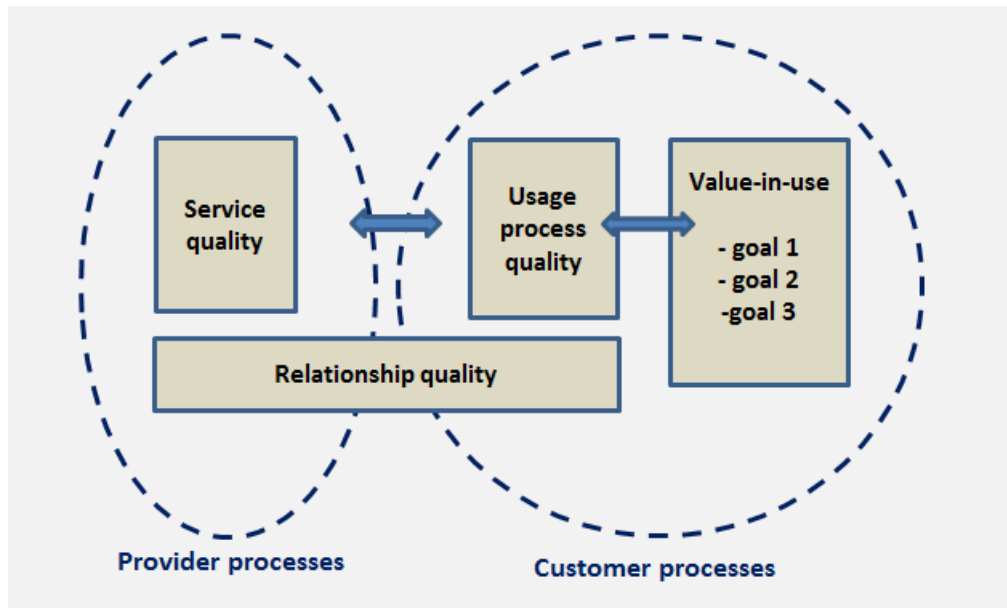


Figure 3: Conceptual framework for customer assessment of value-in-use (Macdonald et al. 2011)

Lepak et al. (2007, 183) states, that “there are at least two possible ways to conceptualize the process of value creation; 1) a single universal conceptualization and 2) a contingency perspective that explicates how value is created from the vantage point or perspective of a particular source.” The authors posit that “when the individual is the unit of analysis, the focal process is the creative acts displayed by individuals, such as ability, motivation and intelligence, and their interactions with the environment. When the organization is the source of value creation, issues regarding innovation, knowledge creation, invention and management gain prominence. Finally, at the societal level, the level of entrepreneurship and macroeconomic conditions in the external environment, including laws and regulations restricting or encouraging innovation and entrepreneurship, come into play.” Lepak et al. (2007, 183) further states that “individuals create value by developing novel and appropriate tasks, services, jobs, products, processes, or other contributions perceived to be of value by a target user.”

The literature describes gained value typically by terms such as *value delivery* and *perception*, lately *value creation* and *value co-creation* are more frequently used. Korkman (2006, 49) prefers not to use verbs such as value delivery, value creation or value perception. Instead, he prefers to talk about customer value creation (Korkman 2006, 51). The next chapters will discuss concepts of value creation and value-co-creation in more detail.

## 2.4 Value Creation

According to Grönroos (2010b) understanding customer value formation is problematic and cannot be generalized, as value is always perceived in an individualistic way. The author argues (2010b, 6) that even value creation are frequently used in the literature, we actually know very little about the customer's value creation processes when and how it appears and for whom? Grönroos (2008) defines value creation as *"a process where the user becomes better off in some respect. Service can be delivered either assisted service or self-service. The customer's value creation process can be defined as "a series of activities performed by the customer to achieve a particular goal" (Payne et al. 2006) or "increases customer's wellbeing" (Vargo et al. 2008).*

Helle (2010) suggests that there are two mainstream value concepts in the literature. One view is that value creation is a process of estimating the worth of benefits, performance or utility, relative to compensation (typically price). In other words value is created for the customer when 'use value' exceeds expectations. The other, most recent view sees value creation as a function of interactive reconfiguration of resources. More specifically, the first view denotes *whether* value is created and the later *how* value is created. To able to understand the value creation process of becoming better off, both of these approaches must be understood jointly.

Payne et al. (2007) suggest that *"the value creating process should not be viewed in the traditional engineering sense, but as dynamic, interactive, on-linear, and of often unconscious process."* The more information, knowledge and skills that are available for the customer, the better ability they have to create value. These authors agree with Grönroos (2008) and Korkman (2006) that the value-creation process occurs when a customer consumes, or uses, a product or service, rather than when the output is manufactured.

Heinonen et al. (2009) argues that Customer-Dominant logic entitles a broader understanding of the customer's value-in-use process. They state that this approach entitles three respects. First, value emerges mostly beyond the visibility of the provider (in customer's practices, in everyday life processes). The role of provider in this respect is to understand how the customer's value creation processes are embedded in the customer's practices and context. Secondly, the authors suggest that value-in-use represents more than behavioral activity, it also includes mental activity. In contrast to the Customer-Dominant logic the experiences entail the enabling effect on the customer's life. Thirdly, value-in-context is inherently included and is dynamic, because experiences are continuously accumulated. The collective social forces often play a dominant role, but individual needs, preferences, habits and values play an important role in both service-creation and value assessment, both from customer's and

the provider's perspective. Heinonen et al. (2009) conclude that service 'value-in-use' should be seen as everything that the company does that the customer can use in order to improve his life or business. Furthermore, they suggest that value-in-use needs to be explored more in future research.

## 2.5 Value Co-creation

In the traditional concept of value creation, companies typically decide to produce products and/or services based on market research, of which they decide a value. In this concept, consumers often do not have a role in value creation. According to Service-Dominant logic, Vargo and Lusch (2008) state that the customer is always a co-creator of value. Vargo et al. (2008) explain further: "In the Service dominant logic value is always co-created, jointly and reciprocally, in interaction among providers and beneficiaries through the integration of resources and application of competences. Furthermore, the authors claim that there is no value until an offering is used - experience and perception are essential to value determination. Grönroos (2010b) argues that this is too simplistic a view and does not fully support an understanding of value-creation. Therefore, he questions what is meant by value creation? Is it the customer's creation of value-in-use, or does value creation in this expression refer to a more comprehensive process, where the customer's creation of value-in-use is one part only? Grönroos (2010) agrees that *"both firm and the customer are involved in an unspecified, all-encompassing, process of value-creation."* Any implication of this statement beyond this simplistic conclusion is not possible and the roles of the firm and the customer respectively remain unclear. Furthermore, it is unclear which of the firm's activities and processes are part of the process labelled value creation and which are outside it.

Grönroos (2010b) suggests that the implicit conclusion in the literature has been that the firm is in charge of a value-creating process and the customer is invited to join it as a co-creator. He argues that, in view of the value-in-use notion where value is created in the usage or consumption process, this implicit conclusion cannot be supported. He claims that, it is the customers as the users who are in charge of their value creation and the service provider could be invited to join this process as a co-creator. He therefore defines the role of the provider firm in the value creation process as 'value facilitator'. By facilitator he means developing, designing, manufacturing and delivering resources, which make it possible for the customer to create value. However, Grönroos (2010b) highlights that it is important to realise that value facilitation is not value creation or value co-creation - it is only part of the total process that leads to value for customers. Therefore, it does not automatically lead the firm to become a co-creator of value.

Heinonen et al. (2009) also questions co-creation from the S-D logic perspective. In their opinion, a more critical view of the role of co-creation in service is needed, a view where the roles and input of both the customers and the company are evaluated. Nevertheless, they suggest that the terms 'co-production' and 'co-creation' indicate a service-provider oriented view in the sense that it focuses on the particular offering or service rather than on the role this offering plays for the customer. Hence, they suggest that there is a need to contrast the established company orientated view of involving the customer in service co-creation with a more radical customer-oriented view of involving the service provider in the customer's life. In other words, service-companies need to understand the customer's life, including context, activities and experiences and how the service supports them. The authors argue that the customer value is created through experiences. Since all experiences are not created with the supplier, focusing only on value creation within the interactions between supplier and customers are too narrow. Therefore, suppliers need to focus on understanding customer's activities and how the provided services support them.

According to Prahalad and Ramaswamy (2004) co-creation is not about *"transferring or outsourcing activities to the customers or customization of products or services, or scripting or staging of customer events around a company's offerings."* In their view, co-creation of value involves personalized interactions with customers based on how each individual wants to interact with the company. All the points of interaction between company and the consumers are opportunities for both value co-creation and extraction. In their view, there are multiple missed opportunities in the market for value creation prospects. Dialog, access, risk-benefits and transparency are the basis for interaction between the consumers and the companies. It is also important to note that interaction can happen anywhere in the system and not just at the conventional point of sale or customer service. Grönroos (2010b) defines interaction as *"mutual or reciprocal action where two or more parties have an effect upon one another."* The parties involved are in some contact with each other. In a business context supplier-customer interactions mean that two or more parties are in contact with each other for a reason, and in these contacts they have opportunities to influence one another's processes. Grönroos (2010b) recognizes the importance of interaction in service marketing, but argues that its implications in value creation have not been studied.

In conclusion, value is co-created between supplier and customer (Vargo and Lusch 2008; Prahalad and Ramaswamy 2004; Grönroos 2010; Heinonen et al. 2009). However, each author has slightly different views of the value creation process and the roles of customers and suppliers within it. Vargo and Lusch (2008) argue that the customer is always a co-creator with the supplier company, therefore the supplier role in the value creation process is also co-creator. Grönroos (2010) argues that, this is too simplistic a view and therefore suggests that supplier's role should be seen as value facilitator. However, he highlights that the facilitator

does not automatically become a co-creator of value, but through its resources creates the opportunity to take part in the customer's value creation process. Heinonen et al. (2009) argue that the terms co-production and co-creation indicates a service-provider oriented view and the focus should be on service rather than on the role this offering plays for the customer. Prahalad and Ramaswamy (2004) view that the interaction between the supplier and customer is becoming the locus of value creation and therefore, customers are co-creating value with the supplier.

### 3 The waste-to-ethanol concept

#### 3.1 The Biofuels directive

The EU's biofuels directive (Directive 2003/30EC) has been one of the driving forces for St1's strategy to start producing bioethanol for transportation use. The 2003 directive stipulated that member states must take national measures which aim to replace 5,75% of all transportation fossil fuels with biofuels by the year 2010. However, in the national legislation on biofuel distribution requirements (1 January 2011), Finland has pushed its target up to 20 percent, and so demand for bioethanol is now even greater. Moreover, the national long-term climate and energy strategy in Finland is to reduce the carbon dioxide emissions from road transport by 15 % from 2005 levels, by the year 2020. This means that Finland is striving to reduce its carbon dioxide emissions by some 4 million tonnes, one fourth of which should be achieved by increasing the share of renewable energy in transport, in other words by increasing the use of biofuels. Therefore, the Directive sets a binding obligation to increase the share of renewable energy in transport to 10 % by the year 2020, calculated on the fuel energy content (<http://www.oil.fi/en/useful-information/biofuels-finland>).

There has been a great deal of discussion about biofuels sustainability lately. Bioethanol production from food-crops has especially been criticized heavily and its sustainability has been questioned over the life cycle. This criticism therefore serves to support, even more, St1 Biofuels' idea of utilizing waste as bioethanol feedstock. The following chapter explains waste-to-ethanol in more details.

#### 3.2 The Etanolix®- Concept

St1 Biofuels' Etanolix® concept is based on dispersed production, where the production and dehydration of bioethanol are separated. Figure 4 demonstrate how the Etanolix® units turn waste-streams from the food processing industry into 85% ethanol and animal feed. St1 Biofuels have branded E85 fuel as RE85, since it contains only wasted based ethanol. RE85 contains 80-85% bioethanol and the rest is comprised of different fuel components.

## Here's how it works

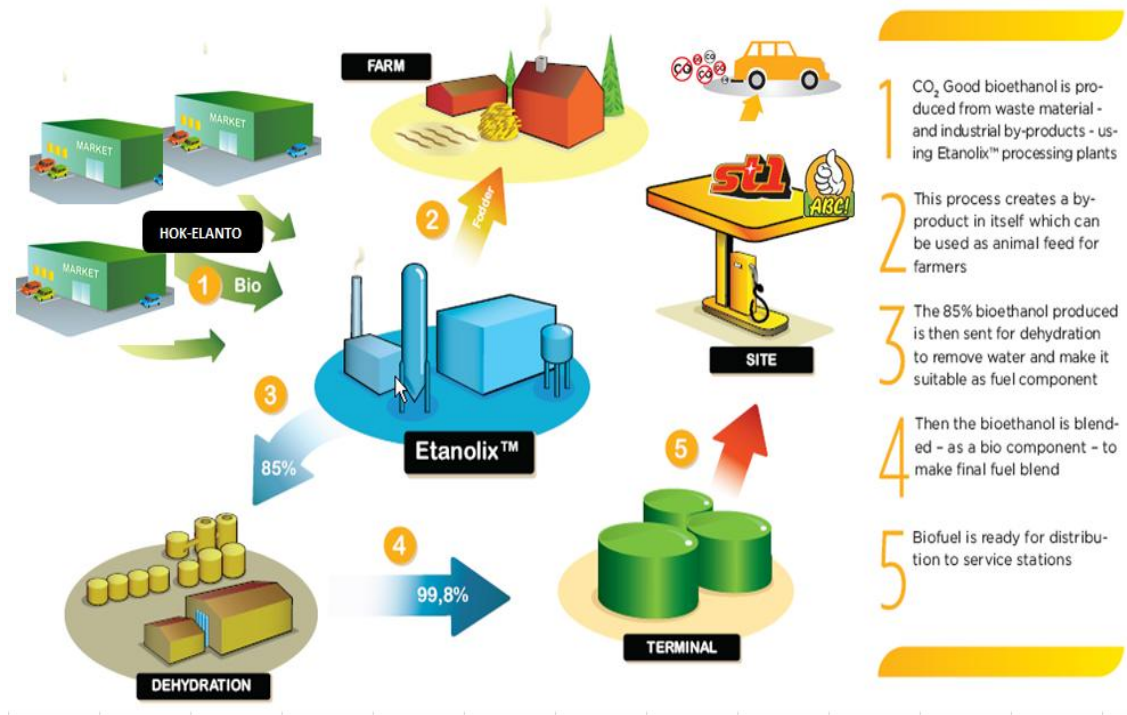


Figure 4: Etanolix®-concept (St1 Biofuels Oy)

### 3.3 HOK-Elanto

HOK-Elanto is part of the S-Group, and as the largest regional co-operative, it is owned by over 560,000 customer-owners. The HOK-Elanto co-operative has an annual turnover of 1.8 billion euro, and employs more than 6,000 people. HOK-Elanto operates in the Greater Helsinki area with over 300 stores, and holds market leadership in retail grocery trade. Moreover, HOK-Elanto is one of the largest restaurant operators in the Nordic countries.

Helsinki Cooperative Society Elanto (HOK-Elanto) provides benefits and services for residents of the Greater Helsinki area. Own business operations are supplemented by other S-Group member operations as well as dozens of partners from various business fields. The co-op member's benefit, competent personnel, ability to change, responsibility and profitability are the basic values which steer operation. Responsibility has always been one of the co-operative societies' operating principles. HOK-Elanto invests in the well-being of its customers and personnel and does everything that it can to look after the common environment. Above all, responsibility means the genuine acts of every day ([www.hok-elanto.fi](http://www.hok-elanto.fi)).

HOK-Elanto has three different shop-chains (Figure 6): 1) Alepa stores are the smallest and they are considered as corner-stores, often open until late; 2) S-Markets are mid-size stores; and 3) Prisma Stores are supermarkets, which are largest of all. HOK-Elanto's first aim is always to decrease any waste and then in the case of bread-waste, for example, to give it to charity in the first instance. Recycling bread-waste into bioethanol comes only after these priorities are fulfilled (interview with Quality & Environmental Manager 10.04.2012). HOK-Elanto's shops donate left-over bread to a number of different charities, such as Manna-apu ry, Salvation Army, churches and unemployment associations (<http://www.hok-elanto.fi>.)



Figure 5: Supermarkets brands in HOK-Elanto

### 3.4 The Separately collected bread-waste - service concept

St1 Biofuels has developed, together with HOK-Elanto and SITA Finland, a separate waste-bread collection for shops and supermarkets. The service has been named in Finland as Leip-ärinki (Bread-ring), but in this study it is called separately collected waste-bread collection. St1 Biofuels started discussions in 2009 with HOK-Elanto about collecting left-over bakery-products from HOK-Elanto shops and supermarkets in Helsinki to process them at St1's Bio-ethanol plant nearby in Vantaa. Leftover bakery-products are by-products which stores are no longer able to sell, e.g. out of date products. Previously, HOK employees had to remove packaging from the bread by hand and sort out the bread into bio-waste and the packaging into energy-waste. This was very time consuming for the employees and in some occasions the bread ended up in the landfill with mixed waste due to the fact that employees did not have time to remove packaging from the bread-products. At that time, there was no collection for packaged bio-waste in the Helsinki area.

During the service design and development, it was decided that St1 Biofuels would benefit by having a reliable partner to implement the waste-bread collection and transportation from the stores to the bioethanol plant. SITA had the experience and know-how of waste management logistics and they also had interfaces with customers through the other waste-management services. Therefore, it made more sense to implement the service via SITA. HOK-Elanto was also heavily involved in the planning and piloting stage to ensure that the service met the customer's needs and expectations. The service was piloted in 3 different size stores; from small shops to large supermarkets, 6 stores took part in the pilot. At present, the service has been implemented for over 100 stores, across four cities.

SITA has a service-agreement with HOK-Elanto and St1 Biofuels has a service-agreement with SITA. Therefore, SITA's responsibilities are to provide recycling-training for the customers and to organise logistics: such as dedicated collection-bins, transportation, reporting and billing. St1 Biofuels' responsibility is to provide customers with environmental friendly and sustainable waste management services. The logistics of the process is illustrated in Figure 6 below.







Figure 6: The Separate waste-bread-collection (St1 Biofuels). Top row: separation in the supermarket; Second row: transportation of the bread; Third row: delivery to ethanol plant; Bottom row from left: Processes bread, St1 bioethanol plant's end products = animal feed & ethanol

As discussed in the chapter on theory, Korkman (2006) suggests that value is embedded in the customer's practices and can be enhanced through positive changes or developing their practices. He defines further that practices are *"more or less routine actions which are orchestrated by tools, know-how, images, physical space, and a subject who is carrying out the practice"*. This is what the separate bread-collection is all about. St1 and SITA have, together with HOK-Elanto, changed their routinized daily bio-waste processes - with the objective to take part in customer's value-creation process. It has been understood that separate bread-waste collections would offer customers sustainable waste-management service, but other possible opportunities to improve customers value formation has not yet been identified. This thesis therefore examines the latter.

## 4 Research methodology

### 4.1 Research design

This chapter describes the methodology adopted in the conduct of this thesis. The chosen methodology was a case study of a Finnish Energy-company. Yin (2009) suggests that the case

study method may be used to investigate a contemporary phenomenon within its real-life context when: the boundaries between the phenomenon and the context are not clearly evident; multiple sources of data are used; how and why questions are addressed; and the investigator cannot control the phenomenon.

An Embedded Single case study design was chosen for this thesis. According to Yin (2009) the same single-case study may involve more than one unit of analysis. This occurs when, within a single case, attention is also given to subunit or subunits. In this case, attention is in HOK-Elantos's value creation process within HOK-Elanto's organization. Shop-chains Alepa, S-Market and Prisma act as the different subunits within the HOK-Elanto organization.

A suitable theoretical framework was chosen to tackle the research - investigating customer's value creation process in recycling waste into bioethanol. This involved reviewing and summarizing the various well-known literatures on value creation. As the case-study is seeking new insights and understanding, the research is therefore exploratory and qualitative in nature. Wilson (2010) describes that exploratory research is often used when there are very little, if any research done and the aim is to develop a better insight into topic. The theoretical framework for this study is based on Customer-Dominant- Logic by Heinonen et al. (2009). The focus of study is on understanding how the service (separate waste-bread collection) is embedded into the customer's processes and daily tasks. By better understanding this phenomenon, the study aims to identify how value is created and by whom.

#### 4.2 Data collection process

Although St1 Biofuels Oy offers bio-waste recycling services (from waste-to-bioethanol) also for breweries and food-industry companies, such as bakeries - this case study only investigates value creation process within HOK-Elanto co-operative. Therefore, other customers were excluded from this study.

According to Heinonen et al. (2009) value often emerges mostly beyond the visibility of the company, in the customer's everyday activities. Macdonald et al. (2011) observed that B2B customer's perceived value-in-use varies between the customer's business hierarchy-levels. These authors discuss the Goal theory by Paulssen & Bagozzi (2006) and suggest that service providers, typically on the higher levels have lack of understanding how value perception in the customers organization. Therefore the authors suggest that customer's value-in-use should be measured both up and down within a customer's hierarchy. Until now, St1 Biofuels had only communicated with higher levels of customer management, mainly with HOK-

Elanto's Quality and Environmental Manager - thus it is fundamental to gain customer insights also from employee and shop management levels.

HOK-Elanto's Quality and Environmental Manager provided contact details for 12 different types of stores around Helsinki, Vantaa and Espoo. All 12 shops agreed to participate - four shops each from Alepa, S-Market and Prisma. In each shop, the shop-manager and one employee working in the bakery-selection were interviewed, so all together 24 interviews were carried out in the stores. In addition to shop staff, HOK-Elanto's Quality and Environmental manager was interviewed as she is responsible for HOK-Elanto's co-operation's in waste-management matters, including decision making on service-contracts.



Figure 7: Data collection within HOK-Elanto hierarchy

Wilson (2010, 146) describes three interview methods; structured, unstructured and semi-structured. Structured interviews are based on a rigid set of interview questions. Unstructured, also called in-depth interviews are based on certain themes, where the interviewer asks broad questions with subsequent questions depending on the earlier answers. A Probing technique is used in unstructured interviews. Semi-structured method was used in this study, which is a combination of structured and unstructured methods. The interviews were based on

a set of semi-structured questions, but flexibility was maintained to allow the interviewer to probe deeper, if required.

Data collection was done through interviews. Interviewees were also asked to complete a 'pre'-interview questionnaire, which contained statements about waste recycling, waste costs and environmental values, with opinions captured using a five-point Likert scale (e.g. agree, strongly agree, disagree, strongly disagree or don't know). The questionnaire was designed to "tease-out" interviewee's sets of individual values relating to the topics below. The questionnaire was designed in advance, with statements grouped into the following themes:

1. Waste sorting
2. Separately collected waste-bread
3. Waste-management costs & reporting

#### 4.3 Environmental values

The questionnaire was tested on work colleagues in advance and then amended based on this feedback. Changes mainly related to the order of statements and appearance of the questionnaire. The pre-interview questionnaire is included as appendix 1.

Interview questions were created based on existing theory in the literature, mainly on Heinenon et al (2009) and Korman's (2006) views that customer value is embedded in customer's processes and practices, which can be enhanced through positive changes. For this study it was vital to understand customer's processes and how it has been changed due to separate waste-bread collection and how and for whom value-in-use emerges. Therefore, some general questions have been included to better understand waste-management's role in the value creation process. It is also important to gain insight into other waste-streams collection and utilization processes in order to assess how St1 Biofuels' service compares to them. Table 5 shows how the interview and pre-interview questions relate to primary research questions and how they are related to the theory. The detailed semi-structured interview questionnaire is included in appendix 2.

Research question	Questions for this research question are designed to identify	Interview questions	Pre-interview questions
<b>Can the customer create value by recycling of waste into bioethanol?</b>	<ul style="list-style-type: none"> <li>- Can customer create value through positive change by development of routinized action (Korkman 2006)</li> <li>- What customer is doing with service to accomplish their own goals (Heinonen et al. 2009)</li> </ul>	Questions relating to customer's waste-management processes and value questions; 1-22	Waste- sorting; 1, 5, Separate collection of waste-bread; 4, 5, 6, 7 Waste-management costs; 1, 2, 3, 4, Environmental values: 1, 2, 5, 6, 7, 8,9, 10, 11, 12, 13, 14, 15
<b>How does value emerge?</b>	<ul style="list-style-type: none"> <li>- How service is embedded in the customers daily tasks, processes and experiences (Heinonen et al. 2009)</li> <li>- Whom does value emerge - understand the value-in-use on HOK-Elanto's hierarchy. Value-in-use on corporate level and within users (Macdonald et al. 2011)</li> <li>- How does value-in-use emerges; on behavioral on mental level (Heinonen et al. 2009)?</li> </ul>	Questions relating to daily activities and tasks; 1, 2, 3, 5, 9, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22	Waste- sorting; 1, 2, 3, 4, 5, 6 Separate collection of waste-bread; 1, 2, 3, 4, 5, 6, 7, 8, 9 Waste-management costs; 2, 3, 4, 6 Environmental values; 2, 3, 4, 14, 15
<b>What is the role of the St1 Biofuels and the customer in value creation?</b>	<ul style="list-style-type: none"> <li>- How value-in-use emerge and why and what is the customer's and St1 biofuels' input in the value creation? Is customer co-creation value with supplier (Vargo and Luch 2008; Prahalad and Ramaswamy 2004; Vargo et a. 2008) or do the roles of supplier and customer is value creation remain unclear (Grönroos 2010b).</li> </ul>	Questions relating to separate waste-bread collections; 9-22	Waste- sorting; 5 Separate collection of waste-bread; 1, 2, 3 Environmental values; 5, 6, 7, 8, 9

Table 2: Relationship of pre-interview- and interview- questions to Primary Research Questions.

Appointments for interviews were made well advance by phone, contacting the shop-manager. Face-to face interviews were held in spring and autumn 2012 in Helsinki, Vantaa and Espoo markets. All the contacted shops agreed to take part in the interviews. The interviews were carried out in Finnish. Interviews were recorded to ensure answers were preserved accordingly. The length of interviews varied from 15 minutes up to 60 minutes. Generally speaking, the interviewees were interested in discussing the topic and were forthcoming with their opinions. However, a few participants were more challenging to interview. The latter responses were very much yes/no-answers with little or no real explanations.

Interviews enable the researcher to gain deeper insights into person's beliefs and attitudes towards the subject (Wilson, 2010 138). The Interviewer is also able to observe both verbal and non-verbal communication, which obviously enables interviewer to react and "dig-deeper" into the subject if necessary. Wilson (2010) emphasizes the importance of right type of interview location. He suggests that the location should be quiet, comfortable and where the interview is unlikely to be interrupted. This was a challenge in this study: All the interviews were conducted in the shop's backrooms and offices. Especially in the smaller shops, offices are typically small and they are shared between the staff. In many occasions the interviews were interrupted. Nevertheless, this did not really impact the flow of the interview.

During the early interviews, a visual observation technique was considered in order to gain in-depth understanding how bread-waste is handled in the stores, but it became evident after a few interviews that this was not really needed. The recycling process did not really differ between the stores. Some slight differences were identified, though, which will be discussed in chapter five.

#### 4.4 Data analysis

Bryman and Bell (2003) recommends that interviews are taped in qualitative research since it is not only vital to record what people say, but also how they say it. The authors also point out that it helps the interviewer to remain highly alert, when there is no need to concentrate on taking notes. In this study, the interviews were taped and then transcribed. At first, it was thought that some interviewees may not feel comfortable being recorded. Nevertheless, this was not an issue for anyone and thus all interviews were recorded. The interviews were then transcribed (in Finnish) as shown in Figure 7 below.

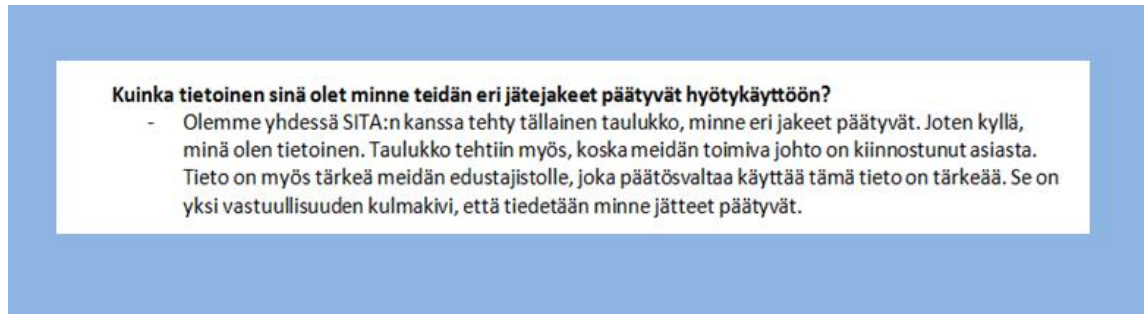


Figure 8: Example of transcribed interview question

A qualitative data analysis methodology was utilised to analyze the data. The challenge is to systematically understand and gain insights from the collected data. According to Bryman and Bell (2003), it is vital to secure against failing to carry out true analysis. Qualitative analysis has not yet reached a degree of codification of analytic procedures, of which Bryman and Bell (2003) argue that they are not even necessary. However, Miles and Huberman (1994) points out that there are three stages in analyzing qualitative data. First stage is data reduction. In this stage the researcher decides which data chunks to code and which ones can be left out. Purpose of data reduction is to sharpen, sort, focus, discharge and organize the data in such a way that final conclusions can be drawn and verified. The second stage is data displaying, which means that data is organized, compressed in such way that conclusions can be drawn from it. The data can be displayed in various styles, such as matrices, graphs, charts and networks. The third stage is conclusion drawing and verification. The authors point out that the data analysis is a continuous iterative process, which is demonstrated in Figure 8 below.

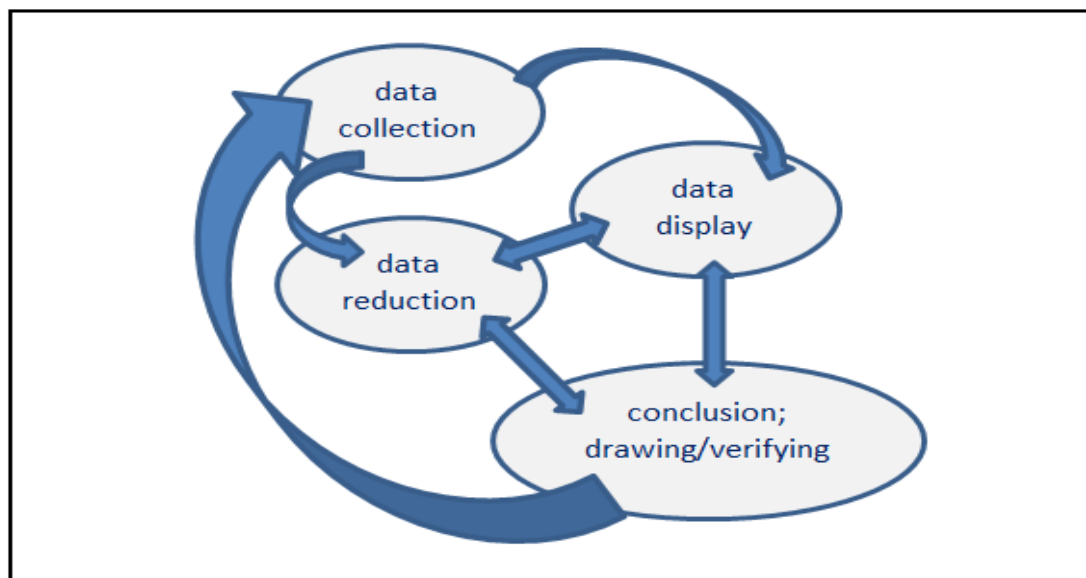


Figure 9: Iterative model of data analysis (Miles and Huberman, 1994)

Many analyses of qualitative data begin by identifying key patterns and themes. Bulk data is processed into smaller categories; this is often called *coding* (Coffey and Atkinson, 1996). The authors point out that coding should be seen as an exploratory process, providing a way to interact and think about data. They also stress, that coding is part of analysis and it does not substitute it.

After interviews the transcripts were read multiple times before coding was started. Data coding was done by interview question. Answers were grouped and soon patterns started to emerge and themes could be identified. This process was done for all interview questions. Figure 9 shows an example of how interview question 22 was coded. During the coding themes emerged and slowly these could be linked to existing literature. In this way, both data and literature underpin conclusions. Finally, the coded data was analysed and conclusions made.

Inter- viewee	Gained benefit	Theme
1	By recycling bread this way, it just not end-up in compost. It enables extended product life for the bread	Env. & soc.res
2	Environmental benefit	Env. & soc.res
	Marketing potential Improves employees motivation to recycle, when waste is substantially utilized	Marketing Motivational
3	Separate collection has made waste of more tangible, easier to monitor.	Daily task
	Easier to keep the places tidy now	Daily task
4	That waste can compensate fossil fuel and even make animal feed	Env. & soc.res
	bread	Env. & soc.res
5	Separate bread collection has made our work fast	Daily task
	Bread is now substantially utilized	Env. & soc.res
6	Financial benefit	Financial
7	Don't know	Dont know
8	Saves time	Daily task
9	Financial benefit	Financial
	Marketing potential; Increases consumer loyalty, when they know we act right	Marketing
	Compensates fossil fuel	Env. & soc.res
10	Bread is now substantially utilized	Env. & soc.res
	Shows that HOK-Elanto is a enlightened company, who cares about environment	Env. & soc.res

Figure 10: Example of data coding and displaying



The pre-interview form was easier to analyze, since it contained multiple choice answers. Each statement was analyzed on Excel spreadsheets and the results verified with interview data. In this way, some inconsistencies between the pre-interview questionnaire and interview responses became evident e.g. some of the interviewees had made mistakes filling in the questionnaire (due to misunderstanding the question).

#### 4.5 Reliability and validity of the case study

Yin (2009) identifies strengths and weaknesses of six sources of evidence (which include documentation, archival records, interviews, direct observations, participant observation, and physical artefacts). Due to the nature of this case-study, and research question being relatively straight-forward - only one of these sources of evidence is utilized for which strengths and weaknesses are listed in the table 6 below, according to Yin (2009).

Source of Evidence	Strength	Weakness
Interviews	<p>Targeted - focuses directly on case study topic.</p> <p>Insightful - provide perceived causal inferences.</p>	<p>Bias due to poorly constructed questions</p> <p>Response bias.</p> <p>Inaccuracies due to poor recall.</p> <p>Reflexivity - interviewee gives what interviewer wants to hear.</p>

Table 3: Strengths and weaknesses of this case study (based on Yin, 2009)

Regarding the weaknesses associated with interviews every effort was made to reduce potential shortcomings to a minimum - avoiding the pitfalls of poorly constructed questions, interviews were recorded, and not putting words into the mouths of interviewees, etc.

Yin (2009) suggests that there are four tests that constitute good case study design: Construct validity, internal validity, external validity, and reliability. The suggested tactic to ensure good case study design is listed in the table 7 below, along with the actual tactic adopted in this thesis methodology.

Test	Suggested Case Study Tactic	Tactic Adapted in this thesis
Construct Validity	Use multiple sources of evidence	Conducted interviews in different shop-chains Conducted interviews at different levels of organisation
	Establish chain of evidence	Conducted interviews in four same type of shop/markets, a total of 12 markets
	Have key informants review draft case study report.	Copy of the thesis was sent to HOK-Elanto Quality and Environmental manager for approval.
Internal validity	Do pattern-matching	Analysis of interviews enabled pattern matching of gained values and benefits and for whom these emerge. Pre-interview questionnaires helped to match degree of opinion with explanations of value
	Do explanation-building	Semi-structured interviews were designed to 'tease out' the gained values. Face-to-face interviews enabled detailed discussion of issues and explanations. Pre-interview questionnaires were designed to determine positive and negative points of view.
External validity	Use replication logic in multiple case studies	Embedded case-design was used.
Reliability	Use case study protocol	Every effort was made to avoid any researcher bias and to ensure no personal views were reported in findings.
	Develop case study data base	Most results were recorded on spreadsheets for easy retrieval and analysis.

Table 4: Case Study Tactics adopted in this thesis to ensure good design, (Yin, 1989), From Cosmos Corporation: 'Case Study Tactics for Four Design Tests'.

## 5 Empirical findings

The empirical part of this thesis was conducted by interviews. The themes and list of semi-structured questions for the interviews were listed in advance. At a fundamental level, interviewees were asked about their views on the importance of the waste management service. The interview themes can be divided into three groups: 1) waste sorting; 2) separate collec-

tion of waste-bread; 3) environmental values. Results of these themes will be discussed in the next chapters.

Before discussing the results, it is useful to clarify the terms that are used in the analysis. ‘Staff’ includes all employees, managers and the Quality and Environmental Manager. ‘Employees’ do not include managers or the Quality and Environmental manager, and include only store employees who are in charge of bread units. Managers’ responses do not include the Quality and Environmental manager’s answers; they are always mentioned separately since she represents a decision maker. Interviewee and participants refers to all earlier mentioned parties.

### 5.1 Waste management services

All interviewees acknowledged that the waste-management service is an important service for the shop and how it functions has a big impact on daily routines. Shops produce a great deal of waste, and how it is handled really matters. Interviewees were asked what they value in waste-management services; everyone mentioned that its functionality is the most important element. By functionality, they mentioned the following elements;

- The Shop has enough of the right types of waste-bins
- Waste-bins are emptied in a timely manner
- Waste-bins and waste-areas are kept tidy
- The recycling-process is made clear and easy

Most of the managers and some of the employees mentioned that they also value a trustworthy waste-management service-provider, who organizes sensible recycling and utilization of waste. The Quality and Environmental Manager also provided some insights that might be interpreted as the corporate level view. She explained that she values

*“A good partnership with the waste-management provider”*

By good partnership, she meant that

*“The customer and service provider figures out together how waste-streams can be reduced and utilized”*

Waste reduction is always HOK-Elanto’s main goal. Secondly, she values that

*“Different waste-streams are utilized sensibly. “The shop cannot find the solutions alone; therefore a good partner is required”*

## 5.2 Waste management costs

The cost of waste management was also examined to identify if this was a major driver in the waste-management services. Questions were asked to everyone, but soon (after a few interviews) it became evident that HOK-Elanto has centralized waste-management purchases for the Quality and Environmental manager and therefore the store managers and employees are not necessarily aware of the costs or issues relating to them. Just under half of all staff mentioned that the low price is the most important element in the waste-management services. Nevertheless, these results are, to some extent, conflicting with the question asked earlier, as to what interviewee's value in waste-management. The top answer was its functionality, no one highlighted low price. The Quality and Environmental Manager disagreed with the claim that the most important element is price. As it was mentioned earlier, she values a good partnership, which enables finding sustainable waste-management solutions for HOK-Elanto.

Over two-thirds of all staff believes that recycling should reduce waste-management costs. The Quality and Environmental Manager mentioned that;

*“These days we still talk about waste-management cost, but I am convinced that one day someone will offer us money for our waste”.*

In addition, the Quality and Environmental Manager believed that waste-management costs have not decreased since the bread was collected separately. However, she did mention that her cost analyses were still incomplete from the previous year and she agreed that separately collected waste-bread is cheaper than the normal bio-waste collection. In contrast, a few of the managers mentioned that waste-costs had gone down.

Regarding monitoring of waste-costs, the Quality and Environmental manager explained that, the separate waste-bread collection has not brought any changes. She elaborated further that shops monitor products' wastage-percentages and lost Euros through unsold products.

Even though most staff is unaware of the actual waste-management costs, nearly all appear to be interested in costs associated with this.

### 5.3 Motivation to perform sorting & recycling

Employee and manager motivation to separate and recycle waste was very good. Some differences between the stores were identified; Staff in Alepa seemed to think that employees' motivation was very good whereas in Prisma they thought good. All stated that they are interested in HOK-Elanto's environmental matters.

Management and employees find recycling important for environmental and responsibility reasons. Couple of managers also mentioned that cost saving is a good reason to recycle. Also one employee mentioned that

*“By recycling, the company can achieve savings in waste-managements costs”*

The Quality and Environmental Manager was asked how motivated she thought their employees were. She believed, that

*“The younger the employee the more interested they would be”*

The Quality and Environmental Manager suspected that some of the older employees might question what the point of all the recycling was for. She also emphasized that

*“Even though everyone is not interested in the recycling, they should remember that separate collected bread would bring the company cost savings. If the management does not understand the value of environmental responsibility, they do understand the value of Euros”*

The Quality and Environmental Manager mentioned the importance of environmental responsibility, but she stressed the importance of sufficient implementation in recycling. It should not create additional work for the employees. She mentioned that

*“The waste-bread-collection is a good example of well-organized recycling. It is made easy and stores have really benefited from it”*

Most of the employees and managers found sorting the waste as “one of the tasks” and it was not seen as a negative thing, actually quite opposite: sorting the waste and recycling was seen as a positive thing among all the stuff. Separate waste-bread collection was seen by all staff as a positive thing, more of its benefits will be discussed in next chapter.

#### 5.4 Waste utilization method - does it matter?

When staff was asked if they knew how different waste-streams were utilized, excluding waste-bread, more than half said they do. However, when asked to name the waste-streams, none of them could actually remember these. The Quality and Environmental Manager was an exception. Staff told that HOK-Elanto and SITA have provided this information to the shops, but they did not recall the exact details. Management and employees felt that, because this does not impact their everyday tasks they are therefore not knowledgeable of the detailed information of waste management. This is understandable, since HOK-Elanto has centralized all waste-management matters (such as purchasing, reporting and billing) to their Quality and Environmental Manager.

From the responsibility point of view, HOK-Elanto is interested in where the waste ends-up, and how it is further utilized. The Quality and Environmental Manager stated that, she

*“Does not like the word waste”, she prefers to talk about “feedstock” since the waste already provides feedstock to many waste-utilization plants today.”* She explained further, she believes that *“one day shops will be able to receive compensation from their different waste-streams and then it won’t be waste anymore but valuable feedstock for someone.”*

Additionally the Quality and Environmental Manager emphasized that decision makers in HOK-Elanto are interested in how the waste is utilized and that they find this information important, she mentioned that

*“It is one of the cornerstones of responsibility to know how waste is utilized”*

When asked how important it was to know how the waste-streams are utilized, the majority of the staff mentioned that they have not really thought about it and that the main thing is that they are utilized somehow and do not end-up in landfill. One Alepa employee mentioned the following:

*“It is a good thing if the fuel can also be produced by other than the old traditional ways. Hardly are we able to reduce the wastage to zero, so if the waste can be used as fuel and ease the future oil crisis, that’s a great thing really”*

Whereas one of the Prisma’s managers said the following:

*“Yeah, well, the main thing is that they are utilized in the first place. I've never looked at what would be the most valuable or moral method. The most important thing is that they are utilized”*

The Quality and Environmental manager explained that they identified all the alternative options and treatment facilities. Price was one criterion, but not the only one. Logistics was important too, the transportation is big part of waste-management and it has to be organized sensibly and logistics costs kept under control. It is important to HOK-Elanto that waste is disposed according to the waste-hierarchy. Carbon footprint is also important: A product has a value-chain, and how it is utilized in the end of the chain does matter. The Quality and Environmental manager quoted the following:

*“In accordance with the waste hierarchy, we pursue the best options. I see waste-management as a long value-chain, from product to waste, where it ends up and what is its carbon footprint”.*

#### 5.5 Why was separate collection of waste-bread started?

St1 Biofuels approached HOK-Elanto with a new recycling concept. The Idea was discussed with the company's management board. According to the Quality and Environmental manager there was some debate what would happen to bread and what kind of discussion this would cause amongst consumers. The Quality and Environmental manager said:

*“I still shun the word waste-bread and we have to think carefully about when we talk about the matter, the point is in the fact that our primary objective is to reduce waste.”*

She explained further that if they do not succeed in reducing the waste then the second alternative is to donate the bread to charities. Bread is still the only foodstuff today that can be donated from supermarkets to charities. Utilizing the bread into bioethanol comes only after these steps. The Quality and Environmental manager pointed out:

*“It is not our primary goal to produce bioethanol. We have to be careful in communication, that people do not get the impression that this is such a channel where food is wasted for bioethanol feedstock”*

The Quality and Environmental manager went on to explain the fact that charities can only take so much of the bread at once and cannot handle all the stores' bread-waste. However, the consumers do not necessarily understand this.

The decision to start separate waste-bread collection was made at the HOK-Elanto management level. The Quality and Environmental manager listed the following reasons:

- Some of the bread ended it up with mixed waste going to landfill, since employees did not always have time to remove packaging. Separate collection enabled employees to dispose of the bread with packaging.
- We saw the waste as valuable feedstock for St1; someone else can still utilize the bread, sustainably, for a valuable product.

The Quality and Environmental manager added:

*”At this point, I said out loud for the first time, that, one day St1 will pay us for this valuable feedstock” This day has not come yet, but we are waiting for the day.”*

Even though employees and managers did not take part in the decision making process, all staff valued the fact that HOK-Elanto had begun recycling waste-bread into bioethanol and that HOK-Elanto wants to be a forerunner and take part in this new innovative recycling concept.

#### 5.6 Implementation of the separate collection of waste-bread

HOK-Elanto started piloting the concept with 6 stores; they wanted to see how it would work and how the employees experienced it. From these initial pilot stores HOK-Elanto wanted to understand how employees need to be trained and how the logistics of collection should be organized. After good results, the concept was expanded to other stores in greater Helsinki area. Waste-bread is collected even from small stores, where they have only one waste-bin. Accordingly to the Quality and Environmental manager, separate waste-bread collection has not increased the number of waste-containers, since number of normal bio-waste containers have equally reduced. The stores that donate bread to charities still give the required amount while the rest is disposed to waste-bread collection.

Almost all staff said that they found it easy to remember how different bio-waste is sorted and they indicated that they have received clear instructions. These results support the fact that staff knew how waste-bread is now utilized into bioethanol.

Prior to separate waste-bread collection, the employees had to remove the packaging from the products before disposing them into waste-containers. This was a time consuming process, which the majority of employees found it an unpleasant task. As a result of this, signifi-



cant amounts of bio-waste ended-up in landfill. Typically the bread was collected into waste bin-bag or trolley, and then handled them in the back-room.

The separate waste-bread collection enables employees to dispose the products into waste-containers with packaging. Therefore, the employees now save a substantial amount of time in this process while sorting the waste during the morning, which means that no bio-waste is disposed with land-fill waste. The other benefits of the new process are described later in the chapters.

All the employees had received clear instructions on how the waste-bread is separated from other bio-waste. Also managers were very aware of the instructions. In addition to receiving instruction on how to sort the waste, staff were informed why waste-bread was separated and how it was re-utilized to produce bioethanol and animal feed. Unlike the other waste-streams, part of couple interviewees everyone knew how waste-bread is utilized.

In seeking to understand why the staff knew that waste-bread ends up as bioethanol feed-stock, interviewees were asked why they remembered how bread is utilized, but could not tell how other waste was utilized, the following themes came up:

1. HOK-Elanto and/or SITA provided information specifically about the new recycling concept:

*“The recycling concept was explained to us well; why bread is separated from bio-waste and why meat products are not suitable. If you know the reasons behind the instructions you understand and remember them better”*

*“SITA came to the shop to do training”*

*“HOK-Elanto introduced the concept well in the management meetings”*

*“HOK-Elanto provided clear instructions”*

*“It was marketed well for us”*

2. The novelty value:

*“Sparked discussion between staff - Can this really be true, can biofuels be made from waste-bread”*

*“New innovative way to recycle - Sounded great and practical idea”*

*“Easier to remember, since the end product is biofuels and not just soil”*

*“There was a newspaper article about this new recycling concept”*

### 3. Others:

*“I guess it is the latest change in waste-management, therefore I remember it”*

*“It is written on the waste-bin-truck which collects the bread”*

The interviews revealed that there is much less awareness that waste-bread is not only utilized to produce bioethanol but also to make animal feed as by-product. However, in interviews, many participants said that they did vaguely remember that it was mentioned during the training and that many also made the connection of animal-feed with the reasons why they cannot recycle meat-products into bread collection. Half of all interviewees knew this. Managers were generally more aware than employees, in total half of the staff knew that bioethanol by-product goes to animal-feed. Prisma's employees were the most knowledgeable out of all employees.

The Quality and Environmental manager mentioned the following:

*“All in all, I think everything has gone terribly smoothly. The employees in the retail sector change pretty quickly, but even though we have been able to guide the new employees to a new way of sorting the waste-bread separately. Many of the new employees already have sorted breads separately in the previous jobs (supermarket)”*

Clearly, it was evident that HOK-Elanto and SITA have done an excellent job in introducing and communicating the new recycling concept for the management and the employees. Clear guidelines and facts have been presented and communicated, to explain why certain things are done and how the waste is being utilized further.

#### 5.7 Separate waste-bread collection - the gained benefits

At the end of each interview, the staff was asked an open question: What are the major benefits in the recycling of waste-bread into bioethanol? Interviewee's responses are listed just as they answered; therefore, the answers do not necessarily include the benefits the interviewee may have already mentioned earlier during the interview. The answers are clustered by common themes as following:

1. Environmental and Social responsibility value
2. Process improvement
3. Motivational effect

4. Financial benefit
5. Marketing potential

The most common themes that emerged appeared to be ‘environmental and social responsibility’ and ‘process improvement’. Environmental and social responsibility related values were most mentioned by all the staff; more than two-thirds of all interviewees mentioned these as the most gained benefit in recycling waste-bread into ethanol. More than half of the staff thought that separate waste-bread collection had positive impact on the sorting process and it had impacted positively to their daily tasks; such as, recycling is now faster, cleaner and easier. Perhaps related to the above themes, about one-fifth of interviewees said recycling of waste bread has a motivational effect on them. A similar proportion, felt financial benefit as gained value. Less than one-fifth believed marketing potential to be one of the gained benefits.

The above themes were also analyzed by positions and store types. Managers were more likely than employees to mention, Environmental and Social responsibility value as the most gained benefit. The Quality and Environmental manager also viewed Environmental and Social responsibility value as the most gained benefit. She mentioned following;

*“Perhaps the fact that we are able to provide bread for further processing which allows for extended product life cycle that it does not end up in a compost”*

Employees ranked Environmental and social responsibility value equally as high as the value gained through positive impact to daily-tasks. Managers were more likely to mention financial benefit as value than employees. None of the managers mentioned marketing potential as a benefit, whereas about one-fourth of employees mentioned this as a gained benefit.

The responses were also analyzed by store types. The differences between store types and hierarchy demonstrate the importance of the sampling methodology of utilizing several different types of stores and hierarchy, which was adopted in this study. For example, it is apparent that findings would be different if one had concentrated efforts on either Alepa or Prisma. The differences are discussed further below.

Most of the Alepa’s and S-Market’s employees mentioned Environmental and Social values as most gained benefit, whereas the most gained value by Prima’s employees was recycling bread into ethanol as a positive impact on daily tasks. In the case of S-Market, just as many employees mentioned positive impact on daily tasks as environmental and social responsibility value. A quarter of Alepa’s and Prisma’s employees mentioned that recycling waste into eth-

anol has motivational effect on their work, which they feel as gained value. Half of Alepa's employees mentioned recycling as potential marketing value, and Alepa employees were the only to mention financial benefit as a gained value. One of the Alepa's employees mentioned following:

*"I believe that the economy, but I also see the advantage that we have been a pioneer and we have opportunity to inform media and consumers that we do this and do that"*

The responses were also analyzed by store and manager. Unlike Prisma's employees, all of Prisma's managers mentioned Environmental and Social responsibility value as most gained benefit. Half of Prisma's managers also mentioned financial benefit as gained value. Most of S-Market's managers also mentioned Environmental and Social responsibility values as most gained benefit. In contrast, Alepa's managers felt that the greatest gained benefit was the positive impact on daily tasks. One of the Alepa's managers commented following:

*"No doubt that following the wastage is now easier - it is so concrete now- It's the biggest benefit that comes to mind"*

In the interviews staff was also asked whether they thought that waste-bread amounts had reduced since they started to collect it separately. Over two-thirds of all staff responded that the generated waste amounts have not gone down. Only very few thought that the amount had decreased. However, just over half of the staff said they are now more aware of the bread-wastage than previously when collected together with other bio-waste. Although they are more aware of the wastage it does not necessarily mean that it would have an impact on wastage monitoring or making orders. Even though one-third of the staff said that waste-bins act as wastage-measurement, which they monitor and often act from that (i.e. check the order and change it manually if necessary). The following comments were picked-up from interviews:

*"We see it immediately if the wastage is above normal"*

*"Seeing it, is more concrete than seeing a wastage-percent"*

*"We always talk about wastage by number of waste-bins - for example; today we only had two waste-bins of wastage"*

Overall, around two-thirds of staff agreed that clearing bakery waste was now easier since separate waste-bread collection began. Interviews revealed that shop size, type and location

of waste-room, determine how waste-bread is handled in the stores. Prisma's employees felt most that their work has become easier since the separate waste-bread-collection. This was due to the fact that Prisma-stores have well designed waste-management facilities and with those Prisma stores interviewed, all except one store collected bread-waste directly into waste-bread containers (waste-bins). This speeds-up the handling of the waste, and therefore, employees felt that work has become easier. One of the Prisma stores actually gives left-over-bread to charity; and therefore they do not collect the bread directly to the waste-bin. The charity takes what they need and the shop disposes the rest into waste-containers.

It also became evident that all staff find it more meaningful to recycle if they know how the waste is utilized and they also believe that recycling of waste-bread supports HOK-Elanto's environmental values. There were no differences between the management and employees. Small differences between stores were found; S-Markets' employees and Prisma's management felt it most meaningful to recycle when they know how the waste is utilized. All participants would recommend the separate waste-bread collection to other stores.

#### 5.8 HOK-Elanto's public relations relating environmental issues

A high proportion of the interviewees stated that HOK-Elanto informs customers of their environmental matters. When examining if customers are informed regarding waste-bread being used to produce biofuels, just under of half of responded answered that they did not know and about one-fourth mentioned that they have not informed customers and other one-fourth mentioned that they have. During the interviews it became apparent that the participating store employees and management do not get involved with their company's public relations matters, therefore their responses only represent their own opinions of it. The Quality and Environmental Manager is responsible for environmental public relations issues and therefore represents the Company view.

The Quality and Environmental Manager said that they have not informed the customers. She elaborated the matter further:

*“Our priority goal is to reduce wastage. A secondary goal, if we have not succeeded in wastage reduction, is to give bread to charity. Bread is still one of the few foodstuffs that we are allowed to do so. These two things come always before bioethanol. For these reasons, we need to be careful in communication and public relations, that consumers do not get the wrong idea that we waste good food for bioethanol feedstock. Our priority is not to produce feedstock for bioethanol. Charity-work is very important for us, but as I know myself charities are already getting more than enough bread and therefore they*

*are unable to distribute more. I still found myself explaining this to people. Consumers do not necessary understand this.”*

But at the same time all interviewees mentioned that they tell consumers openly about their waste-management matters if they ask. For example employees inform customers that waste-bread is utilized as bioethanol feedstock. One of the employees mentioned:

*“In this area, customers are really interested in environmental issues, and they often ask us what we do with the waste. There are a lot of these eco-people and they want to know where our waste goes. Now we can tell them that the bread is utilized”*

Almost all staff believes that their consumers are interested in HOK-Elanto’s waste recycling matters. Also the Quality and Environmental Manager highlighted that she continuously receives inquiries from their consumers regarding the waste; how they are utilized, and does the company give any to charities. The Quality and Environmental Manager said that she tells consumers frankly how waste is utilized; e.g. some of waste-bread is given to charity and the rest goes for bioethanol production.

## 6 Discussion

The purpose of this study was to understand can the customer create value by recycling waste into bioethanol and how value emerges in the customer’s organization, daily processes and tasks and for whom. The waste-management industry is developing rapidly and new innovative technologies pop-up continuously to utilize different waste-streams, both in recycling and in the energy sector. This means that different waste-streams will become more and more a desired feedstock. And, as result of this, the waste producers will have several different options to utilize their waste. St1 Biofuels produces bioethanol from waste-streams, and therefore the company is dependant on customer’s waste-streams.

A further aim of the study was also to examine what the role of customer and St1 Biofuels are within the service of separate waste-bread collection into bioethanol. Grönroos (2010b) has argued that there is very little real knowledge about the process of value creation and that it is probably most vaguely defined in concepts of service marketing. However, more recently Grönroos and Voima (2012) have attempted to define the roles of the customer and company in value creation and value co-creation. According to their theory, both the company’s and customer’s roles can be classified into three spheres of value creation: provider-sphere, joint-sphere and customer sphere. Interaction within these spheres can be either direct or indirect, which establish the form of value-creation and co-creation. This thesis attempts to analyze

the roles of St1 Biofuels and the customer using this theory as a framework. However, Grönroos' and Voima' (2012) framework was only discovered after the empirical findings and conclusions were done. The theory was therefore added to support the findings.

The research questions were defined at the beginning of this study, and these are explored based on findings of the study below.

This main research question attempted to answer the question 'can the customer create value by recycling waste into bioethanol?' The sub questions, R2 and R3, attempt to find answers as to how value emerges and who creates it. The latter two questions provide in-sights into customer's experiences and provide deeper understanding to help answer the main research question. For that reason the research questions R2 and R3 are discussed first.

#### 6.1 RQ2: How does value emerge?

The study revealed that value emerged at all interviewed levels of the organizational hierarchy, both at organizational and at individual levels. The value emerged in environmental values, in process improvement, in motivational value and financial value. In addition, marketing potential value was also identified.

As anticipated, most of the participants identified value creation through environmental and social responsibility related values. The recycling of waste-bread into bioethanol was seen as an highly-environmental action, which emerged mainly as organizational value, such as;

*“Good for company image to show that it is socially responsible”*

*“HOK-Elanto is an enlightened company, who cares about the environment”*

*“By doing this I get better a conscience”*

*“Better feeling to recycle when I know that waste is utilized. I feel better!!”*

Furthermore, it was also evident that HOK-Elanto's decision to recycle waste-bread into bioethanol also enables employees to “feel good” about recycling - they feel motivated and responsible and therefore value creation could also be seen at the individual level. MacDonald et al. (2011) suggest that in the B2B context, customers may have individual or organizational goals relating to value. The authors propose that there may be: a) beliefs that relate to provider attributes or features; b) subjective benefits; c) consistencies with personal values. So depending on the individual, the perceived value differs from person to person and their goals. And as demonstrated by the study, the same value can be perceived at the same time on the individual and/or organizational level depending how the individual experiences it. In

this instance, for example, environmental value was seen by some participants as organizational value and by others as individual value, as demonstrated in above quotations.

Macdonald et al. (2011) point out that, often, the service provider fails to identify the customer value creation at customer's different hierarchy levels, particularly at the higher levels. In this case, St1 Biofuels had only been in contact with decision-makers prior to study and hence getting new insights from supermarket employees and managers provides a better understanding of value formation within HOK-Elanto.

Employees perceived value equally as high, through the process improvement that emerged in their daily tasks, subsequent to the recycling of the bread. Value emerged for employees in their daily task of sorting and disposing of the waste-bread. Since the new recycling concept was introduced, the employees said that the process is now much faster, easier, cleaner and more pleasant to do. By the same token, the management valued that the process saves employees time and they are able to utilize their time in 'front of shop'-duties instead of in the back room sorting the waste.

It is interesting that different value perceptions between stores may be traced back to practical arrangements within the stores. The study exposed that the employees in Prisma and S-Market gained more value in process improvement than in Alepa. This could be explained due to the fact that in Prisma supermarkets have excellent waste-management facilities in-doors, which allow them to bring the clean waste-bread-bins into the bakery section in the morning; this allows employees to collect the waste-bread from the shelves directly into the bins. This makes the task faster and easier.

In contrast, Alepa-stores are smaller and typically the bins are located outdoors and, therefore, the employees do not want to bring the bins into the bakery-section - which causes more handling of the waste-bread. Contradictory to this, Alepa's managers felt that recycling of waste-bread has had a positive impact on daily-tasks. Perhaps this is due to the fact that many of the Alepa's managers mentioned that management of the wastage is now easier to monitor since it is collected separately. Managers felt that the bins work as "the waste-measures", which indicates to them if there are an unusual amount of waste on a certain day which prompts them to check and revise future orders manually.

This was also mentioned by Prisma's management and employees, as well as Alepa's employees. S-Market management and employees did not "use" waste-bins as waste-measures. HOK-Elanto has a reporting-system in place, where the shop-managers can follow the wastage, but still the old saying "*seeing is believing*" appears to also have some significance here.



Thus, it was evident that sorting the waste-bread into separate containers brought process improvement for the supermarkets. The process is now faster and cleaner. However, it must be pointed out, that separate waste-bread collection for bioethanol production was introduced to stores at the time when Helsinki area did not have collection for packaged bio-waste, and the packaging material had to be separated from the bread prior to disposal. This was very time consuming for the employees and, occasionally, the bread was disposed of in mixed waste instead of in bio-waste containers and so they ended up in landfill. Therefore, waste-bread collection really brought relief to employee's daily tasks. Since then, Helsinki area shops are now able to dispose the bio-waste with packaging material and separating the waste-bread from other bio-waste no longer offers the same advance. However, the process improvement identified that the relief of removing the packages was not the only improvement, but also the possibility to collect the bread directly to containers and cleanliness of the process now, since the employees have now less contact with "smelly" bio-waste bins.

Staff also appreciated that bioethanol production was a concrete utilization of waste of which they could see something beneficial. Some of the employees mentioned that they feel bad to through wastage away, but since it is being utilized sensibly, and it can replace fossil fuel, they obtain a better conscience. Employees also felt more motivated to recycle, since the process is now faster and cleaner, which has a further motivational effect on their work.

The Quality and Environmental Manager stated in the interview that she receives inquiries from employees sometimes relating to recycling. She elaborated a good example, where a little bit 'ratty' employee called her and asked why they had to separate waste-bread from the normal bio-waste, since a waste collection truck driver had emptied both types of waste into the same truck. This observant employee had noticed this and wanted to know the reason why. The incident was investigated and on that particular day, for some reason, a competitor waste management company had mistakenly emptied the shop's bins. This incident therefore made the employee question the purpose of recycling and the sense of it. Moreover, this also demonstrates that employees really do care and by knowing that the waste is utilized sensibly, for something useful like bioethanol, it does have a motivational factor for the employees.

Financial benefits were also identified as perceived value, mostly by managers. The Quality and Environmental manager did not directly say that their waste-management costs have reduced since they started the separate waste-bread collection, but she did mention in the interview that it is cheaper to collect waste-bread separately from normal bio-waste. So it may be deduced indirectly that there is also financial value for the customer.

Marketing potential was only mentioned by employees, it was also seen as a potential benefit. Employees mentioned, for example, that they believe that customers value HOK-Elanto's sustainable values and appreciate that the company wants to be a forerunner in environmental matters. Several employees mentioned that the company could create value by informing customers more about their recycling. The Quality and Environmental Manager sees the other side of the coin, regarding the marketing potential of any food waste-streams; she stated that they have to be extremely careful in their communication to consumers, that they do not want consumers to think that bread is provided for bioethanol feedstock as such.

Shops, and the food industry in general, have been criticized lately for not distributing the old food for the people in need. In reality, shops do give food out to charities, according to health-regulations, and in the same way HOK-Elanto also does this. However, the charities can only take so much of the bread per day and therefore cannot distribute all 'leftovers' to those who might otherwise use it. Hence, shops need alternative options to dispose of the dated bread. St1 Biofuels have their own experience of charities in Helsinki; some are unable to distribute all the bread available for them to where it is needed. There are already two different charities who, on a weekly basis, deliver the left-over bread to St1 Biofuels, because they have too much of it. This is something that media and many consumers are not widely aware of.

Regardless of the challenges of communication on this sensitive matter, HOK-Elanto has published some articles regarding the recycling of their waste-bread into bioethanol. The wider public-communication could be seen after the high blend bioethanol fuel of E85 went on sale to S-Group owned fuel stations of ABC. These stations sell the actual bioethanol fuel, which is produced from S-Group's waste-bread. This study did not interview any marketing people within HOK-Elanto, S-Group or ABC service-station organizations; therefore the real marketing value has not been studied here.

TEKIJÄ ARJA KRANK  
KUVAT SEFFO SAMULI

## Puhdasta menovettä biojätteestä

Kuka olisi uskonut, että fossiilisten polttoaineiden ilmastokuormaa pystytään keventämään jätteillä? Muun muassa jäteläivästä valmistettu etanoli on bensaa puhtaampi vaihtoehto.

**H**elsingin Viikissä sijaitsevan kaupan leipävalikoimat ovat etenkin kuin sieluyölliset. Pötköt leijit parsovat aamun tuuleina tuoreita ja tuoksuvaan vehnällä. Pötkönä kyyryillä hehkyä seki täytetään eeli tyhjennetään. Myyjä Jenni Reini kerää pois ruusileipä, jonka pakkaukseen on liimattu pötköön ohjeita. Kun parasta ennen -päivämäärä on ohitettu, leipä hehkyvät ovat lauantai. Vanhentuneet leivät toimittetaan HOK-Elannon ensisijaisesti hyväntekeväisyysjärjestöille. Loput ovat biojätettä, jota suo osa kuljettajan etanolista valmistavaan tuotantolaitokseen.

HOK-Elannon liikkeitä Ippi ja kerää vanhentuneet leivät polttoaineen raaka-aineeksi. Pötkönä täytetään Savi Kuusti valua. Vantaalla Etanolite tuotantolaitokseen odottaa jo Leipäringin autoa lastaamaan. SITA:n auton kuljettaja Jussi Iivosa kurvaa etanolipolttoainetta kyyryillä keräysautollaan seurantapötkö. Mies astuu autosta ulos ja lävyyttiä lastauslaakia suki. Leipävirra valuu autosta välittömään tuotantolaitokseen keräysauton nielemaan.

**Kotimaisesta kierrätysraaka-aineesta**  
Etanolin on suomalainen patenttitoiminta, jonka kehittäjä energiateknologian yritys S1 Oy ja Teknologian tutkimuskeskus VTT. Kompaktista ja



28 Yhteishyvä SYYSKUU 2012

Figure 11: Yhteishyvä-magazine (September 2012)



Figure 12: ÄSSÄ-magazine (November, 2011)

ravintolapäällikkö **Matti Lindfors** toteaa.

HOK-Elanto oli mukana MT:n Foodspill-hankkeessa, jossa selvitettiin Suomen ravintolasektorilla syntyvää ruokahävikkiä. Tulosten perusteella HOK-Elannossa on selvitetty tarkemmin lautashävikin syitä.

— On tunnistettava, mitä lautaselle on jäänyt ja miten saataisiin asiakas syömään lautanen tyhjäksi. Voidaan antaa mahdollisuus valita annoskoko tai tarjota jo valmiiksi kahta erikoista annosta. Haasteena ovat muuttuvat kuluttajatottumukset, Kattilamäki toteaa.

Matti Lindforsin mukaan karppaus-ilmiö näkyy Hampurilaisesta voi jäädä kansi syömättä tai lisukkeet vaihdetaan salaattiin. Tätä tapahtuu eniten lounasaikaan, kun taas illalla herkutellaan edelleen.

— Hävikin hallinta vaatii aktiivista otetta ja huolellisuutta. Osuvan raaka-aineiden tilaustoiminnan lisäksi hävikkiä vähentävät laadukkaat raaka-aineet tavarantoimittajaltamme Meira Novalta, valmiit raaka-ainekomponentit, omavalvonta ja oikeaoppinen säilytys. Sitä tehdään, mitä seurataan: ruokahävikki on meillä reilusti alle prosentti ruokalikevähdistämme. ■

### Autokin kulkee leivällä

**Osa HOK-Elannon** myymälöissä syntyvästä leipäjätteestä menee hyväntekeväisyyteen, osa etanolintuotantoon. Jätteen noutaa myymälöistä SITA Finland Oy:n auto, jossa menovettä on leipäjätteestä valmistettua etanolidesellä.

Hävikkiin kirjatut elintarvikkeet eivät aina ole ravinnoksi kelpaamattomia. Esimerkiksi leipomotuotteet ovat usein elintarvikkeluokkaa parasta ennen -päiväyksen jälkeenkin.

HOK-Elannossa toimitetaan hävikkiin kirjatusta leivästä noin kolmannes hyväntekeväisyyteen: lähes 30 hyväntekeväisyysjärjestölle, seurakunnille, työttömien yhdistyksille jne.

Satu Kattilamäki muistuttaa, että hyväntekeväisyyteen voidaan elintarvikelaian mukaan luovuttaa vain parasta ennen -päivämäärällä merkittyjä tuotteita. Osallistuuensa hyväntekeväisyyteen myymälä vastaa siitä, että sen vastikkeetta luovuttama elintarvike on elintarvikkeluokkaa.

33

F:

## 6.2 RQ3: What is the role of customer and provider in value creation?

So what is the value creation role of St1 Biofuels (the provider) and HOK-Elanto (the customer) in recycling waste-bread into bioethanol? Who creates value? At first, this proved to be a tricky question, for which answers could not be found directly from theory or from customer interviews. The study showed, undoubtedly, that St1 Biofuels facilitates value-creation for the customers through their knowledge, processes and resources. St1 Biofuel's waste-to-ethanol production enables customers to utilize their waste for sustainable biofuels and provides environmental values for the customer. In HOK-Elanto's case, the customer's goal was to utilize their waste in such a way. Therefore, it can be said that value is created.

As Korkman (2006) mentioned earlier, customer value is embedded in the customer's processes and practices, which can be enhanced through positive changes. These changes can be, for example, tools, know-how, images and physical space. Also, Payne, Storbacka and Frow (2007) suggest that the more customers have information, knowledge and skills available, the better ability they have to create value. This study therefore supports these theories.

By changing a simple task, such as recycling of bio-waste, HOK-Elanto has managed to create value in areas beyond their initial goals. By changing their processes for recycling waste-bread, away from other 'smelly' bio-waste, they created a more pleasant physical space for the employees. Some of the managers and employees mentioned that they are now able to monitor the wastage easier. It was also mentioned that the recycling task is now much faster.

The study identified that knowledge can truly create value; I would argue that the knowledge sharing from St1 Biofuels and SITA to HOK-Elanto and from the Quality and Environmental manager to employees and managers has been one of the key fundamentals in HOK-Elanto's value creation process. The Quality and Environmental Manager has done an excellent job in "marketing" the new concept of recycling waste-into-ethanol to its employees. HOK-Elanto, together with SITA, educated the staff about the new processes and, most importantly, why waste-bread is collected separately and how it is utilized as biofuel and animal feed. This knowledge has also impacted on employee's motivation to recycle, they feel more motivated and some even gained a better conscience when they knew that waste is sustainably utilized. Recycling waste-bread into sustainable biofuels also opens an opportunity for HOK-Elanto to create value via marketing, if they wish to do so. However, informing consumers of HOK-Elanto's sustainable environmental and social values, as discussed earlier, is in some respects as sensitive issue, which needs caution when planning.

The Figure 13 below attempts to depict the roles of St1 Biofuels and HOK-Elanto in value creation. The Figure is based on Grönroos' and Voima's (2012) value creation spheres framework. Initial analysis of the roles was done before this theory was found, which presented a very similar picture of the roles. The study identified that St1 Biofuels acts as a value facilitator and has a value co-creator's role in the waste-to-ethanol service concept. At the customer end HOK-Elanto acts as co-creator and value creator in this process.

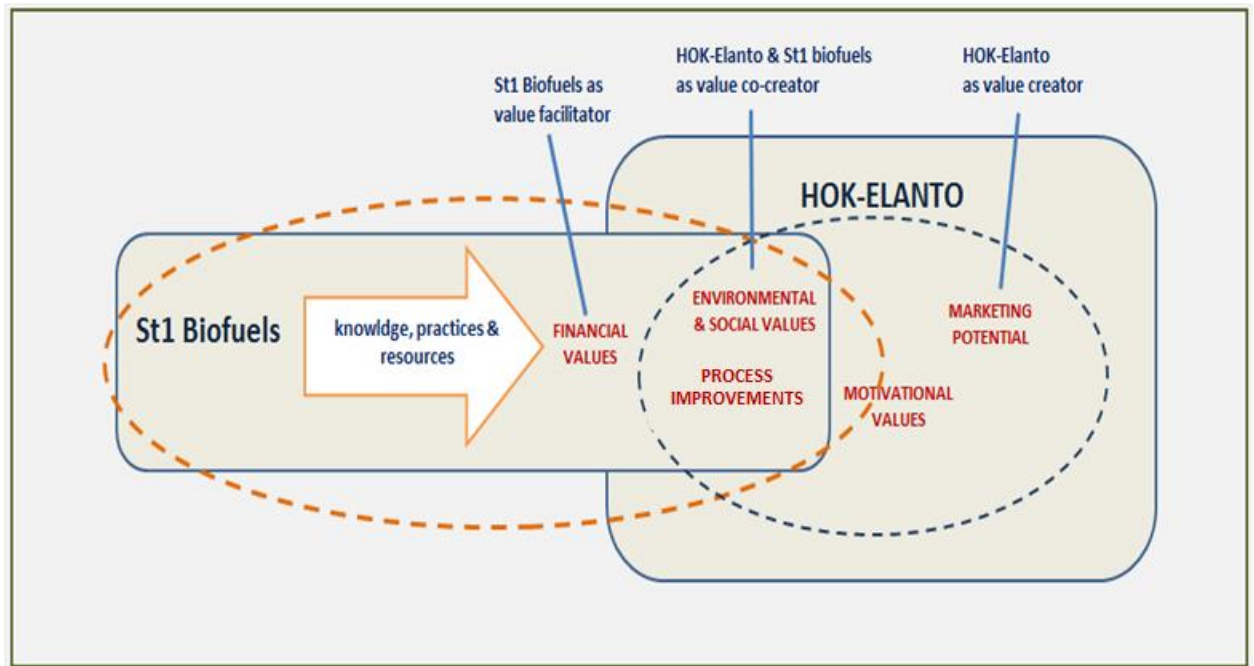


Figure 13: Roles of supplier and customer in value creation within case study

According to Grönroos and Voima (2012) value facilitation is not part of value creation, but more an outcome of the service which the customer may use in their value creation process. However the supplier company is in charge of these processes. According to this theory, St1 Biofuels acts as value facilitator relating to financial value and, as highlighted by Grönroos and Voima (2012), is naturally in charge of this through their pricing strategy.

Environmental & Social values and process improvement were found to be jointly created, therefore both HOK-Elanto and St1 Biofuels act in these processes as value co-creators. The customer is in charge of these processes. Motivational value is partially co-created and partially created by HOK-Elanto. As mentioned earlier, HOK-Elanto has taken a conscious decision to inform the staff about the waste-to-ethanol concept. The knowledge has been the fundamental factor in creating motivational value within the staff. They know why they are recycling the bread and how it is concretely utilized into fuel and animal feed. Through this knowledge staff has been able to create individual value in both motivational and environmental aspects.

Marketing potential remains within HOK-Elanto's sphere, they act on that issue as a co-creator. If they decided to invite St1 Biofuels as a co-producer, for example in a marketing campaign, the roles could evolve. Macdonald et al. (2011) note that customer's 'value-in-use' evolves over time. In a similar way, this has been the case also with HOK-Elanto. In the beginning, for example, the service provided significant process improvements for HOK-Elanto, by greatly relieving unpacking of the packages but nowadays this biowaste collection of 'packaged' bio-waste has been in operation in the Helsinki area for some time. Therefore, it is more than likely the actual value-in-use was larger at that earlier point, whereas as now the relief may not appear as great. Also, Grönroos and Voima (2012) point out that the different spheres are dynamic. This was also evident in this case. Hence, in the piloting-phase of this service, St1 Biofuels invited HOK-Elanto to become co-producer of the service to ensure the service enabled the customer co-creation.

### 6.3 RQ1: Can the customer create value by recycling waste into bioethanol?

So, can the customer create value by recycling waste into bioethanol? In answering this question it is useful to consider that HOK-Elanto's goal was:

*“to utilize waste sensibly into something useful”*

Indeed, it became evident that recycling waste into ethanol provides the customer other benefits beyond initial environmental goals. In conclusion, value emerges at organizational and individual levels in HOK-Elanto's organization. Recycling waste into bioethanol offers customers an opportunity to handle their waste sustainably, which allows them to co-create environmental value. Additionally, recycling has eased employee's daily tasks, and knowing that waste is utilized sustainably to produce biofuel, has improved staff motivation to recycle. Some employees even mentioned that they now have a better conscience, since the waste-bread does not go to “waste.”

Therefore, it can be concluded that, the customer can indeed create value by recycling waste into bioethanol. According to Grönroos' and Voima's (2012) theory HOK-Elanto acts mainly as co-creator, but they also have the opportunity to become value creator. In some aspects they already have created value by publishing some newspaper articles. They also have played a large role in knowledge sharing, which has impacted employees' motivation to recycle.

The literature on service does not provide simple answers to who creates value. Is it equally created by the supplier and customer, or does one party have a co-creation role? But does this really matter? Based on the findings of this study, what appears to matter is that the

focus is on customer, and the supplier understands the customer's value creation process - where, how, why and to whom 'value -in-use' emerges. In addition, the more the supplier 'interfaces' with the customer (i.e. tangible waste-bins, trucks, knowledge etc which facilitates value creation, rather than merely interacts with the customer), then the more opportunities the supplier obtains to create value with the customer.

## 7 Suggestions for further studies

This study purely examined value-creation at three levels in HOK-Elanto's organisations;

- 1) Quality & Environmental manager (decision maker)
- 2) Shop/Market Managers
- 3) Shop/Market employees

No other departments, such as marketing and top management were interviewed in this study. Therefore, marketing potential could not be examined in detail. Also, SITA Suomi's role was not studied in this case study. As mentioned in the beginning of the study, SITA Suomi, has a role in the partnership of producing service of separately collected waste-bread from the supermarkets and therefore their role in the network value-chain is vital.

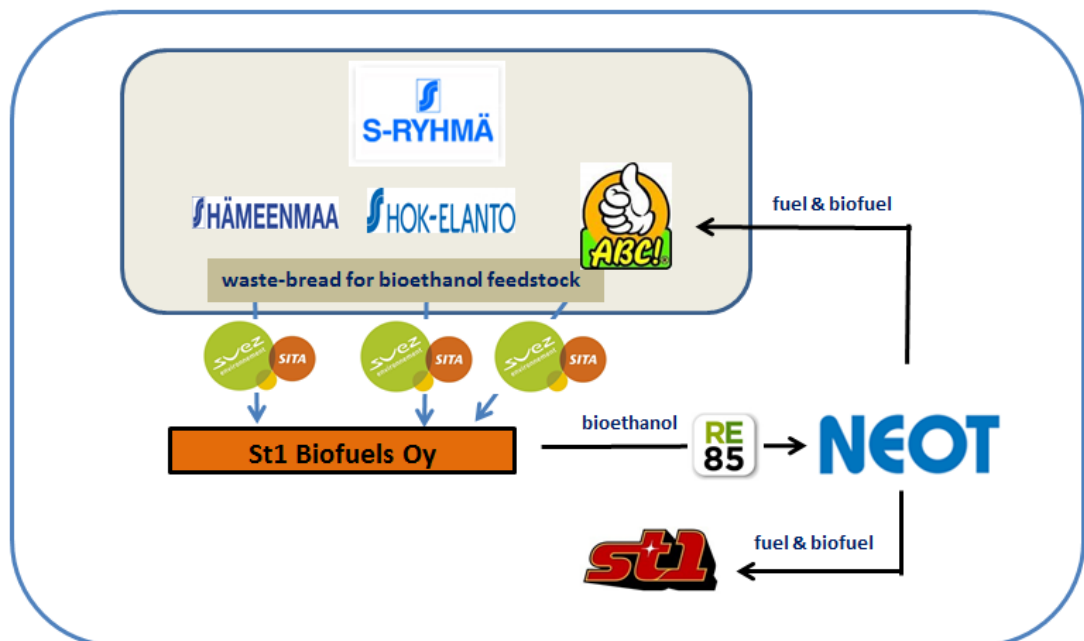


Figure 14: Network- value-chain

This study only examined the value-creation process in HOK-Elanto's co-operation. Waste-bread is also collected from other co-operations and S-Group's ABC-fuel-stations, where NEOT

OY (North European Oil Trade) supplies biofuels produced from waste-bread as described in Figure 14 above. NEOT is part-owned by S-Group (51%) and part-owned by St1 (49%). NEOT supplies all the fuel to both parties' fuel stations in Finland. Hence, it would be interesting to study the whole network's value-chain. (<http://www.neot.fi>)



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## List of Figures

Figure 1: Roles within the case study .....	8
Figure 2: The evolution of marketing (Lusch et al. 2007) .....	11
Figure 3: Conceptual framework for customer assessment of value-in-use (Macdonald et al. 2011) .....	16
Figure 4: Etanolix®-concept (St1 Biofuels Oy).....	21
Figure 5: Supermarkets brands in HOK-Elanto.....	22
Figure 6: The Separate waste-bread-collection (St1 Biofuels). Top row: separation in the supermarket; Second row: transportation of the bread; Third row: delivery to ethanol plant; Bottom row from left: Processes bread, St1 bioethanol plant's end products = animal feed & ethanol.....	24
Figure 7: Data collection within HOK-Elanto hierarchy .....	26
Figure 8: Example of transcribed interview question .....	30
Figure 9: Iterative model of data analysis (Miles and Huberman, 1994) .....	30
Figure 10: Example of data coding and displaying.....	31
Figure 11: Yhteishyvä-magazine (September 2012).....	50
Figure 12: ÄSSÄ-magazine (November, 2011).....	50
Figure 13: Roles of supplier and customer in value creation within case study .....	52
Figure 14: Network- value-chain .....	54

## List of tables

Table 1: Revised foundational premises of service-dominant logic, adapted from Vargo and Lusch ( 2008).....	12
Table 2: Relationship of pre-interview- and interview- questions to Primary Research Questions. ....	28
Table 3: Strengths and weaknesses of this case study (based on Yin, 2009).....	32
Table 4: Case Study Tactics adopted in this thesis to ensure good design, (Yin, 1989), From Cosmos Corporation: ‘Case Study Tactics for Four Design Tests’. ....	33

Appendix 1.

<b>Date:</b>					
<b>Name:</b>	<b>Thank You for your participation!!!</b>				
<b>Store:</b>					
<b>Waste sorting</b>	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
Our employees motivatio to separate the waste-streams in the store is good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how all waste-streams are sorted in the store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have received clear instruction how to separate the different waste-streams in the store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it difficult to remember how different bio-waste is sorted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To me it is important , that waste-streams are sorted and utilized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know where our waste-streams ends-up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Seperate collection of wastebread</b>	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
I have received clear instructions how to sort waste-bread from other waste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know, that wastebread is used to produce biofuel for transportation use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know, that biofuel production produces animal-feed as by-product, which is utilized in the local farms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Separate collection of waste-bread has increased employees daily workload	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in the store's bakery products section, clearing the old products from the shelves is now easier since waste-bread is collected separately from other waste, e.g. products can be collected directly into waste-bins	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste-bread amount has gone down since we started the separate collection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employees are more aware of the amount of waste-bread now, since it is collected separate from other bio-waste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found it more meaningful to collect the waste separately, if I know how they are utilized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't care were our waste ends-up, as long as they leave the back-yard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Wastemanagement costs</b>	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
The most important element in the waste-management is low price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Separate collection of different wastestreams should decrease the store's waste-management costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Separately collected waste-bread's waste-management costs are too high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste-management costs have decreased since we started to collect waste-bread separately	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste-management costs do not intrest me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Since waste-bread is collected separately, other bio-waste costs are now easier to monitor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Environmental values</b>	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
I am intrested in our Company's environmental matters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I value, that our store have started the recycling of waste-bread	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I value, that waste-based biofuels can compensate fossilfuel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I value, that waste-bread is recycled back to food-chain through animal feed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recycling of waste-bread supports our Company's environmental values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We want to be forerunner - It is great to be part of new innovative recycling concept	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our customers value our Company's environmental values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our Company informs consumers of environmental matters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We have informed our customers, that our waste-bread is used as feedstock for biofuels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customers have not been informed about wastebread recycling concept, but possible we will do so in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We don't want customers know about wastebread, that is why we don't talk to them about the new recycling concept	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't think our customers are intrested in our waste recycling matters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We have informed internally in the Company about the new concept of recycling of waste-bread	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found the recycling of wastebread as positive thing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommed separate collection of waste-bread also to other stores	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 2.

INTERVIEW QUESTIONS	
<b>Waste sorting &amp; recycling</b>	1. What do you value in waste-management services?
	2. How do you find recycling generally?
	3. How you do feel about sorting the different waste-streams in the supermarket?
	4. Is it important to you how the waste-streams are utilized?
	5. Tell me how the waste sorting is organized in the supermarket?
	6. Do you know how these streams are utilized? If, so how?
<b>Separate collection of waste-bread</b>	7. How was the waste-bread sorted & recycled before its separate collection?
	9. Tell me about separate waste-bread collection?
	10. How the process change has impacted your work?
	11. Do you know how waste-bread is now utilized?
	13. How the employees have received the new process?
	14. Why HOK-Elanto decided to begin the separate collection for waste-bread?
	16. How the change was implemented?
	17. Has the separate waste-bread collection changed waste management reporting?
	18. Is it easier now to follow wastage amounts, since waste-bread is collected into own containers?
	19. What are the biggest benefits separate waste-bread collection provides you?