

Barriers and Incentives to Zero Packaging Food Retail: A Global Stocktake

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Abstract

Single use, disposable food packaging comprises a significant portion of the global waste stream resulting from food consumption systems. In an attempt to devise a preventative approach to food retail waste management, niche zero packaging retailers have established shop across the world. Food provision through these retailers aims to generate negligible amounts of disposable packaging waste. Over the past decade there has been an increase in form of food retail, which is seen as a counter movement to traditional mainstream supermarkets. There has been little research on the state-of-the-art of unpackaged food retail. Thus, this study aims to provide a systematic overview of the barriers and incentives to this form of food retail. The research is guided by a dichotomous analytical framework that seeks to present barriers and incentives in the following four factor groups pertaining to food retail: Regulatory, Social, Market and Resource Factors. The research is based primarily on a literature analysis and semi-structured interviews with mainstream and zero packaging food retailers as well as packaging industry experts. Retailers and packaging industry experts from eight different countries contributed to the empirical findings of this study, thus a global perspective has been gained. The paper contributes to the existing body of research by providing an overview, in the form of a taxonomy of barriers and incentives as identified through both the literature and empirical data. A series of ‘lessons’ are drawn from this taxonomy, and conclusions posed. This paper is of relevance to zero packaging and mainstream food retailers as well as academics who wish to better understand the state-of-the-art of unpackaged food retail. Policymakers who wish to gain an overview on this approach to preventative food retail waste management may also find this study useful.

Keywords: zero packaging, food retailers, barriers, incentives, waste.

Executive Summary

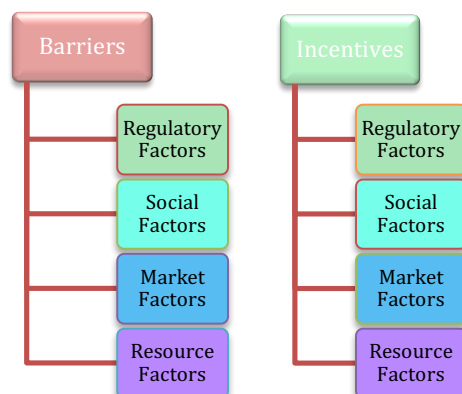
Food packaging waste resulting from single-use, disposable packaging is an environmental issue that has increased over the past two decades. The concept of unpackaged food retail promises to take a preventative approach to food retail waste management by not generating packaging in the first instance. Zero packaging retailers have established around the world as somewhat of a countermovement to the mainstream supermarkets, and have devised alternative methods of transporting, storing, distributing and selling food compared to traditionally packaged, single use disposable food items sold en masse through mainstream markets. Proponents of zero packaging retail argue that preventative waste management is the preferred approach, and should be more readily extended into mainstream supermarkets.

A number of studies have focused on sustainable food retail from a higher level perspective, delving into supply chain management, sustainable strategic planning and policy development as well as retail waste management. Little however is formally known about zero packaging food retail as a preventative approach to food retail waste management from an academic perspective. This thesis focuses on better understanding the existing state-of-the-art of this form of retail. The study does not adopt the perspective of reasoning why or how unpackaged food retail is 'more sustainable' or not, instead the focus is on understanding both the barriers and incentives that currently exist to this form of food retail. The perspectives of mainstream and zero packaging food retailers as well as that of packaging industry experts are sought in this study.

Three objectives guided the research: (1) to provide the food retail industry at large with an overview or stocktake of the current barriers and incentives to food packaging reduction as experienced by both niche and mainstream retailers, (2) to identify if there are any packaging waste reduction 'lessons' learned from niche stores, that could be adopted by mainstream retailers and (3) to contribute to the research and literature on zero and reduced packaging food retail, which is at present scarce.

Methods employed:

The analytical framework guiding all aspects of the research focused on a dichotomous identification of barriers and incentives to zero packaging food retail. Barriers and incentives were categorized into four key factor groups shown below:



Objective One

Primary and secondary data were used to meet the first objective. A literature review on secondary and primary data was conducted to identify both the barriers and incentives to zero packaging food retail. A series of qualitative, in-depth interviews seeking the same information was then carried out with stakeholders from the food retail and packaging industries. The literature review generated general findings, due to the limited and somewhat dated data available on this specific field of retail. Empirical data collection via informal, guided semi-structured interviews ensured that a robust final set of findings were applied. Collection of all findings was structured in accordance to the barrier and incentive dichotomy of the analytical framework. A taxonomy of barriers and incentives was then generated in order to summarise findings pertaining to objective one.

Objective Two

Lessons were extracted from the abovementioned taxonomy. Selection of 'lessons' was dependent on poignancy of a specific barrier to zero packaging food retail as identified by mainstream food retailers. A table was used to summarise all selected 'lessons' followed by a discussion of these findings and finally conclusions were drawn and recommendations for future research posed.

Objective Three

Both the collection and analysis of primary data as well as the analysis of existing secondary data in relation to the empirical data were used to meet the third objective. Arguably the greatest value of this research was in adding to the currently scarce body of literature on zero packaging food retail. All chapters of this study have contributed to this objective.

Main Findings

It was found that a wide spectrum of barriers and incentives to zero packaging food retail exists. For simplicity, the author grouped these according to the four factors identified in the analytical framework; Regulatory, Social, Market and Resource Factors. A taxonomy that categorized these findings into three divisions was then devised. One division outlined all barriers and incentives identified both through the literature and confirmed through empirical data collection, the second division outlined all barriers and incentives identified only through empirical findings and the final division portrayed all findings outlined only in the literature but not confirmed by the empirical findings. Two succinct tables summarised the abovementioned taxonomy and their respective findings. The third table further summarised these findings and categorised these into 'lessons'.

A total of 38 individual barriers to zero packaging food retail were identified through this research. These ranged from " *Little government leadership*" (Regulatory Factor), *'lack of supply chain management control'* (Market Factor), *'Corporate strategies to reduce food waste via food packaging'* (Market Factor) to *'Financial limitations to change supply-chain systems'* (Resource Factor) to name a few. 31 individual incentives to zero packaging food retail were also identified. Incentives ranged from: *'Waste prevention legislation'* (Regulatory Factor), *'NGO Campaigns'* (Social Incentive), *'Sustainable retailer leadership potential'* (Market Incentive), *'Voluntary industry agreements'* (Market Incentive) to *'Consumer demand for resource efficiency'* (Resource Factor).

A number of general conclusions have been drawn from the analysis and discussion of the findings. Four sets of 'lessons' categorised according to the analytical framework were developed. The determined 'lessons' have been posed as recommendations and summarised below:

Lessons and recommendations

Regulatory Lessons

Lack of resources, ranging from financial, know-how/ skills, reliable unpackaged food stock, exist as significant barriers for both mainstream and zero packaging retailers. Progress is inefficient at best through current atomized action in the retail sector. Empirical evidence suggests that the support of policymakers, robust regulatory and legislative support as well as increased consumer engagement is needed to increase food retailers' ability catalyse preventative food retail waste management and better pool resources required for this form of retail. It is also clear that a number of these requirements are somewhat outside of the scope/sphere of direct control and influence of retailers. As a retail industry, seeking collective regulatory leadership and legislative guidance is thus recommended. The current success of a number of voluntary industry agreements (for example Courtauld Commitment) indicates that collective industry stances can be the most efficient and effective in catalyzing action. It is also recommended that an industry wide stance regarding zero packaging retail, that is reflected in mainstream food retailer's overarching guiding documents such as strategic plans and associated policies be devised. As suggested in the literature, industry benchmarking could be of great use in this regard, as well as the incorporation of KPIs in order to enhance stringency and clarity, as has been the case in the Australian Sustainable Packaging Alliance (SPA). More stringent industry sustainability leadership potential exists for a retailer(s) to catalyse this process within the food retail industry.

Social Lessons

'Negative media slant/backlash' was a key concern for mainstream food retailers. Although all zero packaging food retailers also claimed this as a potential barrier, none had yet experienced and negative media attention to date, but all were weary that there was the potential for this to happen, and that this could somewhat be outside of their sphere of control or influence. It is thus recommended that mainstream retailers devise a proactive, well managed and controlled marketing and media strategy to leverage off the virtually free media coverage, promotion and divulgence of unpackaged retail, that 100% of zero packaging retailers repeatedly claimed they had benefited from. Leveraging social media in particular as a means of normalising the unpackaged food shopping experience, using videos on how to prepare and undergo this form of food retail, and running community engagement campaigns via social and mainstream media were highly recommended.

Market Lesson

'Packaging as a key communication tool' was claimed by 100% of mainstream retailers. Removing packaging thus posed a communication barrier for these retailers. Zero packaging retailers have overcome this barrier on a practical level by placing labels on silos in store, and engaging customers as much as possible during the retail experience. Ensuring retailers met legal and regulatory requirements regarding food content (e.g. allergies etc.) whilst not placing this information solely on packaged and over packaged goods were also pivotal. 70% of zero packaging retailers, as well as the theoretical findings recommended developing comprehensive communication campaigns in store. Engaging in NGO campaigns that promoted unpackaged retail, was also highly recommended. Other forms of communication that are already being used by mainstream retailers included communication via QR code scanning on product dispensers/ silos.

'Packaging as a food protector' was also identified as a key barrier. Mainstream retailers claimed that food loss as a result of unpackaged food was of concern to them, and that food waste reduction was a major priority in their existing sustainability strategies. Unpackaged retailers on the other hand reported that actual food loss and waste in store was low, and that perceived issues of food waste were higher than actual issues experienced in store. It is important to also acknowledge that packaging acts as a protector and at times enables the longevity of certain products. It is also important to state that where packaging is vital, it is possibly unavoidable. It is key to carefully determine what is considered 'vital' packaging and what is frivolous over packaging of products. It is thus suggested that the use of packaging could be more selective in mainstream stores; packaging for the sake of enhancing product 'perceived quality' and for marketing purposes can certainly be reduced with little or no significant effect on the product itself. Although much engagement already exists, it would be recommended that more proactive collective industry engagement with authorities responsible for devising packaging guidelines (EU Directive bodies as well as CEN Standard devisors 1327-13432 and ISO standard 18601-18606 as identified through the literature) be adopted by the industry at large in an attempt to seek alternatives to the existing models.

Resource Lesson

100% of mainstream retailers have food waste reduction strategic priorities, which are currently facilitated by food packaging policy. This dynamic creates an additional barrier to mainstream implementation of unpackaged food retail- an initiative that would undermine existing food waste reduction (via increased packaging) strategies. On the other hand, there is "*clear consumer demand and interest*" in reduced packaging, as indicated by 100% of retailers interviewed, as well as existing literature. There is at present no obvious lesson that zero packaging retailers can suggest to mainstream retailers. A clear need for future research on this issue however exists.

'Financial limitations to change supply chain systems' was a major stated barrier. Agreements like the Courtauld Commitment in the UK have proven to be successful ways of collectively pooling industry leadership potential, know-how and lobbying for supply chain changes in the packaging/ plastics industry collectively. Voluntary signatories of the Courtauld Commitment have benefited from guidance on how to transition into "sustainable retail", reduce/ improve packaging efficiency and reap the benefits of doing so. Developing industry agreements such as this (even using the Courtauld Commitment as a benchmark) is a recommended measure to catalyse industry standards towards unpackaged retail, and pool resources.

Policies that adopt a 'user pays' approach to packaging are also recommended, where consumers wanting to purchase packaged or over packaged products, plastic bags etc are required to fund the additional use of resources associated with these choices. Such initiatives have already been implemented in some contexts/ countries, but could be further explored through the industry as a whole.

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Abbreviations

CSR- Corporate Social Responsibility

GHG- Green House Gas

NGO- Non-Government Organisation

RQ- Research Question

SPA- Sustainable Packaging Alliance (Australia)

SPC- Sustainable Packaging Coalition (USA)

UK- United Kingdom

USA- United States of America

1 Introduction

Background and Context

Global food consumption generates two key waste streams; food waste and food packaging. The latter, particularly single-use, disposable packaging is argued to be a significant global waste issue (Wrap, 2016). Food is the only product class that is consistently consumed at least 3 times per day by the majority of the global population (Marsh *et al.*, 2007). As a result of this, food packaging accounts for almost two-thirds of total packaging waste by volume (Hunt *et al.*, 1990). In the UK alone, single use food packaging waste amounts to circa 11 million tonne annually, with an associated GHG equivalence of 17 million tonne (wrap.org.uk). In the USA, approximately 30% of the Municipal Solid Waste generated annually is from packaging-related materials (including food packaging) (Marsh *et al.*, 2007). As a result of this, as Schwepker and Cronwell state it: packaging has for many years now been considered a major contributor to the escalating solid waste stream (1991).

Over the past decade, a number of zero packaging food stores have established across the world (Bepakt, 2016). Zero packaging food retailers aim to provide food to consumers without any single use, disposable packaging (Ball, 2016). As a result of this, such retailers have been praised particularly in the media and grey literature for being perceived as a countermovement to ‘throw-away’, single use, disposable food packaging culture (Ball, 2016). Single use food packaging on the other hand is primarily sold en mass through conventional supermarket chains (see for example Ball, 2016; Khan, 2016; Borromeo, 2014).

Zero packaging food stores can be seen as an example of how food retailers can adopt a preventative approach to waste management, or as Ball describes it, pre-cycling; the concept of eliminating trash before it is created. Pre-cycling reduces the scale of issues associated with disposal and waste management of packaging by avoiding that waste is created in the first place, as well as preventing/avoiding the extraction of raw materials associated with making food packaging (Ball, 2016). Preventive approaches to waste management are a stark contrast to management approaches traditionally used by mainstream food retailers, which are at best methods that favour and are geared towards recycling or disposal of waste (Ball, 2016).



Figure 1-1: European Union Waste Hierarchy.

Source: <http://recyctec.se/en/EU-waste-directive>

Prevention is the favoured, pro-active waste management approach in many parts of the world, particularly across Europe and North America. Reducing the amount of waste generated at source and reducing the hazardous content of such waste is, according to the Waste Hierarchy (see figure 1-1) established in the Waste Framework Directive (Article 4), is regarded as the highest priority. Through the Directive, “*waste prevention is also closely linked with improving manufacturing methods and influencing consumers to demand greener products and less packaging*” (Europa, 2015).

Additionally, the roadmap to a resource-efficient Europe recognizes the importance of waste as a resource, and states that a higher priority needs to be given to incentives for waste prevention, including waste reduction ‘aspirational targets’ for waste management which aim to be achieved by 2020 (Europa, 2015).

This research is therefore of value in better understanding the current dynamics, barriers and incentives that are faced by retailers seeking to take a preventative approach to food retail waste management.

1.1.1 Zero packaging food retailers

Zero packaging food retailers operate on the premise that all food, beverage, hygiene, cleaning and other products purchased at the store, are transported by the consumer from the shop in containers that are re-usable (e.g. mason jars, Tupperware containers, paper bags etc), thus no single use disposable packaging waste is generated by retailers or consumers in these shops (Conway, 2016).

The preventative approach to packaging consumption and waste management approach adopted by zero packaging niche retailers, although favourable (as indicated through The EU Waste Hierarchy), is (due to the niche, small scale of these retailers), limited in their reach, scale, and overall contribution to packaging waste reduction and prevention (Ball, 2016). Research conducted by Bepakt (bepakt.com), a Dutch start up and think tank geared around developing re-usable containers and silos for zero packaging waste stores, indicates that in 2016 there are currently around 120 niche zero packaging food retailers around the world, with around 65% of these retailers being located in Europe (Muller and Engeland, 2015). This research indicated that at best, currently there can be less than a handful of zero packaging type food retailers in major urban centers such as London, New York, Paris and Berlin. At worst however, the majority of cities around the world are serviced by much fewer, if no zero packaging type food retailers at all- an indication of the small scale impact of the efforts exerted by such stores. Such figures indicate the narrow reach of the preventative approach to food packaging waste management exerted by zero packaging food retailers around the world.

1.1.2 Mainstream food retailers

Mainstream food retailers on the other hand significantly dominate the food retail market. In the UK around, food retailers collectively account for almost 50% by value of all retail sales (Mintel, 2008). Simultaneously, small numbers of major players dominating the marketplace, so much so that the top ten food retailers in the UK market accounted for 83% of all food retailers sales, with only four of these holding a sizeable 63% market share (Jones *et al.*, 2011). As gatekeepers of the food system, supermarkets hold an increasingly advantageous and powerful position to catalyze change in current systems, including progressing greener systems and pushing the envelope in new forms of food retail. The likes of researchers such as Jones *et al.*, 2011 argue that through supermarket’s influence on supply chains, consumer behavior and

their own operations, mainstream retailers have, "*the ability to drive changes in consumer behavior through the choices they provide and influence within their stores*" (Jones *et al.*, 2011).

It is evident that efforts made to increase or reduce food packaging, or any sustainability related initiatives undertaken by these large players have far reaching impacts and influence (Jones *et al.*, 2009). Efforts to reduce, eliminate, or adopt a preventative waste management and consumption approach to food packaging however varies greatly between supermarket chains around the world (Jones *et al.*, 2008).

Through current research, it is yet unknown if there are measures that zero packaging retailers currently undertake that could be adopted by mainstream retailers in order to apply a more preventative approach to waste management in this sector.

This research therefore attempts to identify if any "lessons" can be taken from niche zero packaging food retailers, and adopted by mainstream retailers in order to reduce packaging waste generated in the food retail industry, in order to further the reach of preventative waste management approaches to food packaging.

1.1.3 The benefits of food packaging- another perspective

Although the focus of this research is on identifying the barriers and incentives to zero and reduced packaging food retail, it is important to present a rounded perspective of both the pros and cons of the key subject at hand: packaging.

As has been argued by a number of researchers, packaging has been on the environmental agenda for decades (Robertson, 2006; Williams and Wikström, 2011; Grönman *et al.*, 2013; Lindh *et al.*, 2016; Eriksson *et al.*, 2007). It has been discussed and debated as an environmental problem that needs to be addressed, primarily due to the impact it has on waste streams (Williams and Wikström, 2011). The debate has recently shifted to one that focuses more readily on the role that packaging has on the entire environmental impact of the food consumption system (Svanes *et al.*, 2010). For example, the role that packaging plays in reducing food losses (Lindh *et al.*, 2016).

Researchers such as Russell (2004) claim that packaging plays a major role in curbing food waste; a major environmental impact of food consumption systems. Approximately 30% of food grown today is lost due to spoilage (Gustavsson *et al.*, 2011), and a major role of well designed and implemented packaging is to reduce this waste. Furthermore, some schools of thought argue that the environmental impacts of packaging are relatively small compared with the food items they contain, therefore curbing losses of the food content, curbs increase environmental impact of products (Grönman *et al.*, 2013).

Problem definition and research gap

High levels of waste being generated as a result of the extensive use of single-use, disposable food packaging is the stated problem definition of this research. The research gap that is associated to this problem, sits in the fact that there is very limited peer reviewed knowledge and literature on zero packaging food retail as a form of preventative waste management in the food retail sector. Little information on the current state of this form of retail, as well as the barriers and incentives for such retailers to adopt this preventative approach to retail waste management exists. To date, research on sustainable food retail has focused primarily on high

level aspects of this form of retail such as sustainable strategies, policy, sustainable supply chains, marketing, communication, consumer behavior, green packaging technology and the benefits of food packaging (for example Mont and Chkanikova, 2015; Lehner, 2015; Marsh *et al.*, 2007; Lindh *et al.*, 2016; Jones *et al.*, 2011 and Dijk, 2000), and does not focus on zero packaging food retail itself.

The lack of peer reviewed research exists potentially due to the small scale, and recent nature of this form of food retail. To the best of the author's knowledge, research on the barriers and incentives to this form of food retail has not yet been explored. Understanding if any 'lessons' could be drawn from the preventative waste management focused zero packaging retailers that have the potential to be transposed into mainstream food retail is another not yet explored area of research.

Research aim

This research will focus on the following aims:

- 1) To identify characteristics/factors of zero packaging food stores that have resulted in packaging waste reduction
- 2) To identify which of these characteristics/factors could be integrated into mainstream food retail

Research Questions

The three following research questions have underpinned this study. Below each question, *in italics*, is the given justification for why each question was posed.

RQ 1: What are the barriers and incentives that mainstream food retailers face in ensuring packaging waste is reduced?

The main objective behind answering this question was to take stock of current practices and the state of mainstream supermarkets/ food retailer's practices regarding food packaging. This question was formulated in order to identify potential lessons that could be derived from the barriers and incentives list created following question 2 below.

RQ 2: What are the barriers and incentives that zero packaging food retailers face in ensuring packaging waste is reduced?

This question was posed to directly identify the barriers and incentives faced from a zero packaging food retailer's perspective. This was done in order to seamlessly populate the taxonomy that will follow in the analysis section of this research. The intent behind formulating this question was also to devise a direct and straightforward list of a) barriers and b) opportunities through which a comparison with barriers and opportunities faced by mainstream retailers could be made. Findings from this question were intended to add to the current lack of knowledge/ gap in the academic literature available in this field.

RQ 3: What, if any 'lessons' from zero packaging food retailers could mainstream supermarkets learn in order to undertake a preventative approach to packaging waste management in store?

The main objective behind seeking an answer to this question was to bridge the gap between the findings from question 1 and question 2 above, and to derive a straight forward list of lessons to be learned from this research. Findings from this question were intended to add to the current lack of knowledge/ gap in the academic literature available in this field.

Limitations

A number of limiting factors have been identified during the thesis writing phase.

Firstly, zero packaging food retail as a preventative approach to retail waste management is a relatively new phenomenon in its current state and more specifically in the current scale (Bepakt, 2015). Thus, a very limited body of academic literature on the topic exists. On the subject sustainable food packaging, limited, however somewhat dated research exists (for example Thørgesen, J, 1996 and 2000; Stuller, J, 1990; Stewart, B, 1995; Schwepker & Cornwell, 1991), resulting in a limited, and somewhat dated peer-reviewed body of work to serve as a foundation to this study. In the literature review in particular, the incentives and barriers presented could be perceived as somewhat generic. Literature on sustainable food retail was therefore been deemed to be the closest and most relevant available literature to this research, and therefore is referenced more readily. The empirical data collection process endeavors to address this absence of theoretical knowledge directly, and will thus act as the key contribution of this research to the wider body of knowledge.

Another limitation of this research's literature review is that there is relatively little distinction between barriers and opportunities relayed by mainstream retailers and zero packaging retailers. This is again primarily due to the fact that there is little available literature on zero packaging retailers. Again, the contribution to the state-of-the art and value of this research will be the empirical findings that will add to the existing knowledge gap.

A limitation that related more directly to the selected topic of this study, concerns the founding debate surrounding the benefits of food packaging. In the existing literature on relevant and closely related subjects such as food retail, food packaging and consumer behavior around food consumption and decision making processes, arguments such as those posed by Marsh *et al.*, indicate that food packaging serves numerous beneficial functions to both food consumption systems as well as the environment (2007). Food packaging must balance food protection from contamination as well as prolonging product shelf life (both of which reduce food waste experienced in our current food consumption systems, and hence promote positive environmental benefits), with other functions such as increasing ease of transportation and marketing on product packaging (Oosterveer, 2012).

With these environmental and other considerations in mind, it is important to note that the focus of this research is not to suggest that mainstream markets become zero packaging retailers, or to analyze the benefits and hindrances of packaged food items (such research falls outside of the scope of this study). The purpose of this research is simply to carry out a stocktake of current barriers and incentives that exist in zero and reduced packaging food retail as a means to preventative waste management in the food retail sector.

Another limitation related to the choice of stakeholders to include in the empirical data collection process of this research. Although a number of relevant stakeholders to this research exist; namely policy makers, producers, retailers, transporters, the packaging industry and

consumers, the scope of this study encompasses zero packaging and mainstream retailers only. It was decided that due to retailer's strategic and pivotal positioning in the stakeholder dynamic, whereby retailers interact directly with a large number of the above listed stakeholders, retailers would be the key source of primary empirical data for this research. It must however be acknowledged that excluding other stakeholders, potentially results in a narrower set of data being collated and in turn referenced for this research.

Finally, the broad geographical scope of the study, which encompasses retailers from around the world could be perceived as a limitation in that these retailers operate within different policy, cultural, political, economic and consumer contexts- this however can be countered by the argument that food retail is a global and overall a relatively transposable industry, therefore findings can be relevant to a number of countries and food retail contexts.

Scope

This research aims to take stock of the barriers and incentives faced by two sets of food retailers; niche zero packaging food stores and mainstream supermarkets. The scope of this research focuses on the views and insight of retailers only. Due to their strategic and pivotal positioning in the food consumption system, retailers were deemed to hold the most relevant advantageous and insightful standing of all stakeholders in the food consumption system for this research. As stated previously, retailers interact directly and indirectly with all other relevant stakeholders of the food consumption system, and would thus be the key source of both primary empirical data for this research, as well as the focus of the secondary data collection process.

Ethical consideration

Ethical considerations have been taken into consideration in this research. The personal views of all interviewed stakeholders have been incorporated and acknowledged to the best of the author's knowledge. Interviewees were made aware of the content, scope and intent of the research, and were given the option to be recorded or not during the interview process, as well as to answer as many or few interview questions as they deemed fit.

Permission was requested and granted from stakeholders who have been directly cited in this research.

Audience

This research is of relevance to a number of stakeholders in the current global food consumption system. The research primarily aims to fill the existing theoretical knowledge gap in the field of zero packaging retail and is thus directly relevant to academic audiences. The study also aims to contribute to the existing body of knowledge on sustainable food retail both from a theoretical as well as an empirical standpoint.

The research is also relevant to a number of other stakeholders, including mainstream food retailers looking to incorporate more sustainable/ zero packaging strategies into their stores. Zero packaging store owners and operators wishing to establish shops, or better understand the current existing dynamics within their zero packaging niche retail sector may also find value in this research.

The study is also of relevance to business owners and retailers wanting to understand how this retail model can/ cannot be transposed into larger retail scales.

Finally, the study is of direct relevance to waste management policy advisors and policy makers, as well as retail policy advisors and makers willing to better understand the current barriers and incentives that exist to preventative waste management in food retail.

Disposition

Chapter 1: Introduces the problem, research gaps and the aim and objectives of the thesis. Furthermore, it identifies research limitations and scope of the research and the target audience for this research.

Chapter 2: This chapter describes the methods deployed to collect primary and secondary data. It also introduces the analytical framework used to guide all subsequent chapters.

Chapter 3: The literature review is developed in this chapter. An attempt to answer the research questions through existing literature is posed here. The structure of the review is guided in accordance to the analytical framework.

Chapter 4: Findings from the primary data collection/ interviews are presented in this section. The structure of the findings is guided in accordance to the analytical framework.

Chapter 5: An analysis of the empirical findings in relation to the data collated through the literature review is relayed. A taxonomy of the findings, as well as new findings are also presented here. Finally, a discussion of all findings as well as a reflection of the methods, analytical process and generalisability of the research are presented in this chapter.

Chapter 6: A summary of the main findings is developed, research questions are systematically answered, conclusions are drawn and recommendations for future research are made.

2 Method

In order to meet the research aims, respond to the research questions and to enhance confidence in the findings, data was collated from primary and secondary sources, and compared and contrasted (Kirk & Miller, 1986). Figure 2-1 summarises the research process adopted. The sections that follow in this chapter outline each research step in detail. Firstly however, the analytical framework that underpins the study, and all subsequent chapters will be explained. The choice of framework selected will also be justified.

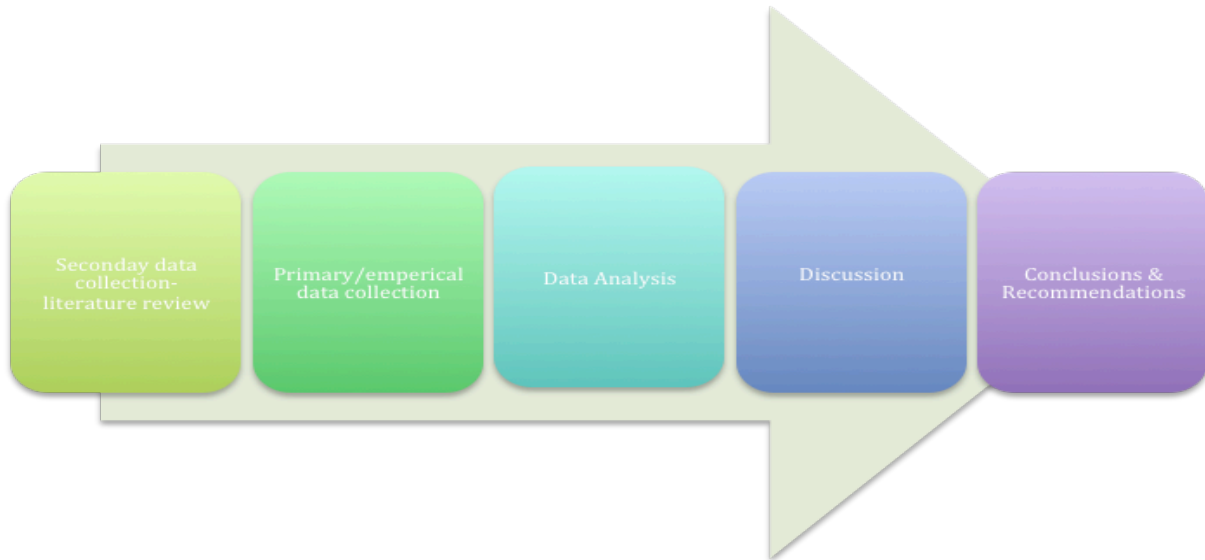


Figure 2-1: Research process adopted for this study.

Analytical Framework

The analytical framework guiding this research formed the basis for all sections of the study. It was inspired by the original framework used in the 2012 research conducted by and Chkanikova and Mont, titled *Corporate Supply Chain Responsibility: Drivers and Barriers for Sustainable Food Retailing* (See figure 2-2 below). The original framework drew upon Hoffman’s (2000) categorization of a company’s institutional environment.

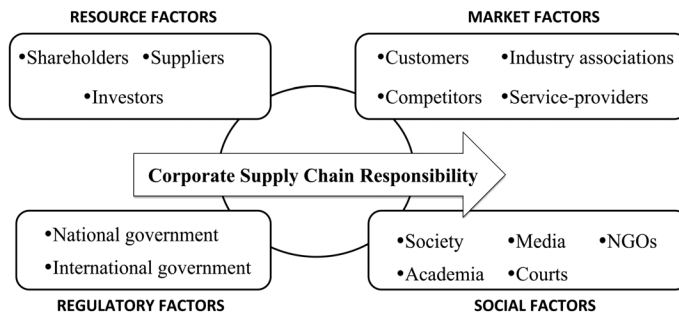


Figure 2-2: Drivers and barriers for corporate supply chain responsibility outlined in research by Chkanikova and Mont
Source: Chkanikova and Mont, 2012.

Chkanikova and Mont’s framework was selected as particularly appropriate, as it outlines four

major groups of factors that shape the sustainability agenda in the retail industry (Chkanikova and Mont, 2012); Market Factors, Resource Factors, Regulatory Factors and Social Factors.

Figure 2-3 below defines what each of the four factors refer to in this research. The definitions are directly sourced from the abovementioned research by Chkanikova and Mont (2012).

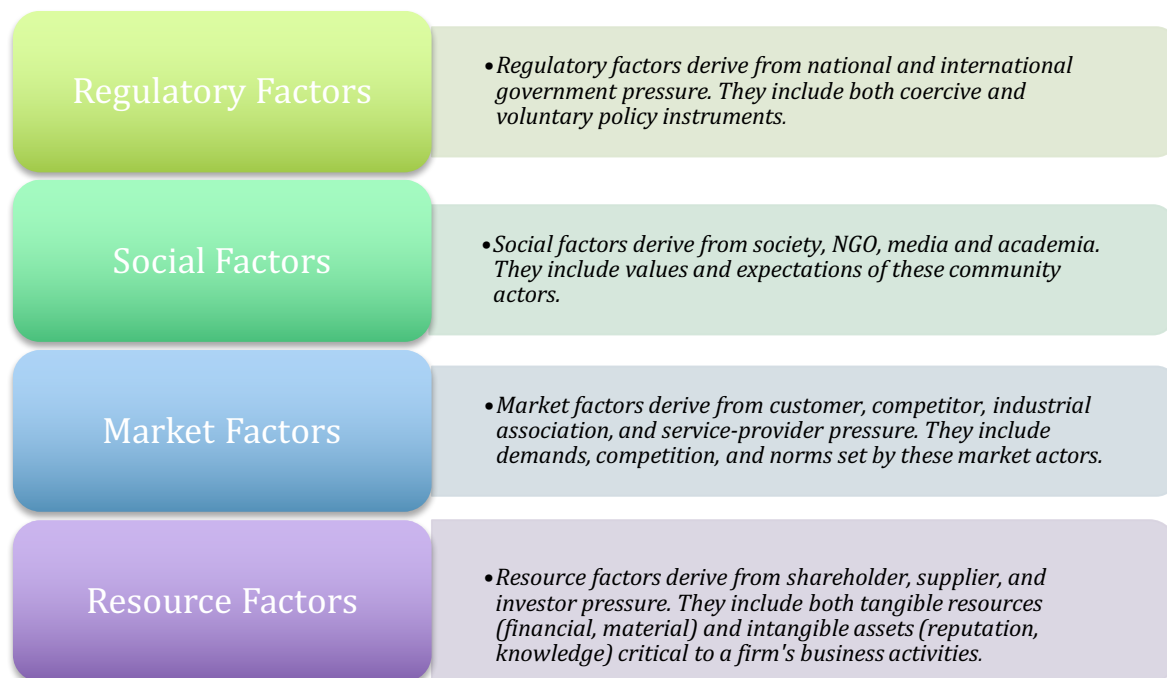


Figure 2-3: The four factors underlying the analytical framework for this research.

The researchers outline that each of the abovementioned factors is distinct in terms of relevance and 'type of pressure exerted' (Hoffman, 2000). All four major groups of factors are of direct relevance to understanding the forces exerted upon zero/ reduced food packaging retail, as they are four key aspects that directly affect the establishment and success of this form of retail both from a profitability and longevity perspective, as well as from a preventative approach to waste management and sustainability perspective.

The inclusion of these four factors in the analytical framework allows for the development of a logical and clear taxonomy of barriers and incentives to this form of retail to be developed. The dichotomous taxonomy is in essence the summary of findings of this research, that allows for the theoretical and empirical findings to be merged and analysed. The taxonomy will be presented in Chapter 5.

The four major factor groups are also of direct and logical relevance to mainstream food retail, as exemplified by Chkanikova and Mont's research, and by collating data relevant to these four factors for both zero packaging food retailers and mainstream food retailers, it was possible to make a direct analysis and comparison between both types of food retailers in a logical and systematic fashion.

In this research, the four major groups of factors came to be enveloped in the analytical framework in the following way (see Figure 2-4). The same framework was used to run data

relevant to zero packaging retailers and mainstream retailers.

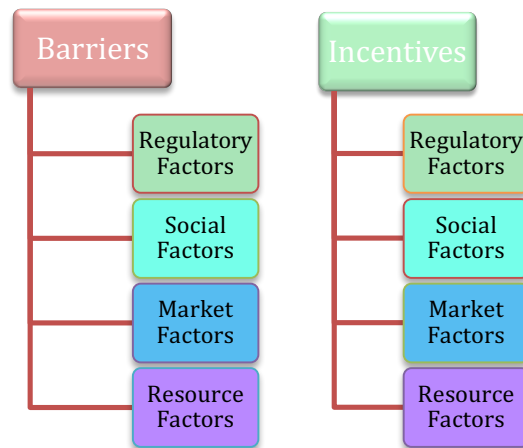


Figure 2-4: Barriers and Incentives analytical framework used to guide the research

These four factors formed the basis for all aspects of primary and secondary data collection and analysis of this research, and will be expanded on later in the study.

Secondary data collection

A literature review of existing academic and grey literature articles (including online blogs and newspaper articles) on key knowledge areas comprised secondary data for this study. This review aimed to identify overarching claims made about sustainable food retail, and more specifically, zero and reduced packaging food retail.

The review was conducted in accordance to the analytical framework. It endeavored to seek answers the research questions as fully as possible, by identifying barriers and incentives to zero packaging food retail faced by both zero packaging and mainstream food retailers.

In addition to determining the abovementioned barriers and incentives, secondary data collection also helped to uncover the research gap and refine and redefine the research questions.

Primary data collection

Primary data collection was again guided by the analytical framework, and was comprised of empirical data collection via in-depth semi-structured face-to-face, Skype, phone and email interviews with three main stakeholder groups:

- Zero packaging retailers
- Mainstream food retailers
- Key stakeholders in the packaging industry

Interviews

Interviews aimed to collate information on barriers and incentives to unpackaged food retail from relevant stakeholders. Data collection was categorised according to the four identified factors in the analytical framework: Regulatory, Social, Market and Resource Factors.

Semi-structured qualitative interviews were deemed the appropriate data collection method. This interview style was of relevance to this research as it allowed for the systematic collation of data to fit and populate the “Barrier and Incentive” dichotomy of the analytical framework, whilst also collating any additional information relayed by the stakeholders that would enhance the robustness and validity of the research, but that might not necessarily fit strictly into the Barrier/ Incentive dichotomy (Bryman, 2012).

Primary data collection through interviews was carried out by devising interview guides where questions were structured primarily in a general/ broad fashion as to better understand the interviewee and context in which he/she operated, followed by more specific questions categorized under market, resource, regulatory and social factors (Bryman, 2012). Each interview and associated guide consisted of 16 questions (for mainstream retailers) and 26 questions (for zero packaging retailers) (see appendix B), of which interviewees were able to choose to answer, or not whichever questions they wanted to. All interviewees opted to answer all of the questions posed to them.

The categorization of interview questions was structured according to the four framework factors in order to better be able to analyse the collated data by developing the barriers and incentives taxonomy in subsequent sections of the research (Marshall, 2006; Lester and Lester, 2015).

The development of the taxonomy allowed for a basic quantitative analysis of data to be introduced into the research. Each identified barrier and opportunity was ranked in order of poignancy, based on the frequency with which each stakeholder emphasized each factor in the interviews. This mixed methods approach allowed for a greater degree of confidence in the findings, and for both a qualitative analysis of the data, which allowed the research to capitalise on detailed descriptions and causal accounts of qualitative methods and also on the rigour and generalisation of basic quantitative methods (Borch & Arthur, 1995).

2.1.1 Stakeholders interviewed

A comprehensive list of stakeholders interviewed can be found in tables 2-1, 2-2 and 2-3 below. A total of 19 interviews were conducted. Retail stakeholders interviewed were located in seven different countries around the world. This geographical variety was selected in order to gain a global perspective of barriers and incentives to zero packaging food retail. The selection of stakeholders in particular took place based on willingness, availability and ability of stakeholders to give relevant and useful data for this research.

Additionally, three key experts in the food packaging industry were included in the primary data collection process (see table 2-3). Due to their insight into the history, current developments, market analysis and future trends of the food packaging industry, as well as their knowledge of consumer choices and preferences relating to food packaging, it was determined that their insight was of direct relevance and value to this research.

Table 2-1: Zero packaging retail stakeholders interviewed in this research

ZERO PACKAGING FOOD RETAILERS		
RETAILER	COUNTRY	ROLE of interviewee
The Fillery	New York, USA	Owner/Operator
G R A M	Malmö, Sweden	Owner/Operator
LØS Market	Copenhagen, Denmark	Owner/Operator
Unpackaged	London, UK	Owner/Operator
Wasteless Pantry	Perth, Australia	Owner/Operator (x2)
Waste Zero Market	Vancouver, Canada	Owner/Operators
Total stakeholders : 7		

Table 2-2: Mainstream food retail stakeholders interviewed in this research

MAINSTREAM FOOD RETAILERS		
RETAILER	COUNTRY	ROLE of interviewee
Axa Foods	Sweden	Packaging developer
Marks and Spencer	UK	Packaging technologist
REWE INTERNATIONAL AG	Austria/Germany	Sustainability Project Manager
Aldi Foods	Australia	Area Manager
Countdown	Australia	Store Manager
New World Foodstuffs	Australia/ New Zealand	Owner/Operators (x4)
Total stakeholders : 9		

Table 2-3: Food packaging industry experts interviewed in this research

FOOD PACKAGING INDUSTRY EXPERTS		
Company/ Organisation	CITY, COUNTRY	ROLE of interviewee
Tetra Pak	Lund, Sweden	Environmental Director
WRAP, UK	Oxford, UK	Programme Area Manager
Canadian Packaging Consortium	Toronto, Canada	Programme Manager

2.1.2 Overview of stakeholders

Due to the global nature of this research, as well as to better understand the policy, political, cultural and legislative contexts within which the stakeholders operate, it is important to take a closer look at the geographical location of stakeholders. Of the 16 retailers interviewed, all operated in developed world contexts (100%). As evident in Figure 2-6, half of the retail stakeholders interviewed were from Oceania (Australia and New Zealand). Stakeholders operating within the European Union comprised 38% of all stakeholders interviewed (6 interviewees). North American interviewees comprised 12% of all stakeholders interviewed.



Figure 2-5: Geographic location of retailers interviewed.

Empirical evidence for this research was collated from retail stakeholders holding the following job roles: the majority (69%) were food retail store owners/ operators. Store Managers comprised 12% of stakeholders interviewed, Packaging Developers/Designers constituted 12% of interviewees, and 7% of Sustainability Managers.

Data analysis

This section will describe the following data analysis process that was employed in this study:

- Analysis of the findings (both primary and secondary) will be conducted through the lens of the chosen barrier and incentive analytical framework- this will be summarized through a barrier and incentive taxonomy;
- Key information will be extracted from the taxonomy and categorized into ‘lessons’ on zero packaging food retail;
- The three key research questions will then be systematically addressed;
- A discussion of the research findings and recommendations for future research will then be presented.

As per previous sections, data analysis will be developed around the barrier and incentive dichotomy of the analytical framework. Firstly, empirical data collated through the qualitative interviewing process will be combined with findings from the existing literature (Bryman, 2012). In order to summarise the patterns that were discovered through this process, a taxonomy of barriers and incentives to zero packaging food retail was created.

The taxonomy is categorised into three sections; one section titled ‘Confirmed’ indicates all findings stated by interviewees that confirmed findings indicated in the existing literature. The second section titled, ‘Not Confirmed’ indicates all findings identified in the literature, but not confirmed empirically. And finally the column titled, ‘Additionally identified’ indicates all findings identified empirically that were not previously identified by the existing body of literature. One of the more significant contributions of this research lies in presenting the “Additionally identified” factors.

At the end of the latter section, a further analysis of the collated data is presented by highlighting the key ‘lessons’ from zero packaging food retailers. This process will attempt to bridge the existing research gap and knowledge that exists in the current body of research on

this subject matter (Bryman, 2012). The ‘lessons’ section is summarized in Table 5-3. This table also incorporated empirical data collated that sits outside of the barrier/ incentive dichotomy in order to add clout and a well-rounded perspective to the arguments developed.

The method used to select these ‘lessons’ was based on frequency with which a barrier or incentive was mentioned by interviewed stakeholders. For example, if a single incentive was repeatedly identified by 50 % or more of zero packaging food retailers, it was deemed that this was an indication that zero packaging retailers were confident this incentive was a key contributing factor to the success of this form of retail. This incentive was then identified as a ‘lesson’ to respond to a corresponding barrier identified by 50% or more of mainstream food retailers.

Naturally, not all ‘lessons’ fitted inside the barrier/ incentive dichotomy, so factors that had been identified through empirical data that were deemed logically relevant to a particular identified barrier have also been incorporated into the lessons section, even if they don’t fit strictly into the barrier/incentive dichotomy.

The cut off of 50 % has been chosen as a means to filter relevant data for this research. This percentage was deemed to hold a large enough representative group, whilst simultaneously being selective of not including too much/ all factors raised through the literature and empirical findings.

In summary, the ‘lessons’ section seeks to find answers or solutions from experienced zero packaging food retailers, to identified barriers as stated by mainstream food retailers and or existing literature. The three mentioned tables seek to succinctly portray this analysis, and essentially provide answer to the three research questions (RQs). Table 5-1 titled, ‘Barriers and Incentives to zero packaging food retail as identified by mainstream food retailers provides a response to RQ1, Table 5-2, titled, ‘Barriers and incentives to zero packaging food retail as identified by zero packaging food retailers provides a response to RQ2 and the Table 5-3, titled ‘Summary of Lessons drawn from zero packaging food retailers’ provides a response to RQ 3.

A discussion of each of the sets of findings for the respective factors outlined in the analytical framework will then be developed in the analysis section below the summary tables.

3 Literature Review

Introduction

The literature review seeks to find answers to the three research questions. Findings will be categorised into barriers and incentives to zero packaging food retail according to the four analytical framework factor groups: Regulatory, Social, Market and Resource Factors.

It is important to note that due to the lack of academic literature on zero packaging food retail, findings presented in this literature review could be perceived as somewhat generic. Literature on sustainable food retail has been deemed the closest and most relevant available literature to this research, and therefore is referenced more readily. The empirical data collection process will endeavor to bridge this gap directly and will thus act as the key contribution of this research.

Another potential shortcoming of this literature review is that there is relatively little distinction between findings relayed by mainstream and zero packaging retailers. This is again primarily due to the fact that there is little available literature on zero packaging retailers. Again, the contribution to the state-of-the art and value of this research will be to add to this currently existing knowledge gap.

A final potential limitation that inspired the development of this research, is that a significant portion of peer reviewed literature available on packaging is somewhat dated. Although this could bring the 'contemporary' theoretical data used into question, the argumentation of this research, is that it seeks to add new and fresh findings to this somewhat dated existing body of knowledge. In order to ascertain that the existing literature was in fact dated, a number of searches were performed using key words such as, "*sustainable food packaging*" "*zero packaging food retail*" and "*sustainable food retail*" to ensure that no recent literature had in fact been missed out from the theoretical data search and review.

Regulatory Factors influencing reduced packaging food retail

3.1.1 Regulatory barriers

The main regulatory barrier to reduced packaging food retail identified through the literature is that of lack of government leadership and clarity in regulation and legislation regarding reduced and zero packaging food retail. Little guiding regulation exists to steer retailers through the transition into more sustainable food retail (Jones *et al.*, 2008). The Danish EPA claims that there are often mixed and unclear messages from both policy makers and administrative authorities regarding the actual role and responsibility of retailers, as well as a lack of clear vision for sustainability in the retail sector (Danish EPA, 2010). Reduced food packaging is a sub-category of sustainable food retail, and is therefore arguably affected directly by this lack of clarity and vision.

Another clear barrier to more effective sustainable retail is identified through the lack of harmonization between different countries- food is transported between numerous juridical, legislative and geographical boundaries in today's globalized food consumption system, and the lack of harmonization currently present between different countries adds a layer of

complexity and acts as an additional hurdle to attaining more sustainable food retail (Danish EPA, 2010).

Another regulatory barrier lies in the lack of clarity on how, “*high level environmental goals translate to retail sector priorities*” (SDC, 2008: 36). Government is argued to not hold a leading role in facilitating and helping supermarkets to improve sustainability more generally as well as waste reduction in existing food systems (SDC, 2008). It has also been avidly claimed that current policies to curb waste production, reduce waste to landfill and to devise preventative waste management strategies have been insufficient to achieve more sustainable food retail strategies (SDC, 2008:50).

Additionally, at present instruments implemented by governments to reduce both packaging waste and environmental impacts of the food consumption systems more broadly, have been claimed to be coercive in nature (BIO Intelligence Service, 2009; Danish EPA, 2010). Legislation for example has arguably imposed stipulations that make preventative waste reduction too costly and strict, resulting in the stability and impediment of retailers’ innovation in these fields (BIO Intelligence Service, 2009; Danish EPA, 2010).

Finally, it has been claimed that government leadership in the field of preventative waste management in food retail has been constrained by international provisions of free trade (Vorley *et al.*, 2002). It has been widely feared that social as well as environmental reasoning has and can in the future be further used to serve protectionist ends, facilitating domestic producers to protect their dominant market positions, thus gaining strategic trade advantages over foreign competitors under the guise of progressive environmental requirements and stipulations (Vorley *et al.*, 2002).

3.1.2 Regulatory incentives

Researchers such as Ackerman claim that the most effective way of ensuring that packaging associated with food consumption systems is increasingly “sustainable” and that over packaging is reduced, is through regulation, particularly that which is targeted at producers, and to a lesser extent retailers (Ackerman, 1997). Traditionally, environmental legislation regarding packaging has primarily focused on the minimisation and recycling of packaging material (Lindh, Olsson and Williams, 2016). In Europe for example this is driven by the present packaging legislation that mainly deals with issues of packaging materials (Lindh, Olsson and Williams, 2016). Regulation has also largely been aligned with the EU Waste Hierarchy’s promotion of preventative waste management, whereby the focus on source reduction, or light weighting has for the past decade played (and still continues to play) a primary role in reducing packaging discards, thus conserving materials and energy and reducing greenhouse gas emissions (Greenerpackage, 2016).

Across the world, a variety of methods have been employed in an attempt to motivate retailers to either contribute to funding the waste management systems required to cater for products and packaging sold through their stores, or to incentivise a preventative approach to waste creation in such retailers (Chkanikova and Mont, 2012). Such instruments include energy and waste directives (particularly in the European Union), international regulations, soft policy (e.g. The EU’s Sustainable Consumption, Production and Sustainable Industrial Policy Action Plan) and the development of the EU Retail Roundtable established in 2009 which led to the Retailers Environmental Action Programme (ERRT and EuroCommerce 2010) (Chkanikova and Mont, 2012: 68).

In the United States for example, regulatory instruments have been devised on various levels in an attempt to mitigate packaging's contribution to the solid waste stream (Schwepker and Cornwell, 1991). On a national level, packaging legislation has been devised, and programmes developed to deal with source reduction, through the Commerce Department's National Bureau of Standards, which has worked with industry associations and groups to set quantity standards in product areas where there was excessive packaging (Schwepker, C and Cornwell, B 1991). In the late 1980s, the Environmental Defence Fund, an environmental research and lobbying group, also proposed a sales and user tax based on the quantity of packaging in a product and a national sales tax on disposable items such as diapers, razors and plates (Begley and King, 1989). For the most part however, state legislatures have focused on bans of certain types of plastic packaging and the imposition of packaging taxes in an attempt to reduce packaging and associated waste at source (Kovacs, 1988).

The response to most of the examples of the above-mentioned regulatory and legislative initiatives has been widely varied (Beck *et al.*, 1989). Some more known liberal and progressive communities in areas such as the Pacific Northwest of the United States received such regulation positively, with residents purchasing and demanding more recyclables, fewer packaged goods and embracing bulk style purchasing habits (Beck *et al.*, 1989), other communities were less receptive or engaged in such regulatory prompts.

An additional incentive for zero and reduced packaging initiatives for food retailers has been for retailers to pre-empt what would be unwelcome and potentially costly as well as prohibitive statutory regulation by ensuring that industry standards are always “ahead of the game” and able to predict future regulatory demands and requirements (Jones *et al.*, 2008: 996).

Devising guidelines and analytical methodologies around both packaging design as well as waste prevention has been another effective tool implemented widely in Europe, North America and Oceania. Such guidelines have been set in order to set industry standards, as well as in an attempt to engage designers, producers and consumers further (Europa, 2015). Packaging guidelines are given in national laws and EU directives, as well as in regulations set by CEN Standards 13427-13432 about packaging and packaging waste. ISO packaging and the environmental standards 18601-18606 also devise a framework through which packaging designers are able to develop reduced and more sustainable packaging alternatives (Grönman *et al.*, 2013). In Australia, The Sustainable Packaging Alliance (SPA) devised clear definitions of sustainable packaging in 2004, revising these in 2007 by adding Key Performance Indicators to enhance stringency and clarity (Grönman *et al.*, 2013). In the USA the Sustainable Packaging Coalition (SPC) developed specific characterisations of sustainable packaging in 2005 (Grönman *et al.*, 2013), whereas the EU devised stringent waste prevention guidelines used by packaging designers and retailers alike (Europa, 2016).

Alternatives to regulation include the use of economic instruments and incentives, where by charges to both the producer as well as the consumer on non-recyclable packages or overpackaged goods will further strengthen the norm and influence also those consumers that are unwilling to cooperate with reduced packaging consumption (Grönman *et al.*, 2013). Even as early as the 1980s, taxes on packaging have been enforced, and found to successfully induce reductions in solid waste generation (Bingham *et al.*, 1989). It has however for a long time now

been claimed that it is often cumbersome to derive the appropriate tax or subsidy for such measures (Conn, 1988).

The literature has also indicated that the use of voluntary industry agreements such as that of the of The Courtuld Commitment in the UK have proven to be a relatively easy and seamless tool to achieve zero and reduced packaging goals amongst food retailers. The Commitment is considered a leading example that has united retailers and suppliers representing 92% of the UK grocery market to deliver absolute reductions in packaging and food waste (Courtauld, 2015). Signatories to The Commitment are presented with Guidelines and Action Plans through which to carry out their reduced and zero packaging commitments- results thus far have proven to be successful with initial aims of zero packaging waste growth having been achieved already (Courtauld, 2015).

Social Factors influencing reduced packaging food retail

3.1.3 Social barriers

The literature suggests a number of social barriers to reduced and sustainable packaging currently exist. There are indications that consumer participation and response both play significant roles in implementation of sustainability initiatives, however one of main barriers for retailers lies in insufficient interest and awareness of sustainability issues from a consumer's perspective (SDC, 2005). There is potential for retailer's efforts to reduce and eliminate packaging to be perceived as an inconvenience and a burden by consumers (SDC, 2005).

Another potential social barrier lies in ensuring that environmental losses of food packaging at the consumer phase are kept to a minimum. This can however be the most cumbersome and risky stage for retailers and producers alike to have control over (Williams and Wikström, 2011). The literature indicates that it is particularly important to reduce losses in the consumer phase, "*as the accumulated environmental impact of a product increases with each step in the product lifecycle*" (Williams and Wikström, 2011: 44), meaning that any efforts made upstream have the potential to go in vain if measures at the cumbersome consumer phase is not adhered to correctly.

Another social barrier exists in the potential for backlash stemming from efforts to reduce and eliminate food packaging for environmental reasons. The theory of psychological reactance indicates that the feeling of a strong-commanding or controlling- social pressure to avoid over packaging has the potential to propel some consumers to do exactly the opposite (Williams and Wikström, 2011). As a result of this, campaigners wanting to promote environment-friendly choices in this domain should be particularly cautious to avoid overly prescriptive and pressuring tools and strategies (Williams and Wikström, 2011). Researchers Williams and Wikström suggest more open communication strategies that leave room for an individual's own reasoning about the issue of over packaging have a greater potential to reduce the risk of social and consumer reactance and defiance (2011).

3.1.4 Social incentives

The literature suggests that social factors play a significant role in ensuring the success or failure of sustainability initiatives in the retail sector, particularly through the transition phase of a given initiative (Obermiller, 1995). Some researchers go as far as to claim that the greatest efforts in packaging minimization, amongst other sustainability initiatives should be devoted to campaigns that emphasize that each individual consumer's contribution to the solution matters (Obermiller, 1995).

Another significant social factor or concept that acts as an incentive for reduced packaging food retail is that of the “ethical consumer”. Boström *et al.*, (2005) claim that such consumers view shopping choices as an exercise of political power and moral responsibility, and thus exercise such power through product and retail store boycotts. Findings such as that of a 2010 survey regarding packaging decisions made by Danish consumers exemplify the concept of ethical consumer behaviour, where, “*a majority of consumers express that they feel an obligation to avoid packaging-related waste problems*” (Thøgersen, 2000: 442). Such boycotts are targeted at what “ethical consumers” deem to be unethical or environmentally intrusive products and retailers if need be (Boström *et al.*, 2005). Such boycotts act as important drivers for retailers to address sustainability related negligence and issues (Boström *et al.*, 2005).

Another such factor or concept is that of retailers addressing active NGO movements in order to avoid unwanted negative attention and blacklisting from social and NGO organizations (Hall, 2011). One such example is that of UK retailer, Sainsbury’s, whose sustainability strategy focuses on ‘*high profile issues that draw attention of environmental advocacy groups*’ (Hall, 2001:114). On a similar vein, NGOs such as Greenpeace have significantly influenced retail sustainability strategies, including packaging reduction and the elimination of over packaging through their ability to sway and provide knowledge and information to consumers (Hall, 2011). Tactics such as developing evaluation and ranking schemes for supermarkets for sustainable fish stock provision, sustainable sources wood and paper products and fair trade chocolate and food stuffs are a few examples of communication tools devised by NGOs to inform consumers of best and worse practice alternative to products sold through food retailers (Hall, 2011).

It can be argued that social pressures of this nature are targeted at what Hall describes as, “*the most extreme civic driver for retailers: fear that retailers will be brought to court due to socially irresponsible behaviour*” (Hall, 2011: 114). Such social drivers act as powerful catalysts for retailers to perform highly and arguably even leaders in any given sustainability initiative, reduced food packaging being one of these.

Negative publicity or media attention acts as a similar catalyst or incentive for “good behaviour” in food retailers (Hall, 2011). Examples such as the 2016 Guardian newspaper article claiming the following, can be seen as an example of this phenomena; “*while more people are recycling, their efforts are being held back by supermarkets...at a time when we are in recession and shoppers are feeling the pinch, we have to move on from a world that tolerates cling filmed coconuts and shrink-wrapped tins of canned beans. Families are fed up with having to carry so much packaging home from the supermarket*” (Guardian, 2016).

Market Factors influencing reduced packaging food retail

3.1.5 Market barriers

A number of market barriers were identified in the literature. The most frequently emphasized barrier was that of supply chain management and retailer control, or lack thereof over supply chains. Researchers such as Smith claim that supply chain monitoring is extremely complex in the current globalised systems (Smith, 2007), indicating that retailers, even when having the intention or goal to reduce packaged and overpackaged food supply, may encounter a number of barriers when enforcing or implementing changes further down the supply chain, where they have less or limited decision making power and influence (2007).

Marks and Spencer for example claimed that a number of initiatives that required global sourcing and changes to global supply chains were an "unprecedented challenge" as the company was required to work with a geographically dispersed network of suppliers as well as subcontractors in developing countries, where insufficient government enforcement of local labour and enviro legislation are prevalent (Johnson, 2004:5), meaning that an already complex supply chain management system, is further complicated when any changes, such as those to packaging reduction are to be implemented.

Consumers were stated as an additional market pressure/ barrier in the literature. It is claimed that consumers are generally not willing to pay a price premium for "green goods", one such argument is that the proliferation of "green and sustainable" goods on the market has led to consumer confusion, and hence inability to, "recognize quality goods" (Canavari, et al., 2009; Chkanikova and Mont, 2012), resulting in consumers not wanting to pay a premium for more environmentally friendly products.

Another consumer related barrier was identified through the fact that packaging is considered to be a crucial lever in the consumer's purchasing decision (Monnt *et al.*, 2014). This is considered to be particularly true of overpackaged food products because packaging is the most visible part of the product in store, where the consumer makes 76% of their purchase decisions (Popai, 2012). Thus, removing packaging from food products is at both a retailer and a producer level, a potential barrier to sales and thus not within the interest of retailers or producers.

Another identified barrier in the literature suggests that the physical shape of packaging influences the way consumers classify the product as belonging to a familiar product category (Berkowitz, 1987; Bloch, 1995). Packaging shape also influences consumer's beliefs about product quality, and can even be a justification for product price premium (Berkowitz, 1987; Schoormans and Robben, 1997; Monnt, 2014; Aydinliyim and Pangburn, 2012). It is stated that this may lead consumers to attribute the absence of over packaging to lower quality, as well as a lower product price (Monnt, 2014; Aydinliyim and Pangburn, 2012). As a result of these claims, removing or significantly reducing packaging and altering the shape of food products may also act as a deterrent to retailers and producers who fear that this will reduce sales and consumer desirability of such products.

Another such deterrent or barrier to reduced food packaging is the fact that consumers are often assumed to possess a considerable amount of knowledge about complex ecological or ethical issues and consequences associated with their consumer choices (Rokka and Uusitalo, 2008; Schröder and McEachern, 2004; Moisander, 2007). The fact that consumers don't always actually possess such a high level of knowledge, and also often undervalue the impact of their own marginal contributions, or lack thereof to the problem (Uusitalo, 1989; Rokka and Uusitalo, 2008), indicates that they may often not be aware of the implications of packaging reduction. Subsequently, retailer's efforts may go in vein, and potentially worse consequences for retailers, such as reduced sales and associated profits may act as a significant barrier and deterrent to retailer changes and initiatives in this field.

Another identified barrier, from a retailer's perspective is associated with the communication and marketing potential of a given food product that is directly associated with its packaging. In marketing terms, packaging has been considered for a number of decades as a "silent salesman" (Pilditch, 1957). Researchers claim that packaging enhances and describes the product to promote it to the final customer, and as a result of this, packaging is a crucial tool

in the purchase decision (Wigley and Chiang, 2009). Packaging is also a differentiation tool for private labels, hence eliminating it could limit the capacity to give such labels an equivalent image to national brands just as much as it could be a sustainable development opportunity and a positioning instrument according to Monnt *et al.*, (2014). Additionally, research indicates that eliminating over packaging does in fact have an influence on private labels' image, particularly on perceived quality and convenience (Monnt *et al.*, 2014). Furthermore, since packaging is a way to differentiate products in an already saturated market (Wells *et al.*, 2007), eliminating over packaging on private label products has the potential to result in negative consequences on their in-store evaluation and acceptability to consumers (Monnt *et al.*, 2014).

In summary, packaging is considered to be an extremely useful communication channel for brands at the point of sale (Nancarrow *et al.*, 1998; Helström and Nilsson, 2011), as a result of this, removing, reducing or eliminating packaging altogether is likely to be met with resistance from both producers and retailers alike who need to communicate and sell products to consumers.

Finally, technically speaking, packaging exists to preserve product integrity by protecting it from damage caused by climatic, bacteriological and transit hazards (Stewart, 1995), logistically as well as practically, there are significant market barriers associated with removing and reducing a pivotal health, safety, hygiene and product preservation component of a food product – this acts as a barrier to removing and reducing product packaging for consumers, retailers and producers alike.

3.1.6 Market incentives

A number of market incentives to reduced packaging food retail were identified through the literature, amongst which negative publicity surrounding packaging waste issues, and subsequent political dynamics were listed as a significant. In recent decades in particular, environmental consequences of our packaging consumption, and amounts of household waste it leads to, has become the focus of some political and public attention (Ackerman, 1997; Bech-Larsen, 1996; Thøgersen, 1996). As a result of this, a number of food retailers are incentivised to reduce food packaging to avoid and deter negative publicity and negative politics associated with wasteful products.

Voluntary industry agreements and norms are incentives to decreased food packaging, and it is argued that such agreements and schemes often shape the direction which expectations are taken within industry (Hoffman, 2000). There are a number of voluntary agreements and schemes available for retailers to get directly involved and make commitments to leadership roles whereby they are able to engage with suppliers to make lasting changes within industry (Danish EPA, 2010). One such example is that of the voluntary Courtauld Commitment, which in the UK has encouraged grocery retailers to reduce weight and carbon impact of household food waste, product and packaging waste (from primary to tertiary packaging), both in the home and the grocery sector (Wrap, 2014).

Another potential incentive to food packaging reduction in retail is via third party stimulation; sustainability awards and leadership incentives from third party organisations act as a stimulation for retailers to engage with sustainability issues in the supply chain such as packaging (BIO intelligence Service, 2009; Danish EPA, 2010).

Consumers are another major market incentive group for packaging reduction for retailers. As early as the 1980s, consumers have claimed that they were willing not only to pay more for environmentally sound product packaging, with approximately 53 percent of individuals surveyed through relevant research, stating that, "*they did not buy a product in the past year because of concerns that it or its packaging might harm the environment*" (Schwepker and Cornwell, 1991: 81). More recently however, the environmental consequences of packaging and the amount of household waste become a major focus of consumer choice (Rokka and Ussitalo, 2008; Prendergast *et al.*, 1997; Thøgersen, 1999; Bone and Corey, 2000; Roper and Parker, 2006). Consumers are increasingly aware of the volume of waste their consumption generates (Arkes, 1996) and assign particular importance to use of environmentally friendly packaging (Thøgersen, 1999; Rokka and Ussitalo, 2008).

Although relatively recent, such changes have had an impact on the entire dynamic between consumer and retailer. In the 2011 Top of Mind ranking of The Consumer Goods Forum, corporate responsibility (including sustainability and food packaging) was ranked first by retailers and manufacturers as the key issue (Reuter *et al.*, 2010; Flint and Golicic, 2009; Markley and Davis, 2007). Consumer's propensity to choose environment friendly packaging appears to be an intrinsically motivated means and a clear opportunity for supermarkets to engage in such consumer's motivation in zero packaging retail (Thøgersen, 2000). Furthermore, consumers associate the absence of over packaging with a commitment by the industrial manufacturer to move towards a certain selling simplicity in order to reduce its products' ecological impact, as a positive and desirable progression (Williams and Wikstrom, 2011). Such findings act as incentives and opportunities for increased zero and reduced packaging food retail.

Previous studies have found that major obstacles to more consumer engagement in reduced and zero packaging are first and foremost, the lack of environment-friendly packaging alternatives (for most products) and consumers' inability to distinguish between more and less environment-friendly alternatives (Bech-Larsen, 1996; Thøgersen, 1996). This indicates that a niche for retailers to fill has existed from some years.

Naturally differences exist regarding consumer preferences for over and under/ unpackaged goods between different types of consumers and in different geographical locations. In Scandinavian countries for example, more than 80% of the consumers claim that the environmental status of the food packaging influences their selection of food products... the majority of Swedish consumers (86%) for example are willing to pay extra for environmentally sustainable packaging as indicated in a recent study on packaging preferences (Lindh, Olsson and Williams, 2016). Similarly, comparisons can be made to the international study by Tetra Pak on consumers' willingness to pay for environmentally sustainable milk packaging, where 47% of surveyed subjects were willing to pay 5% more for environmentally friendly packaging (Lindh, Olsson and Williams, 2016). All findings indicate that there is consumer concern for the packaging of food products.

Furthermore, Jones *et al.*, (2011) argue that food retailers have the ability not only to respond to consumer demands for reduced and more sustainable food packaging options, but also to drive changes in consumer behaviour through the packaging choices that they provide to consumers, and exert the influence within their stores in a way that promotes sustainable and less wasteful consumption of their products (Jones *et al.*, 2011).

Potential for further engagement with consumers exists in store as well. Marks and Spencer have led the example of how this is possible through their communication and engagement via banners in store stating, "*did you know that over 70 per cent of our M&S food packaging is widely recycled*" (Jones *et al.*, 2011:939). Similarly, check outs of the top ten food retailers in the UK displayed, posters and signs encouraging customers to use reusable carrier bags instead of disposable bags. A sign at Co-op for example had the message, "*bags are for life not just for one shopping trip*" (Jones *et al.*, 2011:939).

Consumers provide the catalyst for a number of changes further down the supply chain as well. Ytterhus argues that as consumers begin to ask for food with reduced environmental impacts, retailers are effectively able to transfer this pressure down the supply chain by integrating environmental criteria and targets into supplier and purchasing policies (Ytterhus, 1999). This is a particularly effective approach for many small and medium enterprises (SMEs) who see market pressure, rather than legislation or regulatory requirements as a key driver for environmental improvements (Ytterhus, 1999). This diffusion of environmental management techniques via the supply chain is a very important factor influencing the improvement of industrial environmental performance, and catalysing processes such as the reduction of over packaging of food products (Ytterhus, 1999).

This change in consumer behaviour and focus, as well as the increased interest in social responsibility and the intensified product and supply chain competition has resulted in greater relevance and interest to the topic of sustainability for firms along the supply chain as well. Furthermore, as will be discussed later in this section, competitive advantages can be gained from incorporating sustainability issues (Reuter *et al.*, 2010; Flint and Golicic, 2009; Markley and Davis, 2007).

As briefly indicated previously, another clear incentive to zero and reduced packaging food retail sits in the benefits of strategic competitive advantage that devising reduced packaging food retail holds. Not only has there been a significant rise in interest and subsequent prioritisation of environmental issues in both operational and Corporate Social Responsibility (CSR) agendas of a number of retailers across the globe, but in certain regions, such as in the UK for example, of the top 10 retailers, environmental issues were the earliest and are now the most commonly reported set of CSR agendas (Jones *et al.*, 2005).

Of the environmental issues, waste and the volume of packaging have been amongst the top basic reported issues for over a decade now (Jones *et al.*, 2005). On a similar note, a number of top ten retailers report on the development and/ or use of CSR Key Performance Indicators (KPIs), of these, waste and packaging reduction have been amongst the top prioritised KPIs, with associated targets to be met in each year (Jones *et al.*, 2005).

Researchers such as Monnt *et al.*, (2014) suggest that in a retail context where increased emphasis has been placed on sustainable development, retailers have the potential to present elimination of over packaging as a way of reducing the amount of waste and making selective waste disposal easier for consumers, who would no longer have to deal with this unnecessary packaging. Monnt *et al.*, also argue that eliminating packaging could be seen as an opportunity for retailers, providing both a response to growing stakeholder demand for a greater concern for sustainable development, and a positioning instrument within the market. It could be a way to manage the private label portfolio for example, by for instance deciding to eliminate over

packaging on generic and mimic private labels, and actively promoting such initiatives to consumers (2014). There is clear potential for food retailers to further incorporate packaging elimination and reduction into their agendas in a way that clearly benefits and engages a number of key stakeholders including the end consumer, local municipalities and producers further upstream (Monnt *et al.*, 2014).

An example of such strategies that have already been put in place include French food retailer, Leclerc, who promoted a policy of simplified packaging for its private label products, reducing the size and volume of packaging, selecting recyclable materials, eliminating over packaging for yoghurt, toothpaste and mayonnaise (Leclerc, 2011). When Leclerc initiated a reduced packaging strategy, they developed an active campaign promoting the cost cutting that was being passed onto the consumer for the reduction of packaging (Monnt *et al.*, 2014). Similarly, other retailers such as Auchan emphasised waste reduction initiatives on their product packaging itself with statements such as, "*so that Elsa's shopping will create less waste, Auchan is reducing packaging on its products*"- on chocolate mousse packets (Monnt *et al.*, 2014).

Another argument in favour of increased sustainability strategies (including incorporating the reduction of overpackaged goods) is the argument that incorporating such strategies are an approach to manage corporate risks and thereby retain competitive position, i.e. compliance strategy, or an opportunity-driven approach to gaining additional competitive advantage on the market (Chkanikova and Mont, 2012).

Approaches that have also been successful include strategies such as the phasing of packaging reduction has been proven to be successful. Danone for example introduced a premium yoghurt brand initially with over packaging in an attempt to increase shelf presence, however with the strategy to remove over packaging after 1 year, once the product was well known to consumers (Monnt *et al.*, 2014). Such strategies indicate a compromising stance between product promotion and environmental concerns that would be further adopted by a number of retailers and producers alike.

One proven useful and successful strategy that increases individual retailers autonomy and ability to make decisions (including those pertaining to sustainability and reduced packaging initiatives and strategies), can also be seen through the decentralisation of retailers. Sweden's ICA supermarket chain for example, due to its decentralised structure sees individual retail stores make autonomous decisions regarding how to implement sustainability strategies on the ground, and as a result of this, ICA is able to fulfil high degrees of sustainability and to an extent sustainable consumption in some stores (Lehner, 2015). This decentralised structure can allow some retailers, located in particular areas or neighbourhoods that are more likely to engage with and allow for the successful uptake of packaging elimination to implement zero and reduced packaging strategies if need be.

Another potential incentive for zero and reduced packaging food retail lies in the instore experience that retailers have the potential to increase and enhance for consumers. A structural analysis carried out by Thøgersen (2000) shows that at times consumers do not choose environment-friendly packaging - or choose less of it than they would have preferred to do, due to lack of attention to the issue in shopping situations. As a result, the transformation of environment friendly packaging norms into behaviour has the potential to be facilitated by increasing the number of attention generating cues in the shopping situation (Thøgersen, 2000). Similarly, Thøgersen argues that an increased availability of unpackaged and environmentally improved packaging, as well as environmental labels schemes have the

potential to act as the best attention-generating cues, alongside other in-store promotion initiatives such as on-shelf posters, videos and banners can also be effective in generating attention (Thøgersen, 2000).

Finally, another market based incentive to zero and reduced packaging food retail lies in an argument presented by Monnt *et al.*, (2014), that claims that retailers ought to think more strategically about which components of primary packaging should be reinforced, so as not to affect perceived quality of any given product. Results in the research by Monnt *et al.*, (2014) show that over packaging can be legitimately eliminated without affecting the perceived quality of a product. Such studies provide a counterargument to consumer beliefs that increased packaging is required for health, hygiene and food safety reasons. Monnt *et al.*, also recommend that developing communication campaigns that focus communicating the fact that product quality is unaffected when over packaging is eliminated, and stressing the benefits for the product's other attributes such as convenience, price, environmental friendliness are equally as valuable information to both retailers and consumers alike (Monnt *et al.*, 2014).

Resource Factors influencing reduced packaging food retail

3.1.7 Resource barriers

A number of resource factors were identified in the existing literature as potential barriers to zero and reduced packaging food retail. Financial costs of catalyzing such changes both in-store and down the supply chain was one such barrier put forward by a number of sources (BIO intelligence Service, 2009; Dijk, 2000; Smith, 2007; Danish EPA, 2010). It was clear that retailers primarily tend to address sustainability aspects that require lower investment costs and lead to economic savings or other financial benefits (BIO intelligence Service, 2009) before ones that require them to address more profound impacts upstream in supply chains (Dijk, 2000; Smith, 2007; Danish EPA, 2010).

Managing supply chain to ensure that goods are made in socially and environmentally sensitive ways is one of the biggest challenges facing retailers at present (Dijk, 2000). A retailer's own environmental impact and performance is closely linked to that of their supplier's, and supplier pressure is recognised as one of the most important catalysts to more sustainable production, (Ytterhus, 1999). Substantial investments are however required to address sustainability issues in supply chains, subsequently this can lead to bottle necks for retail businesses, especially when significant input, particularly relating to time and financial resources is required to address production-related sustainability impacts (Chkanikova and Mont, 2012). Such initiatives, which include zero and reduced food packaging implementation, are usually more costly, making retailers reluctant to invest in such sustainability strategies (Dijk, 2000; Smith, 2007; Danish EPA, 2010).

Another identified potential barrier was the issue of long-term reliable product supply (Chkanikova and Mont, 2012). The availability of sustainable products may be low, and without a steady and reliable source of zero packaging products, there is little chance retailers would compromise customer satisfaction and product availability for waste management and reduced packaging strategies. Along with lack of resources, the establishment of ongoing and collaborative relationships with suppliers that can involve compromise and modification to existing systems, thus implying considerable time, expertise and financial costs that burden all actors along the supply chain (Chkanikova and Mont, 2012). Even if retailers have the financial

resources, they may lack the power to influence their suppliers' practices (Chkanikova and Mont, 2012).

3.1.8 Resource incentives

Of the numerous resource factors acting as incentives to zero packaging food retail, drivers such as eco efficiency improvements are key. Eco efficiency is often catalysed by stakeholder demands for increasing financial returns and the promise of reducing operational costs (Ytterhus *et al.*, 1999; Piacentini *et al.*, 2000). In the UK, major food retailer, Asda for example secured 800 million pounds in cumulative savings by 2020 compared to 2005 by implementing several sustainability initiatives in its supply chain e.g. reducing packaging (Walmart Corporate, 2010). Chkanikova and Mont's 2012 research indicated that a key driver for cost savings for a number of (primarily Swedish) retailers were initiatives that focused on operational and resource efficiency rationale, amongst these, reduction of waste and packaging volumes (2015).

A key driver for reduced and zero packaging retail is also increased investor appeal. Triodos bank for example, only invests in sustainable businesses (Dijk, 2000). The potential to strengthen reputation and brand name are also one of the biggest drivers for food retailers to push the sustainability agenda further, as was the case for major UK food retailer, Marks and Spencer (Johnson, 2004).

Consumers have in fact come to expect that retailers will actively play their part in addressing fundamental issues of waste and sustainability and failure to do so is likely to result in serious damage to reputation (Dijk, 2000). At a corporate level, some retailers take the lead in sustainability issues, others engage in the process for fear of being left behind, and are thus starting to follow suit (Dijk, 2000). For one reason or another, it is clear that retailers who fail to engage with the sustainability agenda will suffer negative reputation, as subsequent media and political backlash from inaction. On the other hand, according to Dijk, *"a company which manages sustainable development well is likely to enjoy a good reputation, to attract capital and to generate increased confidence in management from shareholders. Additionally, the degree to which an organisation is seen as corporately responsible will have an increasing impact on share prices."* (Dijk, 2000:191).

The scale of retailers can be a contributing factor to the success of sustainability initiatives. Durieu (2003), argues that large retailers have the power to greatly influence and catalyse changes in production and consumption patterns. Durieu claims that such retailers are well positioned to exert pressure on producers in favour of more sustainable choices (2003). These retailers are essentially the gatekeepers of the food system, and as such supermarkets are in a powerful position to catalyse change in a direction that emphasises a greener, healthier, fairer food system that promotes less waste and takes a preventative approach to waste management. This can be achieved through their influence on supply chains, consumer behaviour and their own operations (Jones *et al.*, 2011).

Supermarkets simultaneously have, *"the ability to drive changes in consumer behaviour through the choices they provide and influence within their stores."* (Jones *et al.*, 2011: 937). By choosing to stock unpackaged products and to give consumers more unpackaged food alternatives, such issues are in turn able to steadily move up the political and media agenda (Dawson, 2004).

Over the past decade the role of the major food retailers within the food production and distribution system has attracted increasing and at times heated debate and discussion around environmental issues and the role these players have in improving current systems (Dawson, 2004). By choosing to take on leadership roles and influence both the supply chain as well as

consumers purchasing choices, there is increased potential for positive change to be instigated through the supply chain, as well as for subsequent positive media and press attention to result from this.

As suggested by Ytterhus, there is much potential for fruitful and lasting collaboration between retailers and all other actors along the supply chain, as well as within the food retail industry itself (1999). Forming relationships with campaigning organisations (NGOs) can be very fruitful for companies as is suggested by Djik (2000). Not only can retailers tap into a range of opinions, but also gain insight into the new social and environmental issues on the horizon that might otherwise not make it onto their radar (Djik, 2000).

Instead of competition between food retailers, partnerships between retailers and manufacturers can work in an integrated way to reduce the burden that products, services and their waste place on the environment (Djik, 2000). A shift in the current dynamic of competitive partnerships was yet another potential for improvement and opportunity within the retail sector. Research undertaken by Ytterhus indicated that shifting competition from that which stemmed from competition between retailers to that which increased competition between supply chains could yield the greatest environmental benefits to ensure that supply chains were operating at maximum environmental, economic and logistical efficiency (1999).

Ytterhus also suggested that encouraging supermarkets to share ideas and knowledge more readily would act as an incentive leading to net benefits for both the food retail industry, the natural environment and consumers alike (1999). Companies imitate each other, and new ideas in one company lead to similar actions in other enterprises, as has also been indicated previously in the study, this sort of “environmental pressure” along the supply chain may therefore have similar or even superior effects to environmental regulations on procedures (Ytterhus, 1999). Ytterhus also claimed that this form of environmental concern from consumers and anticipated legislation will increase, and not weaken, the partnership building and supplier pressure in fresh produce supply chains (1999).

Finally, the last resource related opportunity that lies in increased zero and reduced packaging food retail is in human resources. Research by Chkanikova and Mont suggests that developing high employee morale is of interest to food retailers, and creating a good company reputation ensures hiring or staff as well as staff retention is more readily attainable (2012). Increasing sustainability performance and creating a reputable company that staff are proud to work in is one way of ensuring higher staff morale, and associated benefits such as staff retention and hiring rates.

4 Findings

This chapter will present empirical data collated through the qualitative in-depth interviews. As per previous chapters, data will be presented in accordance with the four analytical framework factors, and categorised according to stakeholder groups interviewed (with zero packaging retailers or mainstream food retailers).

Regulatory Factors

4.1.1 Barriers for zero packaging food retailers

Six of the seven zero packaging food retailers confirmed that legislation and regulatory requirements posed barriers to the establishment and operation of their zero packaging food businesses. The most frequently stated barrier (stated by five of the retailers) however, was not necessarily due to specific legislative requirements themselves, but due to retailers having trouble identifying and referring to correct and relevant legislation and regulation pertaining to their specific niche businesses.

As a result of the recent and niche nature of these businesses, zero packaging retailers made claims such as, *“regulation that is relevant to the requirements of our business is currently unclear, ambiguous and hard to find, and the general consumer has no idea of what they can and can’t do... we now have it in writing that there is no by-law that prevents a consumer from bringing in a container to be re-used, be it to a store, café or restaurant.... but I think it is very frustrating for a lot of people who have been living in a way that aims at reducing their waste, because when they go into a store, it will often depend on whether the cashier is willing to let them re-use their containers. They can go into the same store, on different days and they will be allowed to use their container on one day, and not on the other because staff have different views or understanding on what the regulation and legislation around this is... this results in a really confused group of customers.”* (B.Miller, personal communication, July 8, 2016).

Five of the retailers interviewed also made similar claims to that of Miller, stating that unclear regulation and ambiguous legislation has led to varying degrees of *“customer confusion”* (A. Weschbiling, personal communication, June 23, 2016). Such confusion was claimed to have the potential to act as a deterrence factor for new consumers engaging in zero packaging shopping experiences.

Three retailers claimed that there were few or no relevant staff in municipalities able to provide detailed and tailored guidance to such retailers. As a result of these issues, the amount of time and resources required to obtain permits and clarify regulatory and legislative queries was often reported to be high and cumbersome. Statements such as, *“it is very hard to get a hold of people in ‘The City’ to even have a simple conversation a lot of the time.”* (B. Miller, personal communication, July 8, 2016). Exemplify this barrier for a number of retailers.

All retailers claimed that health, hygiene and food safety regulations played a key role in their business operations, but no single retailer claimed that such requirements were barriers to business, or waste reduction- instead business as usual practices and requirements that needed to be adhered to. *“Meeting our health and hygiene requirements wasn’t really a barrier for us, it’s just business as usual... part of what you do running a food related business”* (J.Richardson, personal communication, 24 June, 2016).

Six out of the seven retailers also claimed that there were very few/ no legislative and regulatory incentives promoting zero packaging retail, as well as little/ no financial incentive

provided to retailers wanting to set up stores that reduced packaging waste.

4.1.2 Incentives for zero packaging food retailers

Two stakeholders claimed that Mayoral commitments to Zero Waste Cities (New York City and Copenhagen) indirectly framed the legislative and regulatory contexts in which their stores operated, and although neither retailer directly felt incentivized to open up a zero packaging store due to their city's zero waste commitments, there was general legislative and regulatory dialogue in the urban areas in which they operated, that could they categorized as an incentive.

Four retailers claimed they benefited from financial incentives in the form of tax breaks, rebates, wage subsidies or government funding rounds due to their zero waste retail concept, as well as for other sustainability related initiatives, "*the city of New York does offer tax breaks, for initiatives like greening your roof for assisting with urban drainage, tax breaks for businesses that are working in conjunction with local universities in specific departments*" (S. Metz, personal communication, June 21, 2016). Three retailers also received community awards and associated increased publicity as a result of administrative authorities having recognized their efforts as zero packaging stores. One retailer in particular was asked to help devise zero packaging retail information for the general public due to their innovative retail style, and worked closely in conjunction with their local administrative authorities.

Five retailers also highlighted that due to little regulation and legislation pertaining directly to zero packaging food retail existing, this caused them very little hassle and burden when establishing their stores, and therefore this has acted as an incentive for them to promote this form of retail.

4.1.3 Barriers for mainstream food retailers

Six mainstream retailers claimed that hygiene, health and safety regulations were not conducive to increasing zero and reduced packaging food retail. Three retailers were also dissuaded by zero packaging food retail due to regulations requiring retailers to clearly differentiate between certain food products (e.g. Organic vs Non-Organic) etc., and currently packaging was the main communication tool for engaging consumers with this sort of information. Allergy labeling and ingredient listing were also listed as legal requirements through which packaging was a key tool for retailers to communicate with consumers.

All interviewed retailers claimed that food waste reduction was their absolute waste reduction priority, and internal company policy, regulation and waste reduction targets dictated that the use of packaging to reduce food waste should be prioritized over packaging elimination and zero packaging retail. Jan Dörrich of REWE group in Austria stated that, "*one of the main barriers relates to logistics. You have to bring products from one location to another- transportation... it's easier when products are packaged in a certain way. Food waste too is a major barrier for transportation, but also in store... we did studies on packaged and unpacked cucumbers, and packaged cucumbers for example last longer than unpacked ones. Another aspect is that people like to touch fruits and vegetables- each touch reduces the quality of the product, and reduces lifespan. Waste is a big topic in this respect. Of course this is not the case for dry products like rice and pasta etc., but definitely for fresh products. Hygienic safety reasons are another aspect. We need to meet certain hygienic standards. Handling in stores is also a barrier for us as retailers- it is easier for us to have packages for certain sizes. There are also some legal requirements which are a barrier for us. You need to have certain information available for products, such as information about food allergies etc.*" (J. Dörrich, personal communication, 13 July, 2016).

4.1.4 Incentives for mainstream food retailers

Three retailers claimed that legislation provided clear leadership regarding incentives for boosting circular economy initiatives, and that sustainable and reduced packaging could fall into the sphere of such initiatives. These retailers as well as a packaging expert from Tetra Pak claimed that a stronger focus on more sustainable raw material was however a shift that was still needed in the industry, where producers and retailers needed to focus less on the end of life, and recycling process associated with packaging, and more on efforts at earlier stages in the packaging production cycle: “*the discussion of the circular economy in Europe has landed very heavily on the end of life stage of a product. You also need to start to look at the start of life of a product, which is equally important*” (E. Lindroth, personal communication, 26 July, 2016).

In Europe and North America, four retailers claimed that the preventative approach to waste management that is promoted by zero packaging food retail was very much a part of the legislative and regulatory context in which they operated (EU Waste Hierarchy), therefore provided incentives within their contexts. Similarly, meeting waste reduction targets set both by city and municipalities, as well as by the retail super and hypermarkets for which they worked provided significant incentive for packaging reduction and elimination. Although ASDA UK was not interviewed, and empirical data collated directly from a representative of their company, the company’s detailed sustainability report outlines that due to company sustainability strategies and associated waste reduction targets (internal regulations) since 2007, internal waste reduction targets have been met, and “food packaging has reduced 27 percent by weight in the same timeframe”.

Four retailers operating in countries where Extended Producer Responsibility (EPR) regulations and associated instruments were in place, claimed that although not a process by which packaging has been eliminated, the culture of regulated re-use and re-cycling of materials was familiar to retailers and their respective consumers.

Social/Media/NGO Factors

4.1.5 Barriers for zero packaging food retailers

All retailers claimed that they saw the potential for media to create barriers to unpackaged food retail by presenting negative stories, or portraying negative slants to this form of retail. All retailers also claimed that social media in particular was a tool that easily allowed for slander and negative dialogue to be had, with little to no control over what was being said, and by whom, and this was a possible barrier for retailers. One retailer also stated that social media was a highly consumptive tool through which to promote consumption reduction, and was therefore somewhat paradoxical.

Half of the retailers claimed that it was difficult to gauge actual consumer interest in purchasing and engaging directly in unpackaged retail through social media, and that they found social media to be somewhat deceptive, “*thousands of likes on Facebook or Instagram rarely translate into similar or equal numbers of in store consumers*” (C. Conway, personal communication, June 21, 2016). Another retailer claimed social media could further marginalize this already niche form of retail by presenting extreme zero waste lifestyles in a way that mainstream consumers would automatically disassociate from this form of retail and lifestyle.

All retailers stated that there was the need to better engage and communicate between zero packaging food retailers around the world, and to develop a network or way of sharing ideas, successes, failures etc., in order to further promote and engage this form of retail globally.

4.1.6 Incentives for zero packaging food retailers

All retailers claimed that they believed there was an exponentially increasing zero waste lifestyle culture in their respective cities. This was similarly reflected in traditional (TV, print and newspaper media) as well as in social media. All retailers also stated that their media/promotional costs had been very low thus far as a result of proactive media interest in what these stores are doing, and how they function. Social media was also stated as a key tool for promotion and communication for all retailers.

Five retailers stated that engaging in social media to inform and educate consumers on how to undergo zero packaging shopping experience was a key and useful tool. Some retailers developed informational videos that were posted and heavily used on facebook and instagram and served the function of ‘normalising’ the zero packaging retail experience for consumers. Store newsletters were also a major informational/ communication tool for retailers, and dissemination of information happened at varying rates (from monthly newsletters to bi-annually newsletters).

Australian retailers benefited from wider relevant social and community movements such as “Plastic Free July”, where a wider network of consumers were engaging in reducing plastic consumption.

All retailers had benefited significantly from networks and partnerships with NGOs working in the field of consumption reduction and zero packaging. Benefits ranged from experiencing an increase in customers, to retailers who had developed ongoing and long term partnerships with NGOs working in the field.

4.1.7 Barriers for mainstream food retailers

The major barrier that retailers believed could exist from the media was if/ how the media portrayed the unpackaged shopping experience in a negative light. All mainstream food retailers were particularly concerned with the potential for media to divulge hygiene or health and safety related scandals relating to zero packaging food retail. Three mainstream food retailers were also concerned with media fixation of packaging waste, without informing the consumer about the benefits of packaging, particularly when it came to food waste reduction and preservation of food products.

4.1.8 Incentives for mainstream food retailers

All mainstream food retailers claimed that the media and social media could be useful in promoting new forms of retail, as well as in engaging consumers which can be a cumbersome and costly process for retailers.

Three had taken up initiatives to engage the community and consumers whereby re-usable designer shopping bags were sold onsite, and discounts given to consumers using these bags. One retailer in New Zealand had run a design competition for local artists to enter a competition for their work to be printed on the reusable shopping bags.

All mainstream retailers had worked closely with NGOs to promote and enhance more sustainable packaging food retail in store, and all stated they had mutually benefitted from these partnerships.

Market Factors

4.1.9 Barriers for zero packaging food retailers

All retailers stated that convenience to the consumer was a major barrier to this niche style of retail. Convenience from the perspective of higher levels of preparation, planning and engagement required from the consumer, as well as logistics and ability to carry reusable Tupperware, jars bottles etc., to and from a grocery shopping experience. Mothers with young children (a significant proportion of consumers undergoing weekly grocery trips in certain markets), were claimed to feel potentially discouraged to undergo zero packaging grocery shopping due to the inconvenience factor of having to dispensing food in store whilst looking after dependents. Three retailers discussed the issue associated with the fact that a number of these store are not “one-stop shops” whereby a customer can purchase their entire weekly grocery needs in one go, instead it is a destination store often for a portion of food stuffs.

Food allergy concerns were a barrier to some consumers since labeling on food packaging is not available in such stores, it is instead made available on gravity bins or dispensing silos. Four retailers claimed this issue.

Three retailers claimed that food hygiene was a major concern to a number of consumers who felt wary of whether unpackaged food was entirely free of human contamination, and believed that unpackaged food increased human handling rates of food.

One retailer stated that alternative food retail comprised less than 10% of the food retail market in the UK alone, with the remaining 90% being dominated by mainstream food retailers, who for the past 50 years have dedicated significant resources to marketing and communication campaigns geared towards price reduction and increased food consumption and purchasing- this has resulted in a well-established consumer culture which is focused almost entirely on securing food for the lowest possible price, and issues such as waste, organic, locally sourced food are intrinsically a lower priority for a majority of consumers- this was seen as essentially a “market force” that was acting as a barrier to alternative and zero packaging food consumption and retail (C. Conway, personal communication, June 21, 2016).

Five retailers claimed that a lack of, or small zero waste consumer culture was also repeatedly stated as a major barrier, where consumer culture change and habit change were key requirements underpinning a transition into this form of consumption. Five retailers also claimed that a few consumers were somewhat ‘wary’ of zero packaging food retail as they were not fully aware of what the process entailed, and how to engage in it.

4.1.10 Incentives for zero packaging food retailers

Market based incentives for zero packaging food retailers included an increasingly engaged, proactive and enthusiastic zero waste lifestyle movement and consumer culture. Statements such as, *“as a city as a whole Vancouver isn’t a zero packaging or zero waste city, but there definitely is a solid core group that is very engaged and interested in this lifestyle”* (B. Miller, personal communication, 8 July, 2016).

One retailer stated that they believed that there only wasn’t greater momentum in this field

because consumers hadn't yet been provided the infrastructure to live zero waste lifestyles—they were confident that once given the infrastructure, consumers would engage even further. Bulk produce and dry goods purchasing was repeatedly stated as an existing example of often “zero packaging food retail” already in existence, particularly in mainstream supermarkets, and this was seen as a stepping stone for the niche retailers, and a way in which consumers had already engaged in this form of food retail.

Supplier engagement was seen as a large incentive for retailers too, with three retailers reporting that their suppliers were passing the zero packaging message further down the supply chain, and momentum was picking up steadily.

Three retailers stated that creating clear guidelines and internal systems was key to the success of their business and waste reduction. Engaging stakeholders in these guidelines was also seen as pivotal to the practicality and success of the business. Sarah Metz from The Fillery in New York claimed that, *“I’m developing my guidelines around exactly what types of products can and can’t be sold in store...for example, if there are some accessory products sold in store that have any form of packaging, the packaging will be 100% recyclable or re-usable”* (S.Metz, personal communication, June 21, 2016).

Reducing barriers for consumers was seen as a key opportunity/incentive for all retailers; ensuring easy tarring processes, a seamless shopping experience by providing consumers with Tupperware onsite to be purchased, borrowed or taken by the consumer is one such example. Three retailers devised jar deposit refund schemes in store or a jar exchange system, whereby consumers would use a token system to exchange a token for a reusable food container with each shopping trip— thus ensuring the circulation of reusable containers, and a reduction of packaging waste.

Two retailers have established assisted shopping systems, pre-order programmes of delivery service options for zero packaging consumers, where products are all delivered in reusable containers, and discounts granted to customers returning used jars.

Enhanced consumer engagement was seen as a key factor for all zero packaging food retailers—engagement through the form of informative onsite posters, online videos on how to engage in zero packaging food retail, feedback and dialogue facilitation between customers to encourage and network as well as brainstorm around zero packaging retail were all seen as key market engagement and incentives for retailers. Three retailers developed text and newsletter reminder systems in order to remind customers to bring their reusable containers to the store.

All retailers claimed that engaging with consumers in store was also a key incentive for them, *“Education and engagement... always talking to our customers is key for us. We really want to overcome negative or discouraged mindsets that some customers have. We have a really active facebook page with a lot of information available. We’ve opened up the page for customers to share their experiences with others, share recipes and talk about what has and hasn’t worked so well for them...it’s not just us telling customers what to do... it’s about showing customers all the different permutations you can create in your own home to make the zero waste lifestyle your own, and tailor it to what works for you as a family and as an individual”* (A. Weschbiling, personal communication, 23 June, 2016).

Robust information technology systems were seen as key to the success of these retailers and ensuring a seamless customer experience. Cloud based inventory, payment and accounting systems.

Five retailers ensured that customers were drawn to the stores by ensuring high variety of products and sourcing as many zero packaged goods as possible in order to attract and retain repeat customers. Two retailers clearly stated the need for mainstream supermarkets to set up larger sections of zero packaging retail in store, and that there was a well-established demand for this. *“You can tell that the innovation departments of mainstream supermarkets are interested in this idea, but I think, at this point, it is hard for them to see how these small shop concepts would work in a large supermarket setting. We are working with Planet Organic in the UK to try and make this concept work within their chain of 6 stores... An operator in France has done a good job of franchising and setting up a small chain of unpackaged stores, but no large, dominant supermarket chains have taken up the refill issue in a large way that I can see yet”* (C. Conway, personal communication, June 21 2016).

Successful word-of-mouth divulgence of the business was a factor that all retailers stated as being pivotal to the success of their businesses.

4.1.11 Barriers for mainstream food retailers

All interviewed retailers highlighted the emphasis their respective companies placed on food waste reduction as a strategic priority. A means to achieving this was through sustainable food packaging in order to ensure the preservation of food (thus avoiding food waste) Erik Lindroth, Nordic Environmental Director of Tetra Pak stated that, *“the main aim of packaging is to protect food from the moment of production to the moment of consumption, so the biggest role that food packaging has is to make sure that all food that is produced and processed is to be made available to the consumer and that food is not spoiled along the route of distribution... therein lies the biggest environmental benefit of packaging: to avoid food waste. Packaging as such is not a product, you don't really buy the packaging, you buy the product itself... packaging in a way is a strange kind of product to sell, it's more of a service than a product”* (E. Lindroth, personal communication, 26 July, 2016).

No single retailer stated that their company had a zero packaging policy or intention to increase zero packaging portions of their supermarkets, nor did they have future plans to introduce zero packaging policies in the near future. No interviewed retailers knew of competitors who had zero packaging retail as a priority, and did therefore not feel competitive need to proactively eliminate food packaging. One retailer stated that 10% of all waste created is directly associated with food packaging, whereas over 20% of food in western world is thrown into bin, and nearly half of all food produced in thrown away- their company's emphasis was on ensuring that packaging can play a strong role is reducing food loss. Sustainable packaging was therefore at the core of packaging design and development in these retailers. A particular emphasis was placed in the need to ensure circularity/ circular economy contributions of the packaging industry as opposed to packaging elimination.

All retailers stated that reducing food packaging would result in too great an inconvenience to consumers, listing various reasons; from consumers needing to plan in advance, to being burdened with bringing refillable containers to the store, to health and safety as well as hygiene concerns associated with unpackaged food in supermarkets.

All retailers stated barriers associated with changing existing supply chain systems as being too great a barrier, with some retailers claiming they had no control over processes of private labels, and processes occurring far down the supply chain line regarding packaging.

All interviewees claimed that although there was consumer interest in reduced and zero packaging food retail, there was a strong attitude-behavior gap between what consumers said they wanted, and what they would actually purchase, so there was hesitation from retailers to

provide more unpackaged goods, with the potential of these goods not being purchased/ well received by consumers.

Two retailers expressed concern around “backlash” from zero packaging initiatives, such as the need to increase transportation frequency, cooler capacity etc. to maintain unpackaged goods and produce fresh, thus increasing the overall environmental footprint of food in store. Karin Grönskog of Axfood in Sweden state that, *“you can’t have direct transport every day from a producer to the retailer. You need to store food in warehouses for one or two days sometimes. How do you maintain the logistics chain, and still maintain products fresh? Maybe you then have to invest in coolers and silos, then potentially transport these products more frequently in cooled trucks etc., which will affect energy and the environment in a negative way, and we will still have to sell these bulk products faster than what we do now. I think these products will go bad much sooner than what they do today. The way we have developed our packaging now is to maintain products fresh and to last longer and avoid food waste.”* (K. Grönskog, personal communication, 4 July, 2016).

4.1.12 Incentives for mainstream food retailers

All retailers stated that they had received direct feedback from consumers regarding the need to reduce over packaging of certain items. Feedback was directed in store, through social media and through emails. Reducing the amount of over packaged items, and introducing a larger range of unpackaged goods could respond to these consumer demands.

All retailers had already implemented unpackaged goods (eggs, bread, baked goods, detergents, fresh produce) in store which could potentially be purchased by the consumer without any packaging- all product ranges had been well received thus far from a consumer perspective, and this therefore indicated that there is potential for this type of retail to succeed within a mainstream food retail context. Half of the retailers indicated that giving consumers alternatives was always a priority in food retail, and therefore giving consumers unpackaged alternatives and innovative ways to consumer their products was of interest to both retailers and consumers.

One retailer claimed that leading the market as a zero packaging retailer could be of interest to them, as they could demonstrate sustainability leadership in the field.

Resource Factors

4.1.13 Barriers for zero packaging food retailers

The most frequently stated resource related barrier was store location- all retailers stated that store location was pivotal to the success or failure of their business, and the availability and cost resources associated with prime store location was of key concern to all retailers. *“Location is everything for these stores. In a city like New York for example, a zero packaging store definitely needs to be close to public transportation because so many people don’t have cars...being located in a neighborhood that is near or in areas with young families, and customers that are engaged in zero waste lifestyles is key. It is important that there is a lot of foot traffic, within a fairly well established commercial area”* (S. Metz, personal communication, June 21, 2016).

Location related barriers included the need to be in close proximity to public transport (in large cities such as New York and London), or in close proximity to parking spaces in suburban communities such as Perth. Four retailers also expressed the need to be located

(preferably) in or around neighborhoods that had a strong environmental focus, or a community that was “open” to non- conventional food retail.

Six retailers expressed time and availability of reliable, well stocked zero packaging suppliers as a resource concern. The amount of time required to secure such suppliers was a cumbersome and at times risky process, and often when ideal suppliers were identified (from a zero packaging perspective), the variety of produce in particular that was available consistently could be of concern.

Financial resources associated with setting up the infrastructure in store (silos, high-tech scales, prep-benches) were also identified as a key resource issue three retailers.

In store food waste and spills associated with bulk retail was stated as a resource loss issue by one retailer, however they were clear to identify that bulk retail spillage was very rare, and unlike packaged retail spillage, only the content that was spilled needed to be discarded, whereas in packaged retail spillage, the entire pack of spilled, punctures/ contaminated food needs to be discarded of.

4.1.14 Incentives for zero packaging food retailers

Four retailers received various forms of government as well as private and industry based funding and mentorship support. One retailer in particular received mentorship assistance in the form of a business accelerator programme including specialized mentorship by a team of logistics, information systems, operational and budgeting assistance in order to establish the zero packaging business.

Four retailers claimed that they had great ease in securing high quality and reliable suppliers, particularly in environmentally focused cities such as Vancouver, and two retailers claimed that once a good supplier/retailer relationship was established, these relationships were longstanding and reliable.

Media coverage on these niche stores resulted in three retailers having very proactive and engaging suppliers approaching them, and two retailers claimed that a number of suppliers were making attempts to carry the zero packaging concept further down the supply chain. Three retailers also received high interest for labour resources resulting from high media coverage- with a number of volunteers and skilled interns showing interest in working and engaging in promoting the business.

LØS Market in Copenhagen is planning to further engage suppliers by creating a supplier acknowledgement system whereby, *“if our suppliers make efforts to eliminate packaging we will try to acknowledge their efforts... state that they are zero waste friendly... customers want visibility and to be able to choose products depending on what suppliers and retailers are doing the right thing”* (C. Leth, personal communication, 20 June, 2016).

4.1.15 Barriers for mainstream food retailers

The major resource related barrier to zero packaging food retail outlined by mainstream retailers was the issue of re-structuring current logistics and supply chains. The financial, human resource and contractual resources required to make such changes were often stated as impractical and unrealistic. In store infrastructure and logistics changes were also stated as too resource intensive too (time, financial, staff training). Resources required to increase staff and consumer engagement in a potential zero packaging food retail shift were stated as high- with

marketing and communication campaigns being needed, as well as constant staff assistance and follow up in store to ensure customers were correctly using the zero packaging systems available.

Food waste associated with spoilage and loss of unpackaged food was also stated as a resource loss and cost to retailers, and a deterrent to zero packaging food retail by five retailers.

4.1.16 Incentives for mainstream food retailers

Resource incentives for three mainstream retailers included meeting waste reduction targets and achieving strategic sustainability objectives established by the company to reduce packaging waste. Jan Dörrich of REWE group in Austria stated that, *“reducing the amount of packaging is in our strategy- not so much zero packaging though. We have many private labels in Austria, and one of our most prominent private labels is an organic brand that has clear strategies to reduce packaging and to use more sustainable packaging. It is less about zero packaging strategies, but more about reducing packaging overall, and using alternatives for packaging... specially for fruits and vegetables, only organic packaging material are increasingly placed on their agenda etc.”* (J. Döerich, personal communication, 13 July, 2016).

A reduction in cost associated with food packaging was stated as a resource incentive by two mainstream retailers, however both also stated that packaging costs were currently relatively low. Kevin Vyse of Marks and Spencer stated that the main incentive for reduced and more sustainable packaging solutions in store were, *“cost saving and doing the right thing for healthy materials and healthy factories through an optimum pack. By having proper sustainably designed principles in place integrated into packaging, you can guarantee the health of that packaging through the supply chain without having detrimental effects on the environment or the consumer.”* (K.Vyse, personal communication, July 8, 2016).

5 Analysis and Discussion of Findings

The results generated in this research both confirmed and added to the existing literature. Findings from both the literature and empirical data that were deemed valuable have been summarised and categorized in Table 5-1 for mainstream food retailer and table 5-2 for zero packaging food retailers. ‘Lessons’ from zero packaging retailers have been summarised in Table 5-3. The first part of this chapter recalls the analytical process behind categorization of data within these tables- this discussion has been recalled here in order to remind the reader of the process behind the analysis and discussion, and gives clout to answers to the research questions. The second part of this chapter analyses the content of each table (the theoretical and empirical data), and discusses the implication of these findings.

Revision of method and discussion of findings

Findings from both the literature review and the empirical data collection have been classified into a taxonomy of barriers and incentives for each of the four factors identified through the analytical framework. The taxonomy is categorised into three sections; one section titled ‘*Confirmed*’ indicates all findings stated by interviewees that confirmed findings indicated in the existing literature. The second section titled, ‘*Not Confirmed*’ indicates all findings identified in the literature, but not confirmed empirically. And finally the column titled, ‘*Additionally Identified*’ indicates all findings identified empirically that were not previously identified by the existing body of literature. One of the more significant and original contributions of this research lies in presenting these “*Additionally Identified*” factors, which are essentially fresh findings for the state-of-the-art knowledge on zero packaging food retail.

A further analysis of the collated data is presented by highlighting the key lessons’ from zero packaging food retailers. A summary of this can be found in Table 5-3. This process bridges the existing research gap and knowledge that exists in the current body of research on this subject matter (Bryman, 2012). This table also incorporates empirical data collated that sits outside of the barrier/ incentive dichotomy in order to add clout and a well-rounded perspective to the arguments developed.

The method used to select the ‘lessons’ was based on the frequency with which a barrier or incentive was mentioned by interviewed stakeholders. If a single incentive was repeatedly identified by 50% or more of zero packaging food retailers, it was deemed this was an indication that zero packaging retailers were confident this incentive was a key contributing factor to the success of this form of retail. This incentive was then identified as a ‘lesson’ to respond to a corresponding barrier identified by 50% or more of mainstream food retailers. The cut off of 50% has been chosen as a means to filter relevant data for this research. This percentage was deemed to hold a large enough representative group, whilst simultaneously being selective of not including too much/ all factors raised through the literature and empirical findings.

The three mentioned tables seek to succinctly portray the analysed results, and provide answers to the three research questions (RQs). Table 5-1 provides a response to RQ1. Table 5-2 provides a response to RQ2 and the Lessons Table 5-3 provides a response to RQ 3.

Tables 5-1 and 5-2 show hi-lighted factors. These indicate factors that have been determined as particularly relevant barriers and incentives. The process through which this determination was made is explained in detail in the following sections.

A discussion of each of the sets of findings for the respective factors outlined in the analytical framework will then be developed in the analysis section below the summary tables. Throughout the following sections, where appropriate recommendations for future research, and recommendations to audience have been hi-lighted.

5.1.1 Answer to Research Questions:

RQ 1: What are the barriers and incentives that mainstream food retailers face as food retailers in ensuring packaging waste is reduced?

The summarised taxonomy of barriers and incentives faced by zero packaging food retailers, along with the frequency that each barrier and/or incentive was relayed by each stakeholder group can be found in Table 5-1. This taxonomy presents the following information: barriers and incentives identified in the literature and confirmed by empirical evidence, additional barriers and incentives identified through empirical data, and barriers and incentives identified in the literature, but confirmed by empirical data.

RQ 2: What are the barriers and incentives that zero packaging food retailers face as food retailers in ensuring packaging waste is reduced?

The summarised taxonomy of barriers and incentives faced by zero packaging food retailers, along with the frequency that each barrier and/or incentive was relayed by each stakeholder group can be found in Table 5-2. taxonomy presents the following information: barriers and incentives identified in the literature and confirmed by empirical evidence, additional barriers and incentives identified through empirical data, and barriers and incentives identified in the literature, but confirmed by empirical data.

RQ 3: What, if any ‘lessons’ from zero packaging food retailers could mainstream supermarkets learn in order to undertake a preventative approach to packaging waste management in store?

The summarised ‘lessons’ from zero packaging food retailers that mainstream retailers could incorporate in order to undertake a preventative approach to packaging waste management in store can be found in Table 5-3. At the end of the following sections, a brief summary of each lesson is provided; 5.1.3 (Regulatory Factor Lessons), 5.1.5 (Social Factor Lessons), 5.1.7 (Market Factor Lessons) and 5.1.9 (Resource Factor Lessons).

Table 5-1: Barriers and Incentives to zero packaging food retail as identified by mainstream food retailers.

Barrier /Incentive	Confirmed*	Additionally Identified*	Not Confirmed*
Regulatory Barrier	<ul style="list-style-type: none"> • Little government leadership (7) • Lack of harmonization of international regulation (3) 	<ul style="list-style-type: none"> • Hygiene, Health & Safety (6) • Product differentiation regulation (3) • Food waste reduction as priority internal regulation/ policy (9) 	<ul style="list-style-type: none"> • Coercive regulatory instruments • International provisions of free trade acting to serve protectionist end
Regulatory Incentives	<ul style="list-style-type: none"> • Waste prevention legislation (4) 	<ul style="list-style-type: none"> • Voluntary industry agreements (2) 	<ul style="list-style-type: none"> • Voluntary industry agreements • Regulation targeted at producers • Expectation of new regulation • Packaging guidelines
Social Barrier		<ul style="list-style-type: none"> • Negative media slant/ backlash (9) 	<ul style="list-style-type: none"> • Minimal environmental loss ensured at consumer phase • Environmental backlash potential • Insufficient consumer interest and awareness
Social Incentive	<ul style="list-style-type: none"> • NGO campaigns (9) 	<ul style="list-style-type: none"> • Consumer engagement campaigns (9) • Social media engagement promotion potential (9) 	
Market Barrier	<ul style="list-style-type: none"> • Supply chain management control (or lack thereof) (9) • Global supply chain sourcing complexity (3) • Packaging as a key communication tool (9) • Packaging as a lever in consumer decision making (4) • Packaging as a differentiation tool (4) • Packaging as a protector of food (9) • Packaging as an influencer of quality and willingness to pay a premium (1) 	<ul style="list-style-type: none"> • Strategic priority of food waste reduction, which packaging facilitates (9) • No industry competition for zero packaging retail leadership (8) • Target market is too niche and high end (1) • Inconvenience to consumer (9) • Environmental backlash (2) 	<ul style="list-style-type: none"> • Lack of consumer willingness to pay price premiums
Market Incentive	<ul style="list-style-type: none"> • Significant “ethical consumer” market (7) • Sustainable retailer leadership potential (1) 	<ul style="list-style-type: none"> • Success of current unpackaged products in store (3) 	<ul style="list-style-type: none"> • Decentralisation of retailers • Avoidance of reputational damages associated with

	<ul style="list-style-type: none"> • Voluntary industry agreements (2) • Consumer demand & expectations (9) • Potential to further engage consumers (5) • Wide variety of product availability in store (9) • Potential to transfer pressure/ leadership down supply chain (2) • Strategic/ competitive advantage (2) 		<ul style="list-style-type: none"> • negative environmental performance • Third party stimulation (awards etc.)
Resource Barrier	<ul style="list-style-type: none"> • Financial limitations to change supply chain systems (9) • Long-term reliable product supply (4) 	<ul style="list-style-type: none"> • In store infrastructure and logistics (6) • HR/ staff increases for consumer engagement in store (5) • Food waste increase (5) 	<ul style="list-style-type: none"> • Lack of knowledge & expertise
Resource Incentive	<ul style="list-style-type: none"> • Eco-efficiency improvements & associated cost savings (2) • Consumer demand for resource efficiency (5) 	<ul style="list-style-type: none"> • Meeting waste reduction targets (5) 	<ul style="list-style-type: none"> • Stakeholder demands for increasing financial returns via resource use reduction • Pooling of resources, knowledge and collaboration amongst retail industry • Improved staff morale and staff retention/work place pride

* Numbers in brackets indicates frequency with which the listed drivers and barriers have been confirmed through the interviews. This table provides the response to RQ1.

Table 5-2: Barriers and Incentives to zero packaging food retail as identified by zero packaging food retailers.

Barrier / Incentive	Confirmed*	Additionally identified*	Not Confirmed*
Regulatory Barrier	<ul style="list-style-type: none"> • Little government leadership (7) • Lack of harmonization of international regulation (1) 	<ul style="list-style-type: none"> • Time impingement (5) • Health/hygiene/food safety requirements (not strictly a barrier, but required effort from retailer) (5) • Insurance (1) 	<ul style="list-style-type: none"> • Coercive regulatory instruments • International provisions of free trade acting to serve protectionist ends
Regulatory Incentives	<ul style="list-style-type: none"> • Waste prevention legislation (2) • Regulation targeted at producers (2) • Expectation of new regulation (4) • Packaging guidelines (3) 	<ul style="list-style-type: none"> • Zero Waste City/mayoral targets & legislation (2) • Tax breaks & rebates (4) • Personalised assistance/facilitation from regulatory bodies (5) 	<ul style="list-style-type: none"> • Voluntary industry agreements
Social Barrier	<ul style="list-style-type: none"> • Insufficient consumer interest and awareness (5) • Environmental backlash potential (1) 	<ul style="list-style-type: none"> • Negative media slant/ backlash (7) • Attitude-behaviour gap in social media/ reality (4) • Marginalization potential of social media (1) 	<ul style="list-style-type: none"> • Minimal environmental loss ensured at consumer phase
Social Incentive	<ul style="list-style-type: none"> • NGO campaigns (7) 	<ul style="list-style-type: none"> • Potential for official unpackaged global network (7) • Social media engagement (5) 	
Market Barrier	<ul style="list-style-type: none"> • Supply chain management control (or lack thereof) (7) • Global supply chain sourcing complexity (5) • Lack of consumer willingness to pay price premiums (3) • Packaging as a key communication tool (4) 	<ul style="list-style-type: none"> • Inconvenience to consumer (7) • Supermarket operating hour competition (2) • Niche zero waste consumer culture (small scale) (5) 	<ul style="list-style-type: none"> • Packaging as a lever in consumer decision making • Packaging as a differentiation tool • Packaging as a protector of food • Packaging as an influencer of quality and willingness to pay a premium
Market Incentive	<ul style="list-style-type: none"> • Significant “ethical consumer” market (7) • Avoidance of reputational damages associated with negative environmental performance (7) • Sustainable retailer leadership potential (7) • Voluntary industry agreements (5) • Third party stimulation (awards etc.) (3) • Consumer demand & expectations (7) 	<ul style="list-style-type: none"> • Leadership in zero packaging food retail potential (1) • Devising internal guidelines (3) • Reducing barriers for consumers (3) • Assisted shopping services (2) • Home delivery services (1) • Robust Information Services Systems in store (3) • Family friendly shopping infrastructure (2) • Word of mouth divulgence of store (7) 	<ul style="list-style-type: none"> • Decentralisation of retailers

	<ul style="list-style-type: none"> • Potential to further engage consumers (7) • Wide variety of product availability in store (6) • Potential to transfer pressure/ leadership down supply chain (2) • Strategic/ competitive advantage (2) 	<ul style="list-style-type: none"> • Unpackaged potential for mainstream retailers (2) 	
Resource Barrier	<ul style="list-style-type: none"> • Financial limitations to change supply chain systems (7) • Long-term reliable product supply (3) 	<ul style="list-style-type: none"> • Store location and affordability (7) • Time and transportation of cumbersome products (6) • In store waste and spillage (1) 	<ul style="list-style-type: none"> • Lack of knowledge & expertise
Resource Incentive	<ul style="list-style-type: none"> • Eco-efficiency improvements & associated cost savings (7) • Consumer demand for resource efficiency (5) 	<ul style="list-style-type: none"> • Mentorship and award funding (4) • Ease of securing products (4) • Free media coverage and promotion (7) • Abundance of qualified labour resources/interns (3) 	<ul style="list-style-type: none"> • Stakeholder demands for increasing financial returns via resource use reduction • Pooling of resources, knowledge and collaboration amongst retail industry • Improved staff morale and staff retention/work place pride

* Numbers in brackets indicates frequency with which the listed drivers and barriers have been confirmed through the interviews. This table provides the response to RQ2.

Table 5-3: Summary of Lessons drawn from zero packaging food retailers.

Analytical framework factor	Barrier identified by mainstream retailer*	“Lesson” from zero packaging retailer*
Regulatory	Little government leadership (80%)	<ul style="list-style-type: none"> Personalised assistance / facilitation from regulatory bodies (70%) Significant “ethical consumer” market (100%) Consumer demands and expectations (100%) Consumer demand for resource efficiency (70%)
	Hygiene, Health & Safety (70%)	<ul style="list-style-type: none"> Expectation of new regulation (60%) Sustainable retailer leadership potential (100%)
	Food waste reduction as priority internal regulation/policy (100%)	<ul style="list-style-type: none"> Consumer demand & expectations (100%) Sustainable retailer leadership potential (100%) <p>Actual reported food waste by zero packaging food retailers is low- only 14% of retailers reported this is a real barrier.</p>
Social	Negative media slant/ backlash (100%)	<ul style="list-style-type: none"> Free media coverage and promotion (100%) Social media engagement (70%) <p>No actual negative media slant/ backlash yet reported by either groups of retailers</p>
Market	Supply chain management control (or lack thereof) (100%)	<ul style="list-style-type: none"> Voluntary industry agreements (70%) NGO campaigns & partnerships (100%) Expectation of new regulation (60%)
	Packaging as key communication tool (100%)	<ul style="list-style-type: none"> NGO campaigns & partnerships (100%) Social media engagement (70%) <p>Labeling on silos in store and through communication campaigns in store- enhanced consumer engagement. Potential for regulation and legislation to improve in this regard</p>
	Packaging as food protector (100%)	<ul style="list-style-type: none"> Avoidance of reputational damage associated with negative environmental performance (100%) <p>Use of product specific silos and gravity bins</p> <p>Actual reported food waste by zero packaging food retailers is low- only 14% of retailers reported this is a real barrier.</p>
Resource	Financial limitations to change supply chain systems (100%)	<ul style="list-style-type: none"> Eco-efficiency improvements and associated cost savings (100%) Sustainable retailer leadership potential (100%) Voluntary industry agreements (70%)

* Percentages in brackets equates to portion of retailers that claimed the respective barrier and or incentive/ lesson for the respective retailer group. *This table provides the response to RQ3.*

Discussion of results

This discussion will firstly cover findings more generally, a section that discusses “*New and Confirmed Factors*” will then be presented, and finally an analysis and discussion of findings in accordance to all four factors as identified through the analytical framework will be developed. At the end of each of the four factor groups, an analysis and discussion of the lessons identified will be presented in a text box.

Current research and literature on sustainable food retail yielded findings that focused primarily on higher level aspects of food retail such as strategic decision making, supply chain management and policy. As reviewed previously, there is limited contemporary peer reviewed literature available on niche zero packaging food retail available. The majority of contemporary literature on this subject can be found only through grey literature, most of which is less than two years old. Due to the abovementioned reality, this study therefore deferred to referencing available literature that was deemed most closely relevant and related to the subject matter. These studies were deemed relevant not because they addressed the intricacies of zero packaging food retail, but because they dealt in one way or another with sustainable food retail, and outlined the complexities as well as opportunities associated with more environmentally and socially conscious forms of food retail. These works were thus identified as seminal.

The literature alone was not sufficient to answer the research questions posed, it did however provide a guidance for developing the basis of the empirical findings (more explicitly the interview guide), and was useful in identifying the research/knowledge gap. The analytical framework that underpinned the entire research was also sourced from the literature, and comprised the entire thread of this research. The empirical findings were of greatest value to this research, and are also the greatest contribution of this work to the greater body of knowledge on both sustainable food retail, and zero packaging food retail. The empirical findings, and particularly the analysis of the empirical findings in relation to the theoretical knowledge (presented in Tables 5-1, 5-2 and 5-3), present original knowledge and contributed to an existing gap in the current academic as well as grey literature on the subject of zero/unpackaged food retail.

The results were highly reliant of the chosen method (which will be scrutinized in the last section of this chapter). It can however be argued that other methods would have yielded similar results, due to the fact that an objective and relatively straight forward research process was deployed in this study, where high stakeholder feedback was sought, and a mixed methods approach that sought to yield accurate results was selected. It can be confidently stated that the selected analytical framework and method deployed yielded accurate and true results.

As anticipated, the results generated both expected and unexpected findings. It was anticipated that there would be a discrepancy between barriers and incentives identified for all factor groups. It can be claimed that the Market Factors pose the greatest set of barriers for mainstream retailers to incorporating zero packaging food retail as a preventative approach to retail waste management. This was the factor group that generated the most barriers through both the empirical and theoretical data collection process, yielding a total of 7 confirmed boundaries, 5 additionally identified barriers and 1 barrier that was identified through the

literature, but not confirmed through empirical findings. This was also the factor group that subsequently generated the most incentives for mainstream retailers; 8 incentives were confirmed in both literature and empirical findings, 1 incentive was additionally identified and 3 incentives were identified in the literature, but not confirmed empirically.

Recalling the analytical framework selected, these findings may have been yielded due to the fact that “Market Factors” encompassed a broader range of data, and captured a wider range of findings relating to “*customer, competitor, industrial association, and service-provider pressure. They include demands, competition, and norms set by these market actors*” (Chkanikova and Mont, 2012). Other factors groups such as Social Factors, which yielded the least number of barriers and incentives (only 4 barriers were confirmed in total for example, 3 of which were identified in the literature, but not confirmed through empirical data) captured a narrower range of data relating to, “*society, NGO, media and academia*” (Chkanikova and Mont, 2012).

Recommendation to target audience: based on these findings, it can be claimed that in order to catalyse zero packaging as a preventative waste management approach in food retail, addressing Market Factor barriers should be a priority, as this group poses the greatest barrier to this form of preventative waste management. This potentially indicates that the greatest amount of resources, both financial, know-how and time may possibly be required to address this set of barriers.

Similarly, unanimous barriers were identified in factor groups such as “*Little government leadership*”. 100% of all retailers interviewed agreed upon this factor. At times a number of findings such as the “*validity or usefulness of social media in engaging stakeholders*” generated mixed views and reviews from interviewees. This research brought to light a number of potentially contentious realities of the sustainability priorities of the current food retail sector. One such example is that 100% of interviewed mainstream food retailers regarded food waste reduction as a top sustainability priority in their companies. This was reflected in high level steering documents such as strategic plans, policies and often had stretch targets associated with these policies and objectives. Food packaging was often a tool used to facilitate food waste reduction, and therefore meant that any suggestions or indications that packaging should be reduced, would undermine existing policies, strategies and objectives. The below recommendation is made to address this particular finding.

Recommendations for future research: determine the implications for existing sustainability strategies focused around food waste reduction in current mainstream food retailers, if food packaging were to be reduced?

Confirmed and New factors

The empirical findings collated via interviews with zero packaging retail stakeholders confirmed the majority, 70% of incentives and barriers to zero packaging food retail accounted for in the literature. 30% of incentives and barriers remained unconfirmed, and an additional 31 new factors that had previously not been identified through the existing literature were presented.

Mainstream food retail stakeholders on the other hand confirmed approximately 60% of incentives and barriers to zero packaging food retail accounted for in the literature. 40% of incentives and barriers were unconfirmed from this interviewee group, and an additional 17

new factors that had previously not been identified through the existing literature were identified.

The below sections break down the analysis of findings, and discusses these in accordance to their respective factor group based the barriers and incentives dichotomy, as outlined through the analytical framework. At the end of each factor group, a where Lessons from zero packaging food retailers have been posed and discussed.

Regulatory Factors

5.1.2 Regulatory Barriers for zero packaging and mainstream food retailers:

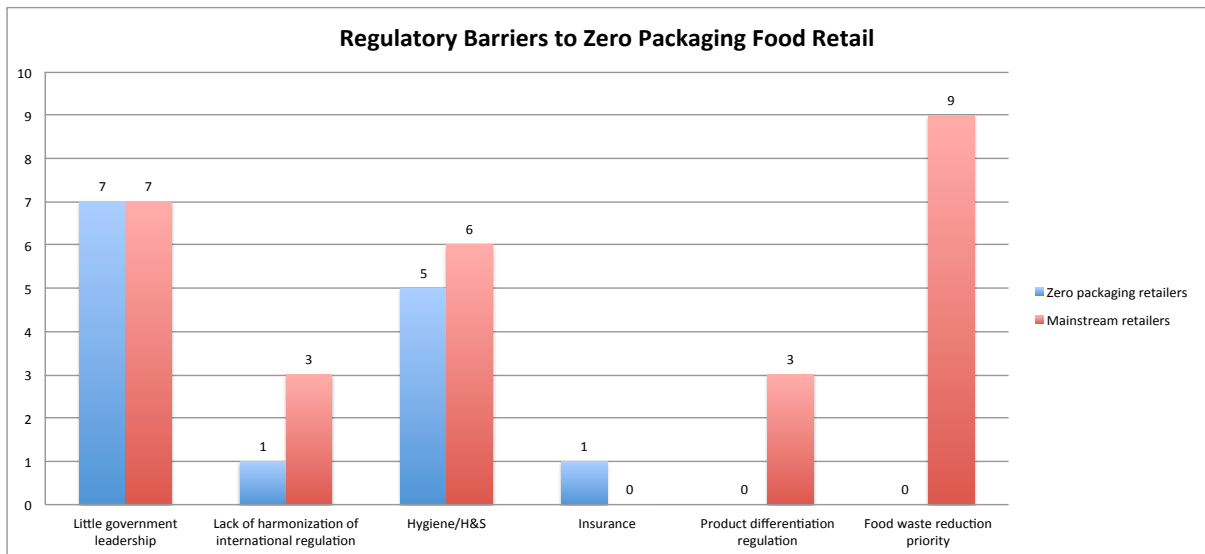


Figure 5-1: Regulatory barriers to zero packaging food retail as identified by mainstream food retailers.

The most frequently stated/ significant barrier was that of “Little government leadership” (a factor claimed by 100% of zero packaging retailers, and just under 80% of mainstream food retailers) see Figure 5-1. Governmental initiatives to support zero packaging food retail to overcome identified barriers such as lack of power over suppliers and lack of resources to engage with suppliers to improve their sustainability performance, indicates that in some cases retailers possess limited capability to influence the sustainability of supplier practices (Chkanikova and Mont, 2012). It has become clear through both the literature and empirical findings that retailers are seeking proactive guidance from national and global governments, as well as structured and facilitated multi-stakeholder dialogue to allow for the catalysation of unpackaged food provision on a mainstream scale, if this is a waste management method that is to be pursued. At present, there is very little stimulation or incentive from governments around the world to push this.

The most significant barrier to this form of retail that only mainstream food retailers identified related to internal company/ corporate policy that dictated that food waste reduction was a key waste management priority in store, and food packaging was a tool used to facilitate food waste, due to its food preservation and protection qualities. All interviewed mainstream food

retailers had strategic objectives with associated targets to reduce food waste associated with food waste minimization. A key barrier to introducing zero packaging goods would therefore be the undermining of food waste reduction efforts in store. The literature suggested that

With such findings, it could therefore be claimed that if government leadership were to provide retailers with more proactive legislation and regulation, a more engaged food retail industry would respond to such requirements, and boost zero packaging food retail. The greatest internal barrier however, is still current company and corporate strategic objectives that place food waste prevention as an industry priority. With food packaging acting as a significant tool to food waste prevention, even if government regulation and legislation were to be proactive address packaging reduction and packaging prevention waste management, this would still conflict with food waste reduction goals.

5.1.3 Regulatory Incentives for zero packaging and mainstream food retailers:

With 22% of all interviewees claiming “*Waste Prevention Legislation*”, was a regulatory incentive, this was the most frequently stated incentive in this category. Other incentives such as “*Expectation of new regulation*” where zero packaging food retailers in particular developed stringent zero packaging store policies in an attempt to proactively position themselves ahead of future regulation and legislation in this field, was another such stated incentive. Retailers receiving “*Tax breaks and rebates*” due to their proactive environmental store models was another such regulatory incentive primarily for zero packaging food retailers.

In summary, it is possible to claim that mainstream food retailers perceived less regulatory incentives (only two in total) than zero packaging food retailers, who identified seven different regulatory incentives. This is potentially due to mainstream retailers not yet having actively engaged in this form of retail, having less practical experience with this form of retail, and are thus not fully aware of both the regulatory barriers and incentives.

Regulatory Factor Lessons for mainstream food retailers:

“Food waste reduction as priority internal regulation/policy”, although a key regulatory barrier for 100% of mainstream retailers, will be addressed under the Resource Lessons section below.

“Little government leadership”, can be addressed, at least partially through the following four zero packaging retailer incentives; “*Personalised assistance / facilitation from regulatory bodies*”, “*Significant “ethical consumer” market*,” “*Consumer demands and expectations*” and “*Consumer demand for resource efficiency*”. It is important to note that the scope of this barrier, is one that falls somewhat outside of the sphere of both mainstream and zero packaging retailers directly (it depends on a third party, be it government/administrative authorities, to progress), however the above four incentives could be useful in assisting mainstream retailers to overcome this barrier, as has been the case for zero packaging food retailers.

Zero packaging retailers claimed that receiving “*Personalized assistance from regulatory bodies*” allowed them to clarify questions and obstacles specific to their form of retail. Claims such as, “*Our local [government] contact has been really helpful in clarifying all of our doubts. It can be time consuming because they often don’t have direct answers, so need to ask for help themselves, but this has meant we have had a really good working relationship*” (B. Miller, personal communication, 8 July, 2016), indicate that zero packaging retailers have been able to successfully establish shop with this

form of assistance- although potentially an intermediary form of assistance for retailers, until if/ when zero packaging retail becomes further normalized.

The presence of a, “*Significant “ethical consumer” market*”, “*Consumer demands and expectations*” and “*Consumer demand for resource efficiency*” has meant that regardless of the, “*little government leadership*” in this field, there has been a steadily increasing presence of zero packaging food stores around the world. This indicates that irrespective of government support, the market has to an extent dictated that there is a demand for this retail. This is a factor that mainstream food retailers could capitalize upon more proactively.

“**Hygiene, Health and Safety**” was another key barrier for mainstream food retailers. Issues associated with consumers coming into physical contact with unpackaged food products meant that 70% of mainstream food retailers were weary of unpackaged food retail. Zero packaging food retailers have ensured that this barrier has been minimized and addressed often being driven by incentives such as, “*Expectation of new regulation*” and “*Sustainable retailer leadership potential*”. All zero packaging food retailers brought to light the fact that mainstream supermarkets already had sections of “unpackaged” products; primarily fruit, vegetables, nuts, cereals and candy in store. Both the in-store infrastructure and logistics were often already in place in mainstream markets. Larger sections of unpackaged food retail would only need to be an extension of this existing infrastructure. Mainstream retailers could overcome, or at least limit the perceived barrier of hygiene, through a number of methods; by devising progressive consumer communication campaigns focusing on communicating the fact that product quality is unaffected when over packaging is eliminated, and stressing the benefits for the product's other attributes such as convenience, price, environmental friendliness are equally as valuable information to both retailers and consumers alike (Monnt *et al.*, 2014). Such communication should take place both in store as well as through social media, traditional media etc. All zero packaging food retailers were also clear in stating that this barrier was, for them, more often less of a barrier, but a technical procedure and requirement of operating in the food provision sector. Additionally, both in the recent literature, and empirical findings, it was indicated that over packaging can be legitimately eliminated without affecting the perceived quality of a product. Such studies provide a counterargument to consumer and retailer beliefs that increased packaging is required for health, hygiene and food safety reasons (Monnt *et al.*, 2014).

Recommendation to target audience: It is clear through both empirical and theoretical data, that collective action as an industry has the potential to yield more effective results than does atomized action. Mainstream retailers should thus seek collective regulatory leadership and legislative guidance from relevant authorities and government. Another lesson is to devise a voluntary, industry wide stance that is reflected in mainstream food retailer’s overarching guiding documents such as strategic plans and associated policies. A similar approach should be taken towards ensuring/ defining whose role it is to educate consumers on unpackaged food consumption.

Social Factors

5.1.4 Social Barriers for zero packaging and mainstream food retailers:

Neither in the literature, nor empirical data, did social barriers arise as a significant factor group. Mainstream food retailers, did not confirm any barriers presented in the literature, and only identified the additional barrier of “*Negative media slant/ backlash*”. This barrier was however stated by 100% of mainstream stakeholders interviewed (see Figure 5-2 below). Zero packaging retailers on the other hand claim that social barriers such as, “*Insufficient consumer interest and awareness*” (claimed by 70% of zero packaging retailers) existed. This group of retailers also identified the attitude–behavior gap that exists between social media consumer engagement and real consumer engagement/purchasing decisions and habits as a social barrier to zero packaging food retail. The inconsistency between social barrier concerns between zero packaging retailers and mainstream retailers is a possible reflection of the reality where zero packaging food retailers interviewed, may have had more personal and direct engagement/contact with their consumers, when compared to packaging developers and sustainability manager interviewed who represented mainstream retail stakeholders.

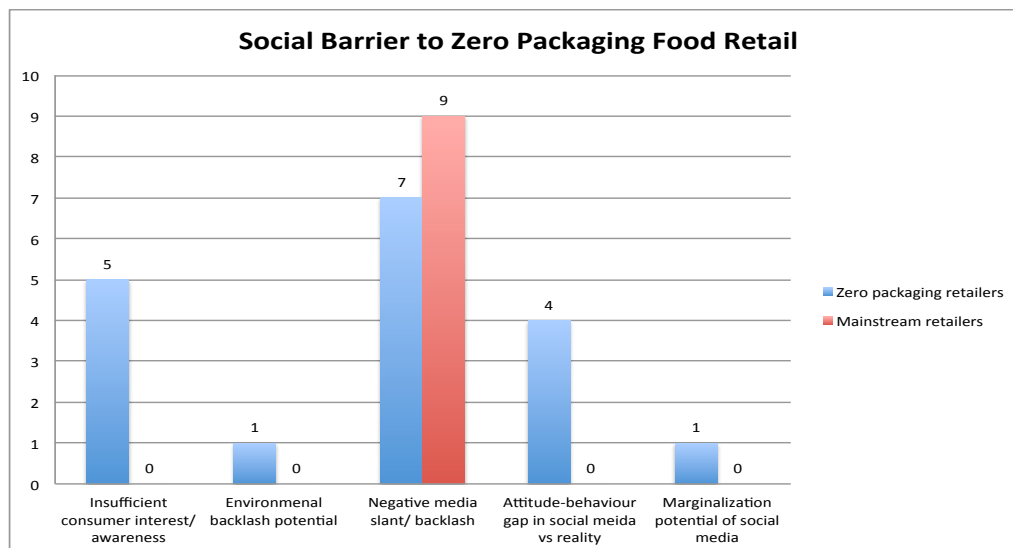


Figure 5-2: Social barriers to zero packaging food retail as identified by zero packaging and mainstream food retailers.

5.1.5 Social Incentives for zero packaging and mainstream food retailers:

There was a single clear social incentive, “*NGO campaigns*” that was reiterated in the literature and confirmed empirically by 100% of both zero packaging as well as mainstream food retailers. Equal emphasis/ importance was given to “*Consumer engagement campaigns*” and “*Social media engagement promotion potential*” by mainstream food retailers.

Overall, both groups of retailers felt that there were more social incentive factors than barriers to this form of food retail.

Social Factor Lessons for mainstream food retailers:

“*Negative media slant/backlash*” was the single most frequently stated barrier, claimed by all mainstream retailers. Although all zero packaging retailers also claimed this as a potential barrier, none had yet experienced and negative media attention to date, but all were weary that

there was the potential for this to happen, and that this could somewhat be outside of their sphere of control or influence.

In fact, 100 percent of zero packaging retailers benefited from free media coverage, promotion and divulgence of unpackaged retail, and 70% stated that strong potential for the industry to further leverage and benefit from social media engagement existed. Two zero packaging retailers stated that it was pivotal to proactively engage in both social as well as mainstream media, and to use this form of coverage and communication to engage and educate the general public and potential consumers on the benefits of unpackaged food retail. Four unpackaged retailers used social media as a means of normalising the unpackaged food shopping experience, posting videos on how to prepare and undergo this form of food retail, and recommended this as a tool for mainstream retailers to better and further leverage this form of retail. One mainstream retailer was leveraging social media to run community engagement campaigns and run design competitions for re-usable in store shopping bags.

Market Factors

5.1.6 Market Barriers for zero packaging and mainstream food retailers:

As can be seen through Figure 5-3 below, market barriers comprised the greatest number of identified barriers for both mainstream and zero packaging food retailers. A total of 4 barriers confirmed literature findings, and 3 were additionally identified by zero packaging food retailers. Mainstream food retailers on the other hand confirmed 7 barriers stated through the literature, and stated an additional 5 barriers.

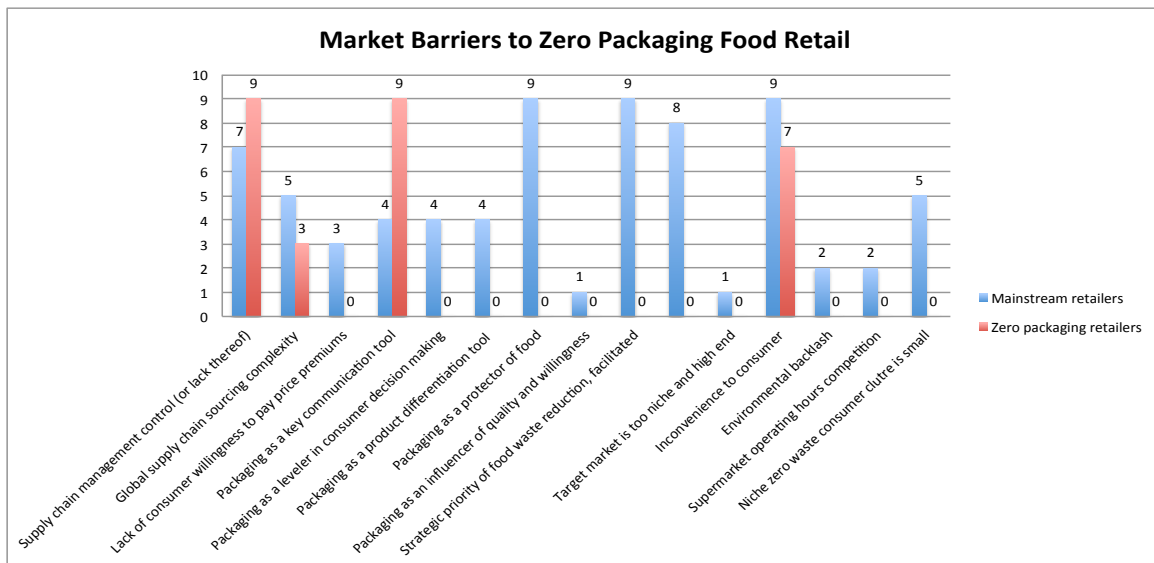


Figure 5-3: Market barriers to zero packaging food retail as identified by zero packaging and mainstream food retailers.

Identified barriers stated both in the literature and further confirmed by mainstream food retailers, as well as packaging industry experts, such as; “Packaging as a differentiation tool”, “Packaging as a food protector”, “Packaging as a key communication tool”, “Packaging as an influencer of quality and willingness to pay a premium” and “Packaging as a lever in consumer decision making” all

indicate a propensity in the mainstream food retail sector to identify packaging as a key “service” or “product” that is essential to the integrity and sell ability of food products. The fact that zero packaging food retailers held a somewhat differing perspective to that of mainstream food retailers, placing significantly less emphasis on the importance of packaging, (e.g. no zero packaging retailers identified packaging as essential as an *“Influencer of quality and willingness to pay a premium”* for food products) indicates that there is potentially less tangible importance and significance to packaging in this regard than is believed to be held by the mainstream food retailers. It is important to acknowledge that this could potentially hold true for the niche zero packaging food market only, and to a lesser degree to the general food buyer. This debate also falls outside the scope of this thesis, and will thus not be elaborated upon in much detail

It is clear that regardless of other surrounding incentives and barriers to unpackaged retail, be it regulatory, social, resource based or market based factors, the fact that zero packaging food retail poses what could be claimed as a degree of *“Inconvenience to the consumer”* is undeniable. There is therefore a need for the consumer to be willing to tolerate this inconvenience- a factor that is further out of reach or control for the retailer to influence. This is potentially where the argument of consumer education comes into play, as well as who should or could fund this form of consumer engagement. More information on this claim will be elaborated on in the recommendations section of this research.

5.1.7 Market Incentives for zero packaging and mainstream food retailers:

A number of consumer based market aspects such as, *“Word of mouth divulgence of store”*, *“Potential to further engage consumer”*, *“Significant ‘ethical consumer’ market”* and *“Consumer demand and expectations”*, have propelled retailer confidence in zero packaging food retail. The latter two incentives have been identified by 100% of both zero packaging and mainstream food retailers. Other identified incentives such as, *“Success of current unpackaged products in store”* indicates further potential for growth in this form of retail.

Market Factor Lessons for mainstream food retailers:

“Supply chain management control (or lack thereof)” was one identified barrier that will be further elaborated upon in the resource lessons section of this chapter.

“Packaging as a key communication tool” was a barrier that concerned 100% of mainstream retailers. As stated in the literature, packaging has for decades been used as a marketing and communication tool to sell food products, engage and communicate with the consumer. Removing this communication tool is perceived as detrimental by retailers. Zero packaging retailers have overcome this barrier on a practical level by placing labels on silos in store, and engaging and communicating with customers as much as possible during the retail experience. 5 of the 7 interviewed retailers developed in store communication campaigns whereby they provided educational posters and videos for customers to engage with and better understand the zero packaging food experience, as well as to gain information on the content of their food. There was clear indication by zero packaging retailers that NGO campaigns and partnerships could further push and increase customer awareness of different and new communication and food labeling alternatives in store, where retailers would meet legal and regulatory requirements regarding food content information and communication, whilst not placing this information solely on packaged and over packaged goods.

There was also much emphasis from zero packaging retailers on the benefits of using social media to both upload videos and images to communicate with consumers, and as an alternative to packaging based communication. This form of “communication” is already being used by mainstream retailers/ products, via QR code scanning etc.

“Packaging as a food protector” was also identified as a key barrier to unpackaged food retail. Unpackaged retailers reported that actual food loss and waste in store was low, and only one retailer mentioned food waste in the interviews. This stakeholder group clearly claimed that food waste was not an issue, and that perceived waste was higher than actual waste issues. Measures such as assisted shopping, where retailers filled customer’s containers in advance, or home delivery services were an added service, with an associated price premium that a few retailers offered, but also claimed that this further reduced the waste potential of customer food handling in store (which was already a low and negligible issue).

Recommendation to target audience: It is important to acknowledge that packaging acts as a protector and at times enables the longevity of certain products. It is also essential to state that where packaging is vital, it is unavoidable, but it is key to carefully determine what is considered “vital” packaging and what is frivolous over packaging. French retailer, Leclerc (as indicated in the literature), has devised a similar approach, and could be used as somewhat of a benchmark/ guide in the industry (Monnt *et al.*, 2014). It is suggested that packaging for the sake of enhancing product "perceived quality" and marketing can certainly be reduced with little or no significant effect on the product itself.

Resource Factors

5.1.8 Resource Barriers for zero packaging and mainstream food retailers:

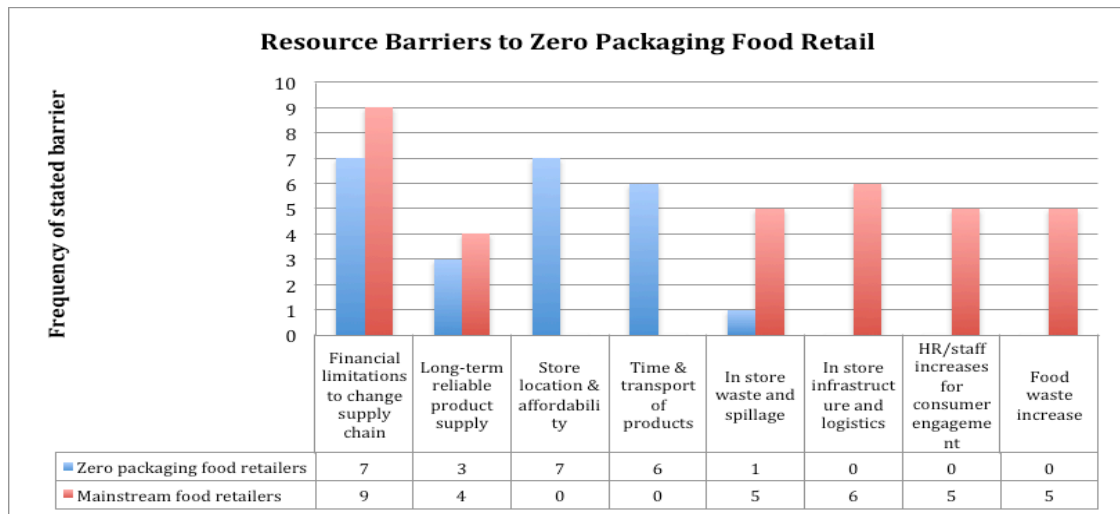


Figure 5-4: Resource barriers to zero packaging food retail as identified by mainstream food retailers.

As can be seen in Figure 5-4, the greatest resource barrier as identified by both sets of retailers related to economic or financial barriers; “Financial limitations to change supply chain systems”. Empirical evidence suggested that “making modifications both in store as well as further down our

supply chain would be very complex. This requires not only economic backing, but also the ability to influence producers, transporters and many stakeholders who we may not always have influence over directly" (J.Doërich, personal communication, 13 July, 2016).

Another barrier identified by both groups retailers groups was, "*Long-term reliable product supply*". The accuracy of this identified barrier is however uncertain, as approximately 60% of zero packaging retailers stated that, "*Ease of securing products*" was a main incentive to zero packaging food retail, and 80% of mainstream retailers did not spontaneously make this claim.

"*Time and transportation of cumbersome products*" was an identified resource barrier by 85% of zero packaging retailers who had experience in the logistics and transportation. This is a potentially unexpected barrier for mainstream food retailers who have not yet engaged in unpackaged food retail. Mainstream retailers (70%) on the other hand were concerned with issues such as "*In store infrastructure and logistics*". Concerns around the resources required to re-structure, refurbish and re-allocate staff in store to allow for zero packaging food retail drove such concerns.

Over 55% of mainstream retailers claimed "*Food waste increase*" as a barrier. It is however evident that in reality, again, this may not be so hefty a barrier to zero packaging food retail-with only 14% of zero packaging food retailers stating, "*In store waste and spillage*" as a barrier. The "Lessons" section below will elaborate on this barrier perception gap in more detail.

5.1.9 Resource Incentives for zero packaging and mainstream food retailers:

Zero packaging retailers identified twice as many resource incentives compared to mainstream retailers. As per the literature, both retail groups confirmed, "*Eco-efficiency improvements and associated cost savings*" were drivers to unpackaged food retail. Also clear through both literature and empirical data, was that a level of consumer engagement exists in the issue of zero packaging food retail, with 55% of mainstream food retailers and 70% of zero packaging retailers having confirmed that there is a clear "*Consumer demand for resource efficiency*" that is driving a progression of zero packaging food retailers. Such claims act as an incentive to all factor groups identified in the analytical framework.

Resource Factor Lessons for mainstream food retailers:

"Food waste reduction as priority internal regulation/policy": There appears to be somewhat of a gap between perceived food waste issues associated with unpackaged products and real food waste generated. Through both the literature as well as empirical data, it is clear that there are certain perishable products, particularly select fresh fruit and vegetables that have reduced life expectancies when unpackaged (Vyse, 2016). A discrepancy however exists in the perceived scale of this issue. 55% of mainstream retailers had concerns about increased food waste associated with unpackaged retail. 100% of these retailers also have food waste reduction strategic priorities, which are currently facilitated by food packaging policy.

There is therefore a clear adversity in mainstream food retail to reducing food packaging, which is perceived to have the potential to undermine food waste reduction efforts in the industry. In reality however, of the zero packaging food retailers who have worked with unpackaged products continuously, only one retailer stated that food waste and spillage was a resource issue (Welschbilling, 2016). The retailer was also clearly stated that although food waste and spillage does occur in store, it is not a major barrier; "*We have the odd spill, sometimes*

when customers are emptying food into their containers, or the cleaners aren't fully aware of how to use the silo taps. The good thing about our infrastructure in-store, is that unlike in a supermarket, if there is a 500gram spill of rice, we just throw away the food that has physically been spilled on the floor- we don't need to throw away a full 10kg bag of rice if there is a tare in it, like you would need to do in a supermarket. Food waste really hasn't been a big barrier for us at all" (A.Weschbilling, personal communication, 23 June, 2016). Such statements indicate that the real in-store waste barrier may be somewhat less exacerbated than is currently perceived by the food retail industry.

“Financial limitations to change supply chain systems” was another unanimous resource barrier identified by all mainstream retailers. The main lesson that zero packaging retailers identified was the ability to capitalize on *“eco-efficiency improvements”* as well as to enter *“voluntary industry agreements”*. Undergoing such approaches could ensure that streamlining and changing supply chain systems to maximize eco-efficiency improvements collectively, as well as by pooling resources in compatible ways could potentially reduce financial burdens of individual retailers attempting to single-handedly change supply chains. Agreements like the Courtauld Agreement in the UK have proven to be successful ways of both pooling industry leadership potential, know-how and lobbying for supply chain changes in the packaging/ plastics industry collectively. Voluntary signatories of the Courtauld commitment have received guidance on how to transition into *“sustainable retail”* and reduce/ improve packaging efficiency and reap the benefits of doing so. This was an agreement between mainstream retailers, and extending, or using such agreements as models for devising other such agreements exists.

There is potential for retailers to gain media exposure/ coverage and for their stores to benefit from being *“sustainable retail leaders”* in their respective fields if changes are executed well, and environmental impacts are successfully reduced. The fact that there is *“Clear consumer demand and interest”* in reduced packaging, as indicated by 100% of retailers interviewed in this research, as well as existing literature, as also a claim that can act as an incentive to resource barriers (as well as all other barriers identified in this study).

Discussion of Method and Recommendations

This section endeavors to critically analyse and discuss the methodological and analytical choices deployed in this study, as well as to provide reflections to audience. At the end of each of the following respective sections, where relevant, recommendations for future research have been indicated.

Methodological and analytical choices

5.1.10 Choice of subject matter:

As previously reiterated, a limited body of peer-reviewed research on the particular focus area of this study existed. As a result of this, a clear research gap was identified, which was a key motivating factor behind perusing this study, and endeavoring to add value to the existing body of knowledge. This however, also meant that the possibility of heavily relying on secondary and academic sources to fully address the research questions, aim and objectives of the was eliminated. This can be seen as a positive impact on the research in that most and any

relevant and rich empirical data collated can be seen as a contribution to the body of knowledge. Additionally, due to the recent rise of zero packaging food retailers around the world, choosing to better understand, or “take stock” of the current state of this form of retail is arguably timely and useful to the identified audience.

5.1.11 Research Aim and Research Questions:

Having proceeded through the entire research process, it can be confirmed that the research questions were both legitimate and useful not only in bridging the existing knowledge gap and ‘taking stock’ of what the current zero packaging food sector is doing, but also in adequately framing the research in order to meet its objectives and stated aims.

The below text box recalls the study’s stated aim and objectives. In brackets it is indicated where the respective information is located in the research that corresponds/ addresses each aim and objective. This has been done in an attempt to clearly indicate how the respective sections of the research directly address these:

Aim:

- 1) To identify characteristics/factors of zero and reduced packaging food stores that have resulted in packaging waste reduction (*summarised in Tables 5-1 and 5-2*)
- 2) To identify which of these characteristics/factors could be integrated into mainstream food retail in order to overcome existing barriers to mainstream unpackaged food retail (*summarised in Table 5-3, as well as in the “lessons sections” of the Analysis chapter*)

The selected research questions, which have directly been addressed in the Analysis chapter are arguably also adequate and provided a seamless and logical research to be developed around responding to them. It is of course important to acknowledge that the particular questions devised, guided the research in a very specific direction, and yielded very specific results. Phrasing them differently could have yielded yet another set of results, or the research could have taken yet another direction.

Recommendations for future research: It would be recommended that any future studies in this field build on the current body of knowledge by further investigating:
-the effectiveness of zero packaging food retail as a method of preventative retail waste management
-the feasibility of implementing the recommended lessons outlined in this research
-Determining whose role is it to educate consumers about zero packaging food retail? Governments, retailers or NGOs?

5.1.12 Choice of methods and analytical framework:

As with any research, the chosen methods and analytical framework dictate the direction, focus, results and subsequent future recommendations and conclusions yielded by the study. The use of the barriers and incentives dichotomous framework ensured that all aspects of the research; from the literature review, to interview guides and ordering the empirical findings into a set of data that could be readily analysed through a dichotomous taxonomy, and recommendations and conclusions drawn from these was always consistent. It would be highly recommended to use a similar framework in future studies relevant studies.

On the down side, the selected framework could be argued to be somewhat limiting and overly rigorous in its structure. Interviewees often yielded responses that did not neatly fit into

the dichotomy, or a given barrier or incentive could be placed under a number of factors (e.g. a single barrier could be described as a regulatory, market or resource barrier), and selecting which factor it would be placed under could be somewhat of a subjective as opposed to scientific process, therefore compromising credibility. The issues associated with this ‘rigid’ dichotomy could potentially take upon a, ‘snowball effect’, where if a specific barrier or incentive was not ‘accurately’ positioned in the dichotomy, it could be ‘lost’ further into the research in the lessons, recommendations, discussion section and conclusion.

In an attempt to accommodate for this potential loss of valuable information that fell outside of the dichotomy, Table 5-3 indicated a number of factors that were presented primarily through the empirical data collection process, that were deemed to be of value to the research as whole still, but were left out of the barrier and incentive dichotomy Table 5-1 and 5-2.

Another aspect of this research that proved to veer towards being too rigid, was that of the process used to determine which “lessons” from zero packaging food retailers would be relayed to mainstream food retailers. The current research focused on selecting both Barriers and Incentives that would be fleshed out for the ‘lessons’, based on the percentage of mainstream or zero packaging food retailers that repeatedly stated a specific barrier or incentive. The ‘cut off’ frequency or relevance was deemed to be 50% of stakeholders making a particular claim. This meant that if less than 50% of a given stakeholder group did not claim a particular barrier or incentive for a relevant factor group, this barrier or incentive would not have a “lesson” developed around it. This chosen process meant that there is was again potential for valuable, yet rarely stated barriers or incentives to receive less focus through the research, and potentially be omitted from key analysis and “lessons” sections. This had the potential to compromise the strength of findings.

Recommendations for future research: Develop a taxonomy that allows for the inclusion and incorporation of factors and findings that may lie outside of the strict (for example) Barriers and Incentives dichotomy. This will potentially allow for outlying factors to more readily be transferred through the research and into the findings and results. A simple suggestion of how to do this is to instead of devising a dichotomous taxonomy, that only seeks to determine ‘barriers and incentives’, for researchers to devise a taxonomy that has an additional, ‘other findings’ section, that is given equal weight to that of the barriers and incentives findings. This way, additional information that is derived from the literature and interviews, that does not neatly sit inside the dichotomous taxonomy is not lost through the selected framework.

5.1.13 Research boundaries and geographical scope:

The selected boundaries and scope of this research were relevant and appropriate, and allowed for logical results to be yielded. One possibly more contentious aspect however, was the geographical scope of this study. Geographical scope was determined at an early stage, by availability of retailers, and this happened to generate a relatively wide geographical scope, spanning three continents. The risk of having done this, was that all of the included retailers operate within different political, economic, social, cultural and possibly most importantly, regulatory contexts. Results that are generated and relevant to one particular city or context, may not be as unanimously relevant and useful to another context. On the flip side, it can be

argued that the food provision industry is relatively homogenous around the world, and a similar “formula” is adopted across the world. The wide geographical span of this study could also be argued as a positive contribution to the research, where existing retailers operating within a specific context are able to learn and adopt initiatives that they had previously not been exposed to or were unfamiliar with.

5.1.14 Stakeholders included and interviewees:

A potential limitation, but as most of the previously identified factors, could also be perceived as a strength of the research resulted from the selected stakeholders that were included in the interview process. Due to the type of research, a limited set of stakeholders could be included in the study, and it was deemed, due to their pivotal position in the food provision industry, that the views of food retailers would be included in the empirical data collection process. This resulted in key stakeholder groups such as consumers, suppliers, producers, transporters etc being excluded from the direct data collection process. The inclusion of only zero packaging and mainstream food retailers in the Barrier and Incentive Taxonomy, mean that although this generated very straight-forward results that were both in terms of content as well as applicability, very transposable, they could also be perceived to be somewhat limited.

The inclusion and availability for three packaging industry experts, although adding to the clout and strength of findings, was not readily includable in the Barrier and Incentive Dichotomy and Taxonomy, and meant that the views of these stakeholders were of more use and relevance in the qualitative text and findings, as opposed to the taxonomy that was generated.

5.1.15 Audience

As stated in the introductory chapter of this research, this study is of relevance to a number of stakeholders in current global food consumption system. The research primarily aimed to fill the existing knowledge gap in the field of zero packaging retail and was thus directly relevant to academics and researchers of this field. The study contributed to the existing body of knowledge on sustainable food retail primarily by providing empirical data and findings related to zero packaging food retail, which as far as the researcher is concerned, does not yet exist, or has not yet been fully addressed within an academic context.

The research is also relevant to a number of other stakeholders, including mainstream food retailers looking to incorporate zero packaging strategies into their stores. By referencing the barrier and incentive taxonomy created, as well as the lessons posed, mainstream retailers could use this document as a guide to develop strategies and associate policy around preventative packaging waste management in store. Similarly, this research is also of use to zero packaging store owners and operators wishing to establish shops, or better understand the current existing dynamics within their zero packaging niche retail sector, as well as to understand if and how their retail model can/ cannot be transposed into larger retail scales. Finally, this research is of direct relevance to waste management policy advisors and policy makers, as well as retail policy advisors and makers willing to better understand the current barriers and opportunities that exist to preventative waste management in food retail.

6 Conclusion

This research provides a systematic overview of incentives and barriers to zero packaging food retail, as a means of preventative retail waste management. The study incorporates perspectives from both mainstream and zero packaging food retailers from around the world, as well as insight from food packaging industry experts.

A clear research gap existed; there is currently limited peer reviewed knowledge and literature on zero packaging food retail, particularly as a preventative approach to retail waste management. In an attempt to fill this gap, the research was developed with the aim of: 1) identifying characteristics/ factors of zero and reduced packaging food stores that have resulted in packaging waste reduction, and 2) identifying which characteristics/factors could be integrated into mainstream food retail. The objective of fulfilling these two aims was threefold: firstly, to contribute to the research and literature on zero and reduced packaging food retail, which is at present scarce. Secondly, to provide the food retail industry at large with an overview/ 'stock-take' of the current barriers and incentives to food packaging reduction experienced by both niche and mainstream retailers. And finally, to identify if there are any packaging waste reduction 'lessons' learned from niche stores, that could be adopted by mainstream retailers.

Below are the three research questions that have driven this research in an attempt to meet the study's aims and objectives:

RQ 1: What are the barriers and incentives that mainstream food retailers face in ensuring packaging waste is reduced?

RQ 2: What are the barriers and incentives that zero packaging food retailers face in ensuring packaging waste is reduced?

RQ 3: What, if any 'lessons' from zero packaging food retailers could mainstream supermarkets learn in order to undertake a preventative approach to packaging waste management in store?

The study contributes to the existing body of academic literature, meets the research's aims, objectives and responds to the research questions by:

- Developing a taxonomy of barriers and incentives to zero packaging food retail, drawing on the analytical framework (incorporating regulatory, social, market and resource factors) devised by Chkanikova and Mont (referencing Hoffman, 2000) (*a response to RQ1 and RQ2, and can be found in tables 5-1 and 5-2*)
- Hi-lighting, analysing and discussing initiatives from zero packaging retailers that can act as 'lessons' on unpackaged food retail, as a means of preventative retail waste management (*a response to RQ3, and can be found in Table 5-3*).
- Filling the gap created by the lack of empirical evidence on incentives and barriers from both zero packaging and mainstream food retailers

Overview of findings:

The taxonomy on barriers and incentives that food retailers face in taking a preventative approach to retail waste management yielded a total of 38 individual barriers ranging from, *'Little government leadership'* (Regulatory Factor), *'lack of supply chain management control'* (Market Factor), *'Corporate strategies to reduce food waste via food packaging'* (Market Factor) to *'Financial limitations to change supply-chain systems'* (Resource Factor) to name a few. 31 individual incentives were also identified ranging from: *'Waste prevention legislation'* (Regulatory Factor), *'NGO Campaigns'* (Social Incentive), *'Sustainable retailer leadership potential'* (Market Incentive), *'Voluntary industry agreements'* (Market Incentive) to *'Consumer demand for resource efficiency'* (Resource Factor).

The following 'lessons' will be presented for mainstream retailers. At the end of each section, where appropriate, suggestions for further research have been outlined. These 'lessons' have been derived from the analysis of both the theoretical and empirical data. These are suggested as recommendations on how to overcome the major barriers (as indicated by mainstream retailers) and further stimulate unpackaged food retail:

Regulatory Lessons:

This research has hi-lighted that resources (ranging from financial, know-how/ skills, reliable unpackaged food stock) exist as significant barriers to both mainstream and zero packaging retailers. Literature and empirical data also indicate that atomized actions are unlikely to yield effective and efficient unpackaged food retail on a significant scale. At best, progress is inefficient through atomized action. Empirical evidence from zero packaging retailers suggests that the support of policymakers, robust regulatory and legislative support as well as increased consumer engagement is needed to increase food retailers' ability to take a more proactive approach towards food retail waste management. It is also clear that a number of these requirements are somewhat outside of the scope/sphere of direct control and influence of retailers.

The most significant regulatory lesson to be taken from zero packaging food retailers is for mainstream retailers to seek collective regulatory leadership and legislative guidance from relevant authorities and government. The current success of a number of voluntary industry agreements (for example Courtauld Commitment) indicates that this form of collective industry stance can be the most efficient and effective in catalyzing action. It is also recommended that an industry wide stance regarding zero packaging retail, that is reflected in mainstream food retailer's overarching guiding documents such as strategic plans and associated policies be devised. It is also recommended to add Key Performance Indicators to such documents in order to enhance stringency and clarity, as has been the case of the Australian Sustainable Packaging Alliance (SPA). As suggested in the literature, industry benchmarking could be of great use in this regard. More stringent industry sustainability leadership potential exists for a retailer(s) to catalyse this process within the food retail industry.

Similarly, health, safety and hygiene were hi-lighted as key regulatory barriers. Unpackaged retailers were clear in indicating that existing legislation does not impede them from selling unpackaged food, and adhering to regulatory health, safety and hygiene requirements was perceived as 'business as usual' rather than a barrier to them. These retailers recommend adopting internal policies that took upon sustainable retailer leadership roles, where retailers positioned themselves ahead of hygiene, health and safety regulation expectations, as well as mainstream food retailers devising progressive consumer communication campaigns focusing on communicating the fact that product quality is unaffected when over packaging is

eliminated, and stressing the benefits for the product's other attributes such as price and environmental friendliness are equally as valuable information to both retailers and consumers alike (Monnt *et al.*, 2014). Such communication should take place both in store as well as through social and traditional media. It was indicated that over packaging can be legitimately eliminated without affecting the perceived quality of a product, thus at least limiting the perceived barrier of hygiene, health and safety.

There is also some uncertainty surrounding whose role it is to better engage and educate consumers about preventative waste management, and the role consumer choices play in this regard- a debate that arose in both the literature as well as through empirical data collection. This research was not able to yield a suggestion to this debate.

Further research needs to be conducted on the appropriate stakeholder group to take charge of consumer engagement and education in unpackaged food consumption; is this the role of food retailers, government or NGOs?

Social Lessons:

“*Negative media slant/backlash*” was a key concern for mainstream food retailers. Although all zero packaging retailers also claimed this is a potential barrier, none had yet experienced negative media attention to date, but all were weary that there was the potential for this to happen, and that this could somewhat be outside of their sphere of control or influence. The key lesson is thus for mainstream retailers to devise a proactive, well managed and controlled marketing and media strategy to leverage off the virtually free media coverage, promotion and divulgence of unpackaged retail, that 100% of zero packaging retailers repeatedly claimed to have benefited from. Proactive social and mainstream media engagement, as well as leveraging off media coverage and communication to engage and educate the general public and potential consumers on the benefits of unpackaged food retail is highly recommended. Leveraging social media as a means of normalising the unpackaged food shopping experience, using videos on how to prepare and undergo this form of food retail, and running community engagement campaigns in conjunction with NGOs, via social and mainstream media were highly recommended.

Further research from a marketing and communication perspective could delve into better understanding practical initiatives/ action to best manage a seamless transition into zero packaging food retail.

Market Lessons:

“*Packaging as a key communication tool*” was claimed by 100% of mainstream retailers. Removing packaging thus posed a communication barrier for these retailers. Zero packaging retailers have overcome this barrier on a practical level by placing labels on silos in store, and engaging and communicating with customers as much as possible during the retail experience. 70% of zero packaging retailers developed comprehensive communication campaigns in store whereby they provided educational posters and videos that were placed in store for customers to engage with and better understand the zero packaging food experience as well as gain information on the content of their food. This initiative was also recommended in the literature. There was clear indication by zero packaging retailers that NGO campaigns and

partnerships could further push and increase customer awareness of different and new communication and food labeling alternatives in store. Such campaigns should ensure retailers meet legal and regulatory requirements regarding food content (e.g. allergies etc.), whilst not placing this information solely on packaged and over packaged goods. Other forms of communication that are already being used by mainstream retailers included communication via QR code scanning on product dispensers/ silos.

“Packaging as a food protector” was also identified as a key barrier to unpackaged food retail. Mainstream retailers claimed that food loss as a result of unpackaged food was of concern to them, and that food waste was a major priority in their sustainability strategies. Unpackaged retailers on the other hand reported that actual food loss and waste in store was low, claiming that perceived issues of food waste were higher than actual issues experienced in store, with only one unpackaged retailer mentioning food waste in the interviews. Specific measures such as assisted shopping, where retailers filled customer’s containers in advance, or home delivery services were an added service, with an associate price premium that a few retailers offered, but also claimed that this further reduced the waste potential of customer food handling in store. Although not a large scale solution, these alternatives could be implemented in mainstream retail stores (many of which already offer assisted and home delivery services).

It is important to also acknowledge that packaging acts as a protector and at times enables the longevity of certain products. It is also important to state that where packaging is vital, it is possibly unavoidable. It is however key to carefully determine what categorizes ‘vital’ packaging and what determines frivolous over packaging of products. It is thus suggested that the use of packaging could be more selective in mainstream stores; packaging for the sake of enhancing product ‘perceived quality’ and marketing of a product can certainly be reduced with little or no significant effect on the product itself. Benchmarking against a number of mainstream retailers that are already taking steps to reduce frivolous packaging, and phasing out over packaged items as identified through the literature is recommended. It is also suggested that even more proactive collective industry engagement with authorities responsible for devising packaging guidelines (EU Directive bodies as well as CEN Standard devisors 1327-13432 and ISO standard 18601-18606 as identified through the literature) could be of use to the industry at large.

Further research on what food products have the potential to be sold without packaging, without an effect on the product and its shelf life could be carried out to determine when packaging is ‘vital’ or not. The objective of doing this is to determine what products require selective packaging, and when packaging is ‘frivolous’.

Resource Lessons:

“Food waste reduction as a priority internal regulation/policy”: Empirical data suggests that there a gap between perceived food waste issues associated with unpackaged products and real food waste generated. As stated in previous sections, zero packaging retailers report this is not a significant issue at the retail level, whilst 100% of mainstream retailers have companywide food waste reduction strategic priorities, which are currently facilitated by food packaging policy. This dynamic creates an additional barrier to mainstream implementation of unpackaged food retail- an initiative that would undermine existing food waste reduction (via increased packaging) strategies.

On the other hand, there is a *“clear consumer demand and interest”* in reduced packaging, as indicated by 100% of retailers interviewed in this research, as well as existing literature. There

is at present no obvious lesson that was yielded through this research to suggest to mainstream retailers. A clear need for future research in this aspect exists.

Further research on the implications of large scale unpackaged food retail needs to be conducted. A particular focus on the effects that this initiative could have on existing food waste reduction policies that are facilitated by packaging needs to be better understood.

“Financial limitations to change supply chain systems” was another unanimous resource barrier identified by all mainstream food retailers. The main lesson that zero packaging retailers identified was the ability to capitalize on *“eco-efficiency improvements”* as well as to enter *“voluntary industry agreements”*, much like suggestions made for resource factor barriers. Undergoing such approaches could ensure that streamlining and changing supply chain systems to maximize eco-efficiency improvements collectively, as well as by pooling resources in compatible ways could potentially reduce financial burdens of individual retailers attempting to single-handedly change supply chains. Industry agreements such as the Courtauld Commitment in the UK have proven to be successful ways of both pooling industry leadership potential, know-how and lobbying for supply chain changes in the packaging/plastics industry collectively. Voluntary signatories of the Commitment have received guidance on how to transition into *“sustainable retail”*, reduce/improve packaging efficiency and reap the benefits of doing so. This was an agreement between mainstream retailers, exemplifying that there is potential for extending, or using such agreements as benchmark models for unpackaged food retail.

Policies that adopt a ‘user pays’ approach to packaging are also recommended, where consumers wanting to purchase packaged or over packaged products, plastic bags etc., are required to fund the additional use of resources associated with these choices. Such initiatives have already been implemented in some countries, but could be further explored through the industry as a whole.

Method selection

As with any research, the findings and conclusions are a direct reflection of the methods deployed. A key conclusion regarding the method selection of this research, relates to the chosen analytical framework. Although logical and clear in its dichotomous nature, and allowing for consistency throughout the study, the framework could be argued to be overly rigorous. Although measures were taken to include as much information as was deemed valuable into the research, the (arguably rigorous) analysis of the findings through the barrier and incentive taxonomy meant that there is potential for valuable, yet rarely stated barriers or incentives to receive less focus through the research, and potentially be omitted from key analysis and ‘lessons’ sections. This had the potential to compromise the strength of the overall study.

It is recommended that if future research is to use a similar analytical framework, and devise a similar dichotomous taxonomy, which is highly recommended process, that the analysis more readily encompasses data that may lie outside of the barrier/ incentive dichotomy from the onset of the study.

Conclusions to target audience

The research was targeted at three main audience groups; academics, food retailers and retail waste policymakers. It can be argued that the study successfully met its aim and objectives for academic audiences by identifying characteristics of zero packaging food stores that have resulted in packaging waste reduction, as well as in identifying which characteristics could be integrated into mainstream food retail in order to overcome existing barriers to mainstream unpackaged food retail (through the stated ‘lessons’). In this regard, the research was able to bridge the existing theoretical knowledge gap, for its stated and intended audience.

The research also addressed the mainstream food retailer audience who is looking to incorporate zero packaging strategies into their stores. Tables 5-1 and 5-2, summarizing barriers and incentives as well as Table 5-3 informing this audience of ‘lessons’ from zero packaging retailers and the summary of lessons posed in this concluding chapter are of particular relevance to mainstream retailers. Zero packaging store owners and operators wishing to establish shops, or better understand the current existing dynamics within their zero packaging niche retail sector may also find value in this research. The study is also of relevance to business owners and retailers wanting to understand how this retail model can/cannot be transposed into larger retail scales.

Finally, the study is of direct relevance to retail waste policymakers willing to gain further insight and to better understand the state-of-the-art of zero packaging food retail, and its role in preventative food retail waste management.

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Appendix

Appendix A List of Interviewees

6.1.1 List of zero packaging food retailers

Retail Store	Interviewee	Job position	Medium	Interview date
The Fillery	Sarah Metz	Owner/Operator	Whatsapp Call	21 June, 2016
G R A M	Rowan Drury	Owner/Operator	Skype	23 June, 2016
LØS Market	Constance Leth	Owner/Operator	In person	20 June, 2016
Unpackaged	Catherine Conway	Owner/Operator	Skype	21 June, 2016
Wasteless Pantry	Amanda Weschbilling	Owner/Operator	Skype	23 June, 2016
Wasteless Pantry	Jeannie Richardson	Owner/Operator	Skype	24 June, 2016
Waste Zero Market	Brianne Miller	Owner/Operator	Skype	8 July, 2016

6.1.2 List of mainstream food retailers

Retail Store	Interviewee	Job position	Medium	Interview date
Axa Food	Karin Grönskog	Packaging Developer	Skype	4 July, 2016
Marks & Spencer	Kevin Vyse	Packaging Technologist	Skype	8 July, 2016
REWE Intl AG	Jan Döerich	Sustainability Programme Manager	Skype	13 July, 2016
Aldi Foods	Mark Katterns	Regional Manager	Email response	N/A
Countdown, NZ	Jayde Hamilton	Owner/Operator	Email response	N/A
New World	Warren Eddington	Owner/Operator	Email response	N/A
New World	Jason Witehira	Owner/Operator	Email response	N/A
New World	Jayde Cunliffe	Owner/Operator	Email response	N/A
New World	Hannah Marshall	Store Manager	Email response	N/A

6.1.3 List of packaging industry experts

Company	Interviewee	Job position	Medium	Interview date
Tetra Pak	Erik Lindroth	Nordic Environmental Director	Phone	26 July, 2016
WRAP, UK	Claire Shrewsbury	Programme Area Manager	Skype	12 July, 2016
Canadian Packaging Consortium	Rachel Morier	Programme Manager	Skype	6 July, 2016

Appendix B Interview Guides

6.1.4 Interview Guide-Zero Packaging Retailers

Interview Guide – Zero Packaging Retailers

This interview will be conducted for a Master Thesis research at Lund University for the Master in Environmental Management and Policy. The Thesis is titled, “*Barriers and Incentives for zero packaging food retail: A Global Perspective*”. All information will be treated with confidentiality. Is it ok if I record the conversation?

The objective of my research is to understand the barriers and incentives that currently exist for retailers to reduce food packaging (and associated waste). I will ask you some questions about your background and then more specifically about the barriers and incentives to reduced packaging retail. Feel free to let me know if you don't want to, or cannot, answer some of the questions. We can always go back to them later, or leave them unanswered. As you wish! Do you have any questions about my study so far?

Questions

Background questions to get to know the interviewee:

1. What work have you done in the area of the zero packaging and how long have you been working with the zero packaging concept?
2. Can you please explain the concept of the store and how customers shop at your store?
3. What was the main incentive for you to open this store?
4. Who are the main stakeholders in your business (not just business partners, but consumers, suppliers etc too)

*I will now focus the interview on understanding **barriers and incentives** you have faced as a zero packaging retailer.*

a) Market related questions:

5. Who typically shops at your store? – follow up with is there a particular ‘consumer profile’?
6. How important do you think your store location is to the success of the zero packaging store concept, and why?
7. Does [Insert city...] have a strong “zero packaging culture”? Are people engaging and proactive in the zero packaging scene?
8. What are the main barriers your customers face in shopping at your store?
9. What measures have you taken in an attempt to mitigate/ minimize these barriers?
10. Can you see any further/ future opportunities for your customers to further engage in zero packaging food retail?

b) Regulatory questions:

11. From a regulatory perspective, what are the main barriers to zero packaging retail?
12. How have regulatory barriers stifled/ hindered your operation?
13. From a regulatory perspective, what are the main incentives to zero packaging retail?
14. How have regulatory incentives boosted/leveraged your operation in terms of support/ incentive?
15. Does the city/ government you operate in offer any incentives/ assistance

c) Resource related questions:

16. How would you describe your relationship with your suppliers?
17. What barriers have you faced in securing zero/ reduced packaging suppliers?
18. What opportunities have you faced in securing zero/ reduced packaging suppliers?

d) Social related questions:

19. Have you worked closely/ received any support with relevant NGOs? If yes, please describe how you have leveraged this relationship, or barriers have arisen from this?
20. What forms of media do you use to promote your business, and which are the most important?
21. How do you see media creating barriers for your business?
22. How do you see media creating opportunities for your business?

Concluding questions

23. Do you have any more comments to add?
24. Do you have any questions regarding this research?
25. Is it ok to follow-up via email with any further questions or clarifications?
26. Is it ok to cite you in my research paper?

6.1.5 Interview Guide-Mainstream Retailers

Interview Guide – Mainstream Food Retailers

This interview will be conducted for a Master Thesis research at Lund University for the Master in Environmental Management and Policy. The Thesis is titled, “*Barriers and Incentives for zero packaging food retail: A Global Perspective*”. All information will be treated with confidentiality.

The objective of my research is to understand the barriers and incentives that currently exist for retailers to reduce food packaging (and associated waste). I will ask you some questions about your background and then more specifically about the barriers and incentives to reduced packaging retail.

Questions

Background questions to get to know the interviewee:

1. Can you briefly explain your job role?

a) Market related questions:

2. Is the zero packaging concept on your company’s agenda in any way? If so, how?
3. a) What, if any zero packaging/ packaging waste prevention initiatives has your company taken?
b) How were these received?
4. Do you have any consumer demand for zero/ reduced packaging products?
5. Do your competitors have zero/ reduced packaging strategies?
6. What are the barriers to implementing zero packaging?
7. What are the barriers to zero packaging from a consumer’s perspective?
8. Do you think a larger range of reduced packaging/ zero packaging products is something that could be implemented across all of your stores, or just specific ones, in specific neighborhoods?

b) Regulatory questions:

9. From a regulatory perspective, what are the main barriers to zero packaging retail?
10. From a regulatory perspective, what are the main incentives to zero packaging retail?

11. Does the city/ government you operate in offer any incentives/ assistance to zero packaging retailers?

c) Resource related questions:

12. Do your suppliers provide bulk/ zero packaging options for a wide range of products?
13. What barriers would you face in securing more zero/ reduced packaging suppliers?

d) Social related questions:

14. Have you worked closely/ received any support with relevant waste zero NGOs? If yes, please describe this relationship.
15. How did you see media creating barriers for your business if you were to increase your zero packaging range?
16. How do you see media creating opportunities for your business?

Concluding questions

17. Do you have any more comments to add?
18. Do you have any questions regarding this research?
19. Is it ok to follow-up via email with any further questions or clarifications?