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Creating Sustainable Action Nets:

The case of ugly vegetables

Filippa Fredriksson Franzén

Supervisor: Maria José Zapata Campos
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Filippa Fredriksson Franzén

Master of Science in Management. Graduate School. School of Business, Economics and Law at University of Gothenburg

Abstract

Food wastage is a major problem in the world today. Previous research on the subject has however paid little attention to how the creation of a novel waste prevention product can contribute to addressing the environmental challenges of food waste. This paper mitigates these shortcomings by illustrating how a novel waste prevention product is created and becomes a sustainability object that supports a more sustainable way of living. Based on a field study from Swedish grocery stores, this paper demonstrates how the novel waste prevention product gains momentum from being linked to different contexts, how its development depends on physical artifacts, and requires the reconstruction of the existing action net. The paper further illustrates that there is a relationship between sustainability objects, action nets, and standards, since the novel waste prevention product acts as a sustainability object that creates contradictions and paradoxes that question institutions and standards. Trough that, the creation of a novel waste prevention product leads to the construction of more sustainable action nets and categories.

Keywords

Novel Waste Prevention Products, Food Waste, Sustainable Action Nets, Sustainability Objects, Standards and Categories

Introducing the Problem of Food Waste

Today, about four billion metric tones of food is produced each year (Institution of Mechanical Engineers 2013). However, there are still issue of food availability and accessibility in the world today. The Food and Agricultural Organization of the United Nations, FAO, estimate that there are almost 800 million chronically hungry people in the world and additionally, the expected population growth will drive the need for food up by 60 percent by 2050 (FAO 2015). Eliminating the current and future food issues is therefore fundamental to all other forms of socio-economic development (ibid). There is however enough food to feed all the people in the world (World Food Programme 2015), but one third,

about 1.3 billion tons, of the food produced for human consumption is wasted (Gustavsson et al. 2011), which leads to a global food wastage cost of USD 2.6 trillion per year (FAO 2015). Reducing food wastage would make better use of the already available food, as well as decrease the need to raise the food production to meet the expected population demand (FAO 2013). Moreover, food that is grown but not eaten has significant environmental cost because of unnecessary greenhouse gas emissions and that huge amounts of resources, such as water, land, energy, and fertilizers, are used in vain during the food production (Gustavsson et al. 2011; Institution of Mechanical Engineers 2013).

Despite this, previous food research only assumes that food waste is a final by-product in a linear process of production, distribution and consumption (Evans et al. 2013; Alexander et al. 2013) and the waste created by these processes has not been studied in detail (Evans 2014). However, during recent years there has been an increasing interest in the scientific community regarding our relationship to waste and the amount of food being. Research by Gustavsson et al. (2011) found that on a per-capita basis, much more food is wasted in industrialized countries than in developing countries and according to Parfitt et al. (2010) the amount of food waste increases as the proportion of income spent on food declines. In industrialized countries the consumer is the cause of the largest amount of food wasted (Gustavsson et al. 2011), due to factors such as insufficient purchasing planning and confusion over ‘best-before dates’ (Stuart 2009; Filho & Kovaleva 2015). Food wastage in industrialized countries is also caused by other factors, such as legislation, technical malfunctions, challenges to forecast demand, lack of coordination between different actors in the supply chain that lead to oversupply and overproduction, and quality standards.

It is not only the scientific community that has given our relationship to waste and the amount of food that is being wasted in the world an interest. For example, the French parliament has made it illegal for French grocery stores to throw food away (Carp 2016). Further, grocery stores around the world have taken different voluntary actions towards decreasing the amount of food wasted. For example, grocery stores in different countries have started donating food to charities (see Allwin 2016; TESCO 2016). Further, different grocery in for example France, the UK, Germany, and Sweden have also started to sell so called ‘wonky’ or ‘ugly’ fruits and vegetables (henceforth referred to as ugly vegetables) to a reduced price, in order to increase the attention towards the food waste caused by quality standard (see N24 2013; ASDA 2015; Coop 2016f; Intermarché 2016).

Today, fruit and vegetables that are perfectly safe and fit for consumption are rejected because of too restrictive quality standards (FAO 2013; Stuart 2009; Parfitt et al. 2010). The European Union sets the standards for fruits and vegetables that are sold within the European Union (European Commission 2015) and the standards for example regulate the size, shape, color or other aesthetics features of fruits and vegetables sold in Europe. These standards are often blamed for causing food waste, but grocery stores and customers put even stricter requirements then required by law, since grocery stores want to sell high quality food that meet the demands and expectations of the customer (Stuart 2009; Jordbruksverket 2014).

As an example, Sweden has translated the standards from the European Union in to national quality standards. These can be divided into two different pars (Jordbruksverket 2003). The first part is the minimum requirements, which for example state that the product needs to be whole, clean and fresh. The second part is the classification of fruits and

vegetables, which consist of class extra, class I and class II. The fruits and vegetables are divided into these classes depending on their quality and aesthetics. In order for the fruits and vegetables to be sold for fresh consumption in Sweden, they need to meet the minimum and class II requirements. These standards state that ugly cucumbers can be sold as class II vegetables, the lowest standard, as long as the aesthetics is the only 'problem' with them. However, grocery stores and consumers only demand fruits and vegetables from the higher classes, class extra or class I (Mattsson 2014), leading to that only fruits and vegetables with high aesthetics are sold in Swedish grocery stores.

Fruit and vegetables that are eatable, but do not meet the quality standards, are therefore left in the fields, thrown away by the farmers, feed to animals, or used in canned food (Stuart 2009). For example, up to 30 percent of United Kingdom's vegetable crop is never harvested and globally retailers yearly generate 1.6 million tons of food waste this way (Institution of Mechanical Engineers 2013). Stuart (2009) argues that in order to decrease the amount of food being wasted, these fruits and vegetables could be sold at grocery stores to a reduced price. It may also have a positive economic effect for grocery stores, while many food wastage reduction activities decrease the turnover (Naturvårdsverket 2015). In order for this to be possible, several studies (e.g. Institution of Mechanical Engineers 2013; Stuart 2009; Beretta et al. 2013) state that grocery stores and consumers need to decrease their demand for aesthetically perfect fruits and vegetables, changes which according to Franke (2014) take time. However, these changes are now occurring as grocery stores in several countries have started to sell ugly vegetables.

Even though selling ugly vegetables at grocery stores is a good way of preventing and reducing the amount of food being wasted (Stuart 2009; Gunders 2012) and the European Commission (2016) waste directives claim that waste prevention actions are the best ways to decrease the amount of food being wasted, no research has been conducted regarding how the creation of a novel waste prevention product, such as the ugly vegetables, unfolds in practice and if there are any challenges connected to it. Based on this discussion, I will in this paper conduct a study within the field of food waste management and food supply chain management. Informed by the case of the sales of ugly vegetables in Sweden, the aim of this study is to examine how novel waste prevention products are created in the grocery sector and what the implications are.

It will be accomplished by using the action net theory (Czarniawska 2004) in order to understand how the creation of the novel waste prevention products involves the connection, re-connection, and disconnection of various actions according to patterns dictated by a given institutional order or in an innovative way (Czarniawska 2010). The concept of sustainability objects will be used in order to analyze how the ugly vegetables contribute to more sustainable practices. Additionally, the role of categories and standards will be analyzed in order to understand how they contribute and influence the actions taken during the establishment of the novel waste prevention products (Lampland & Star 2009).

This paper first provides a theoretical framework, were the relevant concepts from the action net theory, classification theory and sustainability objects are described. Secondly, a presentation of the methodology used to conduct and analyze the study will be made. Thirdly, the empirical material of the study will be presented. It will begin with an introduction of Coop, the studied Swedish grocery store chain, and how the concept of ugly vegetables was created. It will be followed by how the studied grocery stores translated the concept of ugly vegetables in a way that was not intended, which had unforeseen consequences. Fourthly, the empirical material is discussed based on the theoretical framework. Finally, the study's conclusion and implications are presented.

Action Net Theory and the Concept of Classification

The aim of this paper is to examine how novel waste prevention products are created in the grocery sector and what the implications are. To fulfill this aim, the action net theory becomes useful as it explains how the novel waste prevention product is translated into different context. The concept of sustainability objects is also useful in order to explain how the ugly vegetables contributed to more sustainable practices. Additionally, the concept of classification is used to understand the role of standards and categories during the establishment of the novel waste prevention products. These theories and concepts will be further explained and elaborated in this section.

Action Net Theory and Sustainability Objects

In order to understand how novel waste prevention products are created and what implications arise, focus needs to be on what is actually done, as suggested by Czarniawska (2008). Instead of focusing on who does what in organizations that are seen as ready-made entities (Czarniawska 2008), the concept of action nets views organizing as an ongoing process that never stops and therefore is tailored specifically for organization studies (Czarniawska 1997; 2004). Czarniawska (1997) argues that by moving away from the limitations of the traditional research of organization studies on place, people, or issues, the action net concepts capture the connections between actions of people and artifacts that actually occur in time and space.

Action nets differ somewhat from close concepts such as organizational field, network and actor-network. First, the concept of organizational fields offers a way of describing organizations that deal with the same types of activity. However, as argued by Czarniawska (2004), within the action net concept all the interactions occuring are of interest, not only those within the organizational field. In order to move away from studying an organizational field and instead understand what accuatually occurs when the novel waste prevention product is created and developed, it is more suitable to study action nets rather than organizational fields.

Second, Czarniawska (2004) states that while difference between action nets and organizational fields is related to space, the difference between action nets and networks is related to time. According to traditional network theory actors come first, networks come second and actions within the network come third. While, from the action net perspective actions come first, actors come second, and networks may come third (Czarniawska 2004; Lindberg & Czarniawska 2006). The action net perspective is therefore more useful since it

shows that actions create actors. For example, you become a grocery store by selling food, not by stating that you are a grocery store.

Third, the actor-network theory also orginates in the sociology of translation and like the action net concept assumes that actions creat actors. The difference between action nets and actor-network theory is instead related to time, since the analysis begin earlier within the action net than actor-network theory (Czarniawska 2004). Action nets try to capture organizing at an early stage, when things still need to be done, and before powerful actor-networks are established (Corvellec & Czarniawska 2014). It is suitable to use the action net theory in this study since it aims at explaining how novel waste prevention products are created in the grocery sector, which requires the caption of organizing at an early stage when the novel waste prevention product becomes established. Further, Czarniawska (2004) explains that the action net theory does not only focus on organizing process that construct macro actors. Instead its focus of attention is directed towards the ongoing process of organizing practices that may or may not lead to the construction of stable relationships and macro actors (Czarniawska 2008). The concept of action nets thereofore provides an understanding for what actually occures when an action net is established and before it is considererd as stable.

The concept of action net originates in a combination of new institutional theory and the sociology of translation, assuming that in each time and place there is an institutional order, a set, not a system, of coherent and/or incoherent institutions, that are recognized as prevailing then and there. The institutional order shapes organizing by influencing how various collective actions are connected, since some actions are seen as legitimate by the institutional order while others are not. These collective actions do not necessary need to be performed within the bounds of a specific organization, instead an action net can involve actions performed by several organizations, organized groups of people, and objects, which can be loosely or temporarily connected (Czarniawska 1997; 2004). Further, some of the established connections between the different actions are formalized by contracts, which link organizations rather than single actions (Lindberg & Czarniawska 2006). The connection of actions require that actors involve themselves in sensemaking (Weick 1995) of each other's actions; i.e. attempting to translate them into each other.

Borrowed from Latour (1986), who developed it from Michel Serres, the concept of translation explains how different languages can be translated. Latour (1986) explains that translation occurs when an idea is placed in a context and spreads further within it. Further, Czarniawska and Joerges (1996) describe it as the process of how ideas or actions are disembedded from their previous context, set free and embedded into new contexts. For example, how the language of planners at the headquarter is translated into the language of workers at the local grocery stores. The translation process therefore allows actions to travel across time and space and become translated to fit into its new surroundings; i.e. it connects actors outside the organization boundaries and creates action nets. The concept of translation can also in a helpful way explain why results are not always as intended. How an action is changed and adapted by an actor; i.e. how it is translated, depends on the context and how the actor choses to interpret and implement it (Czarniawska & Joerges 1996). The translation process can therefore be viewed as an uncontrollable process where multiple translations twist the idea or actions with unintended consequences, and may therefore also lead to unexpected

local resistance (Zapata & Zapata Campos 2015). Changes are therefore to be understood as generated from the involvement of humans, since actors interpret and spread ideas in different ways (Czarniawska & Sevón 2005). Imitations and innovations are therefore the products of translation, while actions and the connections between them may be seen as a way of trying to control and influence unforeseen events (Czarniawska & Joerges 1996).

The concept of translation does not only apply to linguistic translation, but also applies to objects, images and actions (Corvellec & Czarniawska 2014). Meaning that words can be translated into actions and objects, as well as objects and actions can be translated into words. Hence, the translation process and action nets do not only involve human actors, but are also dependent on non-human actants (ibid). For example, the payment system that is used by grocery stores and customers can be viewed as a non-human artifact that connects the grocery stores' action of selling groceries to the customers' action of buying groceries. There have been several conducted studies of the roles of objects in social worlds (e.g. Bowker & Star 1999; Hodder 2012; Lindberg & Walter 2012). Within food waste prevention studies, Corvellec and Czarniawska (2014) found that the translation process and the construction and maintainence of connections in an action net are dependend on artifacts. Further, studies of the development of environment friendly products illustate how they gain momentum from being linked with public debates and policies (Reijonen & Tryggstad 2012; Corvellec 2015); i.e. they need to be put in a supportive context to become established. For example, how initiatives for decreasing food wastage benefit from being linked to the European waste directive and national waste plans (Corvellec 2015). In the study of how objects and sustainability are related, Corvellec (2015) introduces the concept of sustainability objects and describes them as objects that are created in order to support a more sustainable way of living. For example, Corvellec study illustrates how a paper bag for separate collection of food waste acts as a sustanability object by changing the recyceling behaviours of people. Hence, sustainability objects create new individual and collective ways of acting by establishing new relations between people, objects, and people and objects (Hodder 2012; Corvellec 2015).

Once the translation has created connections between the actions and the entire action net is in place, the connections must be maintained in good shape (Lindberg & Czarniawska 2006) and perhaps defended against institutionalized options to become stabilized (Corvellec & Czarniawska 2014). New action nets are always being constructed in relation to the existing action nets (ibid). They are built on the existing action nets and at the same time they may challenge them. Therefore new action nets may sometimes coexist with the existing action net, sometimes complement one another, and sometimes compete with each other. The construction of new action nets may therefore adapt to or draw upon the institutional order, or in an innovative way change the existing institutional order (Czarniawska 2004; 2010).

Classification, Standards and Categories

As already mentioned, how people act within an action net is influenced by the institutional order that impacts why some actions are seen as legitimate while others not. On this note, other papers have also observed that classification and standards influences actions (Lampland & Star 2009). According to Bowker and Star (1999), classifying things into categorize and standards is human and we all spend large parts of our day doing classification work. For example, we sort fresh food from food that has gone bad and sort food that need to

be cooked from food that can be eaten raw. Bowker and Star (1999, p.10) define classification systems as ‘a spatial, temporal, or spatio-temporal segementation of the world’ or as a set of boxes, metaphorical or real, into which things can be put in to do some kind of work. Things may therefore be examined and evaluated from their similarities and differences, but what influnces how things become examined, evaluated, and considered as right or wrong within a classification system? In the book *Purity and Danger*, Douglas (1991) tries to explain this by studying dirt. She claims that something is not dirt in itself, but whether it is viewed as dirt or not depends on its location and the moral order. For example, in some countries vegetables are expected to have the same shape and therefore ugly vegetables are considered as wrong, while in other countries it is well known and accepted that vegetables may have different shapes and therefore they are considered as right. Further, categories and standards are results of negotiations, organizational processes, and conflicts (Bowker & Star 1999) and when they are implemented resistance may occur and the outcome may not be as intended (Timmermans & Epstein 2010). Not all categories and standards become stable, but those that are stabalized become silenced and taken for granted as long as they function as intended; i.e. they silently organize human interaction (Bowker & Star 1999) and are completely embedded into the tools that are used every day (Lampland & Star 2009).

Classifications and standards are developed in such a way that they can be used by different social worlds, meaning that following them requires establishing some degree of consistancy between the standard and what is done in the different social worlds (Brunsson & Jacobsson 2002). A consistency can therefore be achieved if the standard is translated into the practice of the follower (Brunsson & Jacobsson 2002). Standards need to create a relationship with and incorpoprate the past infrastructure, procedures, and practices in order to attempte to change and replace them (Timmermans & Berg 1997). However, the adopton of a standard may produce tension between the standard itself and the local context that it applies to because of the translation process (Brunsson et al. 2012). The fact that the classifications and standards are locally adopted and transformed can therefore lead to that the classification or standard becomes challenged or altered (Bowker & Star 1999).

Even if categories and standards seems natural and well-ordered, there are no given or universal systems of classification (Bowker & Star 1999), which makes classification work complicated. Further, each standard or category view some point of view, but at the same time silance another (Bowker & Star 1999). It is unavoidable, but creates an etical and moral choice, which is dangerous since some may win while others may suffer. These ethical and moral choices can be examined, which may lead to that the view of the classification is questioned and therefore may come to lose its credibillity and its selected view of the world will be revised (Bowker & Star 1999).

Methodology

Design of the Study and Data Collection

This study aims at providing a deeper understanding of how novel waste prevention products are created in the grocery sector and what the implications are. In order to study this, a case study was adopted (Czarniawska 2014) since it made it possible to study different situations, details as well as how people interact with each other (Flyvbjerg 2006; Silverman 2013). It was therefore possible to observe organizing at an early stage, how things were being done, chain of events, and the translation of actions (Czarniawska 2004).

The case of ugly vegetables was chosen since it is a new phenomenon that has that spread to different countries, such as Sweden, during the last few years. It provided an opportunity to study how novel waste prevention products are created and established within the food supply chain, which is important because of the huge amount of food that is being wasted in the world today. Additionally, it also a good example of how novel waste prevention products create new or reconstruct the existing action net, since action nets need to be observed as they are being established and re-established (Czarniawska 2004). The Swedish grocery store, Coop, is one of Sweden's largest grocery store chains, and was chosen since they are the only grocery stores in Sweden selling ugly vegetables. Three stores were selected for an in-depth study in the Gothenburg area and were chosen because of their different locations, sizes and amount of customer. In order to follow the actions in the net, Everfresh, the organization that delivers vegetables to Coop, and other actors outside the grocery stores were contacted. However, it was not possible to conduct interviews with those actors.

During the five months that the study was conducted, nine personnel interviews, five observations and document analysis were made (see Table 1). The data collection was divided into different stages. The first stage involved an interview with the manager of the fruit and vegetable department at each Coop store. It was conducted in order to receive an initial overview of how each Coop store worked with the sales of ugly vegetables. Even though the snowballing method (Kvale & Brinkmann 2008) could lead to nominator bias, the managers were asked to suggest other people to interview. It was helpful since as an outsider I had no knowledge of who were involved in the process, and by asking the interviewed managers to suggest who else should be interviewed, more information was gained. However, as more information about the process and organization was gained, it was possible to suggest interviewees myself. The snowballing method was also useful since it provided an opportunity to be open minded regarding who were part the action net and therefore no presumptions of what the action net look liked were made in advance. During the first interviews, the fruit and vegetable managers also provided internal documents and suggested which public documents that could be useful for the study.

Stage two consisted of interviews with employees at the different Coop stores. The employees interviewed worked full or part time at the fruit and vegetable department or at other departments as well. Hence, interviews were conducted with employees who were involved with the sales of ugly vegetables to different extent and acted within different parts

of the action net, therefore they could describe different views of the process. In total, nine interviews were conducted at three Coop stores in the Gothenburg region (see Table 1). All of the interviewees and stores are anonym in the paper and are described with a number, role and number based on appearance. An interview was also conducted with an employee at the consumer association in Stockholm in order to gain information of how Coop first became aware of the concept of ugly vegetables. Semi-structured interviews with open-ended questions were used, in order to allow the interviewees to freely present and describe their own interpretations and actions (Kvale 1996; Silverman 2013). The interviews lasted for 20-40 minutes, depending on how much the interviewee had been part of the process. Notes were taken to document brief ideas that explained the setting or issues that needed to be further studied (Martin & Turner 1986). The interviews were also seen as opportunities of observations, as suggested by Czarniawska (2014). However, the focus was on listening and trying to understand the interviwees' stories. The interviews were recorded and transcribed.

Direct observations and shadowing activities were also conducted at the stores during the time that the ugly vegetables were sold, in order to focus on what actually is done in the stores and not only to rely on what is being told during interviews (Czarniawska 2014). Shadowing consisted of following, monitoring and reporting on the everyday activities, interactions, and structure of a working day of the employees, as done by Lindberg and Walter (2012) in their study of action nets. Focus was on observing how the employees at the different stores worked with and talked about the ugly vegetables. It also provided an opportunity to observe if they acted differently towards the ugly vegetables and the other vegetables. Sometimes questions regarding what the employees were doing and why, were asked during the observations. Observations were also made of how the consumers acted towards the ugly vegetables as well as the other vegetables. Further, focus was given to different objects that were used by the employees and customers at the three studied grocery stores in order to later being able to analyze the role of objects within the translation process. Notes were taken during the observations in order to later write a full set of notes (Martin & Turner 1986). Observations were conducted at all of the three grocery stores (see Table 1). In total five observations were made in the three stores and they were between 3-5 hours each. They were conducted during mornings, afternoons and evenings, and on weekdays and weekends in order to observe as much as possible of what was happening at the grocery stores.

Table 1. Overview of interviews and observations

	# of observations	Position	# of interviews
Store 1	2	Store manager	1
		Fruit & vegetable manager	1
		Employees	1
Store 2	1	Fruit & vegetable manager	1
		Employees	1
Store 3	2	Fruit & vegetable manager	1
		Employees	2
Consumer Association Stockholm		Employee working with consumer and environmental questions	1
Total	5		9

Field material was collected as long as is brought new relevant information, as referred to as saturation by Glaser and Strauss (2006), which lead to that nine interviews and five observations were made. This method was developed in order to have time to conduct additional interviews, if there were any issues that needed to be studied further and to further examine aspects that became interesting during the research process.

Data Analysis

Since the case study consisted of a mixture of observations, documents, and semi-structured interviews, grounded theory was used to code and categorize the date in order to be able to analyze it (Martin & Turner 1986). The field material was therefore analyzed in different stages. First, I applied the action net theory by looking at the actions observed and explained during the observations and interviews. This first-order description (Van Maanen 2011) was used in order to map out how the action net looked like for the ugly vegetables and the other vegetables. As suggested by Martin and Turner (1986), the data was categorized into different relevant concepts. The interviews, observations and document analysis gave a large amount of data, leading to that maybe too many concepts was created in the beginning (ibid). With the help of grounded theory, the most relevant concepts were then chosen based on the aims of the study and the theoretical framework. This was followed by comparing if there were any connections between the relevant categories (cf. Czarniawska 2014). By interacting the data with the theoretical framework, five categories were chosen: (1) a stabilized action net of food wastage in grocery stores, (2) translating the ugly vegetables into supporting contexts, (3) the attempt to create a sustainable action net, (4) translating the ugly vegetables into the local context, and (5) questioning the taken for granted standards.

The concepts from the action net and translation theory was seen as useful for this study, since the study focuses on how the ugly vegetable are created and developed. The comparing of the field material also helped me discover additional theoretical concepts that were useful to analyze the study. Since the ugly vegetables can be viewed as a new category established by Coop, concepts from classification theory was found fit for analyzing the field material. The concept of sustainability objects was also used in order to analyze how the ugly vegetables contributed to more sustainable practices. Organizing and connecting the filed material with theoretical concepts enabled me to understand how novel waste prevention products are created and what the implications are.

Before presenting the study's empirical material and discussion, a presentation of Coop and the setting is needed.

Introducing Coop and the Setting

Coop is a cooperative and is owned by the 3.4 million members who are divided into 35 consumer associations across Sweden (Coop 2016c). The cooperative was founded in 1899 (ibid) and is the owner of one the largest grocery store chain in Sweden. There are 659 Coop stores across Sweden, 15 000 employees and Coop had a turnover of about SEK 40 billion in 2015 (Coop 2016e). Financially, Coop has struggled the last few years, which has been pointed out during the interviews, and it lead to that a three-year plan was developed in order to have a sustainable and profitable Coop in 2017. A part of this three-year plan was to

centralize the operation of the grocery stores as well as creating a common strategic plan and clear goals for entire Coop, therefore Coop Sverige AB was established in 2014 (Coop 2016g). Coop Sverige AB is seated in Stockholm and is responsible for central functions, such as marketing, purchasing, business development, and flow of goods (Coop 2016e). Functions, such as IT, economy, and HR, can be used by the consumer associations if they want to. Coop Sverige AB own and run 243 of the grocery stores, which are located in areas that are characterized by high competition and new establishment rate. The other 416 stores are owned and run by the consumer associations. The grocery stores studies in this paper are located in west Sweden and are owned by the consumer association Coop Väst, who in total own 65 stores, have 2 300 employees, a turnover of about SEK 5.2 billion, and 502 thousand members in 2015 (Coop Väst 2016).

Empirical Material

The following section will describe the sales of ugly vegetables at the studied grocery stores. First, it will be described how Coop got inspired to sell ugly vegetables and how the ugly vegetables were introduced at the studied grocery stores. It will be followed by a description of how the employees tried to include the sales of ugly vegetables in to their already existing routines and how it caused different implications.

The Turning Point: Why Do We Not Sell These Ugly Vegetables?

Coop claims that they have worked with sustainability issues since 1899 (Coop 2016c) and their current mission is to be "the good force within the grocery store sector" (Coop 2016e). To develop and improve their sustainability work and to be one of the driving forces of sustainability, ecology, and health, four areas have been targeted: a sustainable range of products, sustainable stores, sustainable suppliers, and a sustainable actor in the society. Therefore, offering organic, eco-labeled, healthy, and fair-trade products is prioritized as well as always offering a sustainable alternative. To fulfill their new mission, Coop has created a strategy to become the "new green Coop" (Coop 2016e, p.24). To accomplish this, Coop tries to decrease their food wastage, by for example optimizing the amount of food volume purchased from suppliers, reducing the price of food were the best-before dates are close, and donating food to churches and homeless people (ibid). In 2015 Coop donated 118 tons of food, which are about 260 thousand meals. Inspiring the customers to a more sustainable life style and influencing the customers to decrease their food wastage, is a way to reduce the amount of food being wasted according to the interviewees. For example the observations showed that all the studied stores had several banners with information of how to best store fruits and vegetables (see Figure 1).

Figure 1. A banner with information of how to store bananas and tomatoes in store 2.

In 2008, the consumer association in Stockholm started the campaign "Släng inte maten" (Don't throw food away), in order to inform customers of food wastage as well as establishing discussions regarding food waste with different actors within the entire food supply chain (employee consumer association). The consumer association in Stockholm was first made aware of the problems associated with the vegetables standers when the interviewed employee visited a major producer of vegetables. During the visit they saw how perfectly eatable vegetables were thrown away and therefore decided to investigate it further. The investigation resulted in the report "De ratade grönsakerna" (The rejected vegetables) in 2015. The same summer the consumer association hosted a seminar to discuss the problems related to the vegetable standards with a carrot farmer, Jordbruksverket (the Board of Agriculture in Sweden), and buyers at Coop Sverige AB. It was at that moment that Coop Sverige AB got inspired and decided that Coop should start selling seven types of ugly vegetables in their stores during the fall the same year.

The Introduction of Ugly Vegetables at the Grocery Stores

In order to facilitate the introduction of the new product, only larger grocery stores were chosen. Leading to that 32 of the 659 Coop stores started selling ugly vegetables in the end of 2015 (Coop 2016f):

> The bigger stores were chosen because they have more customers and good sales, which makes it possible to try new concepts there. (Fruit and vegetable manager, store 1)

The grocery stores were therefore not asked if they wanted to sell ugly vegetables or not, they were chosen by Coop Sverige AB and had to participate. However, the fact that the stores were not involved in the development of the concept or asked if they wanted to participate did apparently not seem to influence the grocery stores attitude towards it. This was noticeable during the observations when the employees at the studied grocery stores proudly showed the ugly vegetables to their customers and talked to them about the importance of the new concepts and the initiative to try to decrease the amount of food being wasted in the world. The fruit and vegetable managers also described it in a positive way during the interviews:

> We thought that we absolutely should sell ugly vegetables and I, as well as the entire grocery store, were very positive towards it. (Fruit and vegetable manager, store 2)

The fact that employees at the grocery stores are used to the introduction of new concepts may also have influenced their attitudes towards the ugly vegetables:

> We are used to that things happen all the time. So it's just about trying to keep up with all the new initiatives. (Employee, store 3)

A few weeks before the sales of the ugly vegetables was supposed to start, the chosen grocery stores received information via their intranet regarding how it would work. The ugly vegetables were presented to the employees as a part of Coop's sustainability work and a way of decreasing the amount of food being waste. All the interviewed employees thought that that the ugly vegetables fitted well into their sustainability work:

> It's a good way for Coop to reduce the amount of food we waste. Especially since there is nothing wrong with them, they just look a little different. And it is a perfect way to show that it is okay to be different, something that Coop stands for. (Employee 1, store 3)

Another employee described it as:

> It's very trendy to act sustainable and not to throw food away unnecessarily. (Fruit and vegetable manager, store 1)

The ugly vegetables were also introduced to Coop's customers via different media channels, such as Coop's web page (Coop 2016b), local newspapers that were sent to Coop's customers (fruit and vegetable manager, store 3), and one of the studied grocery stores posted it on their Facebook page. The ugly vegetables were presented as a step towards taking better care of our planet:

> Fruit and vegetables are removed because of their looks. We think it's crazy since there are 800 million hungry people in the world and the production of food has an enormous impact on the environment… We at Coop therefore think that we need to stop removing vegetables because they not look a certain way. So now we start to sell ugly vegetables. (Coop 2016b)

Further, the stores were informed of that the sales of the ugly vegetables would be integrated into the existing systems and routines with some modifications. First, the stores were not able to order the ugly vegetables themselves, since Everfresh (the organization that delivers fruit and vegetables to Coop) only could deliver a limited amount of ugly vegetables. The ugly vegetables were therefore equally divided between the stores (fruit and vegetable manager, store 1). The limited amount of ugly vegetables was due to that Coop Sverige AB's order came a little too late for the farmers to be able deliver a larger amount, but also because the farmers never before had received a request from Coop regarding ugly vegetables (employee consumer association). Second, the ugly vegetables would only be delivered on Thursdays while the other vegetables could almost be delivered daily:

> I'm not sure why we only receive them on Thursdays, but I believe it's because we always receive more of the other vegetables on Thursdays in order to have enough in the stores for the weekend. (Fruit and vegetable manager, store 2)

Otherwise, the sales of ugly vegetables were supposed to function as with the other vegetables. During the observations it was possible to notice that Everfresh delivered the ugly vegetables the same way as the other vegetables and that they were marked the same way with product name, origin and date. In order to separate the ugly vegetables from the other vegetables, Coop Sverige AB created special plastic bags for the customers to put the ugly vegetables in, so that the employees working at the cashiers could see the difference between the ugly and the other vegetables (see Figure 2). Further, Coop Sverige AB developed special signs and brochures that were used to attract the attention of the customers as well as to inform them of how they can make a difference and decrease the amount of food wasted in the studied stores. The ugly vegetables were also added to the scales, used by self-check out customers.

Figure 2. The special plasitc bags developed for the ugly vegetables (Coop 2016a)

The interviewed fruit and vegetable managers, employees and store manager were all positive towards the new concept and thought that it would fit well into their existing routines. However, the stores soon experienced some problems. The first problem occurred when the fruit and vegetable managers were not able to order which of the ugly vegetables they wanted or the amount they wanted. One of the fruit and vegetable manager expressed:

> I wish that we could order which ugly vegetables and the amount that we wanted, since we in the store know the best what sells and doesn't. For example, we sell more of the cucumbers than the beets. (Fruit and vegetable manager, store 2)

One store sometimes called Everfresh during the week and asked if they could send some more of the ugly vegetables, which Everfresh sometimes could. Another fruit and vegetable manager saw it causing another problem, namely that the stores sometimes had to throw the ugly vegetables away:

> Since I couldn't order it, I sometimes had to throw some of the ugly vegetables away because we didn't sell them. (Fruit and vegetable manager, store 3)

Further, the stores could not decrease the amount ordered of the other vegetables since they did not know in advance what and how much they would receive. Therefore they sometimes had to throw the other vegetables away because the customers bought the ugly vegetables instead. One store then mixed the ugly and other vegetables:

> Instead of having to throw them away, we mixed the ugly and other vegetables and sold them to the lowest price. Maybe we didn't earn as much money, but at least we didn't lose money because we had to throw it away. (Fruit and vegetable manager, store 2)

The fact that the ugly vegetables only were delivered on Thursdays, while the other vegetables could be delivered almost every day, lead to extra work for the employees at the studied stores:

> Some of the ugly vegetables were very popular, leading to that they sold out during the weekends. We therefore had to re-build their place every Thursday. (Fruit and vegetable manager, store 1)

So, even though the sales of ugly vegetables should have been easy to include into their daily routines, some problems appeared because it did not fully work in the same way as the other vegetables did. It lead to that the ugly vegetables and other vegetables were thrown away because they were not sold. This contradicts a part of the message Coop wanted to send with the ugly vegetables; that the amount of food being wasted needs to decrease. It also created extra work for the employees since the other vegetables had a fixed place that continuously could be refilled, while the ugly vegetables place hade to be built and removed each week.

Are the Ugly Vegetables Really Ugly?

As already mentioned, the special plastic bags were developed in order to separate the ugly vegetables from the other. The observations showed that most of the customers used the special plastic bags for the ugly vegetables, which turned out to be very important because sometimes it was hard to distinguish the ugly vegetables from the other vegetables. As an employee states:

> If the customers didn't put the ugly vegetables in the special plastic bags, we who worked at the cashiers usually thought that they were regular vegetables because it was hard to see the difference. (Employee, store 2).

It was not only the employees working at the cashiers that had problems with differentiating them, but also the employees at the fruit and vegetable section. Leading to that new routines were established in order to separate them even further:

> Sometimes the ugly vegetables looked like the other vegetables. Once we by mistake put the ugly cucumbers with the regular cucumbers. After that we created a specific spot for the ugly vegetables in the storage room, so that we easily could see the difference. Sometimes I even put ugly carrots that look normal with the regular carrots on purpose. (Fruit and vegetable manager, store 2)

This statement and the previous example were ugly vegetables and regular vegetables were put together and sold under the same name, illustrate that the employees think that there is no difference between the vegetables. During the interviews the employees mention two reasons for this. First, it is natural that vegetables come in different sizes shapes (see Figure 3), and second, the size and shape does not have anything to do with the quality or taste of the vegetable.

Figure 3. Pitcures of an ugly cucumber, tomato, carrot, pepper, and potato (Coop 2016a)

However, sometimes during the interviews the interviewees contradict themselves by first stating that the ugly vegetables have the same quality as the other vegetables, but later they claim that the ugly vegetables have a lower quality because of their looks. Suddenly the ugly vegetables are described in two different ways:

> They have the same quality as regular vegetables, they just look at little different. (Fruit and vegetable manager, store 1)

However, later the manager states something else:

> I think that it is good that they are sold to a discounted price because I would not want to pay a full price for a vegetable that looks funny.

The observations of the customers also show some contradictions. For example, some customers first talked to the employees and stated how good it is that Coop has started to make people aware of the vegetables comes in all shapes. However, once the customers picked the ugly vegetables up, they first took a better look at the ugly vegetables and squeeze them to ensure that the quality was good enough before they put it into the special plastic bag. The observations also showed how the customers did this to a further extent with the ugly vegetables than with the other vegetables.

Further, the interviewed fruit and vegetable managers stated that sometimes the ugly vegetables actually were of a lower quality. Not because of their shape, rather because they were not handled the same way within the food supply chain and therefore went bad faster. For example, the cucumbers were not covered in a plastic film and the sometimes the carrots were not scrubbed. It made them look less fresh faster and they went bad and soft faster, leading to that they were viewed as having a lower quality by the employees and thrown away. The fruit and vegetable manager at store 1 explained why this occurs:

> The ugly cucumbers are not covered in a plastic film because they don’t fit into the machine when they have a different shape.

Illustrating that even though the actors within the food supply chain wants to sell the ugly vegetables instead of letting them go to waste, the chain is not yet designed such a way that all ugly vegetables can be delivered in the same way as the other vegetables, which leads to that some of the ugly vegetables had to be thrown away anyway.

What Happened to the Ugly Vegetables?

The previous sections illustrated that when the sales of ugly vegetables started at Coop in November 2015, it was seen a success at once at Coop. Most of time the studied grocery stores had sold all of them after the weekend, except for those times when they received larger amounts of a particularly vegetable that had a lower demand at the local store. The fruit and vegetable manager at store 3 explained the success this way:

> People even called us and asked if we had the ugly vegetables in stock and if we could put some aside for them.

Even if Coops Sverige AB claim that the ugly vegetable are a long term initiative (Coop 2016d), it was possible to notice that the stores received less and less ugly vegetables during the period of the observations were made. This created further problems:

> We never knew how much we would receive and after a while we had to give the ugly vegetables a smaller and smaller space. In the end I did not know what to do with them since I only received two boxes of one ugly vegetable. It was very hard to create an inspiring and good-looking shelf with the ugly vegetables. Therefore I sometimes left them in the cold room and threw them away after a few days. (Fruit and vegetable manager, store 3)

The other two studied stores did not leave the ugly vegetable in the cold room when they received small amounts that they did not know what to do with, but they stated that they experienced problems with how to display the ugly vegetables. In the beginning they received a big central place were many customers went by (see Figure 4). Later on the ugly vegetables received a much smaller and less central place.

Figure 4. Pictures of how the ugly vegetables quantity and location changed (picture 1 and 2 are taken by store 2 and picture 3 is the authors)

Even though all the interviewees at the grocery stores were positive towards the new concept and wanted to continue selling ugly vegetables, the deliveries decreased in the first two months of 2016, and finally stopped in March, since the vegetables were less produced during this season.

> The ugly vegetables have been a success and noticed by our younger and older customers. I really hope that we will continue selling ugly vegetables in the fall and that more vegetables can be included, because it is very important that we highlight the problems of food waste and that we inform out customers of its consequences. (Fruit and vegetable manager, store 3)

Discussion

The aim of this paper is to examine how novel waste prevention products are created in the grocery sector and what the implications are. In order to fulfill this aim, the chosen theories and theoretical concepts will be used to discuss the empirical material that was presented in the previous section. The following sections will discuss and analyze how the ugly vegetables were linked to supporting contexts, the reconstruction of the action net, how the ugly vegetables were translated into the local context, and finally how the ugly vegetables came to questioning the taken for granted standards.

A Stabilized Action Net of Food Wastage in Grocery Stores

Before Coop started to sell ugly vegetables the action net can be seen as stable, since it was not dependent upon specific actors (Czarniawska 1997). The actors were replaceable, so if an employee at the grocery store quit, the actions could be continued by another employee. The grocery stores, Everfresh, and the consumers could all perform their own actions within the action net; Everfresh bought and delivered vegetables, the grocery stores ordered and sold vegetables, and the customers bought the vegetables. These actions could occur during different time (Czarniawska 2004) and be connected over organizational boundaries by for example contracts (Lindberg & Czarniawska 2006) and a technological ordering system; i.e. a non-human artifact (Corvellec & Czarniawska 2014). Within this action net, vegetables are categorized into different classes and no one is questioning how this is conducted or how it leads to food wastage. The vegetable standards are therefore institutionalized, taken for granted and silently organize the actions within the action net act (Bowker & Star 1999). The actions of selling class extra or class I vegetables are therefore seen as legitimate, while the actions of selling vegetables that have a different shape are not seen as legitimate. Leading to that those vegetables that do not fit into the class extra or class I are not being sold at the grocery stores. However, once Coop started to sell ugly vegetables the empirical material shows how the action net became destabilized and how the taken for granted standards became questioned. This will be discussed in the following sections.

Translating the Ugly Vegetables into Supporting Contexts

When Coop Sverige AB introduced the ugly vegetables to the customers, they did so by linking the ugly vegetables to the environmental challenges of food wastage and sustainability

by claiming that the ugly vegetables are a way to decrease these problems. This is similar to Corvellec (2015) study of how a developer of a biogas and biofertilizers production unit benefited and increased the tolerance from different stakeholders by linking the project to national and international waste policies. By linking the ugly vegetables to a strong social context of food wastage and sustainability, Coop Sverige AB managed to create a customer tolerance towards the ugly vegetables and the fact that all vegetables have different shapes. Further, in order to establish an employee tolerance towards the ugly vegetables and to introduce the ugly vegetables to them, Coop Sverige AB linked the ugly vegetables to another supportive context. Hence, the ugly vegetables were introduced in line with Coop's sustainability goals and already existing strategies to reduce the amount of food wasted and influencing and informing the customers of food waste. The ugly vegetable gained momentum from being linked to globally acknowledge environmental challenges, but also from being linked with the organizational policies and strategies. Hence, the ugly vegetables were linked to a somewhat different context for the employees at the studied grocery store than they were for the customers. I therefore argue that the novel waste prevention product gained momentum from being linked to a context as suggested by Corvellec (2015), but that also different contexts were used depending on which stakeholder it was introduced to. Different approaches and contexts were therefore used in order to receive acceptance from different stakeholders in order to introduce a novel waste prevention product.

The Attempt to Create Sustainable Action Net

Linking the ugly vegetables to supportive contexts was not the only thing that Coop Sverige AB needed to accomplish in order to create a novel waste prevention product. As Coop Sverige AB made the decision to start selling ugly vegetables, new actions and connections needed to be established in order for the stores to be able to sell ugly vegetables (cf. Corvellec & Czarniawska 2014). For example, it required that the stores and customers separated the ugly vegetables from the other vegetables, and also that the customers were willing to perform the act of buying them in the end; i.e. the actors within the action net needed to disconnect the vegetables' shape from the vegetables' quality (cf. Corvellec & Czarniawska 2014). Hence, it required that actors across organizational boundaries and during different times were willing to participate, but also were able to translate the new concept into their own practices, as described by Czarniawska and Sevón (2005). In order to make the introduction of ugly vegetables as easy as possible at the stores, it was integrated into the already existing system, for example by having them delivered the same way as the other vegetables and by letting the customers buy them the same way as they bought the other vegetables. However, since it was not possible to integrate the ugly vegetables into the existing system completely, the action net needed to be reconstructed. Illustrating that creation of a waste prevention product, as well as waste prevention practices, require the reconstruction of the existing action net (cf. Corvellec & Czarniawska 2014). This does however create a question: why was it not possible to integrate the ugly vegetables into the existing system completely and why does waste prevention require the reconstruction of the existing action net? This will be discussed in the next sections.

Translating the Ugly Vegetables into the Local Context

In order to understand the actions of the studied grocery stores when the ugly vegetables were introduced, the translation concept proves helpful since it describes how the ugly vegetables were disembedded from its previous context, set free and embedded into a new context (Czarniawska & Joerges 1996). For the concept of ugly vegetables to travel from Coop Sverige AB to the grocery stores, it needed to be separated from its institutional surrounding at the office in Stockholm and translated into different documents and artifacts. For example, it was translated into the text and instructions that were sent to the participating stores in order to connect their actions with actions of the office and Everfresh. Coop Sverige AB also translated the concept into the special plastic bags the customers were suppose to use when buying the ugly vegetables. Hence, the plastic bags worked as an artifact that connected the grocery stores action of selling vegetables with the customer's action of buying vegetables (Corvellec & Czarniawska 2014). Further, the special plastic bags did not only connect the actions of the grocery stores to the customers' actions, but the special plastic bags did also contribute to separating the ugly vegetables from the other vegetables. The plastic bags can therefore be viewed as artifacts that contributed to the translation process of the ugly vegetables and stabilizing the connections (ibid) by influencing the customers to separate and categorize them as different, and thereby they also contributed to the reconstruction of the action net (ibid). This confirms Corvellec and Czarniawska (2014) findings that human actors depend on good relationships with artifacts in order to construct and maintain connections within the action net and connect waste-reducing actions. The empirical material of this study supports this statement and illustrates that the actions of artifacts are as important as the actions of humans (ibid) when reconstructing an action net and establishing a novel waste prevention product.

When Coop Sverige AB reconstructed the action net, they sent information and different artifacts to the employees regarding how the new concept would work at the grocery stores. This action can be interpreted as a way for Coop Sverige AB to control and influence how the employees at the grocery stores interpreted and translated the ugly vegetables into their context and routines (Czarniawska & Joerges 1996). However, the translations made by the employees were not always as intended by Coop Sverige AB. For example, the employees did not accept that the ugly vegetables only were delivered on Thursdays and that it was not possible order the wanted amount. Instead the employees tried to change the system, by for example calling Everfresh and asking for more. Even though the interviewed employees state that they were positive towards the introduction of the ugly vegetables, their actions show how they tried to adapt the sales of ugly vegetables into the already existing routines and system instead of accepting the new routines set out for them; i.e. that translation process lead to unexpected local resistance as described by Zapata and Zapata Campos (2015). Further, by trying to work in a way that was not intended, I argue that the grocery stores reconstructed the action net even further by acting in unintended ways when trying to imitate the routines for the other vegetables. This confirms that action nets of waste prevention, as the case at hand, can develop in unexpected directions, as suggest by Corvellec and Czarniawska (2014), and that changes and unintended translations are generated from the involvement of human actors, as stated by Czarniawska and Sevón (2005).

Another unexpected translation occurred when it was not possible for the fruit and vegetable managers to order the amount and which ugly vegetables they wanted. As already discussed, the employees translated the concept into their own context and routines, leading to that the way the grocery stores worked with the ugly vegetables was constituted of a mixture between the routines that existed regarding the other vegetables and the instructions sent by Coop Sverige AB. This lead to that the stores sometimes had to throw ugly vegetables or the other vegetables away because the grocery stores were not able to sell them, which is the opposite of what the ugly vegetables were supposed to accomplish. Hence, the translation process leads to unforseen events when it becomes embedded into a new contex, as described by Czarniawska and Joerges (1996). Instead of leading to new innovations (ibid), the translation process lead to that the ugly vegetables temporarily created a less sustainable practice, which can be viewed as a paradox. Hence, the action net of the ugly vegetables and the action net of the other vegetables were competing with each other instead of coexisting (Corvellec & Czarniawska 2014). However, the two action net did coexist as well since the grocery stores sometimes were able to sell both ugly vegetables and other vegetables without having to throw any of them away. Illustrating that before the reconstructed acion net becomes stabalized (ibid) the translation process leads to that the two action nets sometimes coexist, which lead to a more sustaianble practice, but sometimes competed with each other, which temporarily lead to less sustanble practices.

The introduction and the sales of ugly vegetables lead to extra work for the employees at the studied fruit and vegetable departments, since they had to rebuild the place of the ugly vegetables every week. Once again, the fact that the grocery stores were no able to order the amount they wanted or receive the ugly vegetables as often as the other, caused problems. It was not possible for the participating store to order the ugly vegetables the same way as they order the other vegetables because the farmers were not able to deliver more ugly vegetables, since it was the first time Coop Sverige AB ordered ugly vegetables, and because the order was made a little too late. Illustrating the importance of time when establishing and stabalizing connections between actors (Czarniawska 1997), which is required when establishing a novel waste prevention product.

Further, Corvellec and Czarniawska (2015) also argue that it is not just the time aspect that leads to that an action only becomes temporarly stabalized. They suggest that sometimes actions are not translatable into one antoher becuase the connection points are not maintianed with enough care. Selling ugly vegetables required that actions across the action net and food supply chain were maintained, which in the case of ugly vegetables turned out to be more complicated then was thought of by Coop Sverige AB. The ugly vegetables were not resilient enough (ibid) because of their seasonality. Hence, the farmers were not able to translate the new concept fully into their context, which they need to do in order for the connection points to be maintained and the action net to become stabilized (cf. Corvellec 2015). The action net concept therefore explains why the sales of ugly vegetables stopped in the spring; the actions of the different actors and the connections within the reconstructed action net were only temporary stabilized (Czarniawska 1997), which lead to that once the farmers failed to connect their actions to the rest of the actions within the action net, the action net dissolved and the sales of ugly vegetables stopped (cf. Corvellec & Czarniawska 2014).

Questioning the Taken for Granted Standards

When Coop started to sell ugly vegetables they created a new category that was a mixture of the already established standards. They stated that the ugly vegetables had the same quality as class extra or class I vegetables, but the shape of a vegetable from class II. Hence, a new box was created in which the vegetables could be sorted in to and become classified and categorized as either ugly vegetables or other vegetables based on their differences in shape (Bowker & Star 1999). The employees and customers at the grocery stores then used the signs and plastic bags, developed by Coop Sverige AB, to separate the ugly vegetables from the other vegetables. Illustrating that artifacts are not only needed within the action net to translate actions (Corvellec & Czarniawska 2014), but that classifications work and categories also require the support of artifacts (Bowker & Star 1999). For example, without the special plastic bags it was sometimes hard for the employees at the cashiers to distinguish between the ugly vegetables and the other vegetables; i.e. the special plastic bags supported the upholding of the different vegetables categories established at the Coop stores.

The world is full of standards (Bowker & Star 1999) and changing how we are influenced by standards, categorize things, and put them into boxes may not be as easy as it may seem. The creation of the new category ugly vegetables was followed by consequences, actions, and relationships that were not considered of in the beginning, something Brunsson et al. (2012) describe as tension between the standard itself and the local context it is being translated into. For example, the establishment of the ugly vegetables led to that customers started to buy ugly vegetables instead of the other vegetables. Since the studied grocery stores did not, and to some extent could not, take the ugly vegetables in to consideration when they ordered the other vegetables, it lead to that the other vegetables sometimes had to be thrown away. Instead of being a product and category that decreases food wastage, the ugly vegetables became a product and category that competed with the already established categories and in an unintended temporarily way lead to less sustainable routines. Illustrating that there is a tension between the new category of ugly vegetables and the local context (Brunsson et al. 2012), since there were already established categories, standards, and routines that influenced the attempts to change (cf. Timmermans & Berg 1997).

The interviewed employees realized that the tension and competition between the ugly vegetables and the other vegetables sometimes caused food wastage. The employees tried to decrease the tension by for example mixing the ugly vegetables with the other vegetables to avoid throwing food away. This is an example of how the tension made the employees question the taken for granted standards. Hence, the actions of the interviewed employees, caused by the tension and conflict between the two categories, are examples of how the silenced and stabilized vegetables standards lost their credibility because the new category did not work as intended (cf. Bowker & Star 1999). The mixing of the vegetables also illustrates how the ugly vegetables made people aware of that by viewing the ugly vegetables as something ugly and wrong, the institutional order and standards lead to food wastage. I therefore argue that the ugly vegetables can be viewed as a sustainability object (Corvellec 2015) that supports a more sustainable way of living (ibid) by helping the employees and customers challenge the vegetable standards that were taken for granted. Hence, the ugly vegetables manage to create new individual and collective was of acting by establishing new relations between people, objects, and people and objects (cf. Corvellec 2015). The

establishing of a novel waste prevention product therefore requires a reconstruction of the action net since the ugly vegetables question the standards that the action net of the other vegetables are build upon. Based on this discussion, I argue that the ugly vegetables illustrate that there is a relationship between sustainability objects, action nets, and standards that needs to be understood in order to challenge and question the institutions and views that are taken for granted and lead to food wastage.

Bowker and Star (1999) claim the construction of new categories and standards contains negotiations and conflicts. This became evident during the interviews with some of the employees. Even though the interviewees argued that there is no difference in quality between the ugly and other vegetables, they sometime during the interview stated that the quality of the ugly vegetables are lower because of their shapes. The customers also acted in a similar way: when talking to the employees at the grocery stores they stated that it is great that Coop sells ugly vegetables, but then they examined the ugly vegetables well and squeezed them to ensure that the quality was good enough before buying them. Hence, a paradox behavior was observed which could be described as negotiations and conflicts that occur during the establishment of a new category (ibid).

Additionally, the paradox behavior of the customers can be viewed as another way of questioning the credibility of the standards and the institutionalized view that vegetables should have the same shape. By examine and squeezing the vegetables and then buying them, the consumers illustrate that ugly vegetables are not ugly per se, but that it is the institutional order and consequently the standards that view them as ugly (cf. Douglas 1991). Once the customers questioned these institutions and standards, the ugly vegetables are not seen as ugly or wrong any more (ibid) and the view that vegetables have different shapes was no longer silenced (Bowker & Star 1999). Hence, the ugly vegetables can be viewed as a sustainability object that creates contradictions and paradoxes that question institutions and standards, and through that lead to the construction of more sustainable action nets and categories.

The establishment of the ugly vegetables also illustrated that challenging the existing vegetable standards does not only involve changing how people think about vegetables, it requires challenging and changing standards through the entire action net and supply chain. For example, the ugly cucumbers did not fit into the machines that covered them with the plastic film, which lead to that they faster became less fresh than the other vegetables. The case of ugly vegetables illustrates how action nets, classifications and sustainability are connected. Standards influence the actions of different actors and artifacts (Bowker & Star 1999) and in order to develop a novel waste prevention product and construct or reconstruct action nets to become more sustainable (Corvellec & Czarniawska 2014), challenging and changing standards across the entire action net is required.

Conclusion and implications

At first glance, the creation of the ugly vegetables seems to be a straightforward story about the establishment of a novel waste prevention product with the goal to decrease the amount of food being wasted in the world. However, the results show that the introduction and sales of a novel waste prevention product was more complex then first thought of and had unintended and unexpected consequences.

The aim of this study was to investigate how novel waste prevention products are created in the grocery sector and what the implications are. The results of the study indicates that the establishment of a waste prevention product requires the articulation of new actions and connections in order to reconstruct the existing stabilized action net (cf. Corvellec & Czarniawska 2014). To accomplish this, the study illustrates how the creation of a novel waste prevention product gained momentum from being linked to a context in order to receive acceptance from stakeholders, as suggested by Corvellec (2015). It also shows how the novel waste prevention product was linked to different contexts depending on which stakeholder it was introduced to. Further, for the novel waste prevention product to be sold at locations with different contexts, it needed to be translated into their routines and practices (cf. Czarniawska & Joerges 1996) in order for the action net to be reconstructed. To accomplish this, artifacts were needed in order to separate and categorize the novel waste product from the other products (cf. Corvellec & Czarniawska 2014). In the translation process of the novel waste product into the local context, it was translated in a way that was not intended by its designer. The study illustrates how the involvement of human actors generate unintended translations (Czarniawska & Sevón 2005) that lead to that the reconstructed action net sometimes coexisted with the already established action net and sometimes competed with it (ibid). Demonstrating that before the reconstructed action net either becomes stabilized or dissolves, unintended translations sometimes lead to less temporary sustainable practices as the systems adjust to the new routines and practices.

The study further indicates that in order for the novel waste product to become stabilized, it requires that all actions within the action net are connected (Czarniawska 1997). As long as the actions were connect, the action net was temporarily stabilized and the novel waste prevention product could be sold. However, after a while some actions were not successfully connected, due to that the novel waste product was not resilient enough and its production only could be temporary secured. Demonstrating that when the actions within the reconstructed action net no longer could be connected, the action net dissolved and the sales of the novel waste prevention product stopped.

Further, the study illustrates how the creation of the novel waste prevention product lead to that the standards that were taken for granted and contributed to food wastage, became questioned. Hence, a sustainability object was created with the ability to support a more sustainable way of living by influencing actions and establishing new relations between people, objects, and people and objects (Corvellec 2015). By studying the creation of a novel waste prevention product, the study managed to show that there is a relationship between sustainability objects, action nets, and standards, since the novel waste prevention product acts as a sustainability object that creates contradictions and paradoxes that question

institutions and standards. Through that, the creation of a novel waste prevention product leads to the construction of more sustainable action nets and categories. In addition, the study demonstrates how standards influence the actions of different actors and artifacts within the entire action net and supply chain (cf. Bowker & Star 1999) and in order to reconstruct action nets to become more (Corvellec & Czarniawska 2014), challenging and changing standards across the entire action net is required to develop a novel waste prevention product.

A limitation within this study is that it was not possible to adopt a longitudinal approach and follow how Coop for a longer time and observe if and how their work with the ugly vegetables was continued. It would have been of interest since the study has showed that unintended translations happened along the journey and before the action net becomes stabilized. Another limitation has been that has not been possible to study all of actions within the action net. It would be of interest to study these actions in order to further understand how the action net was reconstructed. For future research, I therefore suggest studies to examine how an initiative like this develops over time and the actions of all actors within the action net and supply chain. Additionally, research within other sectors and contexts may further explore how novel waste prevention products are created, what the complications are, and how they challenge institutions by creating or reconstructing action nets to become more sustainable.

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