It's a waste to waste waste!

A qualitative study to discover if Diagnostic theories can explain the organizational change of using waste as resources.

Abstract

In a world with scarce resources and urgent environmental constraints, companies must secure a stable flow of materials. It can be achieved by adopting the concept of Circular Economy, which aims to re-use material at its highest utility. For companies this can be accomplished by utilizing and valorizing waste, which is a challenging process. The process could be facilitated by manageable methods, possibly a well-known framework in organizational development. Therefore, this thesis has researched what factors affect the change of turning waste into resources, and if the process can be explained by dominant Diagnostic theories. Our findings suggest that the change can be explained by Burke and Litwin's *A Casual Model for Organizational Performance and Change* (1992) to a high extent. The empirical evidence also indicates that collaboration between external parties is a key factor, which is omitted in the theories studied in this thesis. This implies that existing Diagnostic theories must be revised for them to fully explain a change of this nature. Furthermore, we question if changes towards an increased circular business approach are different from other organizational developments, or if Diagnostic theories are outdated.

Keywords: Waste, Circular Economy, Burke-Litwin, Diagnostic theories, Change Management.

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Bachelor Thesis NDH900 | Tutor Fredrik Lange | May 2018

Acknowledgements

Axfoundation, especially thanks to Carolina Sachs and Hanna Skoog for the opportunity to execute this study in collaboration with the foundation. No circularity without collaboration!

Fredrik Lange, our patient tutor who believed in us even when we were fumbling around in our optimistic view of a future circular world. Thank you for guiding us in the right direction and helping us to 'tie the bag together' in the end.

Grönsakshallen Sorunda, thanks to Richard Walia, Mats Törngren, and Mattias Dernelid for taking the time to guide us in the warehouse and production.

Thanks to all who have participated in this research and contributed to our findings. We could not have done it without you! Especially thanks to Elin Larsson and Marie-Louise Hellgren at Filippa K, Erik Bang at H&M Foundation, and Karin Bildsten at Axfood; for the precious input to this thesis.

Family and friends, for enduring our constant yammering on waste this spring!

Victor Nilsson and **Alex Caplan**, for correcting our 'Swe-English' expressions.

'Companies must take the lead in bringing business and society back together. The recognition is there among sophisticated business and thought leaders, and promising elements of a new model are emerging. Yet we still lack an overall framework for guiding these efforts, and most companies remain stuck in a "social responsibility" mindset in which societal issues are at the periphery, not the core. The solution lies in the principle of shared value, which involves creating economic value in a way that also creates value for society by addressing its needs and challenges.'

(Porter & Kramer, 2011, p. 64)

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Glossary

Expression	Definition
Waste	Materials or products, often by-products or excess materials, that is currently thrown away and managed as a cost or something without monetary value[1].
'Utilize and valorize waste'	The practice of turning waste into something with a monetary value – a resource[2].
'Waste as resources'	The perception of waste as something with a monetary value – a resource[3].
Circular Economy (CE)	An economy that is restorative or regenerative by design, which aims to keep products, components, and materials, at their highest utility and value at all time (Ellen MacArthur Foundation, 2015b).
Upcycling	Reuse (discarded objects or materials) in such a way as to create a product of higher quality or value than the original (Oxford University Press, 2018b).
Change Management	The management of change and development within a business or similar organization (Oxford University Press, 2018a).
Organizational Diagnosis	The process of understanding how the organization is currently functioning. It provides the information necessary to design change interventions (Cummings & Worley, 2008, p. 87).
Organizational Development	The practice of increasing organizational effectiveness and performance, as well as supporting technical and managerial innovations (Cummings & Worley, 2008, p. 697).
Externalities	Social costs created by companies that they do not have to bear, such as pollution (Porter & Kramer, 2011, p. 65).
'Waste Products'	Products made completely out of waste or by-products[4].
External Collaboration	Organization's collaboration with external parties, such as companies and other organization[5].

[1] Definition formulated based on our literature study.
[2] Ibid.
[3] Ibid.
[4] Ibid.
[5] Ibid.

1. Introduction

The following section explains the background of the subject, previous research, and the research gap. Thereafter, the purpose of the study is presented as well as the research question and delimitations.

1.1 Background - Why is this important?

Business has in recent years been perceived as a major cause of environmental, social, and economic problems (Porter & Kramer, 2011). This is evident even though the primary job for companies is to support customers by producing benefits and assets for society, not liabilities (Lacy & Rutqvist, 2015). Companies must take the lead in creating aligned goals for business and society by linking company success with social progress. This could be done by creating shared value. The principle of shared value is to recognize that social harm also creates internal costs for companies, such as wasted resources. Shared value benefits both companies and society (Porter & Kramer, 2011).

'*Shared value is not social responsibility, philanthropy or even sustainability, but a new way to achieve economic success.'* (Porter & Kramer, 2011, p. 64)

Circular Economy (CE) is one way to achieve shared value since it provides profits for businesses while simultaneously generating value for society. A recent example is Adidas' project in collaboration with Parley, where they collect plastic from the ocean to produce shoes (Adidas America Inc. , 2018). The concept of CE has become one of the most prominent trends and a solution to environmental issues (Shah, 2014). In a CE, one system's waste is the next system's input, and the aim is to maximize total utility from the products and materials in use (Ellen MacArthur Foundation, 2015a). The intention is to transform waste into resources and to bridge production and consumption activities together (Witjes & Lozano, 2016). Hence, for companies to become more circular they must strive to reevaluate and re-use their waste.

'The circular economy aims to provide alternatives for conducting business in such a way that a linear 'take, make, dispose' economy can be upgraded to an economy that is restorative by design.' (Ellen MacArthur Foundation, 2016, p. 158)

Waste is often perceived as a cost or something without monetary value, even though existing empirical evidence and theories imply the opposite (Lacy & Rutqvist, 2015). Immense value is lost due to the underutilization of waste from products, assets and natural resources. In Sweden alone,

42 billion SEK of material value is lost each year (Material Economics, 2018). According to research by Material Economics (2018), Ellen MacArthur (2016) and Lacy & Rutqvist (2015), the losses would be mitigated if the materials are handled more carefully and effectively. Thus, material preservation is a business opportunity that benefits both the economy and the environment (Material Economics, 2018). However, companies trying to capitalize on this often fail to do so. The fundamental issue of adequately utilizing waste is organizations' failure to recognize that everything has a value (Lacy & Rutqvist, 2015; Material Economics, 2018)

Ellen MacArthur Foundation (2016) argues that if waste is considered a nutrient or an unutilized resource, a new pattern emerges in the sense that wealth can be created by consuming fewer resources. They claim that the main problem is the mindset in society since most of the required technology exist. The current 'linear' mindset of product design causes much of today's loss of value (Ellen MacArthur Foundation, 2016). This 'take, make, dispose' approach began during the industrial revolution when disposable products were produced with the explicit purpose of being discarded after consumption, so-called 'planned obsolescence'. This mindset ignited the era of fashion, stimulating linear consumption behavior (Lieder & Rashid, 2015).

Today, many companies search new usage areas for their generated waste (Ellen MacArthur Foundation, 2016). For instance, several Swedish firms cooperate in the *Textiles for Recycling Network* to stress the environmental footprint of wasted clothes and to create joint solutions for CE's (Stål & Corvellec, 2017). Furthermore, in H&M Foundation's annual competition *Global Change Award*, winning contributions were inventions to make textiles from organic waste (H&M Foundation, 2018). This global trend is illustrated by many start-ups within the field. In the United Kingdom, *Ananas Anam* produces fruit leather from discarded pineapple waste (Ananas Anam, 2018). In Italy, *Orange fiber* creates fabric out of orange peel (Orange fiber, 2018) and *Vegea* uses leftover grape skin and seeds from wine productions to make fabrics (Vegea, 2018).

The start-ups mentioned above are all founded with a circular business approach which simplifies the process. Diversely, incumbent firms will need to make significant investments to implement a circular business model and to transform their linear productions and supply chains (Lacy & Rutqvist, 2015). Hence, it is highly relevant to investigate how this change could be facilitated. Particularly, a familiar model with high usage frequency would make the shift more accessible and conceivable amongst managers. Thus, it is interesting to research if well-known theories in the academic field of Change Management are applicable to the change process of using waste as resources. The distinct focus of the paper is directed towards the initial stages of the process and

will thereby not analyze the outcomes or results. Diagnostic theories within Change Management are suitable as they map the prevalent factors affecting the change in a company.

Furthermore, we question if a change of this nature is achievable merely within the borders of an organization. A movement towards increased circularity may illustrate how these complex processes are interdependent and that collaboration across organizations is necessary.

'In the long term, a company's business interests and the interests of society converge. Companies, communities, individuals, and governments: we are all interdependent.' (McMillon & McLaughlin, 2015)

1.2 Previous Research

The relevance of CE is verified by the fact that the number of publications on the topic doubled between the years of 2012 and 2015 (Lieder & Rashid, 2015). It is a concept closely linked to sustainability as it is based on improving both environmental and economic benefits. Therefore, we believe that the research made by Jutterström (2017) is applicable to the concept of circularity.

'Much can be gained by seeing sustainability as something more general. By seeing sustainability as an example of something we can increase our understanding of what the concept implies for business firms and other organizations.' (Jutterström, 2017, p. 73)

Companies constantly try new management techniques to solve apparent problems the old ones failed to tackle, and managers usually obtain theories to operate organizational changes (Jutterström, 2017). Diagnostic models identify the companies' current situations and prerequisite conditions to accomplish the change (Hayes, 2014).

1.2.1 Research Gap

There is a lack of research on the challenges of using waste as resources in companies. Under the assumption that a frequently used theory in Organizational Diagnosis can facilitate the transition towards increased circularity, what factors that affect the change can be explained by such framework?

Jutterström (2017) concludes that much can be gained for companies if they view sustainability changes as typical efficiency improvements. Thus, it would be interesting to further research if sustainability improvements resemble other popular management ideas.

'*As many aspects of popular management ideas are in flux, further analysis of how the popular management idea of sustainability develops, and in some respect diverges from other ideas, seems relevant.*' (Jutterström, 2017, p. 91).

On the contrary, Lieder and Rashid (2015) state, '*Only a comprehensive framework unique to the concept of Circular Economies that is jointly supported by all stakeholders is able to support successful Circular Economy implementation*.'

The thesis aims to fill the research gap for companies aspiring to implement a new perspective on waste; resources with a potential monetary value. Research has been made on CE, the potential monetary value of waste, and Diagnostic theories of change. However, there is a need for more research in order to discover how these areas are and can be connected.

Figure 1. Illustration of this thesis' Research Gap.

1.2.2 Expected Contribution

The thesis expected contribution is to facilitate the change towards utilizing and valorizing waste, by contributing to the understanding of the factors affecting the transition. Therefore, the thesis expects to identify the factors explained by a Diagnostic framework applied to the change.

1.3 Area and Purpose

Companies operating today face rising stakeholder pressure to develop their business approach. The concept of circularity is becoming more widespread which makes this area interesting to research. Numerous companies try to make use of their waste but face many challenges in the transition. The purpose of this thesis is to facilitate the change for organizations to valorize and utilize their waste by providing a comprehensive framework for companies and managers.

1.3.1 Research Question

What factors impact the organizational change of trying to utilize and valorize waste, and are the factors explained by dominant Diagnostic theories of change?

1.4 Delimitations

The thesis will narrow its research to the change of utilizing and valorizing waste. Hence, the study will not analyze how waste may be minimized through business concepts such as leasing. Additionally, fast moving consumer goods such as food and textiles account for a relatively large portion of the waste and environmental damage generated today. Consequently, the thesis will be limited to analyzing manufacturing waste for such products. Moreover, a large part of waste minimization refers to household waste and the challenge for retailers to reclaim customer waste after consumption, which is excluded in our study.

The thesis will examine companies that are in a transition phase to a circular approach. Companies founded on the premise of circularity are not exposed to the same difficulties and are excluded. Finally, the study is limited to the part of Organizational Diagnosis within the academic field of Change Management. Hence, the thesis solely examines Diagnostic theories and frameworks.

2. Literary Studies

This section will introduce the reader to existing theories in CE, Waste as Resources, and Organizational Diagnosis. It continues by presenting the theoretical framework for this study.

An extensive literary study has been executed in Organizational Diagnosis and CE. The main literary works studied in each academic field are illustrated in Figure 2. A distinction has been made between CE in general and Waste as Resources in specific. The literature regarding Shared Value refers to both fields and is therefore placed separately.

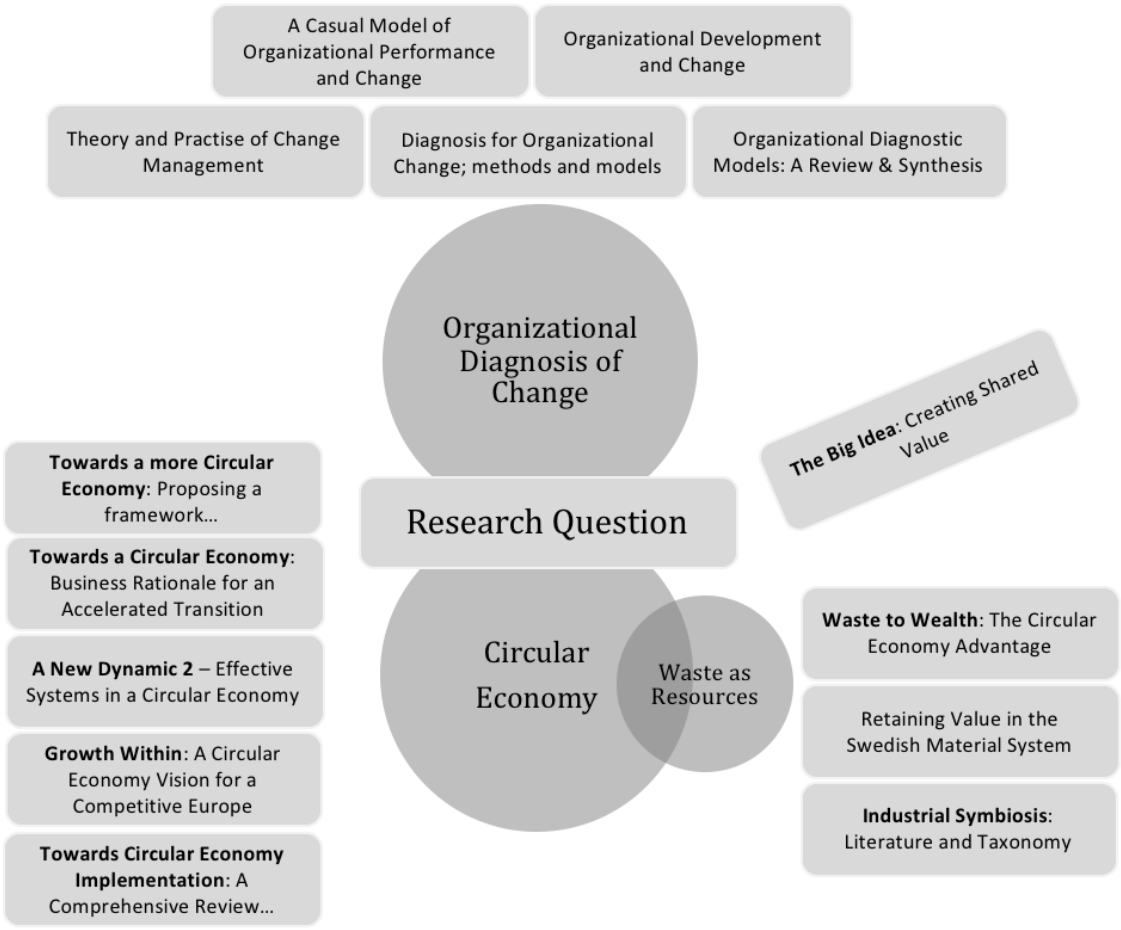

Figure 2. Illustration of the executed Literature Study. See References for full citation.

2.1 Circular Economy (CE)

The main existing framework for CE is Ellen MacArthur Foundation's theory of 'The Circular Economy System Diagram', see Appendix 1 (Ellen MacArthur Foundation, 2017). The idea is to rebuild capital and enhance the flow of goods and services. The framework illustrates optimal circular systems, their material flow, and processes. However, it does not illustrate the organizational transition towards circularity and the following challenges and barriers.

Previous research emphasizes the importance of collaboration between organizations as a critical factor to reach circularity, '*To manage the transition well, the incumbent industry would need to form alliances. Creating a strong network of partners is crucial.*' (Ellen MacArthur Foundation, 2015a, p. 29). Likewise, Lieder and Rashid (2015) states, '*Joint support of all stakeholders is necessary in order to successfully implement the Circular Economy concept at large scale.*' (p. 1).

2.1.1 Waste as Resources

CE is a way to solve challenges such as waste generation, resource scarcity and sustaining economic benefits (Lieder & Rashid, 2015). Research shows that 4.5 trillion USD could be earned globally by turning waste into wealth by 2030 (Lacy & Rutqvist, 2015, p. 15). One example of how companies could utilize waste is by taking inspiration from the concept of Industrial Symbiosis. It enables secondary usage areas of waste and by-products by collaborating and identifying synergistic possibilities. Chertow (2000) describes it as the following, '*Industrial symbiosis engages traditionally separate industries in a collective approach to competitive advantage involving physical exchange of materials, energy, water, and/or by-products. The keys to industrial symbiosis are collaboration and the synergistic possibilities offered by geographic proximity.*' (p. 314). It illustrates how waste can be utilized by creating possibilities for external collaboration through transparency and geographic proximity.

2.2 Organizational Diagnosis

The academic field of Change Management consists of several stages of managing an organizational change where one stage is the phase of Diagnosis (Hayes, 2014). According to research, this is one of the most important activities within Organizational Development practices (Cummings & Worley, 2008). It is explained as the following, '*Diagnosis is the process of understanding how the organization is currently functioning, and it provides the information necessary to design change interventions.'* (Ibid., p. 87).

In the phase of Diagnosis, a relevant theory for understanding the organization and collecting the data must be chosen (Cummings & Worley, 2008). This thesis does not review all theories in organizational change as it would be too time-consuming and limit the depth of the study. Instead, it is concentrated on a few literary works to provide a deep understanding of the dynamics underlying organizational change (Armenakis & Bedeian, 1999). To research the landscape of Diagnostic theories this thesis has focused on three main literary sources: the academic report *Organizational Diagnostic Models* (Falletta, 2005), the book *The Theory and Practice of Change Management* (Hayes, 2014), and the article *Diagnosis for Organizational Change: Methods and*

Models (Howard, 1994). The literary sources declare the main Diagnostic theories, stated in Table 1 below.

Model	Year
Force Field Analysis	1951
Leavitt's Model	1965
Likert System Analysis	1967
Weisbord's Six-Box Model	1976
Congruence Model for Organization Analysis	1977
Kotter's integrative model of organizational dynamics	1980
The McKinsey 7S Model	1981-1982
Tichy's Technical Political Cultural Framework	1983
High-Performance Programming	1984
Diagnosing Individual and Group Behavior	1987
Burke-Litwin causal model of organizational performance and change	1992

Table 1. List of most cited theories in Organizational Diagnosis.

Some of the theories stated in Table 1 have a limited view of the influence of the external environment and perceive organizations as closed systems independent from the environment in which they operate in (Falletta, 2005). Other theories instead rely on the Open System Theory as a basic assumption. It is the idea that, '*…organizations are social systems which are dependent upon the environment in which they exist for inputs.'* (Falletta, 2005, p. 8). As mentioned in Paragraph 2.1, CE is argued to be dependent on collaboration across organizations. Hence, the external environment is central in changes within CE. Therefore, the perspective of the external environment for the eleven theories mentioned in Table 1 are outlined in Table 2 below.

View of the External Environment	Theory
Not represented in the model	Force Field Analysis (1951), Leavitt's Model (1965), Likert System Analysis (1967), McKinsey 7S Framework (1981), High-Performance Programming (1984).
An effect for the organizational inputs, outputs, and feedback. *Based on the Open System Theory.*	Weisbord's Six-Box Model (1976), The Congruence Model for Organization Analysis (1978), Tichy's Technical Political Cultural Framework (1983), Diagnosing Individual and Group Behavior (1987).
Any outside condition or situation that influences the performance of the organization, including marketplaces, world financial conditions, and political/governmental circumstances. *Based on the Open System Theory.*	Burke-Litwin's Causal Model of Organizational Performance and Change (1992).

Table 2. Overview of the different theories perception of the factor External Environment. (Falletta, 2005)

The effectiveness of an organization is influenced by how it reacts to external conditions. According to Armenakis & Bedeian (1999) external conditions include factors such as regulations, technology, and market competition. When researching the landscape of the external perspective, Vollmann's theory *The Transformational Imperative* from 1996 was discovered (Armenakis & Bedeian, 1999). This model could be a relevant framework for this thesis. However, since it has not been recited in the three literary works stated in Table 1 it does not seem to be equally renowned as other theories, such as Burke and Litwin's model.

2.3 Theoretical Framework – Why?

When collecting and analyzing the empirical evidence, a theoretical framework has been used. An organizational model facilitates us to understand what is observed as it helps us to 1) enhance our understanding of organizational behavior, 2) categorize data about an organization, 3) interpret data about an organization, and 4) provide a common short-hand language (Howard, 1994).

2.3.1 Burke and Litwin (1992) – Why?

The decision for this thesis to use Burke and Litwin's theory *A Causal Model of Organizational Performance and Change (1992)*, was based on four main arguments. The change to utilize and valorize waste is both complex and fragmented. Therefore, the study requires an elaborative model considering numerous factors. Burke and Litwin's model is comprehensive and considers factors on both an individual and organizational level. Furthermore, it contains the most extensive external perspective which is critical as discussed in Paragraph 2.2 (Spangenberg & Theron, 2013). Additionally, the framework appears to be well-known as it is recited in all studied literary works. Finally, according to our literary research, Burke and Litwin's theory is suitable when it is necessary to know how changes are influenced and how performance is affected (Martins & Coetzee, 2009). An overview of the framework's strengths and weaknesses are explained in Table 3 below.

Strengths	**Weaknesses**
➢ Explains connections and relations between factors. ➢ Demonstrates a cause-and-effect relationship between the internal and external environment. ➢ Well-researched and tested empirically.	➢ High level of complexity. ➢ Decreased relevance since no adjustment has been made since 1992.

Table 3. Strengths and Weaknesses of Burke-Litwin's Model. (Martins & Coetzee, 2009; Spangenberg & Theron, 2013)

2.3.2 An Overview of the Framework

Burke and Litwin's model includes twelve theoretical variables and specifies their respective weight in an organizational change. The theory is based on previous models and refined by empirical studies (Falletta, 2005). It also illustrates the drivers of change in an organization and positions them according to their impact. Burke and Litwin claim that a change usually is initiated from the top and thereafter trickle-down. Accordingly, a change in one part of the model will affect all factors since they are interconnected (Hayes, 2014). The model is illustrated in Figure 3 below.

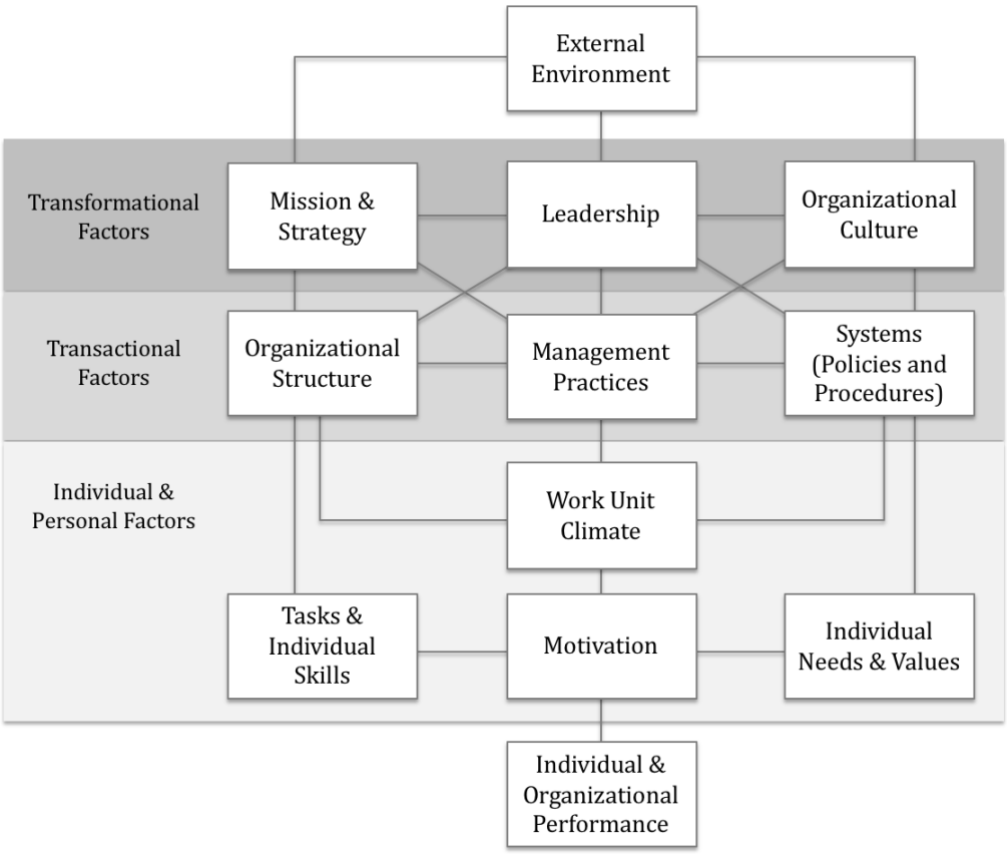

Figure 3. Burke-Litwin Model of Organizational Performance and Change (1992).

External Environment

- *External Environment* is '*any outside condition or situation that influence the performance of the organization*' (Burke & Litwin, 1992, p. 531). This includes elements such as the market, legislation, competition and world economy. They are inevitable conditions for the organization rather than mutually interdependent in- and outputs (Burke & Litwin, 1992). Due to this description, the assumption in this thesis is that collaboration with external parties is not considered in the factor.

Transformational Factors

Transformational factors consist of vital elements for succeeding in an organizational change.

- *Leadership* is the attitudes and behaviors of the senior managers in an organization. It influences how the change is implemented and accepted by the rest of the organization (Burke & Litwin, 1992).
- *Mission and Strategy* is of great symbolic value as it articulates the central purpose of the organization, the *raison d'être* for the company. Burke and Litwin argue that the mission and strategy is the foundation on which everything else is built upon (Burke & Litwin, 1992).
- *Organizational Culture* is often described as the way things are performed in the company and are based on the behaviors, beliefs, conventions, and values. A change in an organization's culture is time-consuming and hard to achieve (Burke & Litwin, 1992).

Transactional Factors

- *Management Practices* are how managers fulfill organizational strategy by making use of resources (Burke & Litwin, 1992).
- *Organizational Structure* is the arrangement of relationships, communications, and responsibilities to assure an effective implementation of the organizations' mission and strategy (Burke & Litwin, 1992).
- *Systems* refers to standardized policies and procedures that facilitate efficiency in the business processes. It is for instance manifested in the organizations budget, goals, and reward systems (Burke & Litwin, 1992).

Individual and Personal Factors

This row in the model refers to the perception of the employees.

- *Work Unit Climate* is the collective impressions, expectations, and feelings that employees have about their work situation (Burke & Litwin, 1992).
- *Motivation* is the behavior to initiate actions to move towards specific goals and continue until satisfaction is achieved. It is a challenge for managers to uphold the motivation throughout a change process, especially if the change is not well-received by the staff (Burke & Litwin, 1992).
- *Tasks & Individual Skills* are the required skills and knowledge for task effectiveness (Burke & Litwin, 1992).
- *Individual Needs & Values* reflect the psychological factors that shape individual actions and thoughts (Burke & Litwin, 1992).

Individual and Organizational Performance

The performance is not a factor that affects the change but an outcome from all parts of the model that have been explained above. It shows the results at the same time as it is an indicator of effort and achievement (Burke & Litwin, 1992). Since this thesis researches the factors affecting the change process, the *Individual and Organizational Performance* is not included in the following analysis.

3. Methodology

The following section describes the research methodology for the thesis and the selection of organizations and interview subjects. Thereafter, it describes the execution of the thesis and discusses the trustworthiness and authenticity of the study in terms of qualitative measurements.

3.1 Selection of Methodology

To comprehend the topic and existing academic theories, an extensive literary research was used as a foundation for the initial empirical gathering. The first step was to review previous research on CE and Change Management, see Paragraphs 2.1-2.2. The second step was an empirical gathering in three separate parts, see Figure 4 below. The different perspectives generated a multifaceted and nuanced representation of the empirical evidence. It does not necessarily increase the credibility and generalizability of the study, but rather enhances its complexity and various perceptions (Alvehus, 2013).

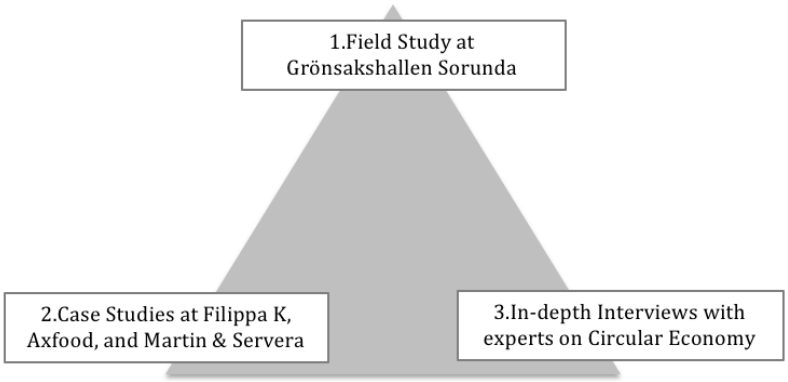

Figure 4. The three parts of the empirical gathering, so-called Triangulation methodology.

The thesis was executed in collaboration with Axfoundation which is an '*independent, non-profit organization whose objective is to establish venues and conditions for real change that propel us toward a sustainable society.*' (Axfoundation, 2018). Their support abridged the process of getting in contact with relevant people due to their broad network and connection to Axel Johnson's company group. It is one of the largest company groups in the Nordic region within the trade and service sector (Axel Johnson, 2018).

3.1.1 Research Methodology

We aimed to find the best possible way to answer the research question and executed the thesis from a pragmatist perspective (Alvehus, 2013). The analysis is based on a combination of theoretical and empirical evidence interrelated in an iterative process (Bryman & Bell, 2013). The initial literary study generated an academic field which the empirical study was limited to and

gradually the study area and theoretical framework were chosen. Literary research was conducted parallel to the empirical gathering.

3.1.1.1 Qualitative Research Methodology – Why?

A qualitative research methodology was chosen to conduct field observations and comprehend individual perceptions. An understanding of this type of change is complex to interpret which emphasizes the requirement of a qualitative methodology. When doing a qualitative research, it is important to be aware of its criticism and limitations. It is a subjective method which consequently means that it can be hard to generalize and replicate (Bryman & Bell, 2013), see Paragraph 3.4 for a more elaborative discussion. However, we believed that a qualitative approach was necessary to attain a deep understanding of this complex topic.

3.1.1.2 Field Study

The research question is partly answered by a unique field study, including observations and interviews at Grönsakshallen Sorunda. The decision to execute an actual field study was the ambition to convey a deeper understanding of the subject. Since Axfoundation has initiated several pilot projects with Grönsakshallen Sorunda to utilize their waste, they were suitable for our field study. They have a linear business model which allowed us to study the transformation towards increased circularity. These conditions allowed us to research the change in its actual circumstance which enabled us to identify key factors in the transition.

3.1.1.3 Semi-structured In-depth Interviews

The second and third part of the empirical research consisted of in-depth interviews which followed a semi-structured style (Bryman & Bell, 2013). An interview guide with some relevant questions was prepared before each interview. All questions were asked open-ended to evoke experience sharing and to give the interviewees the opportunity to form their answers freely. Follow-up-questions were asked throughout the interviews. The main purpose of using semi-structured interview technique was to enable the interview subjects to decide what factors to mention. This allowed us to gain a truthful interpretation of their individual perceptions.

3.2 Execution

Before executing the study, research was made about a qualitative study and its different aspects. The literature by Bryman and Bell (2013) and Alvehus (2013) was especially studied. Research on interview technique was carried out to ask the right questions during the interviews as well as performing an accurate field study. The empirical data was gathered by observations and in-depth

interviews as explained in Section 3.1. The theoretical framework by Burke and Litwin (1992) was applied when the importance of external collaboration was noticed.

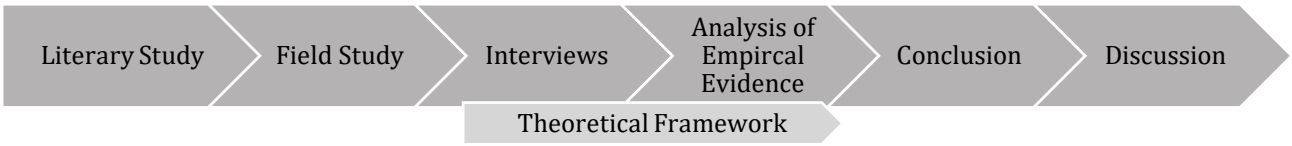

Figure 5. The course of action for this thesis methodology.

3.2.1 Data Collection

The data collection was made from a combination of a strategic selection and a so-called snowball selection (Bryman & Bell, 2013). A strategic selection was necessary since the research question required interview subjects with certain knowledge and experience, see Paragraph 3.3.1 for the detailed requirement profile. However, the specific individuals interviewed started with a relation to Axfoundation and from them we got a handful of interesting companies and people to interview, who then led us to other individuals whom fitted the requirement profile.

The initial contact with the interview subjects was by e-mail in order to schedule an appointment. The interviews were then executed either by telephone or in person, see Table 5 in References for detailed information. All interviews and observations lasted between 20 minutes to 1,5 hours, most of them for one hour, and were held in Swedish. Both of us were present during all observations and interviews. We started by asking for permission to record the interviews and take notes simultaneously. We also mentioned that all quotes used in the thesis would be sent to them before publishing to ensure an accurate translation to English.

The first questions regarded the organization they worked for as well as their roles and main responsibilities. Thereafter, we asked about projects in CE they had been involved in. The main focus during the interviews with the company representatives was on the studied case projects described in detail in Paragraph 4.2, while the expert interviews concentrated on waste and CE in general. The opening questions during the interviews are compiled in Appendix 2 and 3. After the interviews, we transcribed the material and discussed the answers.

3.2.2 Empirical Saturation

After a few interviews we began to identify patterns in the empirical evidence. From the fourteenth interview and onwards, no new insights were gathered. Thus, we concluded that empirical saturation was reached (Bryman & Bell, 2013).

3.3 Organizations and Selection

The following section contains the requirement profile, a description of the selected organizations and interview subjects.

3.3.1 Requirement Profile

The joint requirement for all interview subjects was that they had experience or expertise in waste valorization and utilization. The interview subjects for the field study at Grönsakshallen Sorunda were people who had been involved in the project together with Axfoundation, described in detail in Paragraph 4.1. We began to interview Mats Törngren who connected us to the other interviewees.

The second part of the research were case studies of projects companies have initiated in waste utilization and valorization. Hence, solely companies that had commenced such projects were included. The companies interviewed were Axfood, Martin & Servera and Filippa K that all belong to Axel Johnson. They were interviewed because of their association with Axfoundation and the company group's focus on sustainability. When choosing the right company representatives to interview, we contacted employees involved in relevant projects. A detailed description of the case studies can be found in Paragraph 4.2.

For the expert interviews, the requirement was that they had an expertise on CE. The study area is complex which increases the importance of attaining expertise on the subject.

3.3.2 Selection of Organizations

The selection of interview subjects was based on the requirement profile stated above. In this section the chosen organizations are explained in more detail and compiled in Table 4.

3.3.2.1 Grönsakshallen Sorunda (GS)

GS is a food wholesaler and a part of the Axel Johnson company group. They specialize in refining fruits and vegetables, sold to customers such as restaurants, events, schools, and airlines. They execute projects together with Axfoundation, Filippa K and Älvdals Lax in waste utilization and valorization. A more extensive review of their work with waste is explained in Paragraph 4.1.

3.3.2.2 Filippa K

Filippa K is a premium fashion brand selling high-quality clothes. The company is involved in projects using wasted materials as inputs to make new products, see Paragraph 4.2.2. They also

collaborate with other organizations such as Mistra Future Fashion and University of Arts London to create innovative sustainable materials from waste. The company has a mission to be completely circular in the year of 2030 (Filippa K, 2016).

3.3.2.3 Axfood

Axfood is a food retailer, with the grocery chains Willys and Hemköp in their company portfolio. They are pursuing actions to identify secondary usage areas for their food waste, see Paragraph 4.2.1 (Axfood, 2017).

3.3.2.4 Martin & Servera

Martin & Servera is a food wholesaler with a customer base including restaurants and schools. They have issued several long-term sustainability goals and have initiated a project together with Halmstad municipality, see Paragraph 4.2.3 (Martin & Servera, 2017).

3.3.2.5 Återvinningsindustrierna (ÅI)

ÅI is an industry organization for recycling companies working with environmental issues. Their goal is to create sustainable recycling and to stimulate a competitive neutrality for waste and recycled materials (Återvinningsindustrierna, n.d).

3.3.2.6 Research Institutes of Sweden (RISE)

RISE is one of Sweden's main research institutes and partners for innovation. With their international collaboration with companies, academia, and the public sector, they contribute to a competitive business community and a sustainable society (RISE, n.d).

3.3.2.7 Material Economics

Material Economics is a consultancy firm specialized on sustainability and resource strategy. Their aim is to help clients to be ahead in the game of sustainability (Material Economics, n.d).

3.3.2.8 Cradlenet

Cradlenet is a non-profit organization with a platform to raise awareness on CE and accelerate Sweden's transformation to CE (Cradlenet, n.d).

3.3.2.9 Ragn-Sells

Ragn-Sells manages and recycles waste from industries, organizations, and households. They offer innovative solutions to minimize, handle and convert waste into resources (Ragn-Sells, n.d).

3.3.2.10 H&M Foundation

H&M Foundation is a non-profit organization with the mission to drive long lasting positive change and improve living conditions by investing in people, communities, and innovative ideas. They arrange an annual sustainability competition called *Global Change Award* (H&M Foundation, 2018).

	Organization	Role	Name
Contributors to Field Study	Grönsakshallen Sorunda	Head of Operations	Mats Törngren
	Grönsakshallen Sorunda	Productions and Sales Director	Richard Walia
	Grönsakshallen Sorunda	Purchasing Manager	Mattias Dernelid
Company Representatives	Axfood	Project Manager	Karin Bildsten
	Axfood	Store Manager	Linda Gunnarsson
	Martin & Servera	Chief Sustainability and Quality Officer	AnnaLena Norrman
	Martin & Servera	Sales Director	Stefan Calrell
	Filippa K	Sustainability Director	Elin Larsson
	Filippa K	Freelance Designer	Marie-Louise Hellgren
Experts	Återvinningsindustrierna	CEO	Lina Bergström
	RISE, Research Institute of Sweden	Director of Innovation Program RE:Source	Evalena Blomqvist
	Cradlenet	Chairman of the Board	Elin Bergman
	Material Economics	Consultant	Unn Hellberg
	Material Economics	Consultant	Cornelia Jönsson
	Ragn-Sells	CEO	Per Larshans
	H&M Foundation	Innovation Lead	Erik Bang

Table 4. The interview subjects in this thesis.

3.4 Criticism of Qualitative Methodology

Subjective

Qualitative research is criticized for being impressionistic since it is influenced by the researcher's perception of what is important. Studies of a qualitative nature often start with a general and open perspective, and in the process defines the research question. Consequently, some researchers say that the research question often is ambiguous in qualitative studies (Bryman & Bell, 2013).

Problematic to replicate

Researchers claim that qualitative studies are unstructured by its nature and believe that it is problematic to replicate the research. Another criticism is that the interview subjects are affected by the interviewer's characteristics such as gender, age, personality and appearance (Bryman & Bell, 2013).

Hard to generalize

Results from a qualitative study are argued to be difficult to generalize due to their subjective and limited nature. Studies of a qualitative nature are often limited to a small area and a few interviewees. The main question asked is, if the interview subjects are not randomly chosen, how can the results be representative of a general conclusion? (Bryman & Bell, 2013).

Lack of transparency

Another criticism often directed to qualitative studies is their lack of transparency. This refers to the information about how a research has been planned, executed and analyzed. The criticism is based upon the explicitness quantitative studies has in the choice of interview subjects, what questions have been asked and how the analysis has been made (Bryman & Bell, 2013).

3.5 Methodology Discussion

It is important to be aware of the criticism often directed to qualitative studies mentioned in Paragraph 3.4 above. A discussion of the methodology's trustworthiness and authenticity is presented in the following paragraphs.

3.5.1 Trustworthiness

Credibility

There is more than one description of a person's social reality, which affects the credibility (Bryman & Bell, 2013). A potential risk is the experimenter expectancy effect which is that interviewees are unintentionally affected by the interviewers. To diminish this risk, all questions were asked open-ended and the interviewees were oblivious of the study's purpose.

In this study all interview quotes have been translated. To ensure that our interpretations of the interviewees' perceptions were correctly perceived, a respondent validation was made. Accordingly, the result was sent to all interviewees to give them the opportunity to review and confirm their information. To attain the authenticity in the quotes, the interview subjects were not allowed to re-construct their responses (Bryman & Bell, 2013).

Transferability

Since a qualitative research is focused on a specific group of people, it is difficult to assess the transferability of the result (Bryman & Bell, 2013). As mentioned before, all participating company representatives belong to Axel Johnson which is a family-owned company group with sustainability as a core value. These conditions could potentially aggravate the possibility to replicate the conclusions from this study to a general understanding.

Dependability

The configuration and execution of all parts in the study have been done by two researchers, which enable a more critical perspective of the findings (Bryman & Bell, 2013). Moreover, our work has repeatedly been reviewed by a supervisor from SSE to ensure a high-quality research. Still, the question of dependability remains since the data only has been examined by us.

Confirmability

Individual values and beliefs by the researchers may have affected the study unintentionally (Bryman & Bell, 2013). The attempt has been to make a nuanced analysis of the empirical findings and we have acted in good faith to make an accurate conclusion.

3.5.2 Authenticity

To get a truthful picture, we have interviewed people with different areas of competence. The combination of literary research, field observations, case studies, and expert interviews, provide different perspectives. Thus, the findings contain a nuanced and multifaceted picture (Bryman & Bell, 2013). Illustrated in Table 4, several areas of competence have been covered. The overweight in managers and experts on CE could have caused a distorted view of the empirical findings. However, we believe that they have a more holistic perspective than the other interview subjects.

4. Empirical Evidence

The following section will present the empirical evidence in three different parts: 1) Field Study at Grönsakshallen Sorunda, 2) Case studies in waste utilization and valorization, 3) In-depth interviews with experts.

4.1 Field Study at Grönsakshallen Sorunda (GS)

Based on the information gathered, GS's current and potential projects to utilize and valorize waste is mapped in Figure 6 below. They purchase raw fruits and vegetables and refine it in their factories. Their waste generated is currently turned into soil by a waste management firm, which poses a cost for GS. Therefore, they are trying to find new usage areas for their waste to generate revenues instead. For instance, they collaborate with Filippa K and Älvdalslax.

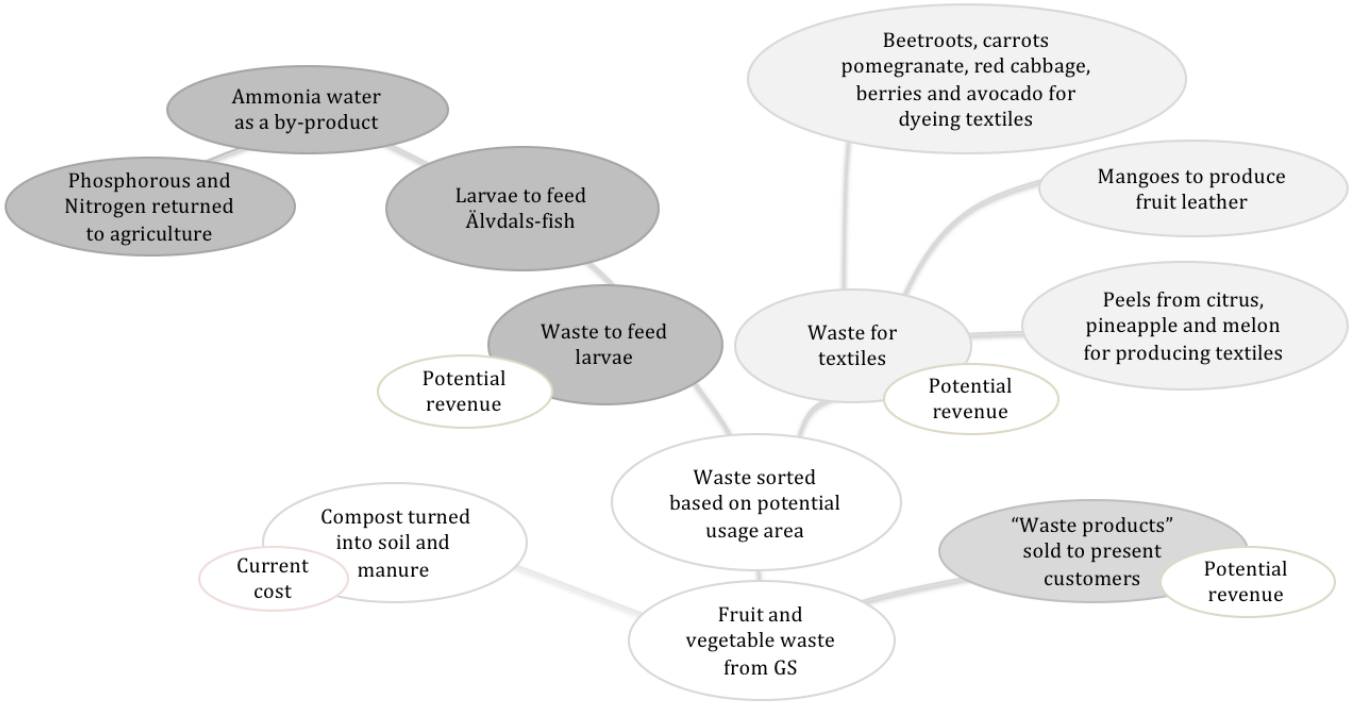

Figure 6. A flow chart of GS current and potential projects to utilize and valorize some of their waste.

4.1.1 Observations at GS

This part explains our observations at GS where we first met Mats Törngren in the warehouse and in the second visit followed Richard Walia in the production.

During two visits, we had the opportunity to observe the warehouse and the production which contributed to important insights about GS's generated waste. We discovered that different types of waste have varied possibilities and therefore require different solutions. This means that

managers must have a flexible mindset to adapt the products based on the waste available. The distinct potentials of GS's waste are sorted into two main categories:

(1) *New products that could be sold to GS's present customers*.
Products that could be made from something that is thrown away. One example of this was leek blast; it could be used as a main course garniture at restaurants.

(2) *Material resources that could be sold to new customers*.
Waste that could be sold as raw material and used as inputs for other companies' productions. One example is citrus peel that could be used to make textiles.

We also understood that the waste varied in terms of quantity. Some types, such as pineapple and citrus peel, are generated in relatively stable quantities of around 500 kg per day. While other types, such as mushroom waste, have volatile quantities.

Another observation was that the process to upcycle waste would require additional handling by workers beyond their current tasks. One example of this is the bottom of a paprika. It is currently removed due to esthetical reasons but could potentially be used as an ingredient in a bouillon. However, a bouillon would be a completely new product for GS to produce and would involve new processes and procedures both for the workers and the company.

We also observed a difference in the leadership and management practices at GS. Further up the hierarchy creativity is encouraged as managers are allowed to try new things and deviate from their everyday tasks. On the contrary, the employees in the production seem to be limited to their predetermined tasks and mainly evaluated on their speed.

The working climate at GS could also be observed. We interpreted it as a positive environment where the employees enjoy their work and know their co-workers, even in different departments. Overall, we experienced an enthusiastic and collaborative atmosphere at GS. Finally, all interview subjects were perceived as highly motivated in their project roles.

4.1.2 Interviews at GS

This part recites our interviews with Törngren, Dernelid, and Walia at GS, see Table 4 for a detailed description. The findings are presented according to the four pillars of the theory by Burke and Litwin (1992): External environment, Transformational factors, Transactional factors, and Individual & Personal factors.

4.1.2.1 External Factors

Törngren, Dernelid, and Walia mentioned some external barriers and challenges that complicate the change process to utilize and valorize their waste. One barrier is rules and legislation which according to them, have an outdated classification of waste. Dernelid stated that many of the potential usage areas for GS's waste would require them to go beyond current legislation. He believes that these problems exist due to authorities' unwillingness to change. He also mentioned that the complexity of the change creates a reluctance.

'The political difficulties have mostly to do with the unwillingness… Either there are no policies or legislation, or it's just too much effort. /…/ It's so complex and contains so many details which eventually makes everyone lose interest.' (Dernelid)

All interviewed representatives from GS mentioned that since waste often is a by-product from other productions, its quantities and qualities are unpredictable. The fluctuations are mostly due to differences in customer preferences and orders. Therefore, products made from waste put higher demand on customer relationships as they must accept a high level of inconsistency (Walia, Dernelid). According to Walia, the solution would be *'communication, shared values and aligned goals between Grönsakshallen Sorunda and its customers'.*

4.1.2.2 Transformational Factors

Organizational culture proved to be important as it was discussed during the three interviews with the representatives from GS. They all agree that GS has an innovative culture that encourages change. Walia and Dernelid believe it is because GS has a 'never say no'-mentality.

'We never say no. I think it's fairly unique for Grönsakshallen Sorunda.' (Dernelid)

GS's mission and strategy are illustrated by the example of *Axiom Innovation Program*. The program is held annually with the mission to educate leaders in the Axel Johnson company group. Dernelid means that GS's innovative mission and strategy are directly related to the company group and its owners (family of Antonia Ax:son Johnson).

'The drive for innovation goes the whole way from Antonia down to Grönsakshallen Sorunda. Nothing is considered strange, rather the opposite.' (Dernelid)

Walia and Dernelid mentioned leadership as an essential factor of the projects at GS. Dernelid exemplified this with a previous working experience within Axel Johnson. They used to say that

everyone had two jobs; one was to do their work and the other one was to develop it. Dernelid claimed that the same leadership mindset is present at GS.

'The leadership must make sure to leave the workers with some room for excess time and energy, so-called 'innovation-energy'. By doing so, the organization is built in a way that gives the workers the opportunity to innovate.' (Dernelid)

4.1.2.3 Transactional Factors

All three representatives mentioned the lack of routines of using waste as resources. A change of this sort requires completely new processes and procedures, like Walia said, '*Since this is something new, we don't know what the process would look like.'* This enhances the complexity and effort needed in the organization to accomplish the change. Additionally, the uncertainty of waste regarding its fluctuating quantities and qualities also increases the difficulty; *'The problem is not the demand for the products, but rather the difficulties to ensure the quantities.'* (Walia). Hence, the procedures and processes must both be flexible and efficient.

'Some products have a more stable quantity over the year, but most of them fluctuate a lot. What if the demand for the waste product exceeds the original product?' (Walia)

New processes and procedures could also imply additional costs. The three representatives from GS have different views on the cost aspect of this change. Törngren said, *'The handling of the separation often costs more than simply to throw the waste, there is no easy and cheap solution.'* He believes that costly investments are necessary, whereas Dernelid and Walia instead see possibilities in working with the existing equipment. However, they all agree that the possibility to use waste as resources would contribute to higher profits for the organization in the long-run.

4.1.2.4 Individual and Personal Factors

All the representatives from GS emphasized the importance of motivating the entire workforce, although there were contradictions on the expected difficulties. Walia said, *'It would be a challenge to make all employees feel passionate about this.'* He believes that to motivate the entire workforce, education on the subject would be required. Törngren agrees and exemplified, '*If we would have separate bins for the different types of waste, the issue would be to get people to throw waste in the appropriate bins.'* On the contrary, Dernelid claimed that the employees already understood the importance of this change, '*It would not be difficult to get the whole workforce on board – everyone understands the importance of this.'* Nevertheless, all agree that it is important to make sure that everyone's values are aligned throughout the organization.

'We would need knowledgeable staff and people who are interested in these issues. That would require me to spread the necessary information and to educate the staff.' (Walia)

Walia gave a personal example of when he became a father and explained how it had increased his awareness of humans' impact on the environment; *'As a newly turned father, my sustainability engagement and concern for the environment has grown extensively.'* The raised awareness of humanity's impact on the climate made him more motivated to work with sustainability issues at GS.

4.2 Case Studies

Within the studied organizations, various projects towards utilizing and valorizing waste have been initiated and/or completed. Below is a description of the cases that have been analyzed in this thesis.

4.2.1 Axfood - *Matmissionen*

Axfood initiated the project *Matmissonen* in 2014 with the aim to minimize waste and create social value by selling food at discounted prices to people in economic vulnerability. The project is a collaboration with Stadsmissionen, a Swedish non-profit organization. Stadsmissionen owns the stores and get deliveries one or two times a week from Axfood as well as twenty other suppliers in the area. The deliveries include products close to their expiration dates, returns or damaged goods (Bildsten; Gunnarsson, Axfood).

4.2.2 Filippa K – *Circular Design Speeds*

Filippa K has initiated the project of *Circular Design Speeds*, where one of the things they explore is the possibility to make clothes designed to have a short lifespan. They are clothes that are part of the biological cycle, meaning that they are made of bio-material and compostable after their end-of-life. These clothes are made of a non-woven fabric using tencel as raw material, which is made from wood pulp. Fruit and vegetable waste from GS, such as berries, turmeric or beetroots, are used to color the clothes. In this project they are also experimenting with other techniques, such as creating biological leather from mango peels (Larsson; Hellgren, Filippa K).

4.2.3 Martin & Servera - *Halmstad Municipality*

Martin & Servera fulfilled a project together with Halmstad municipality. The project was initiated by Stefan Calrell, who at that point managed the public purchases in the area. According to him,

public buyers have high requirements on expiration dates which causes more food to be discarded. The purpose of the project was to decrease the food waste by initiating the possibility for public clients in Halmstad to purchase products with shorter expiration dates to discounted prices. The project was successful and is now evaluated to be implemented throughout Martin & Servera (Calrell; Norrman, Martin & Servera).

4.3 Interviews with Company Representatives

This part recites our interviews with company representatives at Filippa K, Martin & Servera, and Axfood, see Table 4 for a detailed description. The findings from the interviews are presented according to the four pillars of the theory by Burke and Litwin (1992): External environment, Transformational factors, Transactional factors, and Individual & Personal factors.

4.3.1 External Factors

Similar to the representatives from GS, most company representatives mentioned legislation as a main challenge. Bildsten (Axfood) believes that it is hard for organizations to interpret the rules of how waste should be managed. She also stated that the present policies are outdated and therefore cause problems for organizations. It is a dilemma among many organizations if their waste belongs to the company itself or the municipality, which is further complicated since regulations differ between municipalities.

Besides unclear legislation, all company representatives agree that customers are important in the change. According to Bildsten (Axfood), increasing customer demand for sustainability is a momentum for change. However, Larsson (Filippa K) claims that customers are not the driver for CE. Instead, she believes that it is the companies' responsibility to challenge the mindset of the consumers. She described the project *Circular Design Speeds* at Filippa K as a way to challenge both themselves, the industry, and consumers in how we think about clothes.

'You have to dare to challenge how people think about their wardrobe. We have to challenge people's mindset.' (Larsson, Filippa K)

4.3.2 Transformational Factors

Most company representatives mentioned leadership as a critical factor in a change of this nature. Bildsten (Axfood) stated that the project *Matmissionen* was implemented because of support from Axfood's CEO and the Sustainability Manager. She believes that when an idea is raised, support from senior management is essential. Norrman (Martin & Servera) also highlighted this, '*It is all about the leadership, to capture good ideas and turn them into reality.*' Calrell (Martin & Servera)

said that support from leadership was shown in his project *Halmstad Municipality*, by them giving him free rein.

'" You try it!" they said. The leadership was not so involved but they did not intervene either.'
(Calrell, Martin & Servera)

The importance of mission and strategy was brought up by most company representatives. Larsson (Filippa K) stressed this by explaining that change is always scary in an organization and therefore, the strategy and mission must contain clear goals to guide the employees. She said, '*By 2030, we should have switched to a completely circular business model and we will have set five concrete goals on how to achieve it.*' Likewise, Bildsten (Axfood) believes that publishing the company's sustainability goals on the website facilitates the change internally.

'*Just the fact that Axfood's sustainability goals are visible on the website makes me feel stronger in what I do as it reflects the company's values.'* (Bildsten, Axfood)

Additionally, Larsson (Filippa K) said that it takes a lot of courage to issue changes like these in an organization, '*You need to have the courage to try new things but also the humbleness to realize that not everything works*.' She explained the challenges to implement Filippa K's project *Circular Design Speeds*, cited below.

'*The clothes with short lifespans are challenging in several ways, not only in manufacturing but also in mindset. Filippa K's DNA is to make products that can last a long time in terms of both style and quality. Simply thinking about making short-lived products goes against everything we stand for. It has been an internal process, to even dare exploring this area*.'

The importance of having an innovative culture in a change of this sort was mentioned by both Bildsten (Axfood) and Larsson (Filippa K). Bildsten (Axfood) exemplified this with the company group's yearly competition *AxLab* that promotes innovative ideas. According to her, the competition creates a symbolic value and illustrates the innovative culture in the company, *'AxLab is a competition where employees are encouraged to come up with ideas and be a part of the change… It is a culture that stimulates employee imagination and ideas.'*

4.3.3 Transactional Factors

Bildsten (Axfood) and Larsson (Filippa K) both mentioned that their projects benefited from new organizational structures. Bildsten (Axfood) claims that projects involving waste contain a higher

level of complexity because of its many parties involved. To overcome this, she believes that pilot projects are an efficient way to create the courage needed to scale up the idea. Larsson (Filippa K) said that it is a trade-off between risk and benefit since all companies want to be around for the long-haul. Therefore, she also believes that it is wiser to start disruptive projects on a small scale before trying to implement it throughout the organization.

'Since circularity is very complex as it is, it is a tactical decision to break such changes into smaller phases and to start on a smaller scale to make it feel manageable. If you try to do everything at once, it might just have a paralyzing effect.' (Larsson, Filippa K)

Another central aspect mentioned by all company representatives is the project's effects on the organization's systems and procedures. According to Calrell (Martin & Servera) companies must be flexible and include change processes in the daily work. He illustrated this by driving along a highway; if the employees must 'zick-zack' along the highway when doing something new, they will not succeed with the change. *'The staff needs to be able to do this by the side. Everything works if you continue on the highway. Driving "zick-zack" on the highway is a bit more difficult.'* (Calrell, Martin & Servera) A similar remark was made by Larsson (Filippa K), cited below.

'*Procedures and processes are fantastic when you continue doing what you have always done. But as soon as you are doing something new, it does not fit with the current system.'*

Equally to the representatives from GS, five company representatives mentioned fluctuating quantity and quality as a major challenge. The unpredictability is perceived as a significant issue when utilizing and valorizing waste. Hellgren (Filippa K) demonstrated this when she said, '*In a normal design process, you first have an idea and then you obtain the material you need for it. With waste, it is the opposite: first, we must see what we have and then what we can make out of it.'*

In change processes employees must adjust their daily routines. According to Calrell and Norrman (Martin & Servera) it is therefore critical for management to encourage and facilitate flexibility in the employees' tasks. Bildsten (Axfood) believes another problem to be some employees tendency to see obstacles rather than possibilities.

'Everybody understands that it is better to sell the goods than to throw them away, but you have to make people understand that you can make a business of waste and simultaneously create goodwill.' (Bildsten, Axfood).

Management must provide solutions to overcome these obstacles, she continued and gave the example of red price-tags in stores for products close to their expiration dates. Many store managers claim that red price-tags negatively affect the store experience as it reflects too many discounts and low prices. However, Bildsten (Axfood) claims that if they make the price-tags green instead, it would reflect consciousness and sustainability. This increases the stores' goodwill and encourages people to buy the products for the sake of the environment.

4.3.4 Individual and Personal Factors

Individual factors were also stressed during the interviews with the company representatives. Calrell (Martin & Servera) illustrated the importance of individual skills in his project as it put higher demands on the competence of the workforce.

'*The project Halmstad Municipality requires high competence of our customers' kitchen staff as they must be able to adapt the menus rapidly, to use waste that is available that day.'* Calrell (Martin & Servera)

Hellgren (Filippa K) mentioned the work unit climate in the project *Circular Design Speeds* as something that facilitates the process. She underlined the significance of communication and that it is a requirement for a project to succeed, '*Communication and openness. Those are the reasons why a project succeeds.'* (Hellgren, Filippa K)

All company representatives agree that people with personal commitment and interest are important in organizational changes. For instance, Calrell (Martin & Servera) stressed that the most important part of a project is to find the right people, *'The most important thing is to find people with a desire to change.*' This was also underlined by Bildsten (Axfood) who said, *'If people do not have the passion and motivation, a change like this is not possible. It is important to identify motivated people with interest in the area.'* Likewise, Larsson (Filippa K) said that you will never succeed if you have reluctant people in the team, '*This is not a one-man-show, but really a team effort! It is all about having driven people and ambassadors for these types of changes within the company.'* (Larsson, Filippa K)

Finally, Bildsten, Gunnarsson (Axfood) and Norrman (Martin & Servera) mentioned that changes towards increased circularity bring another dimension of value, cited below.

'The change has been positively received. Everyone thinks that this is beneficial and creates a sense of purpose and pride.' (Norrman, Martin & Servera)

'Our employees feel good about doing this; to throw food away always makes your heart hurt!' (Gunnarsson, Axfood)

'Of all people in an organization, there will always exist the ones that are genuinely passionate about these topics and therefore do everything they can.' (Bildsten, Axfood)

4.4 Interviews with Experts

This part recites our interviews with experts on CE, see Table 4 for a detailed description. The findings from the interviews are presented according to the four pillars of the theory by Burke and Litwin (1992): External environment, Transformational factors, Transactional factors, and Individual & Personal factors.

4.4.1 External Environment

All seven experts agree that companies' efforts to make circular improvements often are obstructed by legislation. In line with the company representatives, the experts also raised the issue concerning ownership of waste. Bergman (Cradlenet) commented, '*Today, the business world is ambitious but restricted by politicians that are lacking behind. This is illustrated by the fact that companies do not have the right to own their waste.'* Bergström (ÅI) gave an empirical example of IKEA's situation, cited below.

'IKEA is one of the companies who drive the question about ownership of waste. They have set up ambitious goals to be fully circular in 2030. However, they can only succeed with 40% of their commitments with the present legislation.' (Bergström, ÅI)

An empirical example mentioned by Bergström (ÅI) is remaining frying oil after usage in restaurants. It has a high resale value and has historically been collected and re-sold by restaurants. Today some municipalities label the oil 'household waste', which confiscates the restaurants' ownership. Thus, instead of a potential revenue, the remaining frying oil is a waste the restaurants must pay to get rid of.

In accordance with the interviews with GS and company representatives, customer demand was mentioned as an important factor by five of the seven experts. Bang (H&M Foundation) stated,

'*customers demand better, more sustainable alternatives and even standards'.* However, according to these experts, customers are not necessarily the driver for change but rather condemnatory in case of a scandal. Additionally, Bergström (ÅI) believes that since the world is becoming more transparent, sustainability improvements could be considered as risk management.

Another external factor, mentioned by six of the interviewed experts, is the probability that companies will have to pay for their externalities in the future. For example, Hellberg (Material Economics) commented, '*If companies would have to pay for their externalities such as carbon dioxide pollution, they would start to think about ways to minimize it. The same thing would happen if companies had to consider their choice of material and to keep a high-quality material value. Then, we would see business models starting to change.'* Furthermore, Bang (H&M Foundation) stated that a decoupling from a dependency of scarce raw materials would create a stability for companies' future survival. Larshans (Ragn-Sells) also emphasized this, cited below.

'We start to lack access to virgin materials. The scarcity of resources forces companies to work with alternative resources to secure future material streams. This is a matter of business survival.'

4.4.2 Transformational Factors

Leadership support was stressed during most of the interviews with the experts as a critical factor for organizational change. Bergström (ÅI) said, '*Without support and engagement from leadership, it will be extremely difficult to pursue this change.'* Bergman (Cradlenet) elaborated on the topic and said, *'Is this a management issue, a sustainability issue, monetary issue or CEO issue? Who is responsible to take mandate? If you make it a management issue, it rapids the process. The worst case is when activities like this are solely a focus area for the sustainability department.'* Bang (H&M Foundation) also commented on the importance of leadership, cited below.

'The ones who succeed are the companies with the combination of the right leadership, a culture that stimulates innovation and employees with motivation.'

The ownership structure was often mentioned during the expert interviews as influential for the companies' mission and strategy. Bang (H&M Foundation), Larshans (Ragn-Sells), and Bergström (ÅI) claim that family-owned businesses have a long-term perspective which facilitates changes towards circularity. Bang (H&M Foundation) said that for family-owned companies, thirty years is considered a near future. Consequently, he believes that this affects the agenda for the company.

Jönsson (Material Economics) stated that changes must be aligned with the decisions issued by top management. She gave examples with the cases of IKEA and H&M, that both have circularity in their top agenda. As the goals are included in their mission and strategy, it encourages the change throughout the organization. Hellberg (Material Economics) said that for changes towards increased circularity to occur, they must move, *'further up the hierarchy and closer to the business strategy, where the money is*'. This is supported by Bergman (Cradlenet) who commented, *'It is always a factor of success to make it an issue for the board of directors.'*

Moreover, the organizational culture was brought up by some of the experts as a crucial aspect. Bergström (ÅI) exemplified this with the case of Houdini Sportswear and the 'circular DNA' in the company's culture when she said, *'Establishing Circular flows in the organization is one thing, it is mostly a technical process: to make your regular linear work to be circular. But then, you need to establish a new culture throughout the company that thinks and breaths circularly, which is much harder.'* She means that circularity must be a mindset throughout the company and a part of all divisions seamlessly. This was underlined by Jönsson (Material Economics) who mentioned the problem of, '*there are sometimes contradictory incentives internally'.* Lastly, Larshans (Ragn-Sells) stressed the importance of a collaborating culture, cited below.

'The culture in a company must be about cooperation and not competition.'

4.4.3 Transactional Factors

In line with some company representatives, many experts brought up the issue with systems and processes because of waste's fluctuating quantity and quality. According to Bergström (ÅI), the uncertainties with waste is one of the main challenges for large companies. Hellberg (Material Economics) said that the process is simplified if companies have a high control of their material flow and production, *'It is easier if companies own their product designs and value chains.'*

Most experts also mentioned the advantage of pilot projects, to test the change in a small scale at first. Bang (H&M Foundation) commented, *'You need success stories, cases, pilot projects which you then can use as a best practice case.'* Bergman (Cradlenet) brought up organizational structure when she said, *'This is not a quick-fix, it requires a complete operational change that could be very painful for a big company with a linear business model.'* This is supported by Blomqvist who said, '*You are stuck in an organizational structure, and change is difficult.'*

Additionally, Bang (H&M Foundation) emphasized the importance of flexibility in employees' daily work. He said that if the employees have no time for innovative and creative thinking,

changes will not be initiated. He gave the example of yes-or-no saying in a company; if an employee constantly must say no, opportunities and possibilities are lost. Therefore, he believes that it is important to seize opportunities when they arise, which management practices must assist.

'*If you as an employee are allocated one hundred percent of the time to predetermined tasks, planned one year in advance, you can never say yes when opportunities arise.'* (Bang, H&M Foundation)

4.4.4 Individual and Personal Factors

Many experts highlighted the importance of personal motivation and commitment among the employees. Bang (H&M Foundation) believes that curiosity among the workforce is a key factor for succeeding with changes of this sort. This is supported by Hellberg (Material Economics), '*How good the transition will be, depends on the people in the organization and what commitment they have.'* However, she also believes that its importance will decrease as the concept of CE becomes a larger part of legislation and requirements in society.

'Currently, there are few real incentives to work with circularity which means that someone in the company must be motivated and interested to change it. However, as the number of legal requirements increases, this will make it a necessity rather than a personal preference.' (Hellberg, Material Economcis)

This was supported by other experts who also believe that personal commitment to sustainability is essential. Bergman (Cradlenet) means that commitment among the workforce is the initial step for a change to occur and thereafter, senior management must make it a priority. She said, '*Enthusiasts are important since they are the ones that raise and drive the question in the first place. But to make it a priority, it must be considered a change that increases earnings and profitability.'*

Finally, it is also a matter of mindset among the workforce. If employees are used to treating waste as something without value, this must first be changed. Jönsson (Material Economics) said that if the waste has persistently been considered garbage, the entire workforce is used to handle it as a cost. If that is the case, a shift in individual mindset among the workforce is necessary for the change to be accomplished.

4.5 Empirical Evidence not covered by Burke-Litwin (1992)

The following paragraph includes aggregated empirical evidence from the field study at GS, case studies and the expert interviews.

One of the most important issues, mentioned by most of the interview subjects, is the level of external collaboration needed when utilizing and valorizing waste. Many companies and other organizations must collaborate for this change to succeed. Bildsten (Axfood) emphasized that a change of this nature involves many different parties. She said, *'Projects like these include a higher complexity as it involves many parties, both internally and externally.'* Calrell (Martin & Servera) gave an example from his experiences in the project *Halmstad Municipality* where he had to involve many authorities, e.g. *Miljö & Hälsa* and *Livsmedelsverket*. This level of external collaboration complicated the process but was necessary for it to be completed.

'Many parties need to cooperate for a project to succeed.' (Calrell, Martin & Servera)

Likewise, Bang (H&M Foundation) highlighted the importance of cooperation between organizations, '*Suppliers and brands must talk about the same things with each other. It is one and the same ecosystem, not two separate ones.'* Hellberg (Material Economics) believes that companies are presumably better at looping waste within the borders of the organization than externally. In line with many other experts, she agrees that cooperation across organizations is necessary to realize the highest monetary value of waste.

'It is only when you cooperate with others that you realize that your material is a resource and not a waste.' (Blomqvist, RISE)

An empirical example illustrating this was given by Bergman (Cradlenet) who described the case with an industrial park. A funnel leaked ammoniac which incentivized the owner of the factory to find a buyer nearby. He identified that a neighbor bought ammoniac for their production and they could start to purchase it from him instead. This increased the owner's revenues and the neighbor could buy ammoniac more efficiently and to a lower price.

'Increased information sharing enables companies to see the true value of their waste and to identify who could make use of the residues.' (Bergman, Cradlenet)

Additionally, many interviewees remarked trust as a vital part of a collaboration. For example, Larshans (Ragn-Sells) said, *'Cooperation is key, you cannot work solely internally with this type of*

issue. This requires trust and reliance between different organizations.' Although, being fully transparent often feels unnatural for companies and building up trust is therefore critical. Bergman (Cradlenet) stressed this when she said, *'One barrier is cooperation, which is unnatural for companies. However, collaboration between companies, politics, and academics is a must to make circularity improvements happen!'*

Finally, Blomqvist (RISE) believes that in order to be fully circular, companies must have the courage to be reliant on each other. She explicitly said that companies must dare to be dependent on secondary materials, i.e. waste.

'Collaboration is necessary. To see waste as a material, cooperation and trust are necessary for the material flows. One example is the case of the pulp industry. They had the courage to become completely reliant on secondary materials.'

5. Analysis

The following section will analyze the empirical evidence in order to draw conclusions regarding the organizational change of using waste as resources. The empirical evidence will be discussed according to the theoretical framework and findings not covered by the model will be highlighted. A discussion concerning the limitations of the theoretical framework will follow, and finally an adjustment of the theoretical framework will be presented.

5.1 Analysis of Empirical Evidence covered by Burke-Litwin (1992)

The following section will analyze Burke and Litwin's theoretical framework *A Causal Model of Organizational Performance and Change* and its relevance for the change. The following analysis is based on the empirical evidence reported in Section 4. It is presented according to the three parts of the empirical gathering: field study at GS, case studies, and expert interviews. The analysis is focused on the organizational factors emphasized by the interview subjects.

5.1.1 Field Study at GS

All factors observed or mentioned by the interview subjects are illustrated in Figure 7.

The external environment was mentioned during the field study, where the current legislation was perceived as a major barrier. In terms of transformational factors, the Organizational Culture was emphasized as the company's 'never-say-no'-culture was believed to be an important factor for the project's execution. Likewise, the Leadership was essential and supported the employees during the transformation. Lastly, GS's Mission and Strategy was described to encourage innovation.

The transactional factor that was mentioned during the interviews was Systems (Policies and Procedures), as the projects required new processes at GS. Another transactional factor, Management Practises, could be observed during the field study as employees had 'free rein' over their time and tasks.

All representatives from GS highlighted the factors Motivation and Individual Needs and Values, as they provide a higher value of meaningfulness for the projects. Tasks and Individual Skills, as well as Work Unit Climate, were noticed during the observations since the employees' routines had to be adjusted for the projects' execution. This seemed to be facilitated by the collaborative and friendly climate.

Company	Grönsakshallen Sorunda (GS)			
Interview Object	Mats Törngren	Mattias Dernelid	Richard Walia	Observation
External Environment	●	●	●	
Leadership		●	●	●
Mission & Strategy		●		
Organizational Culture	●	●	●	
Management Practices				●
Organizational Structure				
Systems (Policies and Procedures)	●	●	●	●
Work Unit Climate				●
Motivation	●	●	●	●
Tasks & Individual Skills				●
Individual Needs & Values	●	●	●	

Figure 7. Results based on the Empirical Evidence from Field Study at GS, applied to the factors in Burke and Litwin's, A Causal Model of Organizational Performance and Change (1992). The factors underlined by the interviewees are illustrated in the Figure.

5.1.2 Case Studies

In the following section, the analysis based on the empirical findings from the Case Studies at Filippa K, Axfood, and Martin & Servera, is presented. All factors mentioned by the interview subjects are illustrated in Figure 8.

5.1.2.1 Axfood - *Matmissionen*

The External Environment was believed to be both a driver and a barrier for the project at Axfood. Legislation regarding ownership of waste was described as one of the main challenges whereas increasing customer demand stimulated the change. Moreover, all transformational factors were referred to as influential for *Matmissionen*. Bildsten actualized the importance of Mission and Strategy when she said that changes towards circularity were assisted by sustainability goals stated on the company's website. The importance of Leadership support was clear as it was a requirement for the project to be initiated. Finally, the innovative Organizational Culture symbolized by the yearly competition of *AxLab*, was believed to ease the project.

Similar to the project at GS, the Management Practices at Axfood gave the employees a high level of flexibility and responsibility. Organizational Structure was demonstrated in the sense that employees could choose which projects to get involved in. One of the main challenges in this project was to find new Systems (Policies and Procedures) that would enable Axfood to deliver supplies to Matmissionen without interfering with the routines in place.

In terms of individual and personal factors, all aspects were mentioned except Work Unit Climate. As in the Field Study at GS, employees' tasks had to be adjusted for this project to be implemented.

For instance, Gunnarsson commented that employees in the stores had to sort the food differently. Bildsten highlighted that Individual Needs and Values, as well as Motivation facilitated the project, as it provided purpose and value to their work. She said, '*If people don't have passion and motivation, a change is not possible.*'

5.1.2.2 Filippa K – *Circular Design Speeds*

The External Environment was mentioned as an influential factor in the project *Circular Design Speeds*, especially the challenge to influence customer's mindset towards a more sustainable and circular behavior. All transformational factors were believed to influence the project; it required a radical shift in the company's Mission and Strategy as well as the Organizational Culture, and to accomplish this Leadership had to support the change and pave the way.

All transactional factors appeared to be influential for the project. It required competence from several departments within the company, which resulted in an alteration of the Organizational Structure. Besides, Management Practices had to connect employees in new constellations. Systems (Policies and Procedures) were affected in the project as the new processes conflicted with the existing system.

Finally, all individual and personal factors were mentioned as influential in the project. Individual Skills were important when choosing the right materials for the short-lived clothes. If Individual Needs and Values were aligned with the company values, it was believed to simplify the execution of the change. A personal interest in sustainability also affected the Motivation to realize the project. Lastly, the communicative and friendly Work Unit Climate was described as helpful for the execution.

5.1.2.3 Martin & Servera - *Halmstad Municipality*

The External Environment was illustrated in the project *Halmstad Municipality* mainly through public customers and their high requirement on expiration dates. In terms of transformational factors, the Leadership at Martin & Servera was especially highlighted as they supported the idea and trusted their employees in the execution. For the project to be implemented throughout the company it must be prioritized and aligned with the Mission and Strategy.

The Management Practises at Martin & Servera was illustrated as Carlell got 'free rein' in the project. New Systems (Policies and Procedures) had to be established to enable and encourage public customers to purchase products with shorter expiration dates.

Furthermore, Individual Skills among the kitchen staff was required for the project's execution. They had to be capable to adjust the menus on short notice to utilize the products with approaching expiration dates. Individual Needs and Values, as well as Motivation, were also critical for the implementation of the project. According to Calrell, all people involved had a personal interest to work with sustainability issues. Norrman also highlighted the aspect of Individual Needs and Values when she said, '*The change has been positively received. Everyone thinks that this is beneficial and creates a sense of pride and purpose.*'

Company	**Axfood**		**Martin & Servera**		**Filippa K**	
Interview Object	Karin Bildsten	Linda Gunnarsson	Anna Lena Norrman	Stefan Calrell	Elin Larsson	Marie-Louise Hellgren
External Environment	●	●	●	●	●	●
Leadership	●		●	●	●	
Mission & Strategy	●		●	●	●	
Organizational Culture	●				●	
Management Practices	●		●	●	●	
Organizational Structure	●				●	
Systems (Policies and Procedures)	●	●	●	●	●	●
Work Unit Climate						●
Motivation	●			●	●	
Tasks & Individual Skills		●		●		●
Individual Needs & Values	●	●	●	●	●	●

Figure 8. Results based on the Empirical Evidence from Case Studies, applied to the factors in Burke and Litwin's, A Causal Model of Organizational Performance and Change (1992). The factors underlined by the interviewees are illustrated in the Figure.

5.1.3 Expert Interviews

In the following paragraph, the analysis is based on an aggregation of the empirical findings from the expert interviews. All factors mentioned by the interview subjects are illustrated in Figure 9.

Our empirical evidence suggests that the External Environment is an important influential factor in a change of this nature as it was emphasized by all experts. Particularly, it suggests that the current legislation regarding ownership of waste implies challenges. The issue was highlighted by Bergström (ÅI) with the example of IKEA who can reach their circular goals under the condition that the present legislation is changed. Overall, the empirical evidence indicates that legislation and scarce resources are two main external factors that impact this change.

The expert interviews underlined the gravity of all three transformational factors. The importance of Leadership and Organizational Culture were especially demonstrated by Bang (H&M Foundation), *'The ones who succeed are the companies with the combination of the right leadership, a culture that stimulates innovation and employees with motivation.'* The empirical evidence shows

that circularity improvements must be included in the Mission and Strategy for the change to be achieved.

The empirical findings emphasize that in a change towards increased circularity, the Organizational Structure must allow for cross-department collaboration. Another key finding is that in changes of this nature, the Systems (Policies and Procedures) must be adaptable to include circular improvements. Some of the experts also mentioned the benefits of pilot projects and testing the change in a small scale. Finally, Management Practices were highlighted only by Bang (H&M Foundation) with the reasoning that managers must provide employees with excess time to enable them to seize opportunities when they arise.

Employees' Individual Needs and Values as well as Motivation, were claimed to be a common initiator of change. It is best illustrated by the quote from Bergman (Cradlenet), '*Enthusiasts are important since they're the ones that raise and drive the question in the first place.*'

Organization	ÅI	RISE	Cradlenet	Ragnsells	Material Economics	H&M Foundation
Interview Object	Lina Bergström	Eva Lena Blomqvist	Elin Bergman	Per Larshans	Unn Hellberg & Cornelia Jönsson	Erik Bang
External Environment	●	●	●	●	●	●
Leadership	●	●	●		●	●
Mission & Strategy	●		●	●	●	●
Organizational Culture	●	●		●		
Management Practices						●
Organizational Structure		●	●		●	●
Systems (Policies and Procedures)	●	●			●	
Work Unit Climate						
Motivation	●	●	●		●	
Tasks & Individual Skills						
Individual Needs & Values		●	●		●	●

Figure 9. Results based on the Empirical Evidence from Expert Interviews, applied to the factors in Burke and Litwin's, A Causal Model of Organizational Performance and Change (1992). The factors underlined by the interviewees are illustrated in the Figure.

Notice that Hellberg and Jönsson (Material Economics) are placed in the same column. They have the same role at Material Economics and the interview was with both representatives simultaneously. The findings from this interview is difficult to separate and better illustrated together since they affected each other in the factors mentioned. Their responses never conflicted and therefore, the results are possible to merge in Figure 9 above.

5.2 Similarities and Dissimilarities

By analyzing the empirical evidence gathered from the three different parts, certain patterns, similarities, and dissimilarities can be identified. The most evident similarity is the expressed importance of collaboration. 14 out of 16 interview subjects mentioned the fundamental aspect of cooperation between different organizations in order to succeed with a change of this nature. Since external collaboration is not considered in the theoretical framework, it will be further discussed in Paragraphs 5.3-5.4. Another similarity is the absence of Work Unit Climate in most interviews. As illustrated in Figures 8-10, it was only mentioned by one of the interviewees. However, it was also noticed during the observations at GS. A potential explanation could be that the working climate is difficult to perceive and express as an employee, but easy to observe from an outside perspective. We could interpret that all company representatives seemed satisfied in their work situation and with their co-workers. It is relevant since it may be easier to express problem areas rather than positive aspects.

Differences could also be identified regarding factors mentioned by the interview subjects. Thus, the empirical findings demonstrate a relatively fragmented view on this change, note the differences in Figures 8-10. However, on an aggregated perspective of the empirical findings from the field study, case studies, and expert interviews; all factors in Burke and Litwin's model are mentioned. The triangulation method mentioned in Paragraph 3.1 may have contributed with various perspectives and reduced the risk of omitting an important factor undiscovered.

5.3 Analysis of Empirical Evidence not covered by Burke-Litwin (1992)

Burke and Litwin's model (1992) explain most of the factors affecting the change of using waste as resources. However, external collaboration is an aspect that must be included and underlined in the model. It was mentioned by 14 out of 16 interviewees, which clearly indicates a high importance.

'It's impossible to become circular by yourself. Cooperation is crucial in order to reach circularity.'
(Bergman, Cradlenet)

The external collaboration consists of inter-organizational cooperation and is not limited to outside conditions and inputs to the organization. The omittance of this aspect in Burke and Litwin's framework means that it lacks an important perspective when applied to this type of change process. Thus, we argue that the framework does not fully explain the change.

To summarize, the empirical evidence indicates that Burke and Litwin's theoretical framework does not fully explain the change of using waste as resources.

5.4 Revised Model

The empirical evidence presented in Paragraph 4.5 indicates that external collaboration is important in a change of this sort. Consequently, for the Burke-Litwin model (1992) to fully explain the change, the framework must be revised. Since changes of this nature requires transparency between organizations, it is a strategic decision that must be supported on a transformational level. Collaboration is linked to the outside environment and directly related to all transformational factors. Therefore, the model is adjusted by changing the current factor 'External Environment' to 'External Environment & Collaboration', see Figure 10 below.

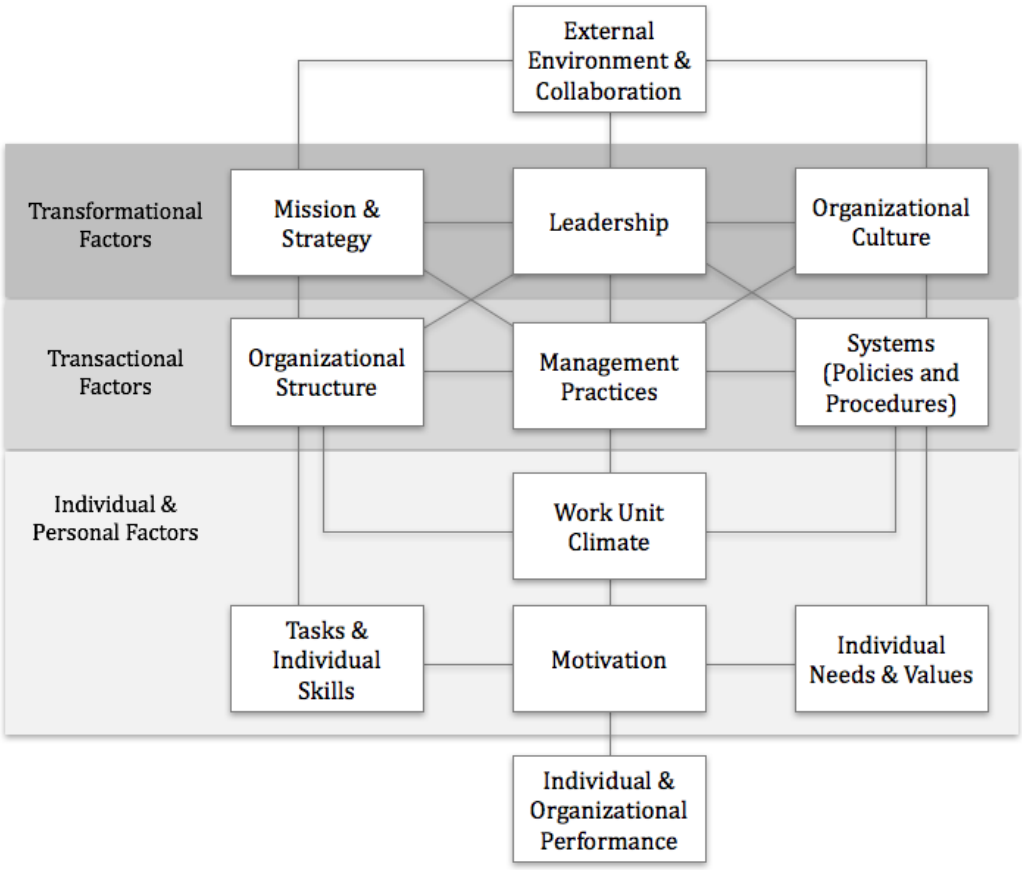

Figure 10. Revised model by Burke-Litwin (1992) based on empirical evidence.

6. Conclusion

By using the theoretical framework, *A Causal Model of Organizational Performance and Change* (Burke & Litwin, 1992) throughout the research and analysis, the aim has been to answer the research question:

What factors impact the organizational change of trying to utilize and valorize waste, and are the factors explained by dominant Diagnostic theories of change?

Most factors that were identified during the empirical gathering can be categorized according to Burke and Litwin's framework (1992). Thus, the External Environment, Leadership, Mission and Strategy, Organizational Culture, Organizational Structure, Systems (Policies and Procedures), Management Practices, Work Unit Climate, Task and Individual Skills, Motivation, and Individual Needs and Values, all affect the change. Additionally, the empirical evidence identifies the aspect of External Collaboration as an important factor.

Assuming that external collaboration is not a part of the factor external environment in the Burke-Litwin model as discussed in Paragraph 2.3.2, our research indicates that the model fails to account for one important aspect. The results imply that inter-organizational collaboration is a vital part that must be included and clearly specified in the model. The existing theories in Organizational Diagnosis discussed in Paragraph 2.2 either have a limited external perspective or a vague description of the aspects included in the factor. Consequently, the results presented in this thesis also indicate that other Diagnostic theories should highlight the importance of external collaboration.

To conclude, the change in organizations to utilize and valorize waste is affected by the factors in Burke and Litwin's (1992) model. However, the framework should be revised by including and underlining the importance of external collaboration, in order to explain all factors affecting a change of this nature.

7. Discussion

This section will discuss the limitations, contribution, and generalizability of the study. Finally, relevant future research and recommendations on the subject will be presented.

7.1 Is the research question answered?

We consider the research question to be answered. The results are satisfactory based on the circumstances of a bachelor thesis and the delimitations needed for the execution.

7.2 Limitations

We have taking into account that a qualitative study involving semi-structured in-depth interviews imply a subjective understanding of the different factors importance, which is a limitation of this thesis. For example, it may be easier for the interview subjects to express challenges in a change process rather than assisting factors. Therefore, the hindering factors might have received disproportionate levels of attention, which in turn may affect the subjective judgment of the different factors and their importance.

Furthermore, the results may be biased due to the fact that all interviewees are advocates for sustainability and have a positive perception of CE. The results would probably be different if there was a larger spread regarding the opinions on CE. Likewise, since all interviewed companies had initiated projects to reach increased circularity it may skew the findings towards one end of the spectrum. The interviewed company representatives all work for Axel Johnson's company group which limits the generalizability of the findings.

Finally, we have only researched the applicability of the theoretical framework by Burke and Litwin which further inhibits the findings.

7.3 Contribution

The thesis intends to fill the research gap between Organizational Diagnosis and CE. Based on the empirical evidence the study provides insights into whether existing theoretical frameworks can guide change processes in circularity. The anticipation is to facilitate the process for linear organizations to increase their level of circularity, particularly in the change of using waste as resources. Since CE is becoming more frequently discussed, it heightens the relevance of this study.

7.4 Generalizability of the Revised Framework

The presented model in Paragraph 5.4 is revised based on the theoretical and empirical evidence of this thesis. However, as our qualitative study contains 16 interview subjects the research is not significantly accurate, i.e. it is difficult to draw general conclusions.

7.5 Future Research

To confirm the empirical evidence from this study

Considering the limited number and variety of companies, interviews, and cases in this thesis, a more expansive study would be necessary. As discussed in Paragraph 7.4, a higher number of interview subjects are required to confirm the applicability of the revised model presented in Paragraph 5.4. Likewise, in order to apply the findings on waste in general, a more diversified research in terms of different types of waste is required. Additionally, as described in Paragraph 7.2, all interviewed company representatives belong to the same company group who includes sustainability among its core values. It would be academically justified to research if the change process is similar in companies with a different sustainability outlook.

Burke and Litwin provide a 150-item paper-and-pencil instrument to research how an organizational change should be executed, which a future quantitative study could be based on (Armenakis & Bedeian, 1999). The instrument is applicable when there is a large number of respondents, which implies that a quantitative study could enhance the statistical significance and transferability of the results presented in this thesis.

To extend the findings from this study

Looking at the empirical evidence from the expert interviews, there are reasons to believe that the revised framework could be applicable for changes towards CE in general. Therefore, other circular development processes such as leasing, could be studied. Consequently, the revised model could either be confirmed or discarded as a general framework for changes towards CE.

7.5.1 Collaboration, not competition?

The theoretical frameworks in Organizational Diagnosis stated in Paragraph 2.2 were all devised in the 20th century when businesses did not face the same environmental constraints and stakeholder pressure. Companies today face new challenges and, according to our research, the transition towards utilizing and valorizing waste depends on collaboration between external parties.

'*Cooperation is key, you cannot work only internally with this type of issue. This requires trust and reliance between different organizations.'* (Larshans, Ragn-Sells)

Additionally, organizational effectiveness is strongly linked to how companies respond to environmental changes (Armenakis & Bedeian, 1999). The business landscape may be progressing towards a phase where collaboration and competition are not mutually exclusive. We question if the change of utilizing and valorizing waste is different compared to other organizational changes, or alternatively if modern organizational changes exceed the existing theoretical frameworks. Reading the quote from McMillon and McLaughlin (2015) in their report *The Business and Society in the coming decades*, cited below, it is emphasized that the future business environment relies on inter-organizational cooperation.

'To achieve lasting solutions to complex social and environmental challenges, we have learned that it is essential to engage and collaborate with other leaders of the systems we seek to strengthen. The difficult challenges facing the world today are well beyond the scope of any single player to address. Solutions will depend on cooperation among leading organizations in all sectors.'
(McMillon & McLaughlin, 2015)

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Återvinningsindustriera. (2018) Framtidens ledande råvaruleverantörer. [Online]. Available at: http://www.recyling.se/om-oss_2/. [Accessed 19 Apr. 2018].

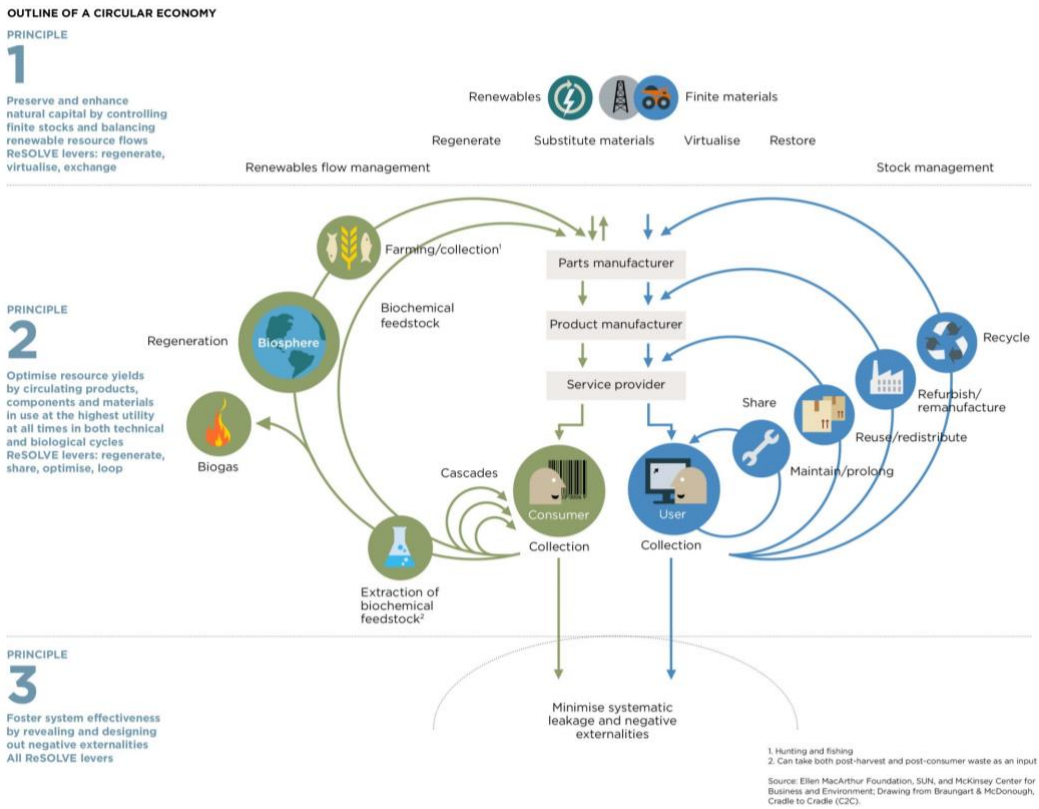
Verbal Sources

Name	Organization	Date	Duration of Interview	Execution
Mats Törngren	Grönsakshallen Sorunda	14 Feb. 2018	1.5 h	In person
Richard Walia	Grönsakshallen Sorunda	26 Feb. 2018	1.5 h	In person
Mattias Dernelid	Grönsakshallen Sorunda	26 Feb. 2018	1.5 h	In person
Karin Bildsten	Axfood	14 Mar. 2018	1 h	In person
Linda Gunnarsson	Axfood	14 Mar. 2018	20 min	By telephone
AnnaLena Norrman	Martin & Servera	16 Mar. 2018	50 min	By telephone
Stefan Calrell	Martin & Servera	5 Apr. 2018	30 min	By telephone
Elin Larsson	Filippa K	7 Mar. 2018	1 h	In person
Marie-Louise Hellgren	Filippa K	7 Mar. 2018	1 h	In person
Lina Bergström	Återvinningsindustrierna	22 Mar. 2018	1 h	By telephone
Evalena Blomqvist	RISE, Research Institute of Sweden	9 Apr. 2018	40 min	By telephone
Elin Bergman	Cradlenet	16 Mar. 2018	50 min	By telephone
Unn Hellberg	Material Economics	6 Mar. 2018	1 h	In person
Cornelia Jönsson	Material Economics	6 Mar. 2018	1 h	In person
Per Larshans	Ragn-Sells	13 Apr. 2018	20 min	By telephone
Erik Bang	H&M Foundation	5 Apr. 2018	1 h	In person

Table 5. Verbal Sources.

9. Appendices

Appendix 1 – Outline of Circular Economy (Ellen MacArthur Foundation, 2017)



Appendix 2 – Example of Questions in the In-depth interviews with Company Representatives

- What projects have you been involved in regarding waste utilization?
- What were the challenges and success factors with that change?

Appendix 3 – Example of Questions in the In-depth interviews with Experts

- What would you say are critical factors to succeed in a change towards waste utilization?
- What are the main challenges that companies face when they try to transition to a circular business model, or increase their level of circularity?

Appendix 4 – Compilation of Figures

Appendix 5 – Compilation of Tables