

Packaging Development in an Ageing Society: A Case Study Approach in the United Kingdom Fast- Moving Consumer Goods Industry

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Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

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Abstract

There is a growing body of research demonstrating the effects of age-related changes on product usability and the value derived from consumption experiences. In particular, difficulties with packaging have been identified as a source of dissatisfaction and a key barrier to older people maintaining their independence.

Despite this, marketing literature into older consumers' packaging experiences is limited. Likewise, packaging development has been afforded scant attention in the new product development literature. Whilst there is extensive design literature exploring packaging openability among older consumers, these studies focus largely on biological ageing, thus overlooking aspects of psychological and social ageing. As such, these studies only capture a small part of the various consumer-packaging interactions. Based on these limitations, the purpose of this study is twofold: to explore how ageing affects packaging needs; and to examine how the management of packaging development affects firms' abilities to deliver value to older consumers.

The findings highlight the importance of packaging development in contributing to older people's abilities to access, open and consume fast-moving consumer goods products independently. Maintaining this independence is found to positively contribute to quality of life. However, a variety of organisational factors and development team characteristics are found to inhibit firms from targeting older consumers and identifying and exploiting a variety of new packaging opportunities.

This study contributes to the literature by providing new insights into the packaging needs of older consumers. The conceptual framework presented contributes to new product development literature by providing a new perspective with which to view fast-moving consumer goods product development; one where packaging development is used to offer value to older consumers.

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Abbreviations

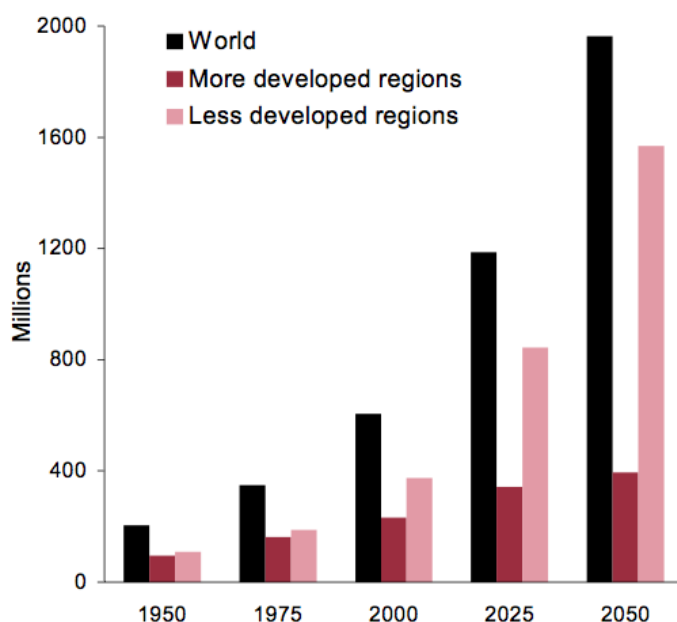
FMCG	Fast-Moving Consumer Goods
NPD	New Product Development
P&G	Procter and Gamble
PAP	Product Assortment Planning
PoS	Point of Sale
QFD	Quality Function Deployment
QoL	Quality of Life
R&D	Research and Development
RQ	Research Question
SST	Socio-emotional Selectivity Theory
UK	United Kingdom
US	United States of America

Chapter 1 Introduction

1.1. Rationale and Importance of Research

Global populations are ageing. The number of persons aged 60 years and over is 810 million globally, with this figure forecast to increase to more than 2 billion by 2050 (United Nations, 2012) (see Figure 1.1). This 2 billion will account for 20 per cent of the global population and will be the first time in human history that older persons will outnumber the population of children (United Nations, 2012).

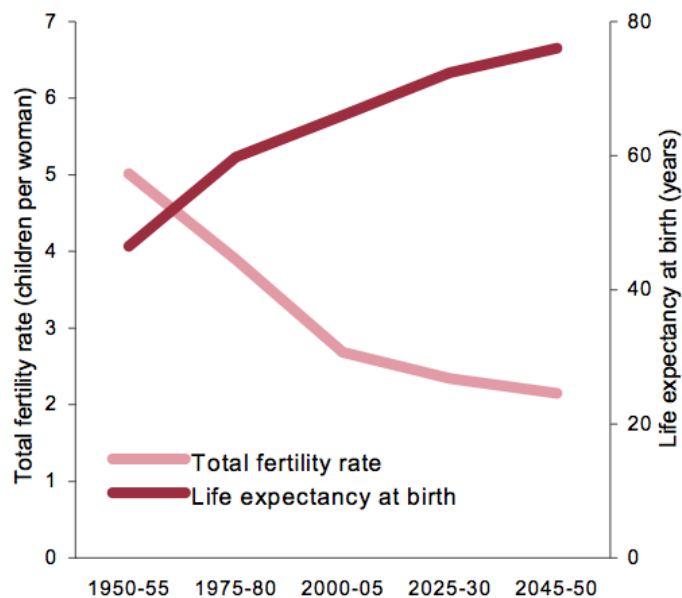
Figure 1.1 Global Populations Ageing (United Nations, 2012)



The reasons for this demographic shift are threefold: first, decreasing fertility rates (see Figure 1.2); second, new technologies and better standards of living (amongst various other reasons) leading to improved life expectancies (also see Figure 1.2); third, the ageing of the baby-boom generation (Laukkanen et al., 2007; Charness, 2008; Olsanova, 2012). This demographic phenomenon is affecting both developed and developing nations. According to the Office for National Statistics (2012) the percentage of the UK's population aged 65 and above has risen from 15 per cent in 1985, to 17 per cent in 2010, and looks set to continue rising to 23 per cent by 2035 (see Figure 1.3). Population ageing is likely to have profound implications for economies (Rosenweig and Stark, 1997), the workforce (Loretto et al., 2009), and business (Drolet et al., 2010). Due to the size,

affluence and propensity to spend which characterises the ‘senior market’ (Sudbury and Simcock, 2009; Thompson and Thompson, 2009; Omar et al., 2014), an increasing interest in older consumers has been shown in the marketing literature (e.g. Angell et al., 2014; Kohlbacher and Herstatt, 2010; Sudbury-Riley et al., 2012). Given the size of this segment alone, it is surprising to consider that the majority of firms have yet to target the senior market (Ahmad, 2002; Hough and Kobylanski, 2009; Lee and Coughlin, 2014). In so doing, firms are said to be missing the opportunity to target a large, growing and attractive segment of consumers (Moschis, 2012; Moss et al., 2013).

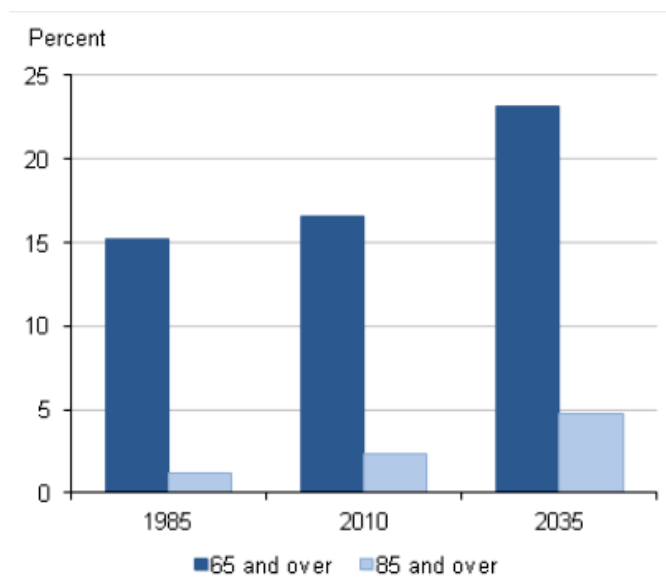
Figure 1.2 Global Life Expectancies and Fertility Rates



In addition to the growing business case for firms to target the senior market, economists claim that in light of population ageing, the maintenance of independent living for older people will be imperative to reduce the strain this demographic phenomenon will have on public services (Foresight, 2000; Cracknell, 2010). Research conducted by Metz and Underwood (2005, p.88) for Age Concern describes how “*pressure on already hard-pressed social services departments to fund long-term care is going to increase, both because of increased demand and decreased supply*”. Research from the Joseph Rowntree Foundation (2005, p.1) found that older people value “*that little bit of help’ to enable them to retain choice, control and dignity their lives*”. Emphasising the importance of low-level support, the Joseph Rowntree Foundation (2005, p.5)

highlight the ability of firms to provide products and services to aid older people in maintaining independent lives. The Madrid International Plan of Action (MIPAA, 2002), adopted at the Second World Assembly on Ageing, also emphasises the importance for economic development of providing enabling environments, products and services which allow older people to advance their health and well-being. Metz and Underwood (2005, p. 88) claim that through the development of new products firms are able to assist “*the majority of older people [who] express the wish to continue living in their own home as long as possible*” and that to do so is the “*usually least expensive option for the state*”.

Figure 1.3: Percentage of Older People in the UK 1985, 2010, 2035 (Office for National Statistics, 2012)



A variety of products and services have been identified as inhibiting older people’s abilities to maintain their independence; from public transport to kitchen interiors and internet banking (Clarkson et al., 2003; Metz and Underwood, 2005). However, few factors are highlighted as inhibiting independent living as often as difficulties with product packaging (Visvabharathy, 1985; Nayak, 1998; Duizer et al., 2009; Kohlbacher and Herstatt, 2010; Age UK 2012). Market research has reported high levels of dissatisfaction with much packaging among consumers at large (BBC, 2004; Which, 2013). Such is the extent of this dissatisfaction, that the term *wrap rage* (meaning frustration and anger caused by difficulties with packaging) now garners more than 11.4 million hits on Google. In particular, dissatisfaction has been reported amongst older consumers with fast-moving consumer goods (FMCG) packaging (Voorbij and Steenbekkers, 2002; BBC,

2004; ILC, 2010). Studies show that due to changes in physical capabilities and social circumstances, older people risk suffering embarrassment and anger (Sudbury-Riley, 2014), and even potential illness and serious injury (Hudson and Hartwell, 2002; Winder et al., 2002) as a result of difficulties with packaging. These risks are heightened by the regularity with which consumers engage with FMCG products. This highlights the opportunity for firms to offer older people 'that little bit of help' in maintaining their independence through packaging development.

Despite being regarded by some as a necessary evil or an unnecessary cost (Lockamy, 1995), the importance of packaging is beginning to become recognised within management literature (e.g. Rundh, 2009; Bigliardi et al., 2010; Simms and Trott, 2010). While a growing number of studies (usually from the marketing domain) have explored packaging's role as a communications vessel (e.g. Sara, 1990; Nancarrow et al., 1998; Underwood, 2003), relatively few have explored the multiple functions that packaging has been shown to fulfil (e.g. Lee and Lye, 2003; Robertson, 2013). These functions include containing and protecting products, offering consumers convenience and improved product quality, as well acting as a communications vessel for product and brand differentiation. In the FMCG sector, packaging is an integral part of the product offering and has been shown to influence purchasing decisions (Wells et al., 2007). Packaging development offers FMCG firms new product development (NPD) opportunities with which to offer value to consumers (Simms and Trott, 2014). Given the size and diversity of the senior market, there may be a wealth of opportunities available to FMCG firms to add value for older consumers through packaging development. Thus far, this opportunity has been largely overlooked both in practice and research.

The focus of this thesis is on packaging development in the context of an ageing society. The thesis explores the ways in which packaging can contribute to independent living, and examines the opportunities packaging development can afford firms in targeting the senior market with new products. The role of packaging development in the management of FMCG product development is examined, and industry perceptions of the senior market are explored.

1.2. Research Context and Questions

FMCG products (also referred to as packaged goods or consumer packaged goods) are low priced items that are used with a single or limited number of consumption occasions (Baron et al., 1991). Categories of FMCG include food and drink, health and beauty, and household cleaning products (Bannock et al., 2003). Traditionally, competition within the FMCG industry has been dominated by large multi-national manufacturers such as Heinz, Procter and Gamble, and Unilever. However, increased competition from supermarket own-label products has placed greater significance on NPD in attracting and retaining customers (Steenkamp and Dekimpe, 2009). Packaging development has been highlighted as a primary driver of innovation in the FMCG industry (Euromonitor, 2006). FMCG manufacturers represent the packaging industry's largest customer (Euromonitor, 2013). According to the Packaging Federation (2014), the UK packaging manufacturing industry "*has annual sales of £11 billion and employs some 85,000 people – representing 3% of the UK's manufacturing workforce*". Packaging development offers firms not only the ability to differentiate their products on busy retail shelves (PIRA, 2011), but can also improve product quality and allow entry into new markets. Well-known packaging innovations include the Guinness 'widget' technology which helped drive sales by significantly improving product quality (Hughes, 2006), and the development of Mars 'Celebrations' which allowed the firm establish itself in the chocolate gift-box market that had previously been dominated by Nestlé with 'Quality Street' and Cadbury's 'Roses' (Trott, 2008). In addition to food and drink products, packaging development can also be used as a means of differentiating and improving quality for other FMCG products, such as beauty care and household products (Euromonitor, 2014). However, research suggests that many FMCG firms do not have a pipeline of new packaging ideas and lack the organisational competencies to identify and exploit new packaging opportunities (e.g. Ahmed et al., 2005; Simms and Trott, 2014).

In recent years, a number of changes in the external environment have affected packaging development in the FMCG sector. Firstly, increasing environmental concerns among consumers and within industry have driven firms to pursue more sustainable packaging solutions. The prominence of environmental concerns is evidenced within the literature (e.g. Prendergast and Pitt, 1996; Bone and Corey, 2000; Kotler, 2011). Secondly, changing retail environments are requiring firms to

reconsider aspects of their packaging development. For example, the growth of online shopping (Key Note, 2013) and increased popularity of convenience shopping (Seely, 2012) necessitate different requirements of packaging. Finally, packaging development is affected by changing consumer needs; in particular, the needs of the growing senior market as population ageing has come into focus (McKinsey & Company, 2010; PIRA, 2011; Mintel, 2014) The FMCG industry, therefore, provides an appropriate and pertinent backdrop under which to explore packaging development in the context of an ageing society.

Based on the above, this thesis addresses the following research questions:

1. How does ageing affect packaging needs?
2. How do FMCG firms incorporate these needs into their new product development processes?

1.3. Overview of the Limitations of the Literature

The majority of research into packaging comes from the field of marketing where studies have tended to focus on packaging's role as a communications vessel (e.g. Sara, 1990; Nancarrow, Wright and Brace, 1998; Underwood, 2003). Other packaging studies can be found in logistics and distribution literature (e.g. Twede, 1992; Prendergast and Pitt, 1996; Vernuccio et al., 2010; see also Chapter Three). Whilst providing insights into particular functions of packaging, these studies overlook the role of packaging in NPD. A number of studies have explored NPD within the FMCG industry (e.g. Ernst and Young, 1999; Hultink et al., 2000; Rudder et al., 2001). However, these studies have focused on the development of the core product, thus overlooking the management of packaging development. Of those few studies offering insights into packaging development, the majority only consider packaging change with respect to graphics and labelling (e.g. Francis, 2006; Francis et al., 2008). Simms and Trott (2014) provide the only study to explore the role of packaging in NPD which considers multiple packaging functions and advanced development opportunities. However, despite the growth of the senior market and the importance of consumer-packaging interactions to the consumption experiences of older people, no model of packaging development has incorporated the needs of older consumers.

A number of design studies have considered older consumers interactions with packaging (e.g. Voorbij and Steenbekkers, 2002; Lewis et al., 2007; Yoxall et al., 2007; Pascal et al., 2009; Passali et al., 2012). However, the majority of these studies focus on the effects of physiological decline on consumers' abilities to operate particular closures. As a result, these studies only capture a small part of a consumer's interactions with a specific pack. Whilst product opening represents a significant stage of the consumption process, it is only one of many consumer-packaging interactions across the 'packaging journey' (from product identification to eventual disposal or re-use) (JSA, 2000; Rundh, 2009; Devendorf and Lewis, 2010). These studies also overlook other age-related changes beyond that of physiological decline. While research exploring the retail experiences of older consumers provide some insights into consumer-packaging interactions (e.g. Hare et al., 1999; Hare, 2003; Meneely et al, 2009), very few marketing studies have explored older consumers' packaging experiences. A notable exception is Sudbury-Riley's (2014) study, which utilized qualitative research diaries to examine the packaging experiences of older consumers. This study provides valuable insights into older consumers' packaging experiences. Research into the process of developing new products for older consumers through packaging development, however, is lacking from these various fields.

Based on these limitations of the literature, this research argues that there is a need for greater understanding of the effects of ageing on consumer-packaging interactions. Building upon the findings of Sudbury-Riley (2014), this research explores older consumers' packaging interactions from a multidimensional perspective of ageing in relation to the multiple functions of packaging across the various stages of the packaging journey. The research also examines the packaging development processes of firms within the FMCG industry; in particular, the research analyses factors which facilitate the incorporation of older consumers' needs into the NPD process and understanding of the ageing process. Organizational characteristics which permit firms to pursue advanced packaging development opportunities are also identified. In so doing, the research builds upon the findings of Simms and Trott (2014) from their study of packaging development in the FMCG industry.

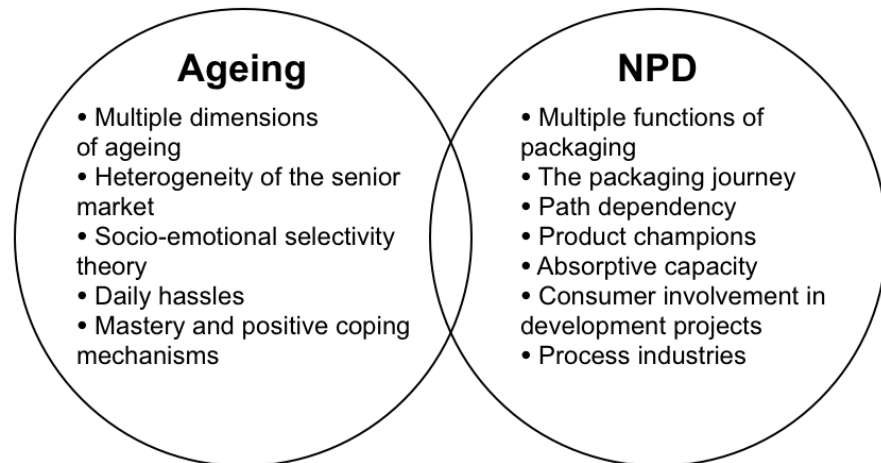
1.4. Theoretical Background

This study drew upon a number of areas of theory pertaining to ageing, marketing and NPD. Pertinent theories formed the basis for the conceptual framework; a key output of the research.

Firstly, the literature review presented in Chapter Two provides insights into the multidimensional nature of the ageing process and the heterogeneity of the senior market. Specific ageing-related theories, such as socio-emotional selectivity theory, are examined in relation to packaging experiences. The concepts of daily-hassles and mastery are explored with regards to negative packaging interactions. This section argues that insufficient attention has been afforded to the effects of ageing on consumer-packaging interactions within the marketing literature. While design literature is found to provide some insights into physiological packaging needs, social and psychological ageing are largely unaccounted for. This study offers new insights in these respects.

Secondly, a review of NPD and packaging literature in Chapter Three sheds light on factors which may aid or impede firms in developing new packaging. Existing models of FMCG product development are found to overlook the role of packaging, while the majority of packaging development models focus only on changes to labels and reprographics. Furthermore, these models also provide limited insights into the roles of consumers in packaging development; in particular, the needs of older consumers are overlooked. This section argues that for firms to identify and exploit opportunities to deliver value to older consumers through packaging development they should consider the multiple functions of packaging across the various stages of the packaging journey. The concepts of path dependence, product champions and absorptive capacity are considered in relation to packaging development. Figure 1.4 depicts the key areas of theory on which the conceptual framework developed in this study was based.

Figure 1.4 Theoretical Foundations of the Conceptual Framework



1.5. Contribution of Thesis

This thesis contributes to existing NPD literature by providing conceptually developed, evidenced-based research. Exploring FMCG packaging development in the context of population ageing contributes to existing literature in the field of marketing in particular, but also more specifically to the fields of NPD and innovation management.

The first contribution of the thesis is the development of a unique framework with which to understand the process of developing new FMCG products for the senior market through packaging development. This framework provides a novel lens through which to view activities and cognitive frames which contribute to the propensity of firms to incorporate the needs of older people into their packaging development processes. The framework also highlights organizational characteristics required to facilitate advanced packaging development. The framework provides insights into conceptualizations of ageing and consumer-packaging interactions to aid firms in identifying and exploiting a greater variety of value-adding new product opportunities for the senior market.

The second contribution of the thesis is that it builds upon two areas of existing literature; in particular, research exploring older consumers' packaging experiences, and models of packaging development within the FMCG sector. In the case of the former, this thesis builds upon the findings of Sudbury-Riley (2014) by providing further insights into the packaging needs of older consumers. Using

the packaging journey as a guide for analysis provides a novel viewpoint with which to understand the packaging needs of older consumers from a multi-dimensional perspective of ageing. With regards to NPD models, this thesis builds on existing models in the FMCG industry; in particular the work of Francis et al. (2008) and Simms and Trott (2014). Original insights are provided into the process of developing new packaging and approaches to delivering older consumers value through packaging development. The thesis also provides new insights into the dynamics and interrelationships between retailers, FMCG manufacturers, and packaging suppliers.

The third contribution is a new set of empirical data. This data set provides a rich description of packaging development within the FMCG industry. Furthermore, the data also sheds light on reasons for the continued neglect of the senior market within the FMCG industry. Insights are provided by drawing on the perspectives of a variety of key informants from a cross-section of firms involved in the development of FMCG products and packaging. The data also provides detailed description of older consumers' packaging experiences. In so doing, insights are provided into the effects of ageing on packaging needs.

1.6. Overview of Research Approach

The purpose of this thesis is twofold. Firstly, to explore how the process of ageing affects packaging needs; and secondly, to examine how the management of packaging development affects firms' abilities to deliver value to older consumers. A conceptual framework is presented which provides a unique vantage point from which to understand the process of developing new FMCG products for the senior market through packaging development.

To address the research questions, the study was divided into two main parts which were preceded by a preliminary study. Part One presents a study of older consumers' packaging experiences. Based on data gathered using qualitative interviews and observations, this study provided important insights into the effects of ageing on packaging needs. Findings revealed the multidimensional nature of the ageing process and the variety of ways in which age-related changes impact

upon packaging needs. These insights were able to be contrasted with managers' perceptions of ageing during Part Two.

Part Two adopted a case study approach involving three firms within the FMCG industry; more specifically: a leading metal packaging manufacturer; the world's leading FMCG manufacturer; and, a large UK retailer and own-label FMCG manufacturer. This cross-section of firms provided a broad overview of key players within the FMCG industry. Within each of the case firms, specific NPD projects were examined. Data was gathered using qualitative interviews and by drawing upon a variety of additional evidence, thus achieving data triangulation. Interviews were conducted with decision-makers, acting as key informants, involved in the development projects. Findings from this study provided insights into factors affecting the type of packaging development pursued by different teams. Insights into perceptions of the senior market and factors influencing the propensity of firms to target older consumers were also revealed.

Data gathered during Parts One and Two of this study provided findings with which to validate the framework and the propositions which underpin it.

1.7. Principal Findings

This research explores packaging development in the context of an ageing society. The review of literature, development of a conceptual framework, and new empirical data set provide a unique contribution to literature and a new perspective on the development of new FMCG products. The following subsections highlight the principal findings of the research.

1.7.1. Ageing and Packaging Needs

The results of Part One reveal the variety of ways in which ageing can impact upon packaging needs. While biological ageing is found to affect the packaging experiences of most participants, aspects of psychological and social ageing also significantly impact upon the value derived from FMCG products. This suggests that FMCG firms may be able to add value for older consumers through packaging development in a greater variety of ways than only by improving openability.

Findings from Part One also offer insights into older consumers' shopping experiences which may have implications for packaging development. Opportunities may be available to add value for older consumers by contextualizing packaging development decisions according to the shopping habits of subsegments of the senior market.

1.7.2. Understanding the Senior Market

Findings from Part Two highlight organisational factors and development team characteristics which contribute towards the ability of firms to identify a variety of new product opportunities for the senior market. Two key contributing factors were identified: firstly, positive cognitive frames towards the senior market; and, secondly, activities which afforded older people the opportunity to contribute to product development projects. These factors were found to contribute to the propensity of development teams to conceptualise ageing as a multi-dimensional process, thus allowing them to identify a greater variety of new product opportunities. While some development teams exhibited a multi-dimensional perspective on ageing, differences in the cognitive frames of corporate management towards the senior market inhibited their ability to target older consumers. Other teams engaged in development activities with older consumers, but lacked the understanding of the ageing process required to identify new products opportunities beyond improving openability.

1.7.3. Exploiting Packaging Development Opportunities

Findings from Part Two of this study also reveal factors contributing to the ability of firms to identify and exploit a variety of new packaging opportunities. Key to this ability is the presence of 'packaging champions'. The inclusion of individuals with specialist packaging knowledge in development teams was found to be insufficient to exploiting a variety of new packaging opportunities. In order to utilize the skills and knowledge these individuals possess they needed be positioned as central members of the development team and afforded sufficient authority to overcome organisation inertia towards packaging development. Harboring this authority also allowed these individuals to counter the influence of buyers towards the pursuit of cost savings at the expense of more advanced packaging development. Findings from Part Two also revealed the significance of firm and development team

perspectives on the importance of packaging to NPD success. Those firms which viewed packaging as being of greater significance to NPD success explored packaging development earlier in NPD projects. Project teams were, therefore, afforded greater opportunities to explore a variety of packaging development options and were more likely to conceptualise packaging as a multi-functional tool. These teams were also more likely to consider consumer-packaging interactions across the packaging journey. This was found to aid the identification of a greater number of opportunities with which to add value for consumers through packaging development. Finally, findings from Part Two also revealed the significance of involving consumers at multiple stages of the NPD process. This was found to provide greater insights into consumption experiences than the in-house research with employees which was conducted in several of the case projects.

Despite findings from Part Two offering these insights based on specific development projects, no firm was found to excel in both these respects. Generally, the senior market was viewed as a homogenous segment, and of those projects studied, none attempted to offer older consumers value through more than improved openability.

1.8. Structure of Thesis

This thesis consists of nine chapters, including this introductory chapter. Chapter One provides a rationale for and describes the importance of the research. The research context is established and the research questions presented. An overview of the limitations of research is provided, followed by identification of the theoretical background and contribution of the study. A description of the research approach is then presented, before principal findings of the research are detailed.

Chapter Two reviews literature pertaining to perceptions of the senior market; in particular, characteristics of the senior market which distinguish it as an attractive segment are examined. The multidimensionality of the ageing process is then explored in relation to packaging experiences. Finally, the chapter explores approaches to segmenting the senior market and examines the inclusive design approach for new product and service development.

Chapter Three begins by reviewing general models of NPD, then focuses on models of packaging development. Factors which facilitate and inhibit the development of new packaging are then discussed, followed by a critical examination of methods for consumer involvement in the product development process. Finally, consumer-packaging interactions are considered in relation to the multiple functions of packaging and the various stages of the packaging journey.

Chapter Four describes the development of the conceptual framework for the research. The concepts of 'senior aptitude' and 'packaging capacity' are defined and their role in the development of new FMCG products for the senior market is detailed.

Chapter Five describes the methodology. The chapter provides an overview of and rationale for the methodology employed. Details of data collection methods, including the development of research instruments, are described. Finally, the data analysis approach is justified and ethical considerations outlined.

Chapter Six presents findings from Part One of the research and includes analysis of interviews and observations exploring the packaging experiences of older consumers.

Chapter Seven presents findings from Part Two of the research which involves three firm case studies exploring packaging development in the FMCG industry. Within these case studies, six embedded cases in the form of specific development projects are explored in detail.

Chapter Eight presents a cross-case analysis of the findings presented in Chapter Seven. The chapter also compares the experiences of participants documented in Chapter Six with the perceptions of managers' regarding ageing and packaging interactions. The chapter concludes by discussing the development of the conceptual framework into a management tool.

Chapter Nine details the conclusions, contributions to literature, implications for practice and further research, and limitations of the research.

Chapter 2 Literature Review Part One

2.1. Introduction

This chapter will begin by reviewing marketing literature pertaining to the senior market. Characteristics of the senior market will be examined in relation to evidence from fields such as economics, gerontology and sociology to gain a more holistic view. Literature will then be reviewed examining factors contributing towards the continued neglect of the senior market. Following this, marketing literature exploring the needs of older consumers will be analysed. Comparisons will be drawn with theories of ageing from relevant fields such as gerontology and sociology to explore the influence such studies have had on marketing's understanding of ageing. Approaches to segmenting the senior market will then be discussed. Finally, NPD strategies pertaining to older consumers will be examined, including reference to ergonomics and inclusive design studies.

2.2. Marketing's View of the Senior Market

2.2.1. Conceptualisations of the Senior Market

Population ageing is likely to have significant implications for economies (Rosenweig and Stark, 1997), the labour force (Loretto et al., 2009), and for businesses (Kohlbacher and Herstatt, 2010; Moschis, 2012). Whilst often presented as a growing problem for economies and the workforce (e.g. The Economist, 2009), comparatively, marketing literature views population ageing with greater optimism, characterising the growth of the senior market as an opportunity for firms to take advantage of an attractive segment (e.g. Visvabharathy and Rink 1985; Szmigin and Carrigan, 2001; Moschis, 2012). A review of this literature reveals three characteristics of the senior market which make it an increasingly attractive proposition to firms. Each of the following characteristics will be examined in the following subsections:

1. Firstly, the size and growth of the senior market (Vitell et al., 1991; Leventhal, 1997; Silvers, 1997; Ahmad, 2002; Mattila et al., 2003; Hopkins et al., 2006; Antony and Purwar, 2007; Moschis et al., 2011).

2. Secondly, the relative levels of financial wealth possessed by the senior market (Long, 1998; Ahmad, 2002; Stroud, 2005; Simcock and Sudbury, 2009; Thompson and Thompson, 2009; Nasco et al., 2012; Moss et al., 2013).
3. Thirdly, the propensity for older consumers to spend (Greco, 1986; Kennett et al., 1995; Mumel and Prodnik, 2005; Niemela-Nyrhinen, 2007; Meneely et al., 2009; Nasco and Hale, 2009).

2.2.2. Size and Growth of the Senior Market

The first characteristic contributing to the attractiveness of the senior market is its size and growth. As French and Fox (1985, p. 61) state: "*If lucrative markets are characterized by size, growth and disposable income, then senior citizens merit marketers' attention*". Marketing literature highlights both the opportunities available to firms in targeting the senior market, as well as the dangers in failing to recognise and react to this demographic shift. For example, Mattila et al. (2003) describe how population ageing will transform societies toward a marketplace of increasingly mature consumers, thus significantly altering the consumer bases for many firms. As a result of these changes, Silvers (1997) believes that firms which fail to respond to this demographic phenomenon and exclude older people from their marketing plans risk a loss of future sales and revenue.

According to Leventhal (1997, p. 276), such is the size of the senior market and so profound are the effects of population ageing, that consumers aged 50+ will impact upon "*the foods we eat, the things we do to amuse ourselves, the way we dress, the places we travel, what we read, what we see on television, the homes we live in, the cars we drive [and] the hotels and hospitals we use*". As such, population ageing is something marketers must be aware of and respond to. In his study of older consumers in the UK, Ahmad (2002) argues that firms should take greater notice of the senior market not only because of its size and growth, but also because of the dynamics of population ageing meaning that youth markets are also shrinking. Dychtwald (1997) observes a similar demographic phenomenon in the US, where individuals aged 65 and above now outnumber teenagers. Myers and Lumbers (2008) suggest that the growth of the senior market will require firms

to be responsive to the needs and wants of older consumers to survive and prosper.

While very few, if any, studies deny prevalence of population ageing, some authors have questioned the dimensions with which the senior market is defined. Burt and Gabbott (1995) describe the inter-relatedness between dimensions used to define the senior market and perceptions of its size. For example, despite chronological age being considered an insufficient and overly simplistic way of segmenting the senior market (e.g. Szmigin and Carrigan, 2001), it still forms the basis for understanding the size of the senior market in much academic research (see Table 2.1). Chronological age has also been used in practice to understand and segment the senior market. For example, Help the Aged (1999) once divided the senior market into three sections: (1) 'Young old' (those aged 55-64); (2) 'Mature' (65-74); and (3) 'Old old' (75+). Burt and Gabbott (1995) describe how the choice of age break will affect estimates of the size of the senior market. By defining the senior market often as broadly as any individual aged over 50, generalisations regarding characteristics and behaviours of the senior market as a whole may be misleading. Therefore, a more sophisticated approach to understanding and segmenting the senior market is required. Methods for segmenting the senior market are explored in Section 2.5.

Table 2.1 Definitions of the Senior Market by Chronological Age from Marketing and Consumer Behaviour Journals

Author and date of publication	Age range	Journal title
Ahmad (2002)	50+	International Journal of Market research
Bone (1991)	50+	Journal of Consumer Marketing
Carrigan et al. (2004)	55+	Journal of Consumer Marketing
Goodwin and McElwee	55-84	International Review of Retail, Distribution and Consumer Research
Jones and Mullan (2006)	55-87	Journal of Consumer Marketing
Laukkanen et al. (2007)	55+	Journal of Consumer Marketing
Leventhal (1997)	50+	Journal of Consumer Marketing

Author and date of publication	Age range	Journal title
Mathur et al. (1998)	55+	Journal of Services Marketing
Moschis (1992)	55+	Journal of Services Marketing
Mumel and Prodnik (2005)	50+	Journal of Fashion Marketing and Management
Myers and Lumbers (2008)	55+	Journal of Consumer Marketing
Nasco et al. (2012)	55+	Services Marketing Quarterly
Pak and Kambil (2006)	50+	Journal of Business Strategy
Pettigrew et al. (2005)	50+	Journal of Consumer Marketing
Silvers (1997)	50+	Journal of Consumer Marketing
Vuori and Holmlund-Rytkonen (2005)	55+	Marketing Intelligence and Planning

2.2.3. Financial Wealth of the Senior Market

The second characteristic contributing to the attractiveness of the senior market is the relative financial wealth possessed by many older people. A number of studies have discussed the high levels of financial wealth possessed by older people in the UK (e.g. Long, 1998; Ahmad, 2002; Stroud, 2005; Simcock and Sudbury, 2009) and in Europe (e.g. Thompson and Thompson, 2009). For example, Long (1998) estimates that people aged over 45 hold 80% of financial wealth in the UK. Metz and Underwood (2005, p. 11) describe average pensioner incomes as being their highest in several decades, highlighting the income replacement rate (the ratio of average income post-retirement to that a pre-retirement) in the UK as being 78 per cent. A similar figure is reflected in many developed economies (Metz and Underwood, 2005). Stroud (2005, p. 25) compares the spread of wealth among UK citizens, describing how individuals “aged between 50 and 54 have, on average, 30 per cent more income than those in the 25-29 age group”. According to Ahmad (2002, p. 343): “Older people have substantial income and expenditure”. Simcock and Sudbury (2009a) describe older people as being healthier and wealthier than previous generations, and suggest that older people not only possess greater levels of financial wealth than younger age groups, but also have fewer debts. A similar phenomenon in has been observed in other economies,

such as the United States (U.S) (e.g. Szmigin and Carrigan, 2001; Pak and Kambil, 2006; Nasco et al., 2012). For example, Nasco et al. (2012, p.120) state that in the U.S, “*Consumers over the age of 55 tend to have twice the discretionary income of their children and have higher per capita income than members of any other age group*”. Pak and Kambil (2006) believe this spread of wealth is likely to be sustained, characterising the senior market as a growing economic force that will transform multiple industries unlike any prior demographic shift in history.

A number of authors highlight the ageing of the baby-boom generation in particular as bringing new levels of financial wealth to the senior market unseen in previous generations (e.g. Nielson and Curry, 1997; Brown and Orsborn, 2006; Weigelt and Boehman, 2009). Such is the extent of the financial wealth harbored by the baby-boom generation that Sudbury and Simcock (2009a, p. 26) describe stereotypes of older people as beginning to shift “*from that of a disadvantaged group to one marked with prosperity, hedonism, and selfishness, with the old emerging as a scapegoat for many of society’s problems*”. This shift is also noted by a number of authors (e.g. Streib and Binstock, 1990; Howker and Malik, 2010; Willetts, 2010; Leach et al., 2013). Baby-boomers are viewed as a privileged generation, having enjoyed free school meals, free universities and a 40-year-long house boom (Hutton, 2010). Willetts (2010, p. xxi) discusses the economic power held by baby-boomers, and asks “*Will boomers be selfish with their luck, or will they press it on to the next generation?*”, declaring that “*So far the evidence is not good*”. This view reflects that of the ‘jilted generation’, defined by Howker and Malik (2010) as those born between 1979 and 1994, who are deprived of access to jobs and housing whilst having to meet the pensions and health care costs of an ageing population (Leache et al, 2013, p. 106). Despite this, others are less optimistic in their outlook for the baby-boom generation. In the context of the United Kingdom, McKee and Stuckler (2013) argue that due to “*a combination of actions and failures to act by the government*”, with regards to large parts of the baby-boom generation living on credit, that “*many older people will be much poorer than they had expected*”. This negative forecast is attributed to four issues: a crisis of social care; inadequate pensions; greater hardship coming as a result of changes to taxation; and uncertainty surrounding the future of universal benefits (McKee and Stucker, 2013, p. 12). Greene (2009) describes a similar situation in the U.S, where baby-

boomers are said to be delaying retirement due to financial difficulties. These difficulties are further exacerbated by low interest rates, leaving many older people unable to rely on their savings during retirement. For example, research by Read (2012) found that “*Older people are being hardest hit by the long period of record low interest rates, with four times as many becoming insolvent than the average*”. Moreover, in a study from the Oxford Institute of Ageing, Hoff (2008, p.6) warns that the imminent passage of the baby-boom cohort into old age may result in rising numbers of older people being affected by poverty and social exclusion. Other studies from fields including sociology (e.g. Price, 2006; Foster, 2011), economics (e.g. Cherchye et al., 2012), and other older consumers studies (e.g. Lyon et al., 2002; Zaidi and Gasior, 2010; Hoff, 2008) are also less optimistic about the future financial security of many older people. For example, research conducted by the European Centre for Social Welfare, Policy and Research (Zaidi and Gasior, 2010) suggests that up to 30% of people aged 65 and over in the UK are now at risk of living in poverty. This view is shared by Townsend (2010) who states that the poorest persons in the UK consist chiefly of older persons. Blythe et al. (2005) also state that those aged 75 and over are far more likely to suffer financial hardship than other age groups. More recently, Cherchye et al. (2012) analysed poverty and economic well-being among older people using both the traditional measure with a standard equivalence scale and a collective consumption model. By measuring expenditure on food, clothing, vices, housing, transport and energy for elderly couples, Cherchye et al. (2012) found that not only does economic well-being decline for many people as they age, but also that previous measures had underestimated the level of this decline and poverty among older people.

While marketing literature does not deny the prevalence of poverty among the senior population, it is frequently overlooked or not sufficiently acknowledged. Turley (1994) suggests that by omitting discussions surrounding less affluent older people, studies may present an overly optimistic picture of the senior market. Reviewing evidence from other relevant streams of literature provides a more balanced picture, partly revealing the heterogeneity of the senior market.

2.2.4. Spending Habits of the Senior Market

The third characteristic contributing to the attractiveness of the senior market is the propensity for older consumers to spend. Older consumers are highlighted as already representing significant segments for a number of industries, including healthcare (Nasco and Hale, 2009), travel (Mathur et al., 1998), clothing and apparel (Greco, 1986; Mumel and Prodnik, 2005), mobile telecoms (Niemela-Nyrhinen, 2007) and groceries (Meneely et al., 2009), amongst others. As populations grow increasingly aged, older consumers are likely to become significant segments for an increasing number of other industries (Dychtwale, 1997; Carrigan, 1998; Kingman, 2010).

According to Long (1998), people aged 45 and above account for 30% of consumer spending in the UK. More recently, Moss et al. (2013, p. 46) described the senior market as possessing “*relatively high levels of disposable income*”, stating that 70% of retirees-to-be in the UK plan to “*spend their capital during their retirement, buying holidays, cars, and the basics, rather than save up a nest egg for their children*”. Ahmad (2002) estimates that consumers aged 50 and above spend on average 18% more than the any other segment of UK population in general. In particular, older consumers are said to be some of the highest spenders on leisure goods and services, motoring and food (Ahmad, 2002). A number of studies highlight the importance of older consumers to the financial services industry (e.g. Bone, 1991; Mattila et al., 2003; Stroud, 2005). Kennett et al. (1995) describe how the high levels of financial wealth possessed by many older consumers, as well as early retirement and increased longevity, make the senior market extremely lucrative to financial services providers.

In his article exploring the attractiveness of senior market in Ireland, Turley (1994, p. 23) highlights the following commonly cited factors (amongst others) as contributing towards an optimistic view of senior spending:

1. The absence of children in the home;
2. The proliferation of benefits and discounts for seniors;
3. The benefit of high interest rates on savings over the last twenty years; and
4. The later age of inheritance.

While these factors may contribute to spending among more affluent subsegments of the senior market, due to economic and societal changes, other subsegments of older consumers may face a different picture. For example, market data from Key Note (2009) shows that high property prices and the trend towards delaying marriage mean that many older consumers have seen a reduction in spending as their children remain financially dependent upon them. Previously, a later age of inheritance was viewed positively for older people's finances as many would receive a financial boost around the time of retirement. However, the negative impact of this phenomenon was unforeseen, with many older people now caring for financially dependent elderly parents who are experiencing ill health (Key Note, 2009). Other claims such as the proliferation of benefits and discounts contributing towards the spending power of older consumers are subject to debate, with research showing large numbers of seniors choosing not to subscribe to such schemes to avoid associating with old-age (Moschis et al., 1993). These factors further reinforce the needs for firms to apply sophisticated approaches to segmenting the senior market to better understand the purchasing behaviours of subsegments of older consumers.

2.2.5. A Missed Opportunity

In light of the above stated characteristics of the senior market, numerous studies have urged marketers to take greater notice of older consumers and to develop marketing strategies to better serve their needs. These calls have been made for several decades (see Dodge, 1962; Morse, 1964; Phillips and Sternhal, 1977; Bartos, 1980; Visvabharathy and Rink, 1984; Ahmad, 2002). What is surprising is that these calls are still being made now (see Moschis et al., 2011; Moschis, 2012; Sudbury-Riley et al., 2012; Moss et al., 2013), suggesting that firms are seemingly still overlooking this business opportunity. The proceeding sections will review commonly cited factors perceived as contributing towards the continued neglect of the senior market.

2.3. Industry Inactivity Towards the Senior Market

2.3.1. Marketing's Obsession with Youth

When speculating on reasons why firms continue to neglect the senior market, a number of studies highlight a youth-centric outlook which is said to characterise many firms (Dodge, 1962; Bartos, 1980; Tynan and Drayton, 1988; Stroud, 2005; Murray, 2009). For example, Bartos (1980, p. 140) claims that most marketers limit their efforts to understanding those consumers aged under 49, only considering those above this age as relevant for products such as “*denture cleansers, laxatives, tonics... and arthritic remedies*”. In so doing, most firms are said to be missing the opportunity to target 2 out of every 5 of their potential consumers (Bartos, 1980). Similarly, Visvabharathy and Rink (1984, p.35) accuse managers of focusing on younger age groups under the assumption that older consumers do not possess or demonstrate the “*necessary affluence or life-style*” to warrant the introduction of new products. Despite later presenting evidence to suggest that the senior market is receiving greater attention (Visvabharathy and Rink, 1985), firms are still accused of affording younger consumers undue prominence with their marketing efforts. More recently, Thompson and Thompson (2009) have suggested that youth-centrism still pervades many firms. Modern marketing practice is described as having developed to satisfy the needs of growing, affluent and persuadable youth markets following the Second World War (Thompson and Thompson, 2009). Despite the growth of the senior market and increased awareness of population ageing, Thompson and Thompson (2009, p. 1283) claim that “*most marketing programmes [are] aimed at 18-34 years olds...[and] older consumers are frequently not even considered at the product design stage*”.

Carrigan and Szmigin (1998) use findings from a content analysis of print advertisements to demonstrate firms' preoccupation with younger consumers. Upon reviewing 246 advertisements, it was concluded that older people are under-represented and largely ignored by advertisers; to the extent that even the small number of products that were specifically targeted at the senior market did not feature older models (Carrigan and Szmigin, 1998). Simcock and Sudbury (2006) also explored representations of older models in prime time television advertisements. Upon analysing the content of 2058 television advertisements, it was found that while older models were not portrayed as being stereotypically old,

they were still unrepresented in major roles (Simcock and Sudbury, 2006). In a similar study in the context of the U.S, Roy and Harwood (1997) also found older people to be under-represented in an analysis of 778 television advertisements.

Some studies attribute marketers' obsession with youth and reluctance to target the senior market to the negative stereotypes and misconceptions of older people (e.g. Tynan and Drayton, 1985; Mumel and Prodnik, 2005; Barnhart and Penaloza, 2013). Due to the perpetuation of myths surrounding older people, marketers fail to recognise the potential profitability in the senior market (Thornton, 2002; Stroud, 2005). Commonly cited stereotypes include the ubiquity of ill health among seniors (Mumel and Prodnik, 2005), an aversion to adopting innovative products (Rogers, 1983), as well as a lack of financial power (Visvabharathy and Rink, 1984). Discussing such stereotypes, Dytchwald (1997, p. 272) describes a culture which is "*deeply gerontophobic*", where a "*fear of ageing and prejudice against the older population pervades much of society*".

2.3.2. A Lack of Empathy from Young Managers

A number of authors highlight the inability of young marketers to understand the needs of older people as a reason for the continued neglect of the senior market (e.g. Dychtwald, 1997; Metz and Underwood, 2005; Thompson and Thompson, 2009). As the majority of people working in marketing and advertising are aged under 50 (Thompson and Thompson, 2009), they are said to be unable to understand and empathise with the needs of older people. For example, Dychtwald (1997, p. 273) describes the many "*young and usually well-meaning*" managers who lack understanding of the realities of ageing. Metz and Underwood (2005) observe that within marketing and advertising agencies, those briefs that target the senior market are often attributed to the youngest and least experienced teams. This leads to a "*self-perpetuating estrangement between a youth-dominated advertising and marketing industry and a maturing population*" (2005, p. 161).

Arguably, using chronological age alone provides an insufficient means of understanding consumer behaviour amongst older people as homogeneity cannot be assumed between age groups (e.g. Szmigin and Carrigan, 2001; Ahmad, 2002;

Guido et al., 2014). Instead, cognitive age is suggested as a more accurate method for understanding older consumers' purchasing behaviours (Barak, 1987; Yoon et al., 2005). Despite the accuracy of cognitive age (versus chronological age) being widely accepted in the context of understanding older consumers, it appears the same logic does not apply within the literature to the behaviours of young managers. If cognitive age is considered a more accurate way of understanding the needs of older consumers, this raises the question of why the chronological age of managers should be a barrier to this understanding. Kohlbacher et al. (2014) suggest that a managers' age is less important to developing new products for the senior market than possessing the "*right empathic capabilities and customer orientation towards older people*".

2.3.3. Attempts at Targeting the Senior Market

This combination of factors leads to a situation where many firms lack the necessary knowledge and understanding of the senior market to effectively target older consumers (Gunter, 1998; Thornton, 2002; Mumel and Prodnik, 2005; Stroud, 2005). As a result, a number of failed attempts to develop new products for the senior market are highlighted in the literature. A well-known example is that of 'Senior Foods', a modified baby-food product manufactured by the Heinz Corporation (Schewe, 1991). Heinz discovered through market research that a portion of their baby-food sales were going to older people. Although designed for babies, the small portion size and easy digestion of the products made them ideal for certain older consumers (Metz and Underwood, 2005). Realising this, the firm launched their 'Senior Foods' version of the product. The range was a failure as consumers did not wish to be perceived as having digestive problems or to be associated with being 'old' (Metz and Underwood, 2005). This example highlights a key challenge in targeting the senior market: how to develop products and services for older people without stigmatizing and alienating the very group you wish to reach (Myers and Lumbers, 2008; Bispo and Branco, 2011), as many older consumers are said to avoid purchasing products that label them as 'old' (Schmidt-Ruhland and Knigge, 2008). As Turley (1994, p. 26) explains: "*Possessing the Heinz product... was a tacit admission to fellow shoppers that the purchaser was both elderly and experiences an age-related difficulty*". A further example is 'Heyday'; a membership organisation of charity Age Concern. Heyday was created

to provide baby-boomers with information regarding health, finances, pensions and other related subjects as they entered into retirement. However, the organisation found that baby-boomers did not want to be associated with being 'old' and received very few applications (Plummer, 2009). As a result, Heyday lost Age Concern £16million (Revill, 2007).

However, other studies provide successful examples of products targeted towards senior consumers (e.g. Compagna and Kohlbacher, 2014; Kohlbacher and Hang, 2011). For example, Kohlbacher et al. (2014) highlight several high technology products developed to meet the needs of older consumers. These include a mobile phone designed for senior consumers from 'Emporia Telecoms', and a 'Hybrid Assistive Limb' suit from the 'Daiwa House Corporation' in Japan which *"helps older people move their limbs and helps workers carry heavy weights"* (Kohlbacher et al., 2014). Examples of FMCG firms delivering value to older consumers through new products include 'Yoplait's' 'Cal-In Plus' yoghurts (a calcium and vitamin D rich product, promoted in conjunction with the firms partnership with the National Osteoporosis Society) and 'On the Menu's' ready-meals for older consumers. 'On the Menu' is a UK-based SME that produces ready-meals specially catered to the needs of older members of the senior market. The firm has successfully targeted a subsegment of the senior market by tailoring their product offerings to the needs of older members of the senior market. All aspects of the firm's products, including the recipes, nutritional requirements, packaging and positioning are developed with the needs of older consumers in mind (Bamford, 2012). These examples suggest that a small number of firms are beginning to grasp how to deliver value to older consumers' through NPD. Key to this ability is developing understanding of the process of ageing. The following section will explore conceptualisations of ageing with gerontology literature and marketing studies.

2.4 Understanding Older Consumers' Needs

2.4.1. Ageing as a Multidimensional Process

Within marketing literature, the senior market has long been regarded as a heterogeneous segment (e.g. Bartos, 1980; Leventhal, 1997; Moschis et al., 1997; Sudbury and Simcock, 2009). As Mattila et al. (2003, p. 515) describe: *"The*

mature market consists of older people who exhibit a great deal of variability with respect to the way they look, think and act". Greco (1986) considers older consumers as not only being different to younger age groups, but to also differ among themselves by age, income, education, and lifestyle. This diversity of needs is attributed to the multidimensionality of the ageing process, wherein individuals age in different ways and at different rates. The view of ageing as a multidimensional process is well-established in the field of gerontology and in many sociological studies (e.g. Birren, 1959; Bond et al., 1993; Kane and Kane, 2000; Birren and Schaie, 2001). These fields have provided a number of commonly cited theories of ageing. Moschis (1996, p. 17) describes theories of ageing as offering "*explanations for observed patterns of thought and action*". A variety of theories have attempted to explain ageing and age-related behaviours. For example, the life-course perspective views social integration and health in later life as being influenced by human development and social processes throughout an individual's life (Mayer and Tuma, 1990, Moen et al., 1992). Related to the life-course perspective is the concept of the generational cohort (Ryder, 1965; Glenn, 2005). Clausen (1986) describes the life-course as consisting of three components: *life time*, *social time* and *historical time*. These components are defined in Table 2.2. In his description of *historical time*, Clausen (1986) captures the view that each generational cohort possesses its own unique characteristics, beliefs, values and customs. Gardiner et al. (2013, p. 640) suggest that these characteristics are formed by the shared experiences of individuals "*coming of age*" in particular historical contexts. These unique characteristics shape the identities of particular cohorts, thus distinguishing them from others.

Table 2.2 Clausen's (1986) View of the Life-Course (Adapted with Quotes from Moschis, 1996).

Life course component	Description
<i>Life time</i>	"...biological or psychological changes of the body or its systems and the onset of disease" (Moschis, 1996, p. 29)
<i>Social time</i>	"a set of norms that specifies when particular life transitions or accomplishments are expected to occur in a particular society or social milieu" (Clausen, 1986, p. 2).
<i>Historical time</i>	"...mirrors societal change, epoch-making events, and cultural eras. The focus is on movement of transitions of individuals and groups (cohorts) that experience a given event or set of circumstances" (Moschis, 1996, p. 29).

Underpinning the life-course and generational cohort perspectives (as well as many other derivatives) is the notion of ageing as a multidimensional process. Commonly, ageing has been considered as consisting of biological, social and psychological effects (e.g. Ahmad, 2002; Bond et al., 2007; Hooyman and Kiyak, 2008; Young et al., 2009). Table 2.3 presents definitions for of each these dimensions from Ahmad's (2002) study exploring the characteristics and attractiveness of older consumers in the UK.

Table 2.3 The Multiple Dimensions of the Ageing Process (including Quotes from Ahmad, 2002).

Dimension of ageing	Definition
<i>Biological ageing</i>	"A process of change to a person's cells and tissues. These changes cause a deterioration of individuals' biological system, which, in turn, makes them susceptible to illness and alters their functional capacity, for example to listen, to see, to walk and to travel".
<i>Psychological ageing</i>	"Focuses on mental abilities and sees changes in a person's ability to think and reason. Psychological ageing measures the change in cognition and personality of individuals; for example, in processing information, understanding advertising messages and making choices".
<i>Social ageing</i>	"Sees changes in individuals' social relationships within their social groups. Sociological ageing measures individuals' ability to play various roles throughout their life such as heads of family, grandfathers or leaders of consumer groups".

According to Sudbury and Simcock (2009a) biological ageing can affect consumer needs and the consumer's ability to function in the market place; psychological ageing is likely to impact upon consumer information processing and problem-solving abilities; and social ageing is also likely to alter consumer needs as individuals assume different roles in later life and experience different social circumstances (e.g. entering retirement, becoming a grandparent, or suffering bereavement).

Despite the multidimensionality of the ageing process being widely understood and accepted in Marketing studies, other areas of management literature are said to view ageing too simplistically, often basing their understanding on chronological age alone (Sudbury and Simcock, 2009a). As a result, many studies limit their understanding of ageing to that of senescence. Derived from the Latin *senex*, meaning old man or older age, senescence is defined by Campisi and di Fagagna

(2007, p. 730) as “*deteriorative processes that follow development and maturation*”. While the effects of senescence are universally experienced to varying degrees, to view ageing only through the lens of senescence overlooks the other dimensions which comprise the ageing process. Human beings age in complex ways, affected as much by social and psychological processes as biological ones (Moen et al., 1992). Therefore, viewing ageing as a multidimensional process offers wider meaning and implications than when seen merely through chronological age (Ahmad, 2002). The result of a myopic chronologic-centric view is a lack of understanding about older consumers (Gunter, 1998; Thornton, 2002; Mumel and Prodnik, 2005) and, in turn, the development of products which are unsuitable for many older people’s needs (Lunsford and Burnett, 1992; Hare et al., 1999; Lyon et al., 2002; Pak and Kambil, 2006; Goddard and Nicolle, 2012).

The following subsections will examine Marketing literature exploring the effects of biological, psychological and social ageing on older consumers’ needs.

2.4.2. The Effects of Biological Ageing on Consumer Needs

2.4.2.1. Physiological Decline

There is a wealth of literature exploring the implications of biological ageing for marketing management. While some studies highlight the growing number of older people who remain physically active as they age (e.g. Weijters and Geuens, 2006), other studies suggest that as individuals advance in later life, they will inevitably experience some physiological changes (e.g. Barrère, 1992; Steenbekkers and van Beijsterveldt, 1998). Such changes may include the gradual decline of a number of physical capabilities, such as eyesight, hearing, taste and olfactory sensitivities, touch sensitivity, muscle strength and grip strength (Schewe, 1988). Lim and Kim (2011, p. 765) describe how “*physical disabilities or activity limitations play significant roles in the lives of many older consumers, influencing their everyday activities, employment, and social relationships*”. Lyon et al. (2002, p. 179) differentiate between ageing and illness: “*While the physical, sensory and psychological effects of the ageing process do not constitute illness, nor warrant assumptions of an invariable linkage between age and incapacity, they are real and limiting for many*”. As such, firms should not view the senior market as

replete with illness, but should recognise within their NPD processes that older age does increase the risk of certain sensory or mobility-related restrictions (Lyon et al., 2002).

When discussing the growth of the senior market Dychtwald (1997, p. 272) highlights a variety of products that may need redesigning in order to accommodate biological ageing-related changes: “*The typeface of books will get larger, traffic lights will change more slowly, steps will get lower, bathtubs less slippery, chairs more comfortable, reading lights brighter, clothing more comfortable, food more nutritious, and public signs easier to read*”. In his article exploring marketers’ responses to physiological ageing, Schewe (1988) links positive consumption experiences with life satisfaction. Life satisfaction is said to reflect one’s ability to take pleasure in everyday activities and to hold a positive sense of one’s self (Schewe, 1988). Greco (1986) also emphasises the importance of positive consumption contributing towards life satisfaction, suggesting that difficulties with everyday products impact upon life satisfaction more so than marital status, education or income. As such, it is argued that those firms who consider the effects of biological ageing in the development and marketing of new products will deliver greater value to older consumers, thus differentiating themselves from their competitors (Schewe, 1988).

2.4.2.2. Retail Service Development

Pertinent to this study is the growing body of research exploring older consumers’ experiences with retail environments; in particular are those studies exploring supermarkets and other FMCG outlets in relation to biological ageing (e.g. Hare et al., 1999; Hare, 2003; Meneely et al, 2009).

Hare et al. (1999) used a critical incident technique to elicit older consumers’ stories regarding food shopping experiences. A number of “store” factors were identified as contributing to dissatisfaction with the shopping experience. These included issues with quantities of food, checkout services, and merchandising (in terms of accessibility). These are in-keeping with findings from other studies (e.g. Leighton and Seaman, 1997; Yin et al., 2013). Hare et al. (1999) suggest that considering these store factors will aid firms both in targeting the senior market

and in offering greater value to consumers as a whole. Several studies also highlight difficulties with packaging in store as affecting retail experiences for older consumers (e.g. Oates et al., 1996; Leighton and Seaman, 1997; Hare et al., 1999; Yin et al., 2013); however, little detail is provided into the type of difficulties encountered.

Despite claims in prior research that retailers are showing greater interest in the senior market (e.g. Johnson-Hillery et al., 1997), Meneely et al., (2008) suggest that there is little evidence to demonstrate that retailers are attempting to meet the needs of older consumers. This is in-keeping with Hare et al.'s (1999) assertion that older people accept their dissatisfaction with retail experiences as they feel their opinions are overlooked by retailers. Johnson-Hillery et al. (1997) also observe a divide between older consumers' satisfaction levels with retail experiences and store employees' perceptions of these satisfaction levels.

2.4.2.3. Packaging and Biological Ageing

Anthropometric and physiological changes which can occur as a result of biological ageing have implications for a variety of everyday activities and marketplace interactions (Ishihara et al., 2001). For example, changes to an individual's eyesight as a result of biological ageing have been linked to falls and motor vehicle collisions (e.g. Mortimer and Fell, 1989; Massie et al., 1990; McMurdo and Gaskell, 1991). Charness et al. (2010, p. 252) describe how the majority of older adults experience changes to their vision, highlighting four main categories of change (see Table 2.4).

Table 2.4 Changes to Vision from Biological Ageing (Adapted by Author from Charness et al., 2010, p. 252)

Category of Change	Description/Effects of Change	Related Research/Supporting Evidence
Loss of acuity	The inability to focus on nearby objects. Known as presbyopia. Can also impact on distance vision. Occurs as a result of lenses gradually becoming thicker, denser and less flexible.	Kline and Scialfa (1996); Saxon and Etten (2002); Watkinson (2005); Duizer et al. (2009); Piqueras-Fiszman et al. (2011).
Less sensitivity to light	Diminishing ability of the eye to adjust to changing amounts of light (Schewe, 1988, p. 66). Occurs as a result of changes in the smooth muscles of the iris that cause the pupil	Kosnik et al. (1988); Schewe (1988); Sturr et al. (1997); Jackson et al. (1999); Margrain and Boulton (2005).

	to shrink in diameter.	
Reduction in ability to distinguish colours	Reduced abilities to detect contrast and distinguish target from background (Sudbury-Riley, 2014, p. 672). Can occur as a result of lenses becoming yellow, thus impairing the refractive ability of the lens and distorting colours.	Moschis (1992); Pirkl (1994); Fiorentini et al. (1996); Swanson and Fish (1996); Clarkson et al. (2003); Chavalkul et al., 2011.

Research has highlighted how changes to vision can impact on packaging interactions. For example, those changes described in Table 2.4 may affect individuals' abilities to identify products and decipher product information (Chavalkul et al., 2011; Piqueras-Fizman et al., 2011). In order to fully understand how aged-related changes to vision may impact on packaging interactions it is important to distinguish between physiological changes which can occur as a result of biological ageing and changes which occur due to illness. Authors such as Busse (1969) and Eisdorfer and Wilkie (1977) distinguish between primary and secondary ageing. Anstey et al. (1993, p. 562) describe primary ageing as "*innate maturational processes*", and secondary ageing as "*the effects of the environment and disease*". As such, Masoro (2006, p. 47) describes how the concepts of primary and secondary ageing relegate "*disease, including age-associated disease, to that of a factor that can influence aging but is not an integral part of the aging process*". In the case of packaging interactions, illnesses such as glaucoma (secondary ageing) may exacerbate difficulties experienced when attempting to read labels (Karwatsky et al., 2004). Given the significant role played by packaging as a marketing communications tool (see Section 3.7.1.5), understanding changes to consumers' eyesight as they age will be of importance to managers involved with the development of new packaging. This includes understanding both changes as a result of primary ageing as well as the prevalence of illnesses among older consumers which may exacerbate difficulties experienced when reading labels. Furthermore, Duizer et al. (2009) found that many older people believe that eyesight problems contributed to difficulties they experience opening products.

A great variety of literature has highlighted changes to hand strength and dexterity as also negatively affecting consumers abilities to open particular products (e.g. Voorbij and Steenbekkers, 2002; Lewis et al., 2007; Yoxall et al., 2007; Yoxall and

Janson, 2008; Duizier et al., 2009, Yoxall et al., 2013;). Physiological changes as a result of primary ageing including a gradual decline in hand strength are identified as contributing towards difficulties with opening particular pack types (e.g. Peebles and Norris, 2003). For example, according Yoxall et al. (2006, p. 219) describe how the strength of an average 70 year-old is comparable with that of a 10 year-old child. This can lead to difficulties opening pack types which can require considerable opening force (e.g. glass jars) and with 'child-resistant' packaging. Changes as a result of secondary ageing, such as the effects of arthritis and other musculoskeletal/neuromuscular disorders, are also identified as further contributing to difficulties opening a variety of packaging – including for FMCG and pharmaceuticals products (e.g. Duizier et al., 2009; Su et al., 2009; Yoxall et al., 2010; Philbert et al., 2014; Rowson et al., 2014). While the majority of studies explore factors related to gross motor skills, others also highlight changes in fine motor skills which may impact on openability (e.g. Marks et al., 2012). Being unable to open packaging and access products represents a considerable barrier to independent living and a challenge worthy of consideration during the packaging development process.

For some older consumers, changes to hearing may also affect packaging interactions. According to Charness et al., (2010, p. 253), most people experience losses to their hearing in their 40s which then progress with age. Dalton et al. (2003, p. 661) describe hearing loss as “*one of the most prevalent chronic conditions affecting older adults*” and as detracting from quality-of-life among older adults. Presbycusis (the most common form of sensorineural hearing loss) occurs due to changes in auditory nerve fibers that lead from the cochlea to the brain (Nelson and Hinojosa, 2006, cited by Charness et al., 2010). These normal primary ageing-based changes (Agrawal et al., 2008) may lead some older people to become more dependent on information conveyed through packaging due to difficulties gathering information auditorily, be that from a television advertisement or a shop assistant. As is the case with changes to vision impacting on individuals' abilities to decipher information from packaging, the negative implications of these difficulties may be particularly critical for those suffering from chronic illnesses or with particular dietary requirements (Lewis et al., 2009).

Other studies have found biological ageing to impact upon appetite; a reduction in consumption is noted among older people (Hughes et al., 2004; Simpson et al., 2005). This reduction is partly attributed to decreasing abilities to taste and smell (Popper and Kroll, 2003; Dean et al., 2009). This has implications for packaging in that smaller portion sizes may be more suitable for older consumers.

Marketing research investigating packaging and biological ageing in depth is scarce. In the first marketing study of its kind, Sudbury-Riley (2014) used qualitative diary research to explore older consumers packaging experiences. Diary entries revealed difficulties with packaging as a result of biological which included issues opening products and reading labels. While all aspects of biological ageing are said to present marketers with challenges, changes to skeletal muscle and declines in vision are highlighted as the most significant with regards to packaging experiences (Sudbury-Riley, 2014). In the study, the detrimental effects of difficulties encountered as a result of biological ageing on psychological ageing are noted. The following subsections will explore the effects of changes related to psychological ageing on various marketplace interactions (including those with packaging).

2.4.3. The Effects of Psychological Ageing on Consumer Needs

2.4.3.1. Changes in Cognition

A number of studies have attempted to understand elements of psychological ageing in relation to consumption and marketing variables. Drolet et al. (2010) describe understanding the goals of older consumers' consumption activities as being critical for the creation of products and services which appeal to the senior market. The fields of cognitive psychology and neuroscience have provided significant insights into memory and other cognitive functions during later life (e.g. Philips and Sternthal, 1977; Poon, 1985; Sorce, 1995; Gutchess, 2010). Findings include a gradual decline in explicit memory (typically from the age of 60), resulting in difficulty consciously retrieving information and their respective sources (Lambert-Pandraud et al., 2005). Regarding packaging interactions, changes in explicit memory may have implications for the design of labels – in particular for the provision of information and instructions. In the case of products such as pharmaceuticals, being able to decipher dosage instructions will be of particular

importance for individuals experiencing changes to their explicit memory. More broadly, changes as a result of psychological ageing may affect other packaging interactions, such as product identification and selection and product opening. As Schifferstein and Desmet (2007, p.2027) describe, the overall product experience (and likely value derived from a product) includes “[consumer] *perceptions, the identification process it triggers, the cognitive associations and memories it activates, the feelings and emotions it elicits, and the evaluative judgments it brings about*”. As such, there is a need for managers to consider aspects of psychological ageing in relation to packaging interactions – both with regards to perceptions of particular pack types and components and in relation to psychological responses to difficulties with packaging.

In addition to research from cognitive psychology and neuroscience, there is now a growing body of literature exploring older consumers’ responses to a variety of marketing variables. Several authors have explored motivational developments and preferences for particular kinds of marketing communications messages (e.g. Nielsen and Curry, 1997; Fung and Carstensen, 2003; Williams and Drolet, 2005). In their article exploring older consumers’ responses to advertising messages, Nielsen and Curry (1997) observe a number of differences in advertisement preferences between older and younger consumers. For example, advertisers are recommended to avoid using quick-cut MTV style editing in television advertisements; older consumers are said to find short, choppy and incomplete sentences exasperating (Nielsen and Curry, 1997, p. 316). This is in-keeping with research that has shown speed of information processing to decline with age (e.g. Phillips and Strenthal, 1977; Gutches, 2010). Other findings include preferences for particular colour schemes and more altruistic messages (Nielsen and Curry, 1997). In their study Piqueras-Fiszman et al. (2011) explored packaging development from a semiotics perspective. They argue that psychological ageing may affect product perceptions based on packaging colours, symbology, typography and materials. These factors which form the basis of consumer product perceptions may be influenced by mental associations formed as a result of traditions and events experienced across the life course (Piqueras-Fiszman et al., 2011). Smith et al. (2010) describe how linguistic and symbolic signs on packaging can attract consumers to a product, but can also lead to feelings of disappointment should product performance not reflect those signs. This suggests

that packaging designers should attempt to understand psychological changes which occur across the life course when developing new packaging. Doing so may improve the chances of new product success by tailoring the imagery and lexicon of labelling, as well as format/material choices, to the psychological preferences of older consumers (Piqueras-Fizman et al., 2011). This is of particular importance given the pivotal role that packaging plays in influencing purchasing decisions in-store (Ares et al., 2011).

2.4.3.2. Socio-Emotional Selectivity Theory

Emergent from marketing studies exploring psychological ageing has been the development and application of socio-emotional selectivity theory (SST) to marketing contexts (Carstensen, 2006; Cole et al., 2008; Drolet et al., 2010). SST concerns perceptions of time, suggesting that *“constraints on time horizons shift motivational priorities in such a way that the regulation of emotional states becomes more important than other types of goals”* (Carstensen, 2006, p. 1913). According to Lambert-Pandraud et al. (2005, p. 108) SST claims that *“older people who perceive their time horizon as limited place greater emphasis on feelings and emotions, and their interest in new information declines”*.

SST has a number of implications for marketing to older consumers. For example, Drolet et al. (2010) use SST to highlight differences in how older versus younger consumers respond to marketing variables. Prior studies have shown how ageing affects preferences for different marketing communications messages; specifically, studies show that *“ageing is associated with an increase in people’s motivation to attend to more emotional versus non-emotional information, such as factual information”* (Drolet et al., 2010, p. 52). Cole et al. (2008) link SST to motivational changes as people age, suggesting that older consumers move away from *“development goals of growth (e.g., “I want to improve my health”), towards goals of maintenance (e.g., “I want to stay healthy”) and regulation of loss (e.g., “I do not want my health to deteriorate)”* (2005, p. 357). Cole et al. (2008) suggest that these changes in goals and motivations affect both responses to communications messages as well as product preferences. Wei et al., (2013) also suggest that changes in perceptions of time, as a result of the ageing process, can alter consumer’s attitudes towards product attributes. Managers may, therefore, be able

to harness these altered perceptions and use time perception manipulation techniques to target older consumers (Carstensen, 2006). For example, when targeting older consumers with new products marketers may use “*a limited time manipulation along with hedonic attributes to induce a desire*” for that product (Wei et al., 2013, p. 2176).

Whilst research has yet to explore packaging from an SST perspective, packaging’s role as a communications vessel (e.g. Sara, 1990; Nancarrow et al., 1998; Underwood, 2003), as well as research highlighting changes in product preferences as people age, suggests that understanding changes related to psychological ageing may aid FMCG firms in differentiating their products when targeting the senior market. For example, the research of Piqueras-Fizman et al. (2011) suggests that older people perceive and interpret communications messages delivered through packaging differently to younger people, often demonstrating preferences for more emotional imagery. This is in-keeping with the implications of SST, thus reinforcing the need for research in this area and the importance of understanding psychological age-related changes during packaging development.

2.4.3.3. Innovation Adoption

Another key theme associated with psychological ageing and consumption is the adoption of innovative products and services among older consumer. A number of authors rebut the purported stereotypical view of older consumers as being averse to adopting new (particularly disruptive) innovations (e.g. Leventhal, 1997; Stroud, 2005; Thompson and Thompson, 2009). According to Leventhal (1997, p. 297) older people will “*definitely try new products*”, but will do so not in an attempt to be trendy, but because they perceive value in that product to satisfy a specific need.

Despite this, a number of studies suggest that older consumers may be slower and more reluctant to adopt new technologies. For example, research into the adoption of online banking services from Mattila et al. (2003) found that older consumers were largely categorised as ‘late adopters’ (Rogers, 1983). The reluctance to engage with these services was attributed to concerns regarding security and difficulties engaging with computers and navigating relevant websites.

Similarly, Chen and Chan (2011) describe relatively low adoption rates of technologies such as computers and mobile phones among the senior market, despite many older consumers displaying positive attitudes towards technology (Laukkanen et al., 2007). In their study exploring repeat purchases of automobiles among older consumers, Lambert-Pandraud et al. (2005, p. 109) suggest that older people “*may avoid the risk that is associated with a bad decision, especially that which may lead to a financial risk*”. Therefore, unfamiliar and disruptive innovations will be avoided. Cole et al. (2008) describe most consumer behaviours as being driven by habit. For many people as they age, habits become more routinized, thus reinforcing the relationships between “*associations and stimuli and between associations and behaviors*” (2008, p. 362).

In order to encourage innovation adoption among the senior market Oumlil et al. (2000, p. 233) recommend that firms develop consumer education programs, highlighting older people as potentially having “*much to gain from a well-orchestrated consumer education effort*”. Studies exploring older consumers’ willingness to adopt innovative packaging are scarce. Chavalkul et al. (2011) explored older people’s abilities to open novel packaging, but revealed little regarding willingness to adopt such products. Generating understanding of factors which may encourage older people to adopt new packaging formats would be of significance during the packaging development process. This is particularly pertinent in light of new packaging technologies which could add considerable value for older consumers. Examples of such intelligent packaging include shelf-life extending packs, packs which are able to monitor the condition of food and alert consumers to contaminated products, and self-opening packs (Kerry and Butler, 2008; Abreu et al., 2012).

2.4.4. The Effects of Social Ageing on Consumer Needs

2.4.4.1. Shopping as a Form of Socialisation

In comparison with studies exploring the effects of biological and psychological ageing upon consumer behaviour, studies exploring social ageing are relatively scarce. This is despite the variety of changes which can occur to an individual’s roles and social standing as they enter different stages of the life-course. These changes may come as a result of events such as retiring, becoming a

grandparent, becoming an empty nester, or suffering bereavement (Clarke et al., 2005; Thomése et al., 2005; Phillipson and Baars, 2007). Each of these and other potential social changes may impact on an individual's consumption habits – including their interactions with packaging and the value they derive from FMCG products as a result of these interactions.

One aspect of social ageing that has been explored in some depth and is of significance to this study is the phenomenon of shopping as a form of socialisation. In their study exploring older consumers' experiences of shopping malls in the US, Kim et al. (2005) focused on understanding aspects of psychological ageing affecting consumer needs. In particular, the study explored the alleviation of loneliness attained through shopping. Whilst shopping as a form of recreation has also been observed in younger age groups (Bloch et al., 1991; Bloch et al., 1994), a number of other studies highlight in particular the importance of relieving social isolation through shopping experiences for many older people (e.g. Forman and Sriram, 1991; Balazs, 1994; Kang and Ridgway, 1996; Lim and Kim, 2011). Kim et al. (2005) suggest that aspects of social ageing mean that many older people have fewer choices and ways to relieve loneliness due to a lack of social integration. As such, malls and other retail environments provide older people who feel isolated with an outlet for *“social participation or interpersonal activities, thereby alleviating emotional isolation and preventing social isolation at the same time”* (Kim et al., 2005, p. 996). For example, Hare et al. (1999, p. 228) highlight the role of food shopping as a social activity, allowing older consumers the opportunity to get out of the house and meet people. Shopping as a means of relieving social isolation is linked with improved life satisfaction. For example, Kang and Ridgway (1996, p. 108) posit that *“knowingly or unknowingly, many marketers provide the important fringe benefit of social support for vulnerable elderly customers who would otherwise be more socially isolated”*.

2.4.4.2. Social Ageing and Packaging Experiences

Regarding the consumption of food and drink products, Davis et al. (1985; 1990; 2000) describe how changes to an individual's circumstances as a result of social ageing can lead to a reduction in food consumption. For example, becoming an empty nester or suffering bereavement is likely to impact upon the consumption of

various FMCG products, particularly regarding appropriate apportionment. This further exacerbates the ‘anorexia of ageing’ as a result of biological ageing (Dean et al., 2009), and supports Meneely et al.’s (2009) assertion that FMCG product developers should be aware of age related changes affecting consumer needs. As such, the provision of social support described by Kang and Ridgway (1996) may stretch beyond only retailers, and also have implications for packaging development. For example, by providing consumers with greater choice in terms of portion sizes (by changing packaging sizes), FMCG firms may be able to not only cater to the biological requirements of some older consumers with reduced appetites (see Section 2.4.2.3), but to also facilitate the use of shopping as a form of socialisation by encouraging regular outings.

Prior research has linked individuals’ sense of self with social ageing. Westerhof and Tulle (2007) suggest that within western culture, discourse surrounding age and ageing – be that in the media or in social policy – often portrays older people in a negative light. Authors such as Gilleard and Higgs (2011) suggest that social gerontology literature may also contribute to the perpetuation of such negative stereotyping through the use of terms such as the ‘third and fourth age’ due to the connotations this language carries. This discourse risks negatively affecting the self-concepts of older people who may come to associate with these perceptions of ageing in later life. Whitbourne and Primus (1996, cited by Hendricks 2013, p. 251) suggest self-concept “*is akin to a predicate, providing the schema by which the life-world is organized*”. As such, individuals who perceive ageing in a negative light may behave and assume roles in-keeping with these perceptions. Such behaviour may be triggered by events and marketplace interactions which act as reminders of ageing; including interactions with packaging. For example, in her study exploring older consumers’ packaging experiences Sudbury-Riley (2014) describes how the effects of packaging related stresses on an individual’s self-concept also have implications for social ageing. Linking difficulties with packaging to the theory of social breakdown syndrome (Kuypers and Bengston, 1973; Bengston et al., 2005), Sudbury-Riley (2014) describes a “*vicious circle where negative aspects of ageing create a vulnerability to and dependence on sources of external labelling*”. In the case of packaging interactions, feelings of uselessness and inadequacy due to physical difficulties with packaging can become a self-

fulfilling prophecy where older consumers assume a role which identifies with their negative feelings (Sudbury-Riley, 2014).

The concept of self-efficacy has been linked with QoL and avoidance of social breakdown among older people (Bowling, 2005). Self-efficacy is said to aid older people in coping with stresses which they experience as a result of age-related changes (Bowling et al., 2007), thus contributing to QoL. Mastery has been highlighted as a defence against stressful consequences (Pearlin and Schooler, 1978; Lazarus and Folkham, 1984). According to Burger (1989, p. 246), mastery is the “*perceived ability to significantly alter events*”. Similarly, Ben-Zur (2002, p. 359) describes mastery as “*whether one regards life occurrences as being under personal control or under fatalistic control*”. Mastery has therefore been linked with self-esteem. Individuals with positive self-esteem are more likely to exhibit higher levels of mastery. In turn, those individuals may respond to stresses with active coping mechanisms such as problem-focused strategies, rather than following avoidance/disengagement strategies (Ben-Zur, 1999; Ben-Zur, 2002). Kahana and Kahana (2013, p. 281) describe problem-focused strategies as “active efforts” to solve the problem, whilst avoidance strategies are more in-keeping with emotion focused coping which “aims at the maintenance of psychological well-being in the face of problem situations”.

While mastery has been associated with positive coping mechanisms to major life events such as recovering from heart surgery (Fitzgerald et al., 1993), other research has linked mastery with ‘daily hassles’ (e.g. Pearlin and Schooler, 1978; Jeon et al., 2006). Kanner et al. (1981, p. 3) define daily hassles as “...*the irritating, frustrating, distressing demands that to some degree characterize every transactions with the environment*”. Daily hassles have been examined in the contexts of the workplace (Zohar, 1999) and in the lives of university students (Evelyn et al., 2007), but also include other fortuitous occurrences such as bad weather, arguments, disappointments, and family concerns (Kanner et al., 1981). Lay and Safdar (2003, p. 3) highlight the accumulative nature of daily hassles, describing their “*substantial influence on psychological distress, even when compared to major life events*”. While no studies have explored packaging interactions from a daily hassles perspective, issues such as difficulties with opening products and the frequency with which consumers engage with FMCG

products mean that negative experiences with packaging are in-keeping with the concept of daily hassles. Due to physiological changes as a person ages, older consumers may encounter a greater variety of stresses when interacting with packaging (Duizer et al., 2009). As such, there is a need for firms to not only explore the effects of biological ageing upon packaging interactions, but to also consider the implications for psychological ageing in terms of coping mechanisms and the impact upon individuals' self-concepts. This consideration should also take into account the effects of social ageing and the impact such changes can have on an individual's QoL.

2.4.5. Ageing as an Inseparable Multidimensional Process

While many of the above studies focus on a particular dimension of the ageing process, within their analyses the inseparable nature of the multiple dimensions of the ageing process is revealed. This is particularly pertinent when attempting to understand older consumers' packaging experiences. For example, regarding portion sizes of packaging; for some older consumers, biological ageing necessitates the need for smaller portion sizes based on reduced appetites. The effects of social ageing mean that smaller portion sizes would also benefit the many older people living alone. The availability of smaller packs may positively impact upon an individual's self-concept (by avoiding wastage), and in turn improving their life satisfaction, thus demonstrating the significant of psychological ageing.

Having explored the ageing process and the potential implications for marketers looking to target older consumers, the proceeding sections will explore methods for segmenting the senior market.

2.5. Segmenting the Senior Market

2.5.1. An Overview of Approaches to Segmenting the Senior Market

A number of scholars have developed approaches to segmenting the senior market. Moschis (1996a) argues that no consumer market is more deserving of segmentation than the senior market, as consumers become increasingly dissimilar to their peers as they age (Dychtwald, 1997; Silvers, 1997). In their

article exploring methods for segmenting the senior market in the tourism industry, Faranda and Schmidt (2000) reviewed a number of attempts at segmenting the senior market. These are presented in Table 2.4. These approaches are categorised by overall segmentation method (e.g. according to psychographics), and are considered in relation to Bone's (1991) key variables that were observed upon reviewing 33 segmentation studies of the senior market. Since the publication of Faranda and Schmidt's (2000) article, a number of other studies have presented alternative approaches for segmenting the senior market (e.g. Lancaster and Williams, 2002; Wang et al., 2008; Sudbury and Simcock, 2009).

Table 2.5 An Overview of Approaches to Segmenting the Senior Market (Adapted from Faranda and Schmidt, 2000)

				Key Variables (As cited by Bone, 1991)				
Researcher(s) and date	Age range	Segmentation indicated by researcher(s)	Name of segments	Income	Health	Activity level	Time	Response to others
Bartos (1980)	50+	Socioeconomic conditions	Active Affluent (40%) Active Retired (15%) Homemaker (20%) Disadvantaged (17%) Poor Health (1%) Other (6%)	x	x	x	x	
Lumpkin (1985)	65+	Shopping orientation	Apathetic (24%) Economic (42%) Active/personalizing/Social (34%)	x		x	x	x
Goldring & Company (1987)	50+	Psychographics	Concerned (18%) Insecures (16%) Assureds (18%) Actives (11%) Sociables (7%) Contenteds (20%)	x	x	x	x	x

				Key Variables (As cited by Bone, 1991)				
Day et al. (1987/1988)	65+	Psychographics	Active integrated (22%) Disengaged Integrated (23%) Passive Dependent (26%) Defended Constricted (29%)	x		x	x	x
Sorce et al.(1989)	60+	Lifestyle	Self-Reliant (25%) Quiet Introverts (19%) Family-Orienteds (10%) Active Retirees (20%) Young and Seures (13%) Solitaires (13%)	x		x	x	x
Gollub and Javitz (1989)	55+	Psychographics	Attainers (9%) Adapters (11%) Explorers (22%) Pragmatists (21%) Martyrs (26%) Preservers (11%)	x	x	x	x	x
Moschis (1992; 1996)	55+	Gerontographics	Healthy Indulgents (13%) Healthy Hermits (38%) Ailing Outgoers (34%) Frail Recluses (15%)	x	x	x	x	x

A feature of all the methods highlighted in Table 2.4 and those approaches developed since is the understanding that demographics alone (in particular chronological age) provide an insufficient basis for understanding the behaviours of older consumers. Indeed, in her review segmentation studies, Bone (1991)

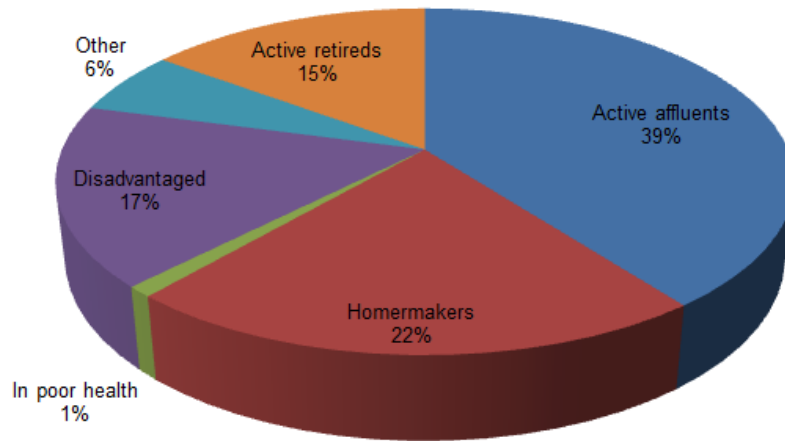
concludes that “*chronological age does not seem to be an appropriate segmentation variable*”. As such, approaches to segmenting the senior market will often combine demographics with other variables, often pertaining to lifestyles or psychographics. This is in-keeping with Oates et al.’s (1996) view that reliance upon demographics offers an incomplete picture of the consumer; the incorporation of psychographic variables in addition to demographics will provide a more accurate basis with which to understand the needs of older consumers. This approach to understanding the senior market also better reflects its heterogeneous nature and the multidimensionality of the ageing process by assuming the existence of variance among the needs and behaviours of individuals within a particular age bracket.

The following subsections will explore the commonly cited approaches of Bartos (1980), Moschis (1992, 1996) and Sudbury and Simcock (2009) in greater detail.

2.5.2. Bartos’ (1980) Segmentation Model for Consumers Aged 49+

In her Harvard Business Review article, Bartos (1980) developed a segmentation model for American consumers over 49 years of age. Emphasising the heterogeneity of the senior market, Bartos (1980) claims that marketers can better understanding the senior market by considering: the socioeconomic conditions that shape people’s lives; and, watershed moments which impact on people’s lives as they age (such as retirement, loss of a spouse, and ill health). The impact of these factors depends upon a balance of time, money and health (Bartos, 1980, p. 140). Using these categories of factors as segmentation variables, Bartos (1980) identified six unique segments of consumers (these are depicted in Figure 2.1).

Figure 2.1: Profile of People over 49 Years of Age (Based on Bartos, 1980)



Of her six unique segments, Bartos (1980) declares that marketers should only be interested in three, relegating those considered as *Disadvantaged*, *In poor health* or as *Other* based on the lack of information available regarding these consumers or their lack of affluence. Bartos (1980) provides detailed demographic information on her three more attractive segments, as well as highlighting particular aspects of consumer behaviour and lifestyle variables. Table 2.5 provides an overview of broad characteristics for each of these three segments.

Table 2.6 Bartos' (1980) 'Desirable' Senior Segments (with Selected Characteristics Adapted from Bartos, 1980).

Segment	Characteristics
<i>Active affluents</i>	Those still at work and in the mainstream of life. Limited free time, but high disposable income, with 75% being empty nesters. Shifts in family life (emptying of the nest) offer these consumers the opportunity to indulge. Exhibit a youthful self-concept; less likely to be restricted by social constructions of age.
<i>Active retirees</i>	Individuals above the poverty line who retired still in good health. Generally do not want to be isolated from other people, thus many reject the prospect of fleeing to retirement communities. Shifts in lifestyle as time becomes open-ended upon retirement, providing greater opportunities for leisure pursuits.
<i>Homemakers</i>	Women who are above the poverty line and are full-time homemakers. Significant events include the adjustment to the empty nest and the retirement of their husbands.

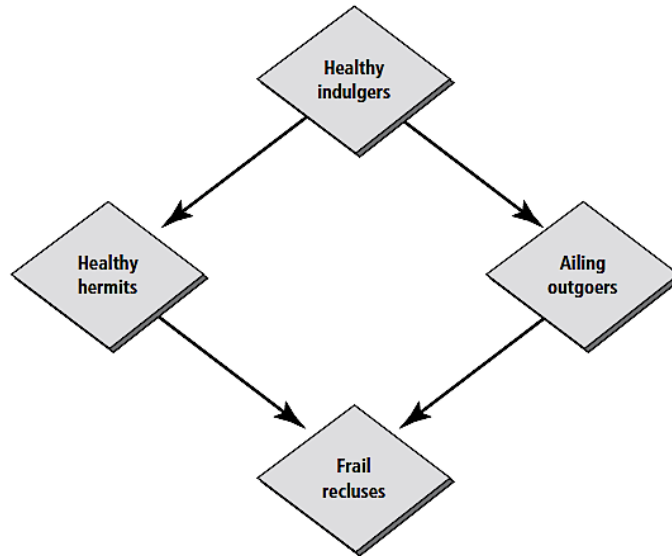
	<p>Can find the feeling of uselessness once children have left the home as a difficult experience to adjust to.</p> <p>Those with sufficient health and money overcome this shock by indulging in the fun of luxury restaurants and travel.</p>
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In the context of this research, Bartos' (1980) segmentation model has two limitations: firstly, a focus on US consumers; and secondly, the fact the model is now dated. As Sudbury and Simcock (2009) describe, "*Segments are snapshots in time, and change as people change*". As such, there is a need to consider more recent models.

2.5.3. Moschis' (1996) Life-Stage Segmentation Model

Based on extensive research from the Centre for Mature Consumer Studies, Moschis' (1996, p. 54) "Gerontographics" approach to segmenting the senior market "*acknowledges individual differences in aging processes as well as differences in type of aging dimension that occur in late life*". The main output of this research is the development of the Life-stage model for segmenting the mature market (see Figure 2.2). Gerontographics is described by Moschis (1992, p. 54) as based on the premise that "*the observed similarities and differences in the consumer behavior of older adults is the outcome of several social, psychological, bio-physical, lifetime events and other environmental factors, all affecting the aged person differently*".

Figure 2.2 : Life-Stage Model for Segmenting the Mature Market (Reproduced from Moschis, 1996, p. 60).



Grounded in theories from ageing and behavioural studies, the life-stage model was developed from both qualitative research (involving brain-writing, synectics, focus groups and case studies) and a series of quantitative surveys to explore how the various dimensions of ageing contribute to an older person’s consumer behaviour (Moschis, 1996). The result was the identification of four segments of older people at different stages in later life. These four groups are summarised in Table 2.6.

Table 2.7 Life-stage Segments of the Mature Market (Adapted from Moschis, 1996, including Quotes from Ahmad, 2002).

Life-stage	Description
<i>Healthy indulgers</i>	<i>“Those [individuals] whose main focus is on enjoying life rather than ‘making it in life’” (Moschis, 1996, p. 59).</i>
<i>Healthy hermits</i>	<p><i>“Healthy hermits are likely to have experienced life events (e.g., death of spouse) that have affected their self-concept and self-worth, and have forced them into psychological and social withdrawal” (Moschis, 1996, p. 59).</i></p> <p><i>“They are concerned with day-to-day tasks and are likely to deny their ‘old age’ status” (Ahmad, 2002, p. 356).</i></p>

Life-stage	Description
<i>Ailing outgoers</i>	<p>“[The] group most likely to maintain positive self-esteem and self-concept, despite life events that demand changes in their lifestyles such as retirement, death of spouse, and health problems” (Moschis, 1996, pp. 59-60).</p> <p>“They internalise many of their frailties and are preoccupied with their physical and financial independence and well-being” (Ahmad, 2002, p. 356).</p>
<i>Frail recluses</i>	<p>“[The] group with chronic ailments who are pretty much in isolation and are likely to think of themselves as ‘old persons” (Ahmad, 2002, p. 356).</p>

Despite its ubiquity within marketing literature, practical application of the Gerontographics approach is scarce. As such, the value of the life-stage model to managers and decision-makers within firms remains unclear. Indeed, Ahmad (2002, p. 356) questions how marketers could operationalise the model, asking “*how would they allocate their customers to the various segments?*”. Ahmad (2002, p. 357) also suggests that the model fails to capture a variety of other factors that may influence consumer behaviour, such as “*the context of the firm, which encompasses factors such as its products and services, the structure of the economy and social organisation within which it operates*”.

Much like Bartos (1980), a further limitation of both Moschis’ (1996) model in the context of this research, is his focus on US consumers. A more recent and widely-cited method of segmenting the senior market within the UK comes from Sudbury and Simcock (2009).

2.5.4. Sudbury and Simcock’s (2009) Multivariate Segmentation Model

In the development of their multivariate segmentation model, Sudbury and Simcock (2009) explored the Gerontographics approach. The authors suggest that while offering American marketers the opportunity to target particular segments of the senior market with specific offerings, a drawback of the life-stage model is the scant demographic differences between segments that the model offers. As such, the usefulness of the model is questioned. An approach to segmentation that provides additional knowledge regarding “*consumer behaviours, demographic information, and psychographic details of each segment*” will offer benefits to the marketer (Sudbury and Simcock, 2009, p. 252).

The multivariate segmentation model was developed using data gathered from a self-administered questionnaire distributed among a sample of 650 individuals aged between 50 and 79 (Sudbury and Simcock, 2009). Within this questionnaire, respondents were posed a series of questions relating to the various aspects of the ageing process, as well as questions regarding marketing and consumer behaviour. Unique to the development of their segmentation model, Sudbury and Simcock (2009) also posed questions to explore cognitive age, as well as questions regarding demographic information in order to generate a model with utility for marketers. Five distinct segments emerged from the findings. These segments are identified in Table 2.7, with key characteristics of each segment highlighted.

Table 2.8 Sudbury and Simcock's (2009) Segments of the Senior Market (with Characteristics Adapted from Sudbury and Simcock, 2009, p. 261)

Segment name	Typical characteristics
<i>Solitary sceptics</i>	retired with average incomes; grandparents to older children and teenagers who have left home; the least healthy but moderately active; negative attitudes towards marketing and consumerism; the lowest in self-esteem and highest in self-consciousness; and the least enamored by relationships and familial contact.
<i>Bargain-hunting believers</i>	the oldest, with a chronological age of 70 and a cognitive age of 61; the least affluent; mainly retired; close to their families and friends, though most live alone; and highly price conscious and the most positive towards senior discounts.
<i>Self-assured sociables</i>	much younger cognitively than their 59 years; healthy and energetic; sociable and like to go out and have regular contact with family and friends; highly price-conscious, cynical towards credit and strongly against senior discounts; and attracted to accomplishment rather than materialistic goals.
<i>Positive pioneers</i>	the youngest for both actual and cognitive age; relatively affluent even though more children remain at home; in contact with their families more than other groups; energetic or moderately active, although health concerns are also evident; relatively materialistic, positive towards credit and about marketing and consumerism; and concerned how others perceive them.

Segment name	Typical characteristics
<i>Cautious comfortables</i>	aged on average 58 and most feel middle-aged; highly affluent with half being professional people; the healthiest and most energetic; unconcerned about their social persona and how others perceive them; the least adventurous consumers with low marketplace knowledge; and positive towards credit but uncertain about senior discounts and not price-conscious.

While differences between segmentation models can be identified, a common feature is the recognition of the heterogeneity inherent in the senior market. This suggests that firms would benefit from developing a greater understanding of older consumers' needs and developing specific product offerings suited to those needs. As Moschis (1996, p. 13) describes: *“Simply put, a company can achieve better results by designing marketing programs that match the needs of specific subsegments and by developing a market niche than by using the “shotgun” approach”*. In the case of FMCG firms, the development of new packaging may offer a number of new product opportunities with which to appeal to and add value for specific subsegments of the senior market.

Having considered approaches to segmenting the senior market, the proceeding subsections will explore prominent product design strategies for targeting the senior market. Particular attention will be paid to studies exploring older consumers' packaging needs and shopping experiences for FMCG products.

2.6. Product Design Strategies for Targeting the Senior Market

2.6.1. Ergonomics

Considerable research from the field of Ergonomics (sometimes referred to as Human Factors Ergonomics) has explored older people's product usage experiences. According to Karwowski (2005, p. 3), ergonomics represents a *“unique and independent discipline that focuses on the nature of human-artifact interactions”*. Ergonomic studies have explored older people's usage of products and services from a number of industries. These studies often focus on specific features of a product or service. For example, Burns (1999) investigated the effects of car window tinting on visual performance among younger versus older

drivers; Dekker et al. (2007) examined the inclusion of hand supports to assist toilet usage amongst older people; whilst Lopez-Torres et al. (2008) explored older people's perceptions of mattress firmness.

A number of ergonomic studies have explored consumer interactions with packaging (e.g. Berns, 1981; Imrhan and Loo, 1988; Daams, 1994; Lewis et al., 2007). The majority of these studies focus on openability, often in terms of the strength and torque required to open particular pack types. Several studies have explored older consumers' interactions with packaging (e.g. Winder et al., 2002; Saha and Shehab, 2005; Theobald and Winder, 2006). Authors will often highlight the loss of strength and dexterity experienced by many older people more advanced in the ageing process (Kallman et al. 1990; Steenbekkers and van Beijsterveldt, 1998), discuss the difficulties this can cause when engaging with packaging (Caner and Pascall, 2010; Bell et al., 2013) and conduct structured experiments to calculate the necessary twisting force required to open a particular closure (e.g. Voorbij and Steenbekkers, 2002; Ray and Biswas, 2012). Notably, Alaster Yoxall and colleagues have conducted a number of studies exploring the openability of jar closures (Langley et al., 2005; Yoxall et al., 2007; Yoxall et al. 2008). The result of these studies was the development of a numerical model of a human hand to investigate "*the effect physical dimensions and choice of grip on joint stresses to aid the understanding between physical effort, ability and discomfort*" (Yoxall et al., 2013, p. 18). This model has since been applied in a number of contexts, including for the exploration of older people's interactions with child-resistant closures (Yoxall et al., 2013).

Whilst providing detailed insights into the physical process of opening specific pack types, these studies only give detailed consideration to one dimension of the ageing process (biological). As such, this research is only able to provide very narrow insights into older people's packaging experiences. A further limitation of these studies is the lack of consideration given to the context in which new packaging development takes place. As a result, little insight is given into the process of new packaging development. An area of literature related to ergonomics, and one that attempts to better incorporate the context in which NPDP takes place, is inclusive design. This area of literature is explored in the following subsection.

2.6.2. Inclusive Design

Known by a number of synonyms, including Universal Design (Yiangkamolsing et al., 2010), User-centred Design (Goodman-Deane et al., 2010), Transgenerational design (Keates et al., 2000), and Design for All (Marshall et al., 2010), inclusive design aims for the development of products and services that can meet the needs of the whole population within the context of a consumer society (Clarkson et al., 2003). Persad et al. (2007 p. 119) claim that goal of inclusive design is for the creation of products “*that are accessible to as many people as possible... without being stigmatising or resorting to special aids and adaptations*”. Whilst not focusing only on the needs of older people, the senior market is viewed as one of the key beneficiaries of the inclusive design approach. Inclusive design suggests that firms should not develop products and services for older people, but should instead consider the needs of older people within the design process to incorporate as wide a wide range of users as possible (Goodman-Deane et al., 2010).

According to Clarkson and Coleman (2010), inclusive design came to prominence during the 1990s as awareness of global population ageing grew. The growth of inclusive design was driven by the “*widespread desire among the disabled community for inclusion within the mainstream of consumer society*” (2010, p. 127). Inclusive design sought to shift views of people as being disabled by physical and mental impediments, to instead being disabled by designs and environments that fail to account for a complete spectrum of human capabilities (Clarkson and Coleman, 2010).

Resultant from this increased awareness was the formation of links between user organisations, governments and the design community, leading to the development of new products, services and legislation to reflect the inclusive design approach (Clarkson and Coleman, 2010). For example, Cave (2007) discusses the Disability Discrimination Act 1995 in relation to inclusive design as well as the British Standard 8300 (BS 8300: 2001) ‘Design of buildings and their approaches to meet the needs of disabled people’. This legislation reflects the many examples of inclusive design research into architecture and housing. For

example, Satoshi Kose and colleagues have conducted a number of studies into the living arrangements of older people in Japan from an inclusive design perspective (Kose, 1992; Kose 1997; Kose 1997a). The outputs from these studies included recommendations to the Japanese Ministry of Construction of design features to enable older people to live independently in their own homes (Kose, 2010).

The inclusive design approach has also employed in several other industries. For example, The Post Office attempted to improve the accessibility of their services through inclusive design (Keates et al., 2000), whilst British Telecom developed a variety of new products and services following an inclusive approach (Clarkson and Coleman, 2010). An example of packaging developed using inclusive design is that of Nestlé's Black Magic Chocolates (Hipwell, 2012). By redesigning the packaging using inclusive design simulation equipment, Nestlé was able to improve the openability of Black Magic (Hipwell, 2012). However, the redesigned packaging has yet to reach the market. Inclusive design research exploring packaging development remains scarce (Yiangkamolsing et al., 2010). The paucity of research exploring packaging and inclusive design is in spite of the development of design standards such as the BS EN ISO 8317 regarding child-resistant packaging. The British Standards Institute state that packaging should be "*difficult for children to open... but which it is possible for adults to use properly*" (Wilkins, 2013). However, for the majority of FMCG products these standards act only as recommendations, not as regulations, as is the case for some pharmaceuticals, cleaning products and gardening goods (BSI, 2012).

Whilst giving greater consideration to the context of NPD than ergonomics studies, inclusive design studies often focus on the roles played by product designers (e.g. Goodman et al., 2006; Dong and Clarkson, 2007), thus overlooking the inputs of other individuals into NPD projects. For example, research into packaging development in the FMCG industry has shown the variety of functions of the firm that provide inputs into the NPD process (Simms and Trott, 2014). By overlooking these inputs, inclusive design studies are only able to provide limited insights into the packaging development process. Regarding the positioning of new products, inclusive design literature suggests that developing products *for* the senior market risks stigmatising older people, thus alienating the very consumers the firm is

seeking to target (e.g. Clarkson et al., 2003; Persad et al., 2007). Instead, firms should seek to make subtle product improvements which benefit all consumers (Goodman-Deane et al., 2010), and to position new products accordingly. In the case of packaging development, such an improvement could be the inclusion of an easy-open closure. Products such as 'Oxo Good Grips' (Coleman et al., 2012) and the 'Ford Focus' (Newell, 2006) provide evidence for the success of an inclusive approach. However, there are a number of examples of products explicitly targeting older consumers which have been successful in the marketplace (see Section 2.3.4). Within the FMCG industry examples such as 'On the Menu' demonstrate that firms are able to target the senior market with new products without stigmatization. Other products which explicitly (and successfully) target the senior market include age-specific beauty care products and the various products and services offered by the Saga Group. These examples suggest that a variety of approaches to NPD may be possible when targeting different subsegments of the senior market. 'On the Menu' also demonstrate how firms are able to offer older people 'that little bit of help' in maintaining their independence.

2.7. Summary

This chapter has provided insights into conceptualisations of the senior market. Studies from fields such as economics and sociology suggest that the optimistic view of the senior market presented in marketing literature may be somewhat overstated. However, there is considerable evidence to demonstrate that there are subsegments of the senior market worthy of marketers' attention.

A review of literature exploring older consumers' responses to a variety of marketing factors highlighted the multidimensional nature of the ageing process and the need for firms to develop better understandings of older consumers' needs and behaviours. In particular, the potential impact of age-related changes on consumer packaging interactions revealed the need for FMCG firms to better understand older consumers.

The latter sections of the chapter explored research into older consumers' packaging needs from fields such as ergonomics. These studies were found to focus largely on physical needs (e.g. openability), thus overlooking the

multidimensional nature of the ageing process. As such, these studies only provide limited insights into narrow areas of packaging development. This reveals the need to build upon the scarce research which explores packaging needs from a multidimensional perspective of ageing (Sudbury-Riley, 2014). The chapter also highlights the need for further research to identify factors contributing to firm inaction towards the senior market, particularly in the context of packaging development.

Chapter 3 Literature Review Part Two

3.1. Introduction

This chapter will explore product development within the FMCG industry. The chapter will begin by briefly exploring general models of NPD, and will then focus on FMCG and packaging development models. Following this, methods for understanding and incorporating older consumers' needs into the NPD process will be analysed. Literature will then be reviewed pertaining to the functions of packaging and conceptualisations of consumer-packaging interactions. The chapter will conclude by considering these functions and interactions with regards to new product opportunities for older consumers.

3.2. New Product Development Models

Research into NPD forms a vast and varied body of literature, described by Brown and Eisenhardt (1995, p. 345) as ranging from “*broad-brush explorations to in-depth case studies and across many types of products, firms, and industries*”. Within this body of literature, a number of authors have attempted to depict and systematise the NPD process in order to aid the management of successful NPD projects. Models of NPD can be divided into three main types: activity stage models; simultaneous activity models; and, network models. Early activity stage models, such as the ubiquitous ‘stage gate’ models (e.g. Cooper, 1990), depict “*a series of stages wherein a project team undertakes the work, obtains the information needed, and performs data integration and analysis*” (Oorschot et al., 2010, p. 828). These models provide managers with a useful ‘checklist’ of activities, but have received criticism for failing to reflect the iterative and concurrent nature of the NPD process, and for facilitating a slow process which affords consumers little attention (e.g. Baker and Hart, 2007; Lin et al., 2008; Trott, 2008). Variations on the stage-gate model (e.g. Cooper, 2008) emphasise the importance of consumer input to the NPD process to a greater extent, but provide little insight into how this involvement should be operationalised. Simultaneous activity models such as Unger and Eppinger’s (2011) spiral model provide a more flexible and accurate depiction of the NPD process, but also offer limited insights into the role of consumers in NPD projects. Application of these models has also been limited to technology intensive industries, such as software development

(e.g. Boehm and Bose, 1994; Su et al., 2007). Low tech industries, such as the packaging industry, are comparatively under-explored using these types of model. Comparatively, network interaction models (e.g. Trott, 2008, p. 411) place greater emphasis on the input of external sources of information to the NPD process, such as other firms, universities, and consumers. Despite increased awareness of population ageing and growing understanding within the literature of the unique needs of older consumers, the incorporation of older people into the NPD process is lacking in the majority of models. Insufficient knowledge of the ageing process has been highlighted as a factor contributing towards unsuccessful attempts at targeting the senior market (e.g. Gunter, 1998; Stroud, 2005; Mumel and Prodnik, 2005). As such, Section 3.4 will explore methods for understanding and incorporating older consumers' needs into the NPD process.

As has been established, packaging development provides a means of differentiating and improving the quality of FMCG products (see Section 1.2). The following sections will, therefore, examine NPD models specific to the FMCG industry and models of FMCG packaging development. Particular reference will be made to the role of consumers within these models.

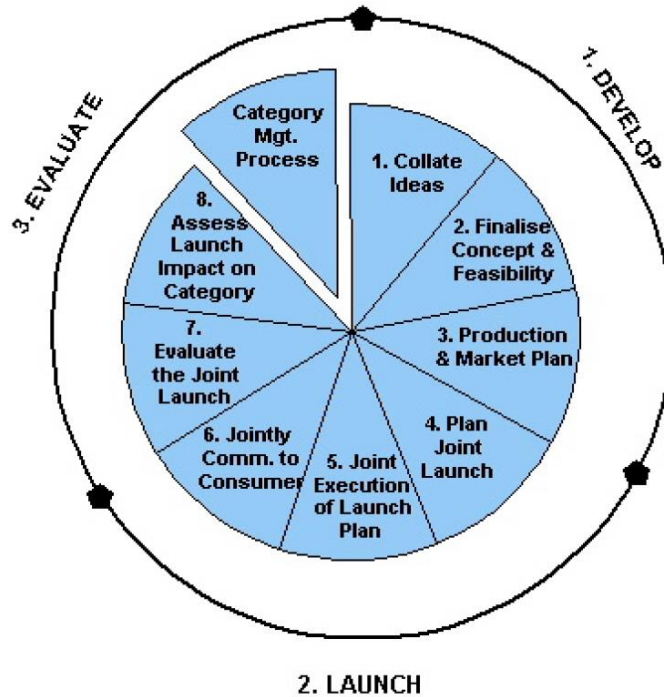
3.3. NPD Models for the FMCG industry

3.3.1. The Efficient Product Introduction Wheel (Ernst & Young, 1999)

An early attempt to depict the typical product development process within the FMCG industry is the Efficient Product Introduction (EPI) Wheel (Ernst & Young, 1999, cited in Francis, 2006). The EPI Wheel emerged from a consultancy-led project and was designed to assist FMCG manufacturers and retailers in the development, launch and evaluation of new products (Francis, 2006).

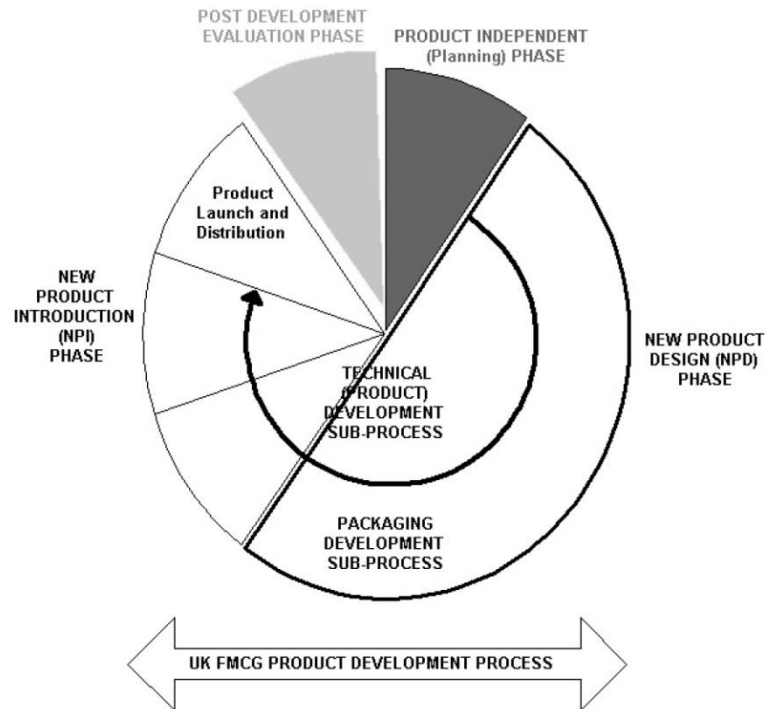
Represented as a stage based process, the eight stages of the EPI wheel involve collaboration between manufacturers and retailers (Figure 3.1).

Figure 3.1 The EPI Wheel (from Francis, 2006)



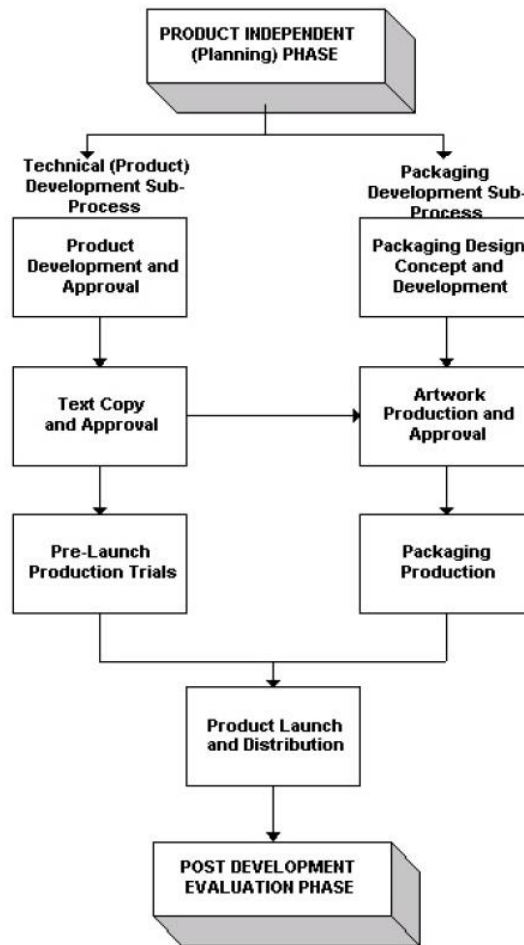
Despite overcoming certain deficiencies of stage based models by encouraging communication between organisations, the model provides no reference to the integration of packaging into the NPD process. Given the importance of packaging development within the FMCG industry, this is a significant oversight. Identifying this weakness, Francis (2006) developed an adaptation of the EPI Wheel based on his research within Tesco which attempts to incorporate the role of packaging within NPD (Figure 3.2). While emphasising the need to consider packaging within the NPD process, the model lacks detail and offers limited insights into the process of developing new packaging. In particular, there is little insight into the development and incorporation of consumer needs, or reference to internal and external parties involved in generating this understanding. Included in this omission are the needs of older people.

Figure 3.2 Schematic Representation of the UK FMCG Industry Stage Model (from Francis, 2006, p. 19)



In order to overcome some of these limitations, Francis (2006) developed a more detailed model which depicts packaging development activities as occurring concurrently with other product developments activities (see Figure 3.3). However, in his discussion, Francis (2006) describes a process which is not in-keeping with his model. Rather than occurring concurrently, packaging development activities are observed as commencing in the latter stages of the product development process. Furthermore, based on this discussion, the process of “*Packaging Design and Concept Development*” includes little more than consideration of labelling and reprographics. This suggests that alternative packaging formats are afforded little attention. In terms of understanding and incorporating the needs of consumers into the NPD process, the model does little to build on its predecessor. Furthermore, by focusing solely on design and reprographics the model provides limited insights into the great variety of consumer-packaging interactions (see Section 3.8).

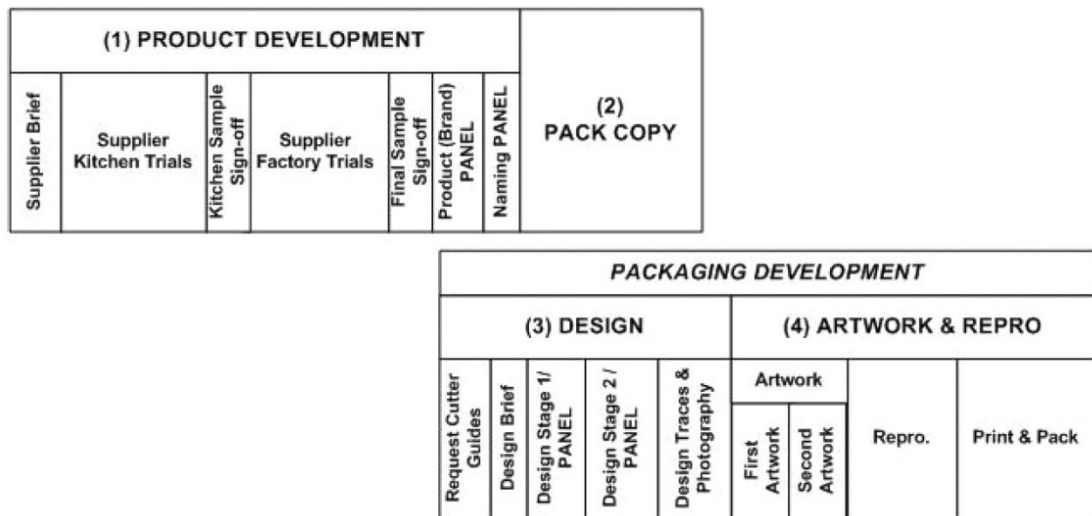
Figure 3.3 Stage Model of New Product Development in the UK FMCG Industry (Francis, 2006, p. 18).



3.3.2. Asda's Bullseye Process (Francis et al., 2008)

In a later paper, Francis et al. (2008) explored product development for private-label products within Asda. These products are developed following Asda's 'Bullseye Process' (depicted in Figure 3.4). Much like prior models, the Bullseye Process depicts a linear and sequential series of activities. Greater attention is afforded to packaging development than prior models, but is focused largely on label changes and reprographics. As such, alternative packaging formats are overlooked and little insight into the process of managing new packaging development is offered. Furthermore, by focusing solely on design and reprographics the model also provides limited insights into different consumer-packaging interactions which extend beyond interpretations of graphics/design elements. This limited focus risks facilitating exploration of only limited aspects of the ageing process; for example, changes as a result of social ageing may be overlooked if firms only consider artwork and reprographics.

Figure 3.4 Asda's Bullseye Process (Francis et al., 2008, p. 210)



3.3.3. Procter and Gamble's SIMPL Process (Cooper and Mills, 2005)

A further model for NPD in the FMCG industry is the SIMPL Process employed by Procter and Gamble. Developed with Robert Cooper, the SIMPL Process is an adapted stage-gate process, consisting of five stages and four gates. The model is used across the various product categories within the firm and is said to provide managers with a rigorous process which builds in “*a set of the current best practices in the form of key activities*” (Cooper and Mills, 2005, p. 3). However, the model fails to incorporate any considerations of packaging development. In their discussion Cooper and Mills (2005, p. 3) describes how the model “[forces] *projects team to do their homework early*” and generate consumer insights through market research early in the NPD process. While this principal is depicted in their model, the authors provide little insight into how these insights are generated. In particular, the model fails to provide insights into how the needs of older consumers can be incorporated into the NPD process.

Figure 3.5 P&G's SIMPL Process – An Idea-to-Launch Stage-Gate model (from Cooper and Mills, 2005, p. 4)

DISCOVER Promising Consumer Proposition	DESIGN Integrated Business Proposition	QUALIFY the Initiative	READY Prepare Market Launch	LAUNCH Execute Market Entry
---	--	----------------------------------	---------------------------------------	---------------------------------------

The Four Gates:

	1	2	3	4
Key Decision	Staff it?	Design complete? Start implementation?	Criteria met? Launch plan agreed?	Ready for launch?
Milestone	Project Establishment	Project Commitment	Launch Plan Agreement	Launch Authorization

3.3.4. New Food Product Development Models

A number of authors have developed new product development models specific to the food industry. Earle (1997) highlights four articles to illustrate the evolution of new food development models. Table 3.1 details these models and the stages which comprise them.

Table 3.1 The Evolution of New Food Product Development Models, 1967-96 (Adapted from Earle, 1997, p. 20)

Stage	Buzzel and Nourse (1967)	Desrosier and Desrosier (1971)	Meyer (1984)	Rudolph (1995)
1. Business Strategy		Management determination of product fields – improved, new and 'new-look' products,	Develop clear corporate objectives. Draft strategies and operating plans.	Strategic plan. Market opportunity assessment. Product business plan. Product definition.
2. Product and Process Development	R&D,	Exploration. Screening. Evaluation. Development.	Generate new concepts. Screen, test and prioritise new concepts. Translate concepts into optimised prototypes. Refine prototypes with consumer sensory tests. Scale up production	Prototype development. Scale up and

			from pilot plant to commercial operations.	trial production run.
3. Product Testing	Product testing.	Testing	Conduct in-home use test.	
4. Market testing	Test marketing.	Marketing communications development. Market testing.	Products in market simulation tests. Test new product line.	Market strategy and testing.
5. Product Launch Preparation		Build production capacity and inventories. Readying sales force and distribution.		
6. Product Launch	Limited area introduction. Full-scale introduction.	Full-scale introduction.	Product line into national distribution.	Product introduction.
7. Post-launch evaluation		Measurement and evaluation.		Product support.

Similarly, Fuller (2004) provides an overview of food product development models, also using key articles to illustrate changes to this process over time (see Table 3.2).

Table 3.2 Models of the Food NPD Process (Adapter from Fuller, 2004, p. 26)

Holmes (1968, 1977)	Crockett (1969)	Mattson (1970)	Oickle (1990)	Graf & Saguy (1991)	Skarra (1998)
Company objectives; Exploration; Screening; Business analysis; Development; Testing; Commercialisation; Product success.	Search opportunities; Transaction of concepts into products; Marketing plan; Implementation of marketing plan.	Idea generation; Concept screening; Preliminary formulation; Taste panels; Final formulation; Trial placement; Fine tuning; Packaging design; Co-packers; Mini-market test; Symbiotic distribution.	Exploration; Conception; Modelling (prototypes); R&D; Marketing plan; Market testing; Major introduction.	Screening; Feasibility; Development; Commercialisation; Maintenance.	Assessing management commitment; Finding the right idea; Developing the business case; Development and commercialisation.

The processes highlighted in both these tables demonstrate the stage-based and sequential nature of many food product development models. This is also reflected in a number of alternative models (e.g. Buisson, 1995; van Tripp and Steenkamp, 1998; Stewart-Knox and Mitchel, 2003). With respect to this research, only one of the above models explicitly incorporates packaging into the food product development process (Mattson, 1970). In this case, packaging design is presented as a distinct stage which occurs relatively late in the overall development process. However, little insight is provided into the role and integration of packaging development in this process; in particular, the new product opportunities which packaging development may afford are unaccounted for. Authors such as Graf and Saguy (1991) refer to packaging development as a consideration during the

food product development process, but provide little detail on how this is incorporated into the overall development process.

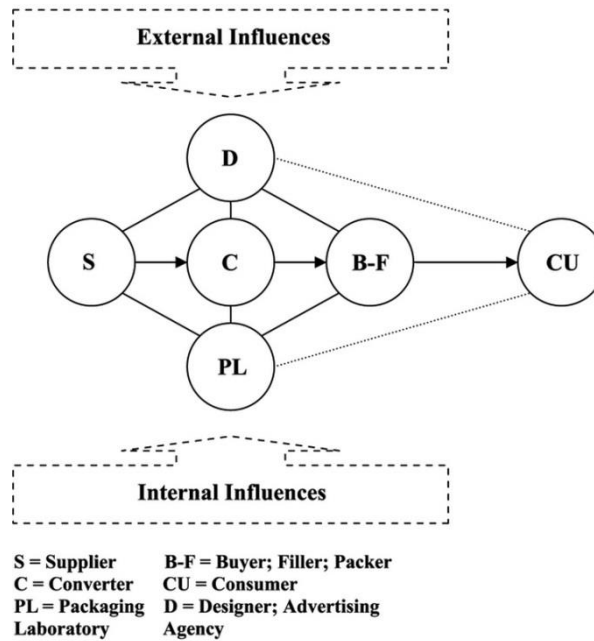
While a number of studies have stressed the importance of development projects being consumer led (e.g. Gray and Saguy, 1991; Harmsen, 1994; Trail and Grunert, 1997; Avermaete et al., 2004), the needs of older consumers are largely overlooked. Prior research has highlighted the benefits of functional foods to older people (e.g. Ferrari, 2007; Siegrist et al., 2008; Siró et al., 2008). However, these studies are largely biological-centric, often focusing on specific illnesses and ailments that some older people will experience in later-life. These studies also provide little detail into the process of developing new functional food products for the senior market. Furthermore, the role of packaging in the development process for functional foods is also largely overlooked in the literature.

3.4. Models of Packaging Development

3.4.1. Rundh's (2009) Packaging Supply Chain Model

In his article exploring the contribution of packaging design to gaining competitive advantage in the food industry, Rundh (2009) depicts the typical parties involved in the packaging supply chain (Figure 3.6).

Figure 3.6 A Conceptual Model of the Supply Chain Process (Rundh, 2009, p. 993)



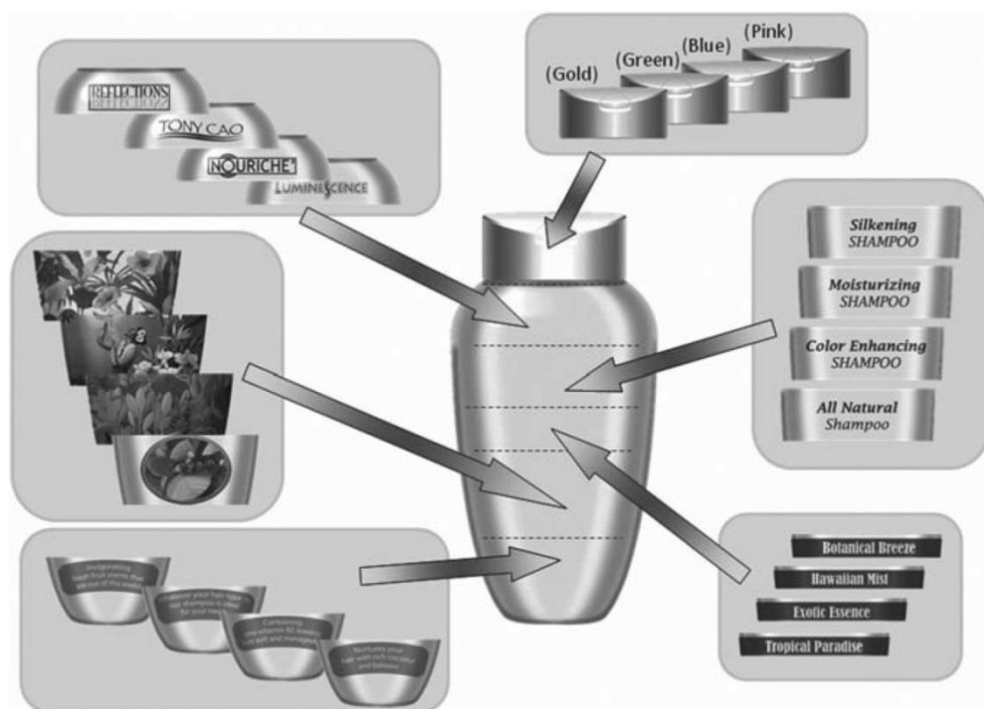
In his model Rundh (2009) identifies external and internal influences to the packaging design process. He encourages firms to interact with consumers during planning and development to optimise their new packaging. While providing limited insights into the development of new packaging (beyond identifying those parties involved), Rundh's (2009) model does provide a reasonable overview of particular inputs into this process. This emphasises the need to engage with actors beyond the firm; in particular, the need to engage with consumers to develop understanding of their needs. How this engagement should be operationalised is unclear.

3.4.2. Gofman et al.'s (2010) Structured Consumer-Driven Package Design

In their study exploring the design of new packaging graphics for a shampoo bottle, Gofman et al. (2010) describe a packaging design process driven by consumer-insights. It is argued that firms should seek to engage with consumers both in the initial stages of idea generation, as well as during latter stages involving prototype testing. The authors present a conjoint analysis approach to packaging design, which involves gauging consumer responses to a variety of graphic design options. Using these experimental design options, managers are said to be able to optimise their packaging designs to the latent needs of consumers. This process is depicted in Figure 3.7. While offering insights into a

specific method for incorporating consumer needs into the packaging development process, their focus on graphical components of a pack overlooks many other aspects and functions of packaging, thus limiting the insights Gofman et al. (2010) are able to provide. Viewing packaging development only through the lens of graphical change may also facilitate a limited perspective on ageing wherein aspects of biological and psychological ageing may be explored (for example, in relation to font sizes and perceptions of imagery), but social ageing may be overlooked.

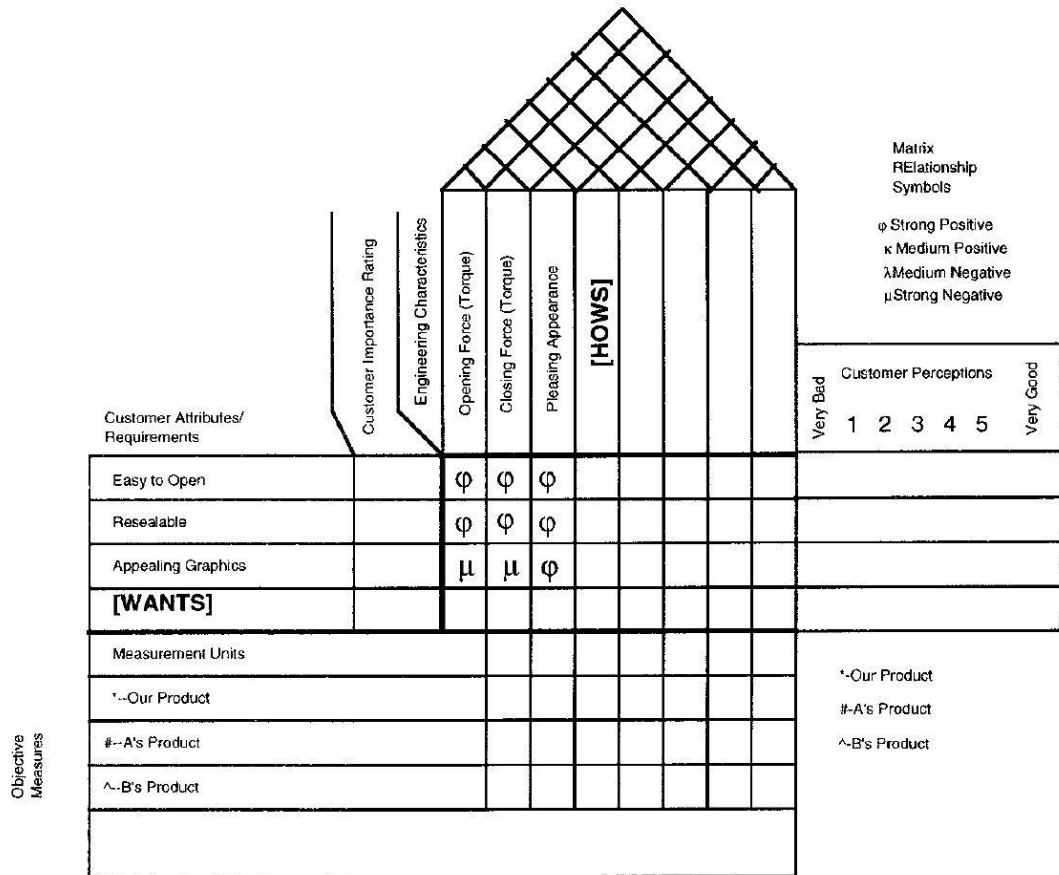
Figure 3.7 Gofman et al.'s (2010) Consumer-Driven Packaging Features



3.4.3. Raper et al.'s (1998) Quality Function Deployment Packaging Design Methodology

Raper et al. (1998) adopt a Quality Function Deployment (QFD) approach to packaging design. QFD is said to offer a systematic framework with which to incorporate the needs of customers into the product design process. Typically, QFD follows a framework known as the 'House of quality'. Raper et al.'s (1998) basic house of quality applied to packaging development is detail in Figure 3.8.

Figure 3.8 Raper et al.'s (1998) House of Quality



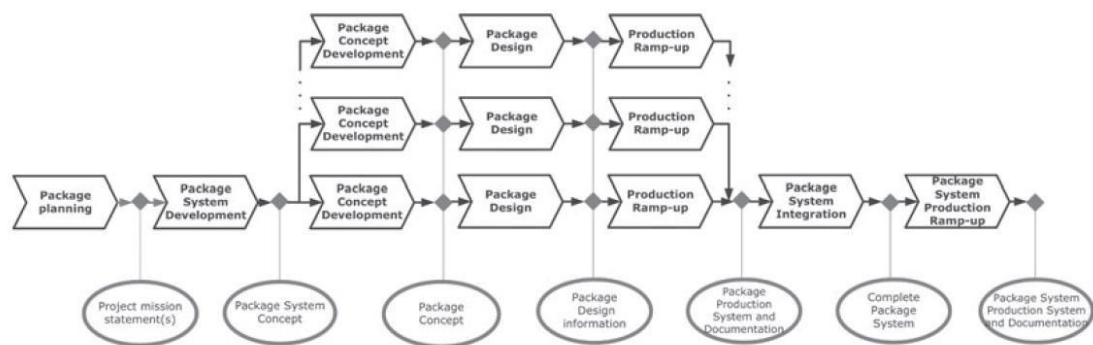
QFD aims to put the 'Voice of the customer' at the heart of a NPD project, and recognises the other potential external inputs to this process. However, in their study Raper et al. (1998) treat packaging development as a separate and distinct process to product development. While the authors claim that the QFD methodology can allow for the integration of packaging and product development, their study does not demonstrate how this can be achieved. As such, limited insights into the process of managing packaging development within the overall product development process are provided. A further limitation of Raper et al.'s (1998) study is the focus on a business-to-business transaction. Whether the same approach could be adopted to incorporate the needs of end consumers is unclear.

3.4.4. Bramklev's (2009) Generic Package Development Process

Bramklev's (2009) study of packaging development consists of five case studies within Swedish packaging manufacturing firms. The output of these case studies is the generation of a 'generic package development process'. The process is

detailed in Figure 3.9. The process depicts a linear stage based process of packaging development. Several sets of matching, simultaneous activities are included to reflect the complexity of modern packaging systems which often consist of more than a single package. While more detailed than other models in terms of the variety of activities identified, Bramklev's (2009) model provides scarce insights into the process of managing packaging development in terms of influences and likely success factors. The model also pays no reference to understanding and incorporating the needs of consumers.

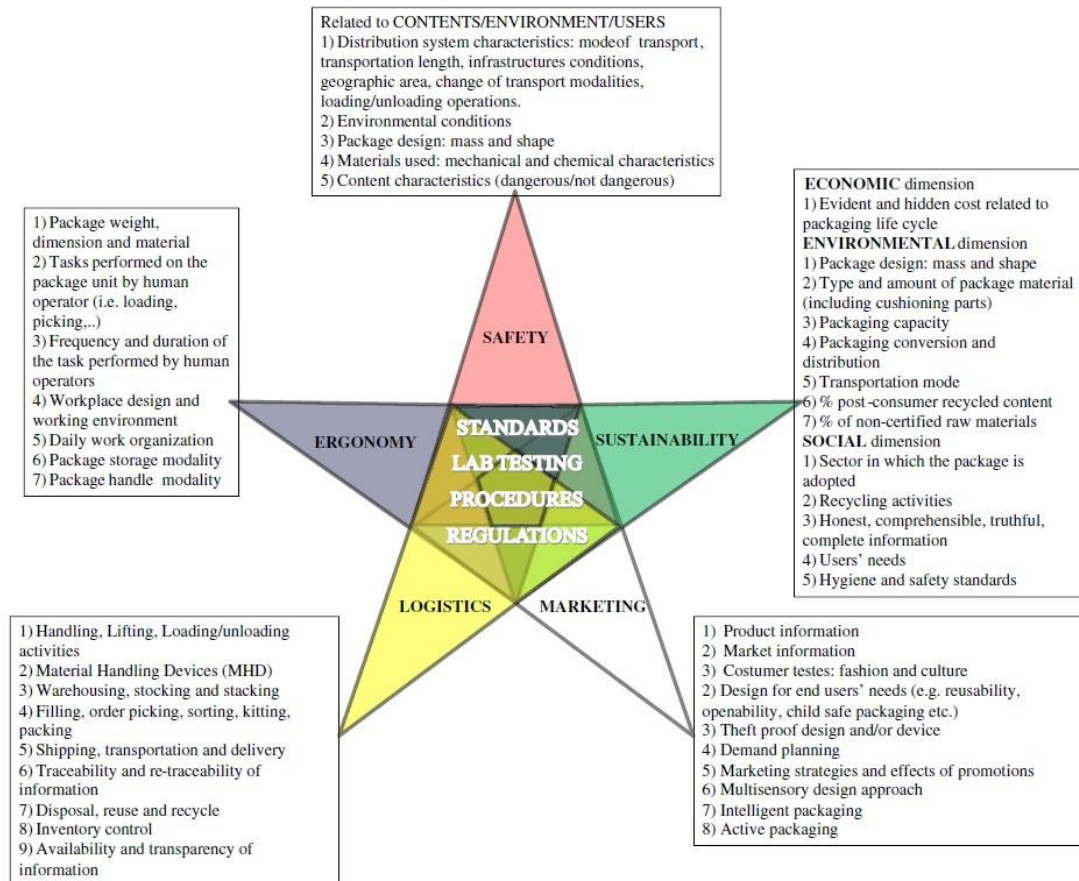
Figure 3.9 The Generic Package Development Process (from Bramklev, 2009, p. 184)



3.4.5. Azzi et al.'s (2012) Drivers to Integrated Packaging Design

In their study exploring packaging development, Azzi et al. (2012) categorise five main drivers of packaging development. These drivers are identified through a review of packaging literature and from observation of related packaging standards. Figure 3.10 details these five categories of packaging development drivers. While Azzi et al. (2012) assemble a comprehensive list of influences on packaging development, their framework provides little insights into the process of managing this development. The framework does, however, go further than other models in highlighting particular packaging interactions where firms may be able to add value for consumers (e.g. openability, child-safe packaging). Despite this, the model still provides limited insights into how these considerations should be incorporated into the NPD process.

Figure 3.10 Azzi et al.'s (2012) Drivers to Integrated Packaging Design



3.4.6. Vernuccio et al.'s (2010) Integrated Packaging Development Framework

In their study, Vernuccio et al. (2010) explored 186 cases of packaging design in order to gauge the extent to which marketing, logistics and ethical considerations were integrated into the design process. The main output of the study was a conceptual framework depicting physical and communicative functions from each of the aforementioned management fields which require integration within the packaging design process. The conceptual framework is detailed in Figure 3.11. While their collection of packaging functions and factors which influence the packaging development process is limited in comparison with the framework of Azzi et al. (2012), Vernuccio et al. (2010) provide greater insights by linking functions to specific management functions.

Figure 3.11 Vernuccio et al.'s (2010) Conceptual Framework for Integrated Packaging Development

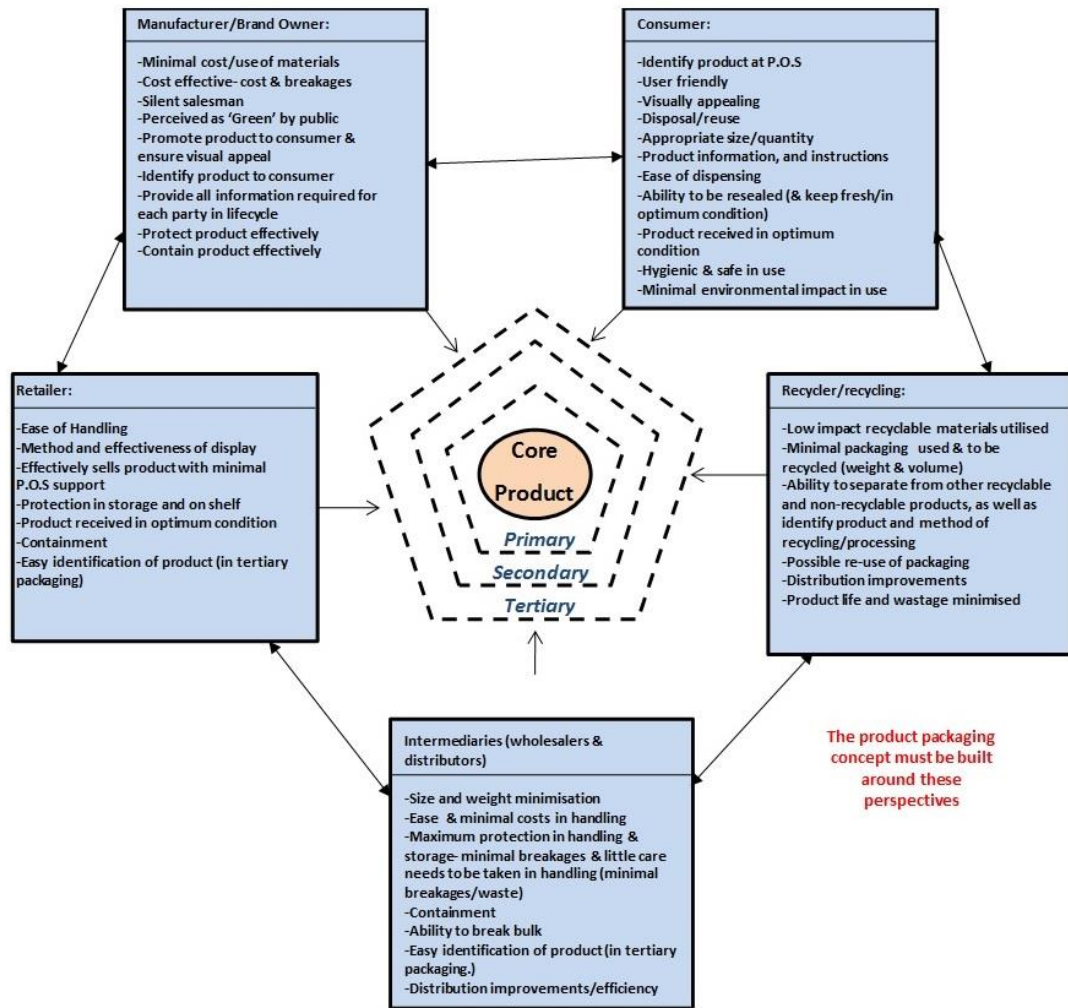
MANAGERIAL FIELDS	PHYSICAL FUNCTIONS	COMMUNICATIVE FUNCTIONS			
	Co-existence of marketing, logistics and ethics dimensions				
MARKETING	Practical value	Potential for physical integration	Practical value	Potential for communicative integration	
	Ideal value		Ideal value		
	Emotional value		Emotional value		
	Critical value		Critical value		
LOGISTICS	Protection and conservation		-		-
	Handling and transport		-		-
	Manipulation and storage		-		-
	-		Information		-
ETHICS	Eco-compatibility		-		Information
	-		-		-
	Safety		-		-
	Societal orientation		Societal orientation		-
	Social solidarity	Social solidarity	-		

Regarding ethical considerations during packaging development, Vernuccio et al. (2010) highlight the importance of incorporating the needs of elderly and disabled people. Maximising user-friendliness is described as an output of a social orientation during packaging development. While Vernuccio et al. (2010, p. 340) suggest that consumer well-being should be “*placed at the heart of the process*”, little explanation is provided on how this focus can be achieved. Based on their 186 cases, the authors conclude that the needs of elderly and disabled people are afforded little attention during packaging development.

3.4.7. Simms and Trott’s (2010) Conceptual Model of Packaging Generation

In their conceptual paper Simms and Trott (2010) provide a model for generating new packaging ideas (Figure 3.12). Links are made between different members of the supply chain and the various functions of packaging. While similar to the framework of Azzi et al. (2012), Simms and Trott (2010) provide greater insight by clearly highlighting the multiple levels of packaging, thus offering a more detailed approach to understanding factors influencing packaging development. However, as the paper is conceptual and is not based on primary data, this limits the insights provided into the management of packaging development.

Figure 3.12 Simms and Trott's (2010) Model of Packaging Idea Generation



3.4.8. Simms and Trott's (2014) Conceptual Framework for Packaging Development

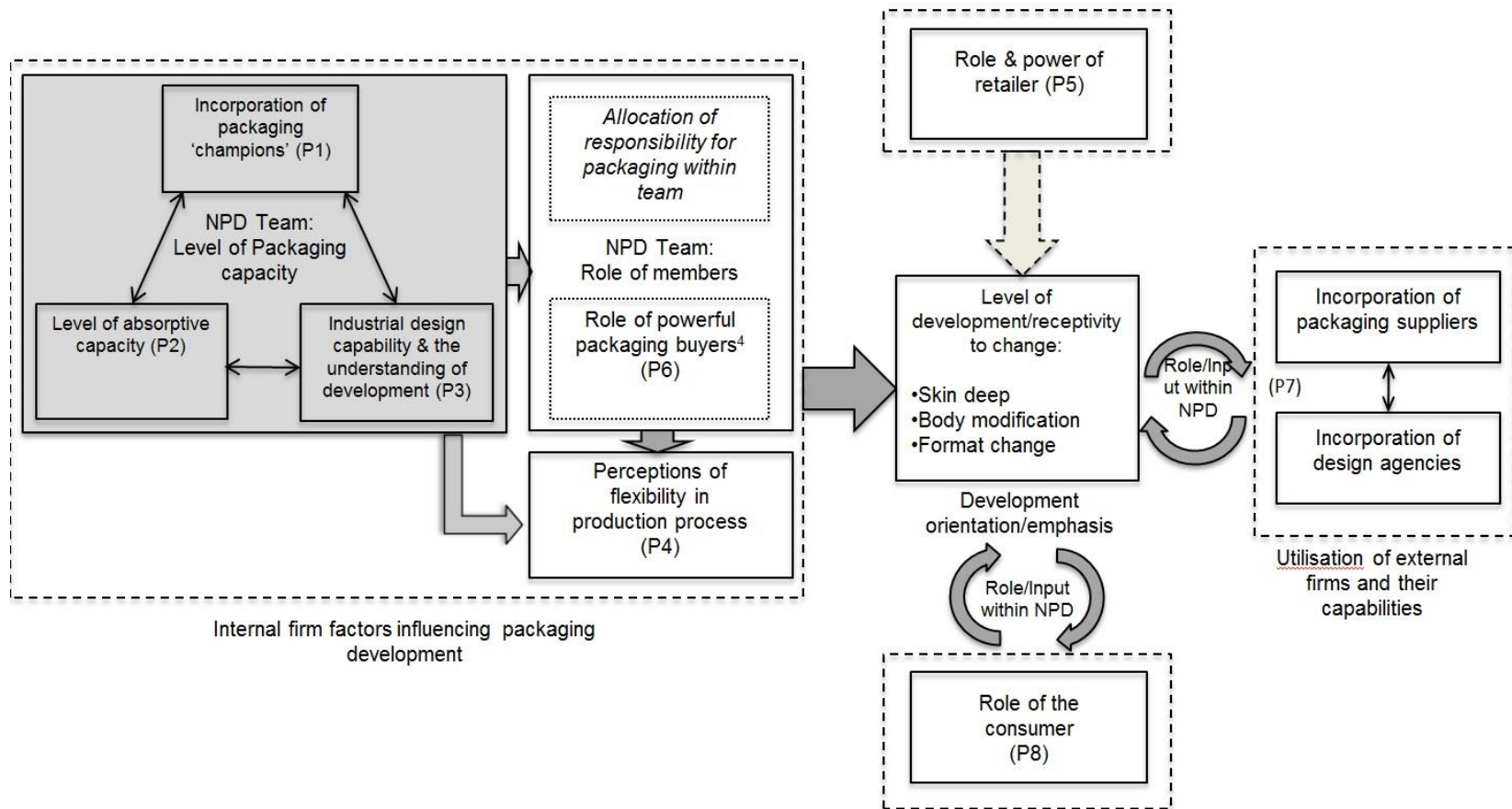
In a further study, Simms and Trott (2014) conducted interviews in FMCG firms, packaging firms, design firms, marketing consultancies and with packaging industry bodies. Based on these findings a conceptual framework for packaging development is generated (Figure 3.13). Their framework provides a comprehensive overview of factors influencing packaging development. The framework also incorporates a typology of packaging change. Simms and Trott (2014) suggest that particular firm characteristics and competencies, such as the presence of packaging champions and the level of absorptive capacity, will influence the types of packaging development a firm is likely to pursue and achieve. The typology suggests that packaging development can range from 'Skin deep' changes, such as modifications to labelling and graphics, to more advanced

developments involving ‘Body modification’ and ‘Format change’. Table 3.1 provides an overview of these different levels of packaging development. The firm characteristics and competencies which influence packaging development are explored in greater depth in section 3.5.

Table 3.3 Typology of Packaging Change (Adapted from Simms and Trott, 2014)

Level of packaging change	Penetration of packaging change	Absorptive capacity	Technology capability
<i>Skin Deep</i>	1. Reprographics and artwork	Low	Low; little technical or general packaging capability. Largely marketing and reprographics.
<i>Body Modification</i>	2. Plus Design and aesthetics	Limited/medium	Medium; based on understanding of non-technical specialists. Capability largely graphic and aesthetic design
<i>Format Change or Innovation</i>	3. Plus format/ technological change	Extensive	High; industrial design and technological capabilities.

Figure 3.13 Simms and Trott's (2014) Conceptual Framework of Packaging Development



3.4.9. Summary of FMCG and Packaging Development Models

The preceding discussions have revealed the majority of NPD models for FMCG products to be linear in their nature. Several of these models include reference to packaging development. However, discussions are largely focused on the packaging design process (in particular on reprographics), hence other forms of packaging development are often overlooked. This limitation is equally applicable to many packaging-specific development models and frameworks which also focus heavily on design factors, such as label changes, rather than exploring more advanced packaging development opportunities. A notable exception is the framework of Simms and Trott (2014) which arguably provides the most comprehensive overview of packaging development. The majority of packaging-specific models recognise the various external inputs to the packaging development process, including the potential inputs of consumers. However, most models provide few insights into the process of understanding and incorporating consumer needs into the packaging development process. Furthermore, no packaging development models account for the nature of the ageing process and the influence it may have on consumer needs.

3.5. Factors Influencing Packaging Development

Within NPD literature a variety of firm characteristics are identified as providing advantage during the product development process (for summaries see Cooper, 1979; Montoya-Weiss and Calantone, 1994; Henard and Szymanski, 2001; Ernst, 2002; Kandemir et al., 2006). Studies exploring influences on packaging development are comparatively scarce. In their study, Simms and Trott (2014) define three categories of factors which influence packaging development:

- I. Packaging capacity and the role of packaging champions
- II. Barriers to change: internal and external barriers;
- III. Role and incorporation of external capabilities and consumers.

The following subsections will build upon the insights provided by FMCG and packaging development models by exploring each of these categories. Within these discussions specific success factors will be linked to particular challenges of packaging development.

3.5.1. Packaging Capacity and the Role of Packaging Champions

The concept of the 'product champion' has been widely discussed in NPD and innovation literature (e.g. Shane, 1995; Markham and Griffin, 1998; Howell et al., 2005; Hauser et al., 2006). The primary role of the product champion is to overcome organisational inertia towards NPD and to drive projects forward when inevitable roadblocks are encountered (Frost and Egri, 1991). The product champion must sell a product idea to senior management and maintain their interest in the project throughout the NPD process (Chakrabarti, 1975). According to Markham and Aiman-Smith (2001, p. 44), product champions represent *"...powerful forces in most organizations. Champions are passionate about what they do; they generate support for ideas; and they keep ideas and projects alive"*. The presence of product champions is viewed by many as a significant factor contributing to NPD success (Achilladelis et al., 1971; Tushman and Nadler, 1986; Clark and Fujimoto, 1991 Wheelwright and Clark, 1992). In their research within the UK FMCG industry, Simms and Trott (2014) uncovered the importance of 'packaging champions' towards driving new packaging development. Many FMCG firms are said to be missing the mark when it comes to packaging development through a lack of packaging 'heavyweights'. By failing to include individuals with sufficient industrial packaging design knowledge and a passion for embracing new technologies, a variety of new packaging development opportunities can be overlooked (Simms and Trott, 2014).

A further factor contributing to the success of new packaging development is the absorptive capacity of a firm. As is reflected in many recent models of NPD and innovation, product development often requires input from a variety of external sources. Benefiting from many of these exchanges rests on a firm's ability to acquire and apply new technologies (Kaplan and Tripsas, 2008; Lichtenthaler and Lichtenthaler, 2009). This requires not only for development teams to possess the technical knowledge necessary to identify and understand new technologies, but also for managers to foster environments in which this understanding is able to be communicated and understood amongst different functions of the firm (Schrader, 1991; Tsai, 2002; Abecassis-Moedas and Mahmoud-Jouini, 2008). These factors are captured in the concept of absorptive capacity. Zahra and George (2002, p. 185) define absorptive capacity as a *"dynamic capability pertaining to knowledge creation and utilization that enhances a firm's ability to gain and sustain a*

competitive advantage". Absorptive capacity is viewed as a key contributor to achieving competitive advantage (Cockburn and Henderson, 1998; Todorova and Durisin, 2007; Fosfuri and Tribó, 2008; Escribano et al., 2009). In the context of FMCG packaging, Simms and Trott (2014) argue that a firm's ability to harness new technologies is a key factor contributing to the success of packaging development and is a major determinant of the type of packaging development a firm is likely to pursue (e.g. firms which demonstrate a greater level of absorptive capacity will have a greater propensity to pursue more advanced packaging changes). Developing high levels of packaging capacity can, therefore, aid firms in pursuing more advanced packaging ideas, thus overcoming path dependence towards more incremental packaging change. Path dependence is a theory related to organisational persistence in which firms can be constrained by their technologies, services, strategies, or business models (Thrane et al., 2010). Path dependence recognises the significance of past events for an organisation. As Sydow et al., (2009) describe, "*history matters... [and] bygones are rarely bygones*". Path dependence can come as a result of self-reinforcing behaviours and preferences leading to the rigidification of action patterns within organisations (Schreyogg and Sydow, 2011). In the case of packaging development, path dependence can lead to an overreliance on existing technologies, thus inhibiting firms from exploring more advanced packaging change and missing new product opportunities. Attempts to break from organisational patterns can be inhibited as they are often hidden. Phenomena's such as subconscious blinders, perceptual defence, and blind spots (Sydow et al., 2009) mean that the root cause of path dependency can be difficult to identify. In such situations, Alevesson and Spicer (2012) recommend that senior management encourage critical discourse within the firm in order for sub-optimal behaviours and practices to be identified. At the project team level, the ability of individuals to alter organisational patterns is influenced by their use of rhetorical tools in persuading senior management to adjust their decision-making (Spender, 2014).

3.5.2. Barriers to Change: Internal and External Barriers

A significant barrier to packaging development is the perceived cost of investment it entails (Perkowsi and Cenatempo, 2004; Young, 2004). Within the FMCG industry, increases in packaging costs are met with derision (Ford et al., 2014).

This is typical of process industries (such as the food, paper, plastics and packaging industries) which are characterised by high production speeds, rigid process controls, and strong impact of changeover times (Wallace, 1984; Fransoo and Werner, 1994). As such, innovation in process industries is often incremental and based on cost saving motives (e.g. Benner and Tushman, 2002). Not only do firms wish to avoid cost increases in terms of their packaging materials, but they also wish to avoid the downtime required by replacing manufacturing equipment. A focus on costs is often be further exacerbated by the influence of packaging buyers who often seek to negotiate with suppliers on a cost basis alone (Simms and Trott, 2014). This can lead teams to only pursue minor 'skin-deep' packaging changes. In order to elevate buying decision-making within process industries away from being purely cost-driven firms should seek to add levels of differentiation to a product to achieve price premiums (Linn, 1984; Bomsel and Roos, 1990; Lager, 2000). In his paper exploring barriers to packaging innovation, Young (2004) suggests that regular audits of packaging performance can sway senior management towards investing in new packaging by highlighting specific strengths or deficiencies of existing offerings.

Simms and Trott (2014) also highlight the influence of powerful retailers on packaging development. The power of retailers has been noted in other studies (e.g. Urban and Hauser, 1993; Corstjens and Corstjens, 1995; Luo et al., 2007). Krishnan and Soni (1997) describe the phenomenon of 'guaranteed profit margins' for retailers as evidence of their growing power. Guaranteed profit margins refer to deals negotiated by retailers with manufacturers wherein contracts contain clauses which guarantee a set profit margin on the retail price for a given product. This allows the retailer to compete on price whilst avoiding incurring losses at new reduced prices. For manufacturers, they either accept the new deal or risk not having their brand stocked, and, in turn, losing access to millions of consumers. In the case of packaging development, further evidence of the power of retailers has been observed. For example, Simms and Trott (2014) found that private label manufacturers often only pursue minor label changes through fear that adoption of alternative packaging formats may upset retailers, resulting in their product being placed in an unfavourable position on the shelf or being removed entirely.

3.5.3. Role and Incorporation of External Capabilities and Consumers

Several studies highlight the importance of suppliers to the packaging development process (e.g. Rundh, 2009; Simms and Trott, 2010; Azzi et al., 2012). In cases where firms lack the necessary capabilities to generate new packaging ideas, the expertise of suppliers can provide valuable inputs. Inemek and Matthyssens (2013, p. 580) describe a similar phenomenon within a variety of industries where firms move from relationships with suppliers based on maximising operational performance, to relationships where manufacturers “*look for innovation potential among suppliers and try to leverage this potential to create value for their own customers*”. However, Simms and Trott (2014) observe that within the UK FMCG industry, relationships between product manufacturers and packaging suppliers are relatively superficial. Suppliers are often consulted late in the NPD process, where manufacturers will seek cost savings, rather than new packaging ideas. The prominence of packaging buyers in development decision-making (rather than individuals with technical packaging expertise) is also highlighted as a barrier for suppliers looking to engage with manufacturers (Simms and Trott, 2014). Due to their lack of technical packaging knowledge, buyers are often unable to engage in meaningful discussions with suppliers regarding packaging technologies due to differences in ‘language’. In such cases where there is a level of technological uncertainty, supplier integration is considered particularly valuable (e.g. Enkel, et al., 2009; Melander and Lakemond, 2012).

Another external source providing input to the packaging development process is the consumer (Raper et al., 1998; Rundh, 2009). While a number of studies advocate the involvement of consumers in the NPD process (see section 3.6.3), regarding packaging development, Simms and Trott (2014) suggest that firms which engage with consumers are often found to neglect supplier relations, thus perpetuating minor development. This is exacerbated further by firms which fear negative consumer reactions to radical, unfamiliar packaging formats and the perceived cost increases that will accompany them (Simms and Trott, 2014). However, these findings are based only on the reaction of managers to consumer focus groups; other forms of consumer involvement and their influence on packaging development are not addressed. The following section will explore other methods of understanding and incorporating consumer needs into the packaging development to provide a more detailed and holistic view.

3.6. Incorporating Older Consumers' Needs into the NPD Process

According to Lagrosen (2005, pp. 424-425), the success of new products depends on a firm's ability to gain an "*in-depth understanding of the customers, their situation, their needs and their wants*". The literature reveals a variety of methods to achieve this understanding. For example, the use of traditional market research techniques to understand consumer needs have been discussed (e.g. Ortt and Schoormans, 1993; Witell et al., 2011). Regarding older people, studies have explored the use of inclusive design simulation equipment to understand consumer needs (e.g. Keates et al., 2000; Clarkson et al., 2003). Other studies advocate the involvement of consumers during a variety of stages in the NPD process (e.g. Kaulio, 1998; Nambisan, 2002). The following subsections will explore the relative benefits and limitations of each of these approaches toward understanding and incorporating consumer needs into the NPD process.

3.6.1. Traditional Market Research Techniques

Common market research techniques used to generate consumer insights include surveys, in-depth interviews and focus groups (Sanchez and Sudharshan, 1993; Boddy, 2005; Verma et al., 2008). In their research exploring the development of new assistive technology products, Overton et al. (2008, p. 4) describe traditional market research as a "*critical component of conducting business in today's competitive environment*" as it "*informs organizations of consumers' needs and expectations, which will, in turn, guide how businesses develop and market their products*". Jewson (1991) discusses the role of market research in concept generation, describing how interviews and focus groups can be used to gauge the absolute and comparative appeal of a new product concept. This allows unappealing concepts to be eliminated before significant investment is made.

However, concerns regarding the use of market research in concept generation and evaluation have been raised in a number of studies (e.g. Johnson, 1998; Gustafsson et al., 1999; Trott, 2001; Kiley, 2005). For example, Kumar et al. (2000, p. 130), state that "*while useful in generating incremental innovation, [market research] seldom leads to breakthrough innovations*". Witell et al. (2011) describe traditional market research techniques in their study of co-creation during

idea generation as “*concentrating on capturing customers’ previous experiences of a product or service*”, thus characterising them as “*reactive or backward looking*”. Other scholars have raised concerns regarding the ability of consumers to recall events and consumption behaviours when participating in traditional market research. Authors such as Robson (2002) suggest that traditional market research techniques should be supported by other forms of ethnographic research. Ethnographic observations of consumers can provide a more accurate representation of reality than retrospective accounts can supply or that can be verbalized (Robson, 2002, p. 189).

3.6.2. Inclusive Design Simulation Equipment

Inclusive Design simulation equipment is designed to allow product developers the ability to experience particular ‘common impairments’ of older people through specially designed bodysuits. Originally developed for use in architectural design, simulation equipment is now utilised in the development of a variety of products. A well-known example is Ford’s use of the ‘Third Age Suit’ in the development of their Focus model (Keates and Clarkson, 2003; Newell, 2006; Pak and Kambil, 2006). Using bodysuits with strategically placed weights, designers at Ford were said to be able to experience a 25% loss of strength and 25% loss of dexterity, thus allowing them firsthand insights into the needs of some older people. More recent examples include Australian kitchen firm ‘Blum’ using their ‘Age Explorer Suit’ (Blum, 2013) and Barclays Bank using the ‘Barclays Elderly Simulation Suit’ (Barclays, 2013) to develop a more inclusive servicescape.

While affording product developers insights into the physiological needs of some older consumers, reliance on simulation equipment risks managers gaining a superficial understanding of the complex and multidimensional ageing process (Bond et al., 1993). Simulation suits allow managers to briefly experience particular ailments that affect some older people, but largely overlook the effects of social and psychological ageing. Therefore, when used in isolation, simulation equipment can only offer insights into a fraction of the needs of older consumers.

3.6.3. Consumer Involvement

The involvement of consumers in the NPD process has been widely discussed (e.g. von Hippel, 1978; Kaulio, 1998; Nambisan, 2002; Lagrosen, 2005). Kanis et al. (1999) suggest that involving consumers within the NPD process offers firms the greatest insights into their needs, describing in-depth exploration into actual user activities as indispensable. Likewise, Svendsen et al. (2009) suggest that involving consumers more deeply within the NPD process provides rich information and knowledge that allows managers to develop more detailed understandings of consumer needs and wants. A number of studies also claim that involving older consumers specifically in the NPD development process is the most effective means of capturing user requirements and needs (Essen and Ostlund, 2011; Chen and Chan, 2011; Dickinson and Dewsbury, 2006). This view is in keeping with Vargo and Lusch's (2004) service dominant logic perspective which views value as being co-created. Service-dominant logic suggests that observing and understanding what consumers do offers greater insights into their needs than questioning them on previous purchase decisions (Riquelme, 2001; Klink and Athaide, 2006; Millet, 2006). Therefore, actively involving older consumers within a firm's NPD processes will provide "*new opportunities for companies to create market offerings with greater customer value*" (Witell et al., 2011, p. 141).

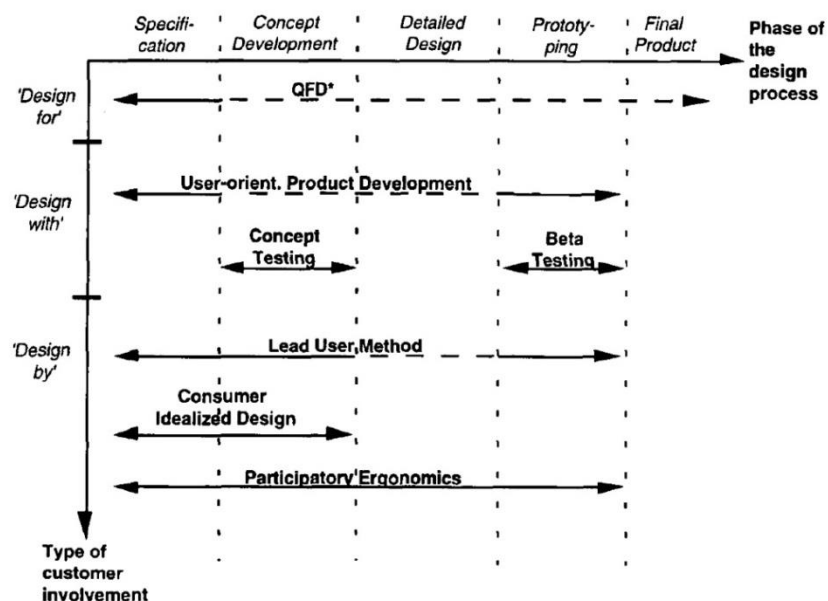
Literature reveals a number of methods for involving consumers in the NPD process. Kaulio (1998) distinguishes between these methods using two characteristics: The phase of the NPD process in which consumers are involved; and the way in which consumers are involved. Using these dimensions, three broad approaches to consumer involvement can be defined, namely "*Design for*", "*Design with*" and "*Design by*" (Kaulio, 1998, p. 142). These three approaches are described below in Table 3.2.

Table 3.4 Different Approaches to Consumer Involvement (Adapted and Including Quotes from Kaulio, 1998)

Approach to consumer involvement	Description
'Design for'	"...a product development approach where products are designed on behalf of the customers. Data on users, general theories and models of customer behaviour are used as a knowledge base for design".
'Design with'	"... a product development approach, focussing on the customer, utilizing data [analogous to] a 'design for' approach, but, in addition, includes display of different solutions/concepts for the customers, so the customer can react to different proposed design solutions".
'Design by'	"...participative, in that a qualitative leap in the relationship to the customer is made, and a sharp distinction between customers and designers ceases to exist. Customers take part, not only by relating their problems, needs and wishes, but also by being actively included in the process of developing and selecting different design solutions".

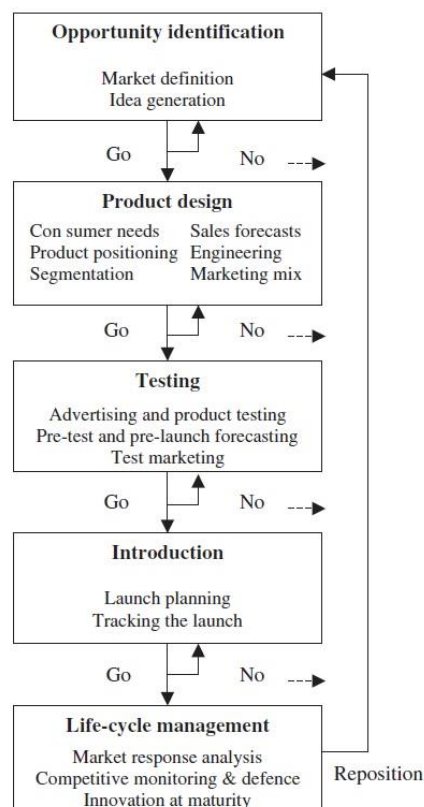
Kaulio (1998) categorises a variety of consumer involvement methods using these dimensions, ranging from concept testing ('Design for') to QFD ('Design by'). Figure 3.14 details the full set of categorised methods. Other more recent methods which Kaulio (1998) does not address include mass customisation (Berger et al., 2005), user communities (von Hippel, 2001) and online user toolkits (Piller and Walcher, 2006).

Figure 3.14 Methods of Consumer Involvement as Categorised by Kaulio (1998, p. 146)



While methods for consumer involvement such as consumer idealised design (Ciccantelli and Magidson, 1993), the lead-user method (von Hippel, 1986) and information acceleration (Urban and Hauser, 1993) were developed to overcome criticisms of traditional market research in understanding and applying consumer needs (Costa and Jongen, 2006), application of these methods to FMCG products is scarce. In their paper exploring product development in the food industry, Costa and Jongen (2006) advocate a consumer-led approach. Consumer-led NPD is associated with the concept of market orientation (Grunert et al., 1996; Lord, 2000; Kok et al., 2001); product development projects are centred on delivering value to consumers through understanding their current needs and anticipating determinants of future needs (Costa and Jorgen, 2006). The consumer-led food product development process is described as following Urban and Hauser's (1993) model (Figure 3.15).

Figure 3.15 The Consumer-Led New Product Development Process (Costa and Jongen, 2006, p. 460, from Urban and Hauser, 1993)



While Urban and Hauser's (1993) model recognises the importance of understanding consumer needs at the product design stage, the model carries many of the same limitations of other stage based NPD models and provides

limited insights into the operationalization of consumer involvement. Questions such as what is the best stage at which to involve consumers (Holt, 1988; Sawhney and Prandelli, 2000; Nambisan, 2002), what types of consumers should firms choose to involve (von Hippel, 2005; Kristensson et al., 2004), and what role consumers should fulfil in the NPD process (Lettl and Gemunden, 2005; Zeithaml and Bitner, 2003) remain largely unanswered within the literature.

Despite these gaps in the literature (Weber et al., 2012), the first hand insights that a variety of involvement methods offer suggest that firms would benefit from consumer input to their packaging development processes.

3.6.3. Summary of Methods for Incorporating Consumer Needs

Despite several models of FMCG and packaging development acknowledging the potential inputs of consumers, little detail is provided on methods for accumulating and applying consumer understanding. While traditional market research techniques provide a reasonable base on which to develop consumer understanding, a variety of literature suggests that market research alone is insufficient (e.g. Dickinson and Dewsbury, 2006; Svendsen et al., 2009; Chen and Chan, 2011). Given the wealth of marketing literature which claims that firms have long overlooked the senior market (e.g. Thompson and Thompson, 2009; Moschis et al., 2011; Moss et al., 2013), it seems likely that managers will need to go further in their efforts towards understanding the needs of older consumers than traditional market research permits.

In order to avoid issues of perpetuating minor packaging changes that may accompany a customer orientation (Simms and Trott, 2014), firms should seek to balance both consumer and supplier involvement in their packaging development processes. Arguably, consumers are able to provide the greatest insights into their own needs, while suppliers can help towards providing the knowledge and expertise necessary to develop value-adding solutions for those needs.

3.7. Understanding Packaging

In order to generate a more in-depth understanding of packaging and packaging development, the following subsections will explore the various functions and roles of packaging. Following this, conceptualisations of consumer-packaging interactions points will be explored and considered in relationship to the various functions of packaging. This will allow for a more holistic overview of packaging to be developed.

3.7.1. The Multiple Functions of Packaging

Previously, packaging has been regarded as an “*unavoidable non-value-added cost containing little or no strategic value*” (Lockamy, 1995, p.52) and as a “*necessary evil or an unnecessary cost*” (Robertson, 2013, p.1). However, the importance and pervasiveness of packaging to firms is becoming increasingly recognised within management literature (e.g. Rundh, 2009; Bigliardi et al., 2010; Simms and Trott, 2010). Evidence from practice also counters the view of packaging as little more than a necessary evil. For example, Birds Eye, the UK’s leading frozen food brand, generated £10million of sales in March 2009 through their new packaging innovation in their ‘Simply Bake to Perfection’ range (FDIN, 2009). The new packaging allowed consumers to bake fresh fish in their ovens without transferring the smell of fish onto their hands or into their homes, overcoming two major consumer barriers to fish sales. In April 2010 market research firm Nielsen reported a 19.9% sales increase of boxed table wines (Kapnick, 2010). Through graphical improvements, the introduction of innovative wooden boxes, and marketing efforts to promote sustainability, manufacturers of boxed wines were able to broaden the appeal of the boxed format and drive sales for wine manufacturers. Using packaging development, these firms have improved the quality of their products, attracted new consumers, and gained market share, thus countering the view that packaging represents little more than an unnecessary cost with no strategic value.

Integral to understanding the contributions of packaging is recognising the multiple roles it plays and understanding the different types and ‘levels’ of packaging. Robertson (2013) describes packaging as consisting of three levels: primary, secondary and tertiary. Each level of packaging offers benefits to different parties

in a variety of contexts; from consumers identifying products in cluttered retail environments, to distributors organising products for delivery to retailers. Table 3.3 provides definitions of each level of packaging.

Table 3.5 The Different Packaging Types (or 'Levels'), with Descriptions from Robertson (2013, p. 2)

Packaging type	Description
<i>Primary packaging</i>	<p><i>"A primary package is one that is in direct contact with the contained product".</i></p> <p><i>"It provides the initial, and usually the major, protective barrier".</i></p> <p><i>"Examples... include metal cans, paperboard cartons, glass bottles, and plastic pouches</i></p>
<i>Secondary packaging</i>	<p><i>"A secondary package... contains a number of primary packages".</i></p> <p><i>"It is the physical distribution carrier and is increasingly designed so that it can be used in retail outlets for the display of primary packages".</i></p>
<i>Tertiary packaging</i>	<p><i>"A tertiary package is made up of a number of secondary packages, with the most common example being a stretch-wrapped pallet of corrugated cases".</i></p>

Prior packaging studies have discussed: the importance of packaging as a communications tool (Sara, 1990; Nancarrow et al., 1998; Underwood, 2003; Woodside and Summers, 2011); the critical role packaging plays in logistics (Twede, 1992; Prendergast and Pitt, 1996; Vernuccio et al., 2010); the significance of packaging within the supply chain (Saghir, 2002; Hellstrom and Saghir, 2006; Garcia-Arca and Prado, 2008); the impact of packaging on the environment (Bone and Corey, 2000; Rundh, 2005; Roper and Parker, 2006); and, in some cases the multiple roles played by packaging from a holistic perspective (Lee and Lye, 2003; Trott, 2008; Simms and Trott, 2010; Azzi et al., 2012). The following subsections will first explore conceptualisations of the multiple functions of packaging, and will then explore each of these functions in greater detail.

3.7.1.1. Conceptualisations of Packaging Functions

Several authors have attempted to define the many functions of packaging (e.g. Lockamy, 1995; Lee and Lye, 2003; Ahmed et al., 2005; Kuvykaite et al., 2009; Robertson, 2013). In their article exploring packaging development in the FMCG industry, Simms and Trott (2014) provide an overview of the core roles/functions of packaging highlighted within the literature. Table 3.4 details these roles/functions

and identifies associated literature for each. Table 3.5 provides an extended overview of commonly cited packaging functions.

Table 3.6 Core Roles of Packaging and Associated Literature (from Simms and Trott, 2014)

Core functions/roles	Elements of packaging's role	Literature
Protection	Effects on the supply chain Tamperproof Role in transportation and logistics Product safety and quality Preservation/shelf life of the product Protection from hazards: mechanical; chemical; environmental; climatic; bacteriological	The Packaging Federation (2004) Stewart (1996) Stewart (1996); Prendergast and Pitt (1996) Rundh (2005); Lee and Lye (2003); Vidales Giovanetti (1995) Lee and Lye (2003); Nancarrow et al. (1998) } Lee and Lye (2003)
Containment	Aids customers use of product Containing and holding product Quantity/amount Facilitating/convenience handling Effect on quality Compatibility and constraints	Stewart (1996) Stewart (1996); Lee et al. (1991); Vidales Giovanetti (1995); Rundh (2005) Nancarrow et al. (1998) Prendergast and Pitt (1996) } Lee and Lye (2003)
Identification	Product identification Labelling (effective) Information: Copy/illustrations on use	The Packaging Federation (1993); Vidales Giovanetti (1995); Nancarrow et al. (1998) Rundh (2005); Davies and Wright (1994); Swahn et al. (2012) Rundh (2005); Lee et al. (1991); Nancarrow et al. (1998)
Marketing communication	Supporting marketing communications Supporting promotion of other products Sales/marketing Positioning	Institute of Logistics and Distribution Management (1993) Prendergast and Pitt (1996) Ampuero and Vila (2006) Ampuero and Vila (2006)
Cost	Transport and storage costs Process cost implications	Rundh (2005); Stewart (1996) e.g. Utterbuck and Abernathy

User convenience	Openability/access Reclosability Carrying Dispensing facilities Affecting consumer value New solutions Consumer convenience Suitable quantity/format	} Lee and Lye (2003) Lee and Lye (2003); Nancarrow et al. (1998) } Rundh (2005) Rundh (2005); The Packaging Federation (2004); Lee and Lye (2003) The Packaging Federation (2004)
Market appeal	Consumer and market appeal Branding Reinforcing the product concept Ability to improve sales Facilitating commercialisation	Lee and Lye (2003) Nancarrow et al., (1998) Rundh (2005) The Packaging Federation (2004) Vidales Giovanetti (1995)
Innovation	Innovation and technology	Rundh (2005); Simms and Trott (2010); Ahmed et al. (2005)

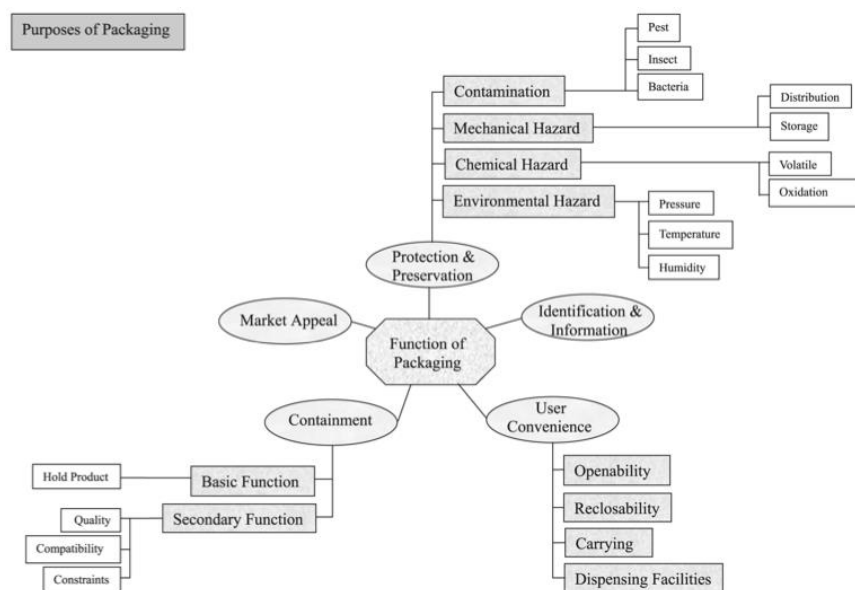
Table 3.7 An Overview of Commonly Cited Packaging Functions

Author/s and dates	Packaging functions						
	<i>Protection and preservation</i>	<i>Identification and information</i>	<i>User convenience</i>	<i>Containment</i>	<i>Marketing Communications</i>	<i>Apportionment</i>	<i>Unitisation</i>
Ahmed et al. (2005)	✓	✓		✓			
Ampuero and Vila (2006)	✓	✓		✓	✓		
Kuvykaite et al. (2009)	✓		✓	✓	✓		
Issues Paper (1997)	✓			✓	✓		
Lee and Lye (2003)	✓	✓	✓	✓	✓		
Lockamy (1995)	✓	✓	✓	✓	✓	✓	✓
Nancarrow et al. (1998)			✓	✓	✓	✓	
Packaging Federation (2004)	✓		✓	✓	✓	✓	
Prendergast and Pitt (1996)	✓		✓		✓		
Robertson (2013)	✓	✓	✓	✓	✓	✓	✓
Rundh (2005)	✓	✓	✓	✓	✓		
Stewart (1996)	✓	✓		✓			
Vernuccio et al. (2010)	✓	✓		✓	✓		
Vidales-Giovanetti (1995)	✓	✓		✓	✓		
Yam et al. (2005)	✓	✓	✓	✓			

Ahmed et al. (2005, p. 761) describe packaging as “an integral part of the product” and as fulfilling three purposes: containing the product; preserving and protecting its contents; and as a communication device. Ahmed et al. (2005) suggest that while firms may consider the various components of a package in isolation (for example, separating the milk from the milk bottle), the consumer does not. Consumers do not differentiate between the product, the package and the equity (Ahmed et al., 2005).

Lee and Lye (2003) provide a more detailed overview of the multiple functions of packaging, describing packaging as “the science, art and technology of protecting products for the purposes of containment, protection, transportation/storage and information display”. Figure 3.16 presents Lee and Lye’s (2003) five main purposes of packaging. The authors consider both the functions packaging offers to consumers, as well as to firms. In addition to protecting, containing and providing information on products, Lee and Lye (2003) also identify the roles of packaging in providing market appeal. However, the focus of their study is on the role of packaging within logistics. As such, there is limited exploration or explanation of how ‘market appeal’ can manifest itself. There are also limited explanations of what types of information packaging can display and what ways packaging acts as a tool for identification.

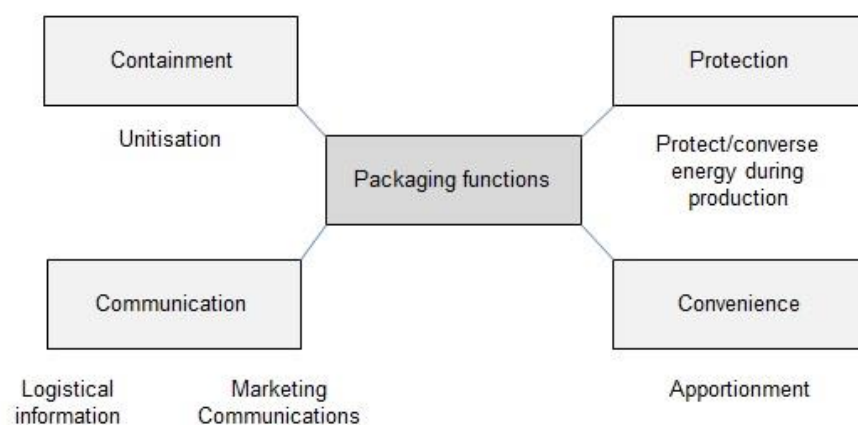
Figure 3.16 The Five Main Purposes of Packaging (Lee and Lye, 2003, p. 164)



In his conceptualisation, Lockamy (1995) describes the six primary functions of packaging as: (1) Containment; (2) Protection; (3) Apportionment; (4) Unitization; (5) Convenience; and (6) Communication. Apportionment refers to the function of packaging that “*reduces the output from large-scale, high-volume industrial operations to a manageable size for the end-user*” (Lockamy, 1995, p. 53). Unitization refers to the various levels of packaging, where primary packaging is unitized into secondary packaging, which is then unitized into tertiary packaging to allow for efficient distribution of goods.

Robertson (2013) provides a similar overview, defining the main functions of packaging as: containment; protection; convenience; and communication. While dividing the functions of packaging into a smaller number of categories to Lockamy (1995) and Lee and Lye (2003), Robertson (2013) provides more detailed explanations of his packaging functions. For example, Robertson (2013) identifies the same forms of user convenience as Lee and Lye (2003), but also incorporates Lockamy’s (1995) concept of apportionment as a means of offering consumers greater value. For example, milk being “apportioned” into different sizes to suit the needs of different consumers in different contexts. As such, Robertson (2013) provides the most comprehensive and detailed overview of packaging functions. These functions are detailed in Figure 3.17.

Figure 3.17 Robertson’s (2013) Packaging Functions (Adapted by Author).



In addition to understanding the multiple functions of packaging, Robertson (2013) recommends that firms should also consider the package environments in which these functions are realised. Failure to consider the various environments in which

packaging performs these functions will result in “*poorly designed packages, increased costs, consumer complaints and even avoidance or rejection of the product by the consumer*” (Robertson, 2013, p. 4). The various package environments in which consumers engage with a product are explored in greater depth in section 3.8.2.

The proceeding subsections will explore packaging functions in greater depth, using Robertson’s (2013) comprehensive conceptualisation as a structure. Following this, literature exploring the effects of packaging on the natural environment will be explored.

3.7.1.2. Containment

While containment represents one of packaging’s most basic functions (Stewart, 1996), it is also one of the most important in facilitating effective distribution (Ladipo and Olufayo, 2011; Azzi et al., 2012). Containment relates to all levels of packaging, from an aluminium can containing a fizzy drink (primary), to a cardboard box housing those cans (secondary), to a stretch-wrapped pallet of those cardboard boxes (tertiary); each delivers the function of containment. Robertson (2013, p. 3) describes the importance of containment in “*protecting the environment from the myriad of products that are moved from one place to another on numerous occasions each day in modern society*”. Without packaging to contain the core product, distribution and marketing of a product would be difficult, inefficient and costly (Simms and Trott, 2010). Containment is closely linked to the function of protection.

3.7.1.3. Protection

In their study, Kuvykaite et al. (2009) describe the primary function of packaging as providing protection to a product in order to ensure performance from delivery to consumption. While the different levels of packaging are not distinguished, Kuvykaite et al. (2009) describe the protection packaging offers to a product both from damage inflicted in transit and from consumer contamination. Sara (1990, p. 29) highlights the function of packaging in protecting a product during distribution, through “*whatever handling procedures and shipment methods or extremes of*

climate it may pass through on the way". Similarly, Lee and Lye (2003) describe the protection packaging offers to a product, but provide greater detail into the types of hazards which threaten a product. These hazards range from contamination from insects and bacteria, to damage inflicted whilst in transit and in storage. Prendergast and Pitt (1996) provide further detail; highlighting the protection packaging offers to the core product against effects such as water, moisture, vapour, gases, odours, dust, shocks, vibrations, and compressive forces (Prendergast and Pitt, 1996).

3.7.1.4. Convenience

A number of articles highlight the increasing importance of offering consumers convenience through packaging development (e.g. Lockamy, 1995; Nancarrow et al., 1998; Lee and Lye, 2003). Examples of particular types of user convenience highlighted in the literature include easy-open packaging (e.g. Winder et al., 2002; Duizer et al., 2009), re-sealable packaging (e.g. Lee and Lye, 2003; Ahmed et al., 2005; Ladipo and Olufayo, 2011), microwavable packaging (e.g. Sara, 1990), varied apportionments to suit different consumer needs (e.g. Lockamy, 1995; Azzi et al., 2012; Robertson, 2013), and intelligent packaging to extend product shelf-life (e.g. Sara, 1990; Yam et al., 2005; Rundh, 2009). The inclusion of such user conveniences allows firms to differentiate their product and offer greater value to particular segments of consumers. As such, convenience is linked with the function of communication.

3.7.1.5. Communication

Kuvykaite et al. (2009) highlight the role played by packaging as a communications tool, claiming that "[packaging] *could be treated as one of the most important factors influencing consumer's purchase decision*". Becker et al., (2011) describe how packaging allows consumers to draw inferences about a product and its quality, and how packaging can also shape expectations and modulate subsequent consumption experiences. In the case of low involvement products, such as FMCG, packaging greatly contributes to point-of-purchase decision-making (Underwood and Ozanne, 1998; Rettie and Brewer, 2000; Silayoi and Speece, 2004).

Marketing studies exploring packaging have afforded the function of communication particular attention (e.g. Sara, 1990; Dick, Jain and Richardson, 1996; Nancarrow et al., 1998; Underwood et al., 2001; Underwood, 2003; Ampuero and Vila, 2006; Vila and Ampuero, 2007). At a basic level, packaging acts as a marketing tool for capturing consumers' attention. This is increasingly important within the competitive and saturated retail environment (Prendergast and Pitt, 1996; Nancarrow et al., 1998; Rettie and Brewer, 2000; Wells et al., 2007). Other studies have explored the use of packaging to shape and communicate brand values, as well as perceptions of product quality. For example, Ampuero and Vila (2006) investigated the role of packaging in positioning a product. Consumer perceptions revealed that firms are able to position a product using a variety of packaging elements, including colour, typography, shape and image (Ampuero and Vila, 2006). Other authors have highlighted packaging as one of the most critical tools in product positioning as it allows for the transmission of brand values and product characteristics in multiple locations (e.g. Lindsay, 1997; Deasy, 2000, cited in Ampuero and Vila, 2006; McNeal and Ji, 2003). These functions have earned packaging the moniker of the 'Silent salesman on the shelf' (Sara, 1990; Rettie and Brewer, 2000). Vazquez et al. (2003, p. 603) describe packaging development as much more than just "*making things pretty*", arguing that packaging can be used to "*segment a market and target a particular consumer*". The various studies exploring packaging's role of communicating with the consumer suggest that firms may be able to position new products for subsegments of the senior market through packaging development.

In addition to the role packaging plays in offering market appeal (as a communications vessel), Lee and Lye (2003) also highlight the provision of information to other parties within the process of logistics. Robertson (2013) provides further detail and describes the role of packaging in communicating with and appealing to consumers, as well as providing information to other members of the supply chain. For example, Robertson (2013, p. 4) highlights how "*the widespread use of modern scanning equipment at retail checkouts relies on all packages displaying a universal product code*". Secondary and tertiary packaging is also said to provide significant value through the provision of vital information in other contexts, such as warehouses and distribution centres.

3.7.1.6. Packaging and the Environment

An additional consideration when developing new packaging is the potential impact on the natural environment. A number of studies have explored packaging and the environment (e.g. Gray and Guthrie, 1990; Prendergast and Pitt, 1996; Bone and Corey, 2000). Gray and Guthrie (1990, p. 31) describe basic consumer environmental concerns as “*whether or not resources are sustainable and whether habitats are being destroyed; whether waste material can be recycled and whether it is biodegradable, and whether a product contains chemicals that are harmful to individuals*”. In their study, Bone and Corey (2000) investigated perceptions of the environmental impact of packaging from packaging professionals and ethically-minded consumers. Their study revealed that consumers felt that the negative environmental consequences resulting from packaging development were far more severe than packaging professionals perceived them to be. Sudbury-Riley (2014) also found environmental concerns to affect many older consumers’ packaging experiences.

However, solutions to packaging-related environmental issues are complicated. For example, contrary to the advice of WRAP (2014) that firms should seek to reduce packaging levels, Prendergast and Pitt (1996) argue that good packaging can lead to reduced levels of food waste (by better preserving the product), and can offer firms greater levels of productivity, thus further reducing wastage of other resources. Likewise, The Packaging Federation (2008) argues that reducing packaging may accelerate rates of climate change as methane levels from food waste soar; instead, firms should seek to explore a greater variety of packaging materials, taking into account recyclability, re-usability, and the carbon footprint of alternative materials and formats (in terms of production, transportation, and disposal) during packaging development.

3.8. The Packaging Journey

As the multiple functions of packaging suggest, actors across the supply chain engage in many different interactions with a product and its packaging. Robertson (2013) argues that in order to fully understand these interactions the different

functions of packaging must be considered in relation to the various package environments (as depicted in Figure 3.18).

Figure 3.18 Functions/Environment Grid (Adapted from Robertson, 2013, p. 5)

		Environments		
		Physical	Ambient	Human
Functions	Containment			
	Protection			
	Convenience			
	Communication			

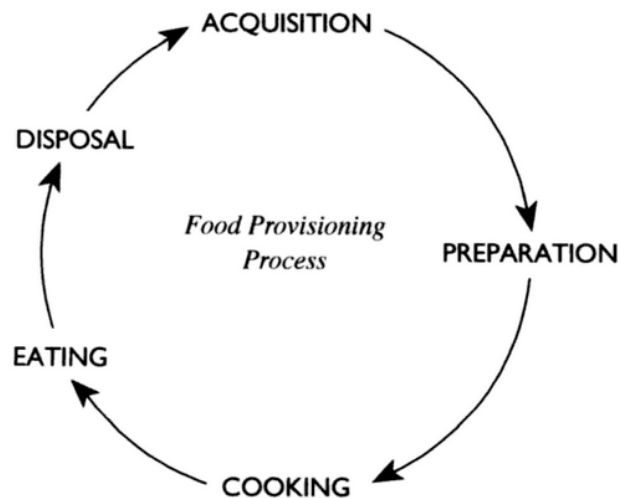
Despite this, much of the research exploring packaging has tended to focus on a single or small number of functions in a single or small number of environments. For example, research exploring the role packaging plays within logistics tends to focus upon the functions of protection and containment within the distribution process, with little reference to environments beyond the retail environment (e.g. Lee and Lye, 2003; Klevås, 2005; García-Arca & Prado Prado, 2008). As a result, the interactions between consumers and packaging are relatively under-explored. While some authors have considered issues of openability in some depth (e.g. Yoxall et al., 2007; Pascal et al., 2009; Passali et al., 2012) and marketing studies the impact of packaging at point-of-sale consumer decision making (e.g. Nancarrow et al., 1998; van den Berg-Weitzel and van de Laar, 2001; Silayoi and Speece, 2004), these studies only capture a fraction of the interactions between consumers and packaging. As Devendorf and Lewis (2010, p. 2) note: “*While point of sale is an important instance of consumer-product packaging interaction, it is only one of many times when a consumer will interface with the product package*”. The same can be said be for opening a pack; whilst representing a significant moment of the consumption process, it is only one of many interactions. In order to better understand consumers’ packaging needs, these interactions should be

considered from beginning (identifying and selecting a product) to end (disposal or re-use of a product). To focus only on the consumer's initial interaction with packaging (at POS) and the initial opening on the product would be a significant oversight. As such, there is a need to consider the various consumer packaging interactions across the 'packaging journey'. The following subsections will explore a variety of conceptualisations of the packaging journey.

3.8.1. Goody's (1982) Food Provisioning Process

Originally developed from a study exploring the effects of societal structures on food consumption, Goody's (1982) framework depicts the typical food provisioning process (see Figure 3.19). The framework highlights the need to view consumption as a series of stages, each of which may impact upon satisfaction (Marshall, 2013). While not explicitly related to packaging, Goody's (1982) food provisioning process provides a framework with which to view some of the interactions between consumers and packaging.

Figure 3.19 Goody's (1982) Food Provisioning Process



3.8.2. Rundh's (2009) Packaging Supply Chain stages

Building upon Goody's (1982) framework, Rundh (2009) provides a packaging-specific process, highlighting seven stages of packaging interaction. These stages incorporate interactions during distribution as well as consumer packaging interactions, and consist of: (1) Packaging supplier/manufacturer; (2) packaging and filling; (3) distribution; (4) marketing in retail outlet; (5) consumer purchase; (6)

consumer storage; (7) consumer usage (Rundh, 2009, p. 992). While providing a reasonable overview of the packaging supply chain, Rundh's (2009) process provides only limited insights into consumer-packaging interactions by confining these to just four stages. For example, interactions with packaging between the purchase and storage of a product, such as transporting the product to the consumers' home, may significantly affect the satisfaction gained from that product. If a product is too large it may be difficult to transport; conversely, if the product has carrying facilities (e.g. a handle), this may add value for the consumer. The Japanese Standards Association (JSA, 2000) provides a more detail conceptualisation which incorporates additional stages of the packaging journey.

3.8.3. Japanese Standards Association (JSA, 2000) Packaging Guidelines

Indicative of their rapidly ageing population, the JSA has guidelines for firms developing new packaging and receptacles regarding the needs of older persons and persons with disabilities (JSA, 2000). These guidelines include a list of items for evaluating the usability of packaging and receptacles for these consumers. The list of items divides consumer-packaging interactions into several stages, some of which are subdivided further, with relevant evaluative questions identified for each subdivision. Table 3.8 details these stages and example evaluation questions for each. By exploring packaging usability at several stages of the consumption process, the JSA (2000) provide a more detailed overview of consumer-packaging interactions than studies which focus on packaging logistics. The JSA (2000) framework identifies a number of packaging functions in relation to different stages of the packaging journey.

Table 3.8 The JSA (2000) Packaging Usability Evaluation Framework

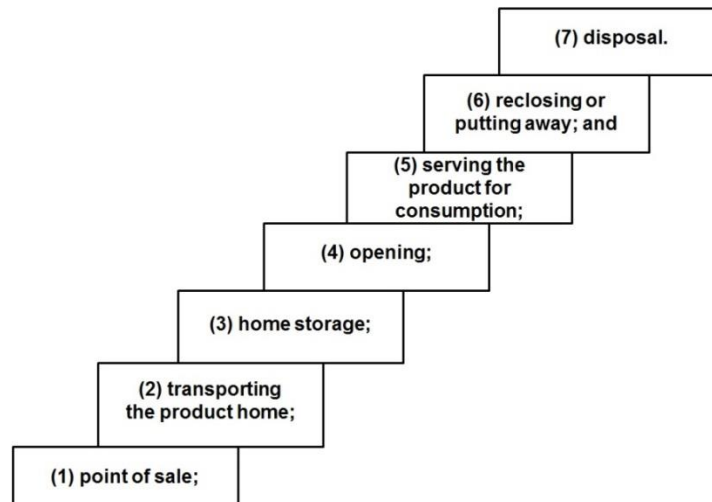
Division		Evaluation item
<i>Purchase</i>	Product identification	Is the product easy to identify? (No possibility of error purchase?)
	Carrying	Is the product easy to carry? – Shape, weight, size, non-slipperiness.
<i>Storage</i>	Storage method	Is the storage method easy to understand? – Intuitive understanding; Easy to understand procedures/illustrations.
	Easiness of storage	Is the product easy to store? – Non-falling, non-slipperiness when taken out.
<i>Opening</i>	Opening sites	Are the opening sites easy to find? – Intuitive recognition, common opening sites,

	Opening method	Is the opening method easy to understand? – Intuitive recognition, easy opening structure.
	Easiness of opening	Is the product easy to open? – Consideration for weak hands, size of hands and fingers, etc.
<i>Use</i>	Holdings	Is the product easy to hold? – Shape, weight and size that can be handled by one hand.
	Usage	Is the usage easy to understand? – Easy to understand usage procedures/illustration.
	Usability	Is the product easy to use and to refill (if the product is a refill)?
<i>Resealing</i>	Resealing method	Is the resealing method easy to understand?
	Easiness of resealing	Is the product easy to reseal?

3.8.4. Deasy's (2000) Positioning Transmission Points

Deasy (2000, cited by Ampuero and Vila, 2006, p. 102) builds upon the JSA (2000) conceptualisation, providing a detailed depiction of consumer-packaging interactions by identifying the following stages in which a product's positioning is communicated through packaging: (1) Point of sale; (2) transporting the product home; (3) home storage; (4) opening; (5) serving the product for consumption; (6) reclosing or putting away; and (7) disposal. Figure 3.20 depicts these stages diagrammatically. While variance may be found across different packaging formats and FMCG products, Deasy's (2000 cited by Ampuero and Vila, 2006, p. 102) process provides the most comprehensive overview of the typical food and drink packaging journey. The principles of the systematic approach have potential application to other products and services. For example, exploring the potential effects of ageing process within service blueprinting may positively contribute to improving service delivery across a variety of sectors (Bitner et al., 2008).

Figure 3.20 Deasy's (2000) Positioning Transmission Points



3.8.5. Summary of the Conceptualisations of the Packaging Journey

A limited number of authors have attempted to depict the stages of the packaging journey at which consumer-packaging interactions take place. While the JSA (2000) provide a conceptualisation that is specifically related to the needs of older (and disabled) persons, Deasy's (2000, cited by Ampureo and Vila, 2006) provides a more detailed overview of consumer-packaging interaction points. The conceptualisation is also in-keeping with Robertson's (2013) recommendation that to gain a holistic understanding of the functions of packaging it should be considered with regards to the various supply chain environments.

3.9 Summary

This chapter has provided insights into the process of developing new FMCG products. A review of literature revealed much thinking on NPD to be dominated by a stage-based perspective. This dominance was also found to pervade FMCG and packaging development models. As a result, few models provide insights into the process of managing packaging development (e.g. Simms and Trott, 2014). In particular, models fail to account for the needs of older consumers. While some models recognise the potential inputs of consumers, few detail the process of understanding and incorporating consumer needs into the packaging development process, and none specifically address the needs of older consumers.

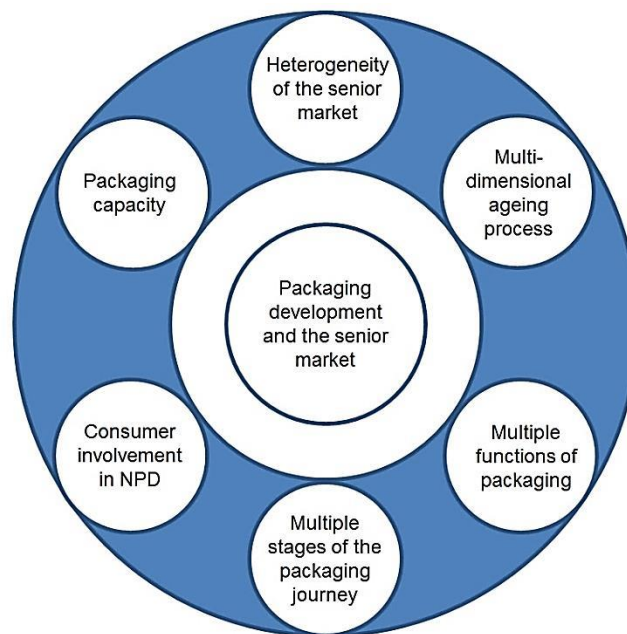
The later sections of the chapter highlighted the multiple functions of packaging and the explored conceptualisations of consumer packaging interactions at the various stages of the packaging journey. Despite recognising the multiple functions of packaging and the various environments in which these functions take place, the majority of packaging studies were found to explore a single or small number of functions in a single or small number of environments.

Chapter 4 Development of the Conceptual Framework

4.1. Introduction

This chapter will present a unique conceptual framework developed from the literature reviewed in Chapters Two and Three. The framework provides a new perspective with which to view FMCG product development; one where packaging development is used to offer value to older consumers. Figure 4.1 depicts the main areas of theory used to develop the conceptual framework.

Figure 4.1 The Theoretical Framework for This Study



Chapter Two revealed the need to understand ageing as a multidimensional process. The majority of research exploring packaging and older consumers has been biological-centric in its approach. Failing to consider other psychological and social age-related changes offers only limited insights into packaging experiences. The framework, therefore, contributes to the limited marketing literature exploring packaging from a multidimensional perspective of ageing (Sudbury-Riley, 2014). Chapter Two also highlighted the size and heterogeneity of the senior market. This revealed the importance of segmenting the senior market into more specific subsegments.

A review of FMCG development models in Chapter Three demonstrated that packaging is often overlooked or afforded limited attention. This is despite

packaging forming an integral component of FMCG products which many consumers perceive as being inseparable from the core product (Silayoi and Speece, 2004; Ahmed et al., 2005; Simms and Trott, 2010). Exploration of packaging development models revealed a bias towards packaging design (in terms of labelling and reprographics), with more advanced development receiving less attention. A further weakness of these models is the limited insights they offer into the roles of consumers during the development process. Whilst highlighted in some models as important external sources to the NPD process, the majority of models provide little detail on what inputs consumers can offer or how they can be integrated. By incorporating the needs of older consumers into the packaging development process, the framework builds upon the work of Simms and Trott (2014) and their framework of packaging development.

The following subsections will explore each area of theory depicted in Figure 4.1 and will describe their contribution to the development of the conceptual framework.

4.2. Perceptions of the Senior Market

The impact of population ageing on business has long been discussed. During the 1960's authors such as Dodge (1962) and Morse (1964) recommended that firms take greater notice of the senior market due to its size and growth. Similar calls have been made for decades since (e.g. Phillips and Sternhal, 1977; Bartos, 1980; Visvabharathy and Rink, 1984; Ahmad, 2002), and are still made now (e.g. Moschis, 2012; Sudbury-Riley et al., 2012; Moss et al., 2013). This inaction towards the senior market is attributed to a number of factors, including the prevalence of negative stereotypes and misconceptions surrounding older consumers. A commonly cited misconception is the belief that the senior market is monolithic (Sherman et al., 2001; Reizenwitz and Iyer, 2007; Thompson and Thompson, 2009). Despite the ubiquity of this misconception, studies show that older consumers not only represent a heterogeneous market, but also suggest that consumers become increasingly dissimilar as they age (Moschis, 1996a; Dychtwald, 1997; Silvers, 1997; Moschis and Ünal, 2008). Recognising this heterogeneity, several authors have developed methods for segmenting the senior

market which draw upon a variety of demographic, psychographic and behavioural variables (e.g. Bartos, 1980; Moschis, 1996; Sudbury and Simcock, 2009).

Kohlbacher et al. (2014) highlight the diversity of needs among the senior market and present several case studies of firms responding to these needs with a variety of new products. The variety of NPD and positioning strategies these case studies demonstrate reflects the heterogeneity of the senior market and the number of subsegments which comprise it. Despite this, inclusive design literature offers a narrower view of positioning strategies for the senior market. Scholars such as Goodman-Dean et al. (2010) suggest that firms wishing to target the senior market should do so by making discreet product improvements to improve functionality. Likewise, Clarkson et al. (2002) and Persad et al. (2007) recommend that products and services positioned as being *for* older people are likely to stigmatize and alienate the very consumers which they are attempting to target. While there indeed is evidence for the success of a variety inclusive products (e.g. Newell, 2006; Kohlbacher and Chang, 2011; Coleman et al., 2012), there is equal evidence for the success of products positioned more specifically toward older consumers (e.g. Kohlbacher and Hideg, 2010; Bamford, 2012). This suggests that firms should seek to generate in-depth knowledge of the senior market in order to develop appropriate NPD and positioning strategies with which to add value for subsegments of older consumers. Much like the role of the 'product champions' in driving new product development projects (Frost and Egri, 1991; Markham and Aiman-Smith, 2001), acquiring this in-depth knowledge of the senior market will require the presence of individuals within the product development team who are committed to understanding and delivering value to older consumers. The presence of 'senior champions' will aid firms in generating this understanding and in developing what is referred to in this study as 'Senior Aptitude'. By instilling consideration of the senior market into NPD projects, firms will accumulate knowledge and develop an understanding of ageing as a multidimensional process necessary to deliver value to older consumers.

The above discussions for the basis for the first proposition:

Proposition 1: NPD teams which include senior champions will afford older consumers greater attention and will, in turn, build senior aptitude. This will aid firms in conceptualising ageing as a multidimensional process.

The following section will explore the multidimensionality of the ageing process and will describe how viewing ageing in this way will aid firms seeking to target the senior market.

4.3. Ageing as a Multidimensional Process

It is well-established in the field of gerontology that ageing is a multidimensional process, comprising of biological, psychological and social changes (Bond et al., 2007; Hooyman and Kiyak, 2008; Young et al., 2009). Despite being increasingly understood within the Marketing literature (e.g. Moschis, 1996; Ahmad, 2002), firms are accused of viewing ageing too simplistically, often merely as a process of physical decline or through the lens of chronological age alone (Sudbury and Simcock, 2009a). Viewing ageing only as a process of physiological deterioration overlooks the effects of psychological and social ageing. As a result, firms which adhere to this myopic view limit their understanding of older consumers' needs (Gunter, 1998; Thornton, 2002; Mumel and Prodnik, 2005). In the case of FMCG products, this may mean that opportunities to add value for older consumers through packaging development will be missed.

While evidence from fields such as ergonomics have demonstrated the impact biological changes can have on consumer packaging-interactions (e.g. Langley et al., 2005; Yoxall et al., 2007; Yoxall and Janson, 2008), other studies suggest that changes as a result of psychological ageing (e.g. Fung and Carstensen, 2003; Drolet et al., 2010) and social ageing (e.g. Davis et al., 2000; Dean et al., 2009; Sudbury and Simcock, 2010) may also significantly impact upon packaging experiences. This suggests that firms should seek to consider all dimensions of the ageing process when developing new packaging, thus looking beyond simply the question of 'can consumers open the product?'.

Based on the preceding discussions, the following proposition is generated:

Proposition 2: Conceptualising ageing as a process of biological, psychological and social changes will provide firms with a more accurate vantage point from which to understand older consumers' needs.

4.4. Firm Characteristics to Facilitate New Packaging Development

NPD and innovation literature reveals a variety of factors which aid product development success. These range from adopting a systematic, structured approach to NPD projects (Goulding, 1983; Cooper, 2008; Balconi et al., 2010), to optimising the integration of external inputs to the NPD process (Chesbrough, 2003; Berkhout et al., 2010). While many of these factors are viewed as universal and applicable to any NPD project, a review of packaging literature identifies success factors specific to packaging development. For example, FMCG and packaging development models reveal the need for firms to integrate inputs from suppliers (Francis et al., 2008; Bramklev, 2009), design agencies (Rundh, 2009; Simms and Trott, 2010) retailers (Azzi et al., 2012; Simms and Trott, 2014), and consumers (Raper et al., 1998; Vernuccio et al., 2010). The effective integration of these various inputs rests on a firm's ability to foster sufficient absorptive capacity (Fosfuri and Tribó, 2008; Lichtenhaler and Lichtenhaler, 2009). In order to gain and sustain a competitive advantage from packaging development firms must have in place the necessary organisational capabilities to absorb and apply new knowledge and technologies (Zahra and George, 2002). Key to achieving 'packaging capacity' is the inclusion of packaging champions with specialist industrial design knowledge within the NPD team (Simms and Trott, 2014). As well as providing specialist knowledge, packaging champions may help overcome inertia towards packaging development (Clark and Fukimoto, 1991; Wheelwright and Clark, 1992; Hauser et al., 2006), and overcome specific issues such as a cost focus with regards to packaging purchasing decisions (Young, 2004; Simms and Trott, 2014).

By fostering packaging capacity, firms will be able to generate a greater number of new packaging ideas and pursue a more diverse selection of packaging development opportunities. Rather than being confined to minor, incremental

changes, the inclusion of packaging champions will allow firms to pursue other more advanced development projects (Simms and Trott, 2014). Developing packaging capacity will aid firms in identifying potential improvements to current products and a greater variety of new product opportunities with which to add value for older consumers.

The above discussions provide the basis for the third proposition:

Proposition 3: *Firms which develop packaging capacity will identify and exploit a greater variety of new packaging ideas. This will enhance a firm's capabilities in delivering value to older consumers.*

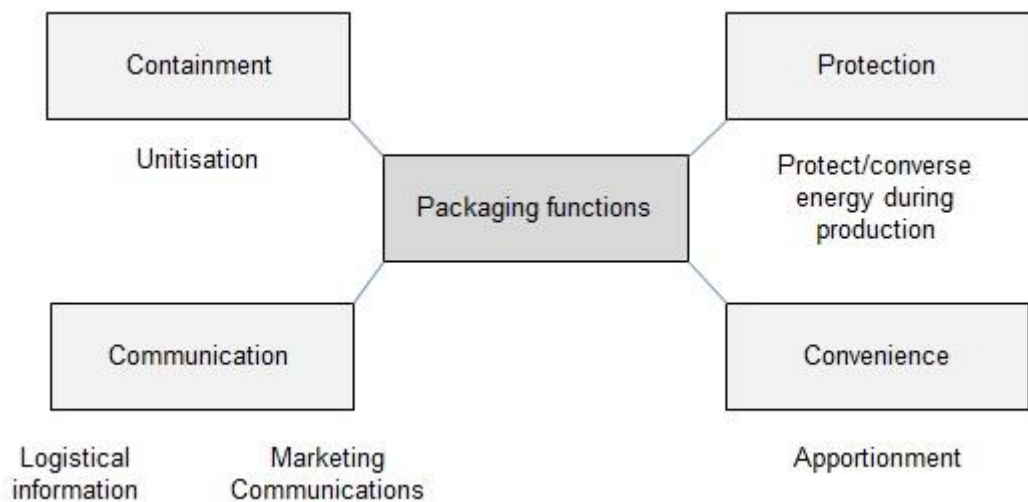
Fostering packaging capacity will allow firms to identify and exploit development opportunities related to packaging's role as a communications vessel, but also opportunities emerging from the other functions of packaging. This following section will consider the various functions of packaging and the new product opportunities they can afford.

4.5. Packaging as a Multifunctional Marketing Tool

In order to realise the potential value firms can offer older consumers through packaging development, consideration must be given to the various functions of packaging. Prior research into packaging, however, has tended to focus on single functions in isolation. For example, studies exploring packaging distribution prioritise packaging protection (e.g. Twede, 1992; Prendergast and Pitt, 1996; Vernuccio et al., 2010), while the majority of marketing studies into packaging examine communications and reprographics (e.g. Sara, 1990; Nancarrow et al., 1998; Underwood, 2003). A number of FMCG and packaging development models also examine marketing communications (e.g. Francis, 2006; Francis et al., 2008; Gofman et al., 2010). This provides a limited view of the multiple roles played by packaging and is likely to lead minor incremental packaging change at the expense of more radical and potentially value-adding format changes (Simms and Trott, 2010).

Several authors have attempted to define the many functions of packaging (e.g. Lee and Lye, 2003; Ahmed et al., 2005; Kuvykaite et al., 2009). Robertson (2013) provides a comprehensive overview the various packaging functions, highlighting the roles packaging plays in: protecting and containing the core product during distribution and consumption; in providing information, both to consumers in the form of marketing communications and branding messages, and to other members of the supply chain; and in offering convenience to consumers, such as the inclusion of re-sealable closure or through varied apportionment. Figure 4.2 presents the four main functions of packaging.

Figure 4.2 Robertson's (2013) Packaging Functions (Adapted by Author)



Viewing packaging as a multi-functional tool, rather than considering individual functions in isolation, will aid managers in identifying key aspects of a pack that may be affected by the process of ageing. Based on this, the following proposition is developed:

Proposition 4: *Conceptualising packaging as a multi-functional tool will aid firms in identifying a greater number new product opportunities for the senior market and will allow for greater scope in meeting older consumers' needs.*

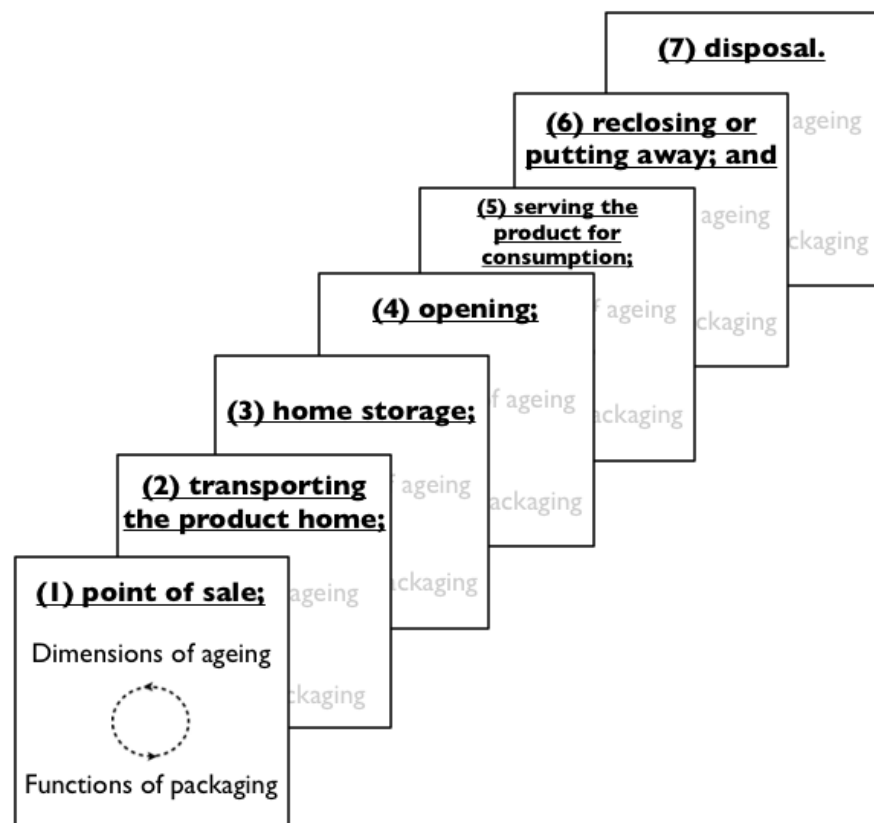
4.6. Consumer-Packaging Interactions across the Packaging Journey

Whilst viewing the functions of packaging in a more holistic way is necessary, it is insufficient to gain a complete understanding of consumer-packaging interactions. Firms must also consider the environments in which consumers interface with

packaging (Devendorf and Lewis, 2010; Robertson, 2013). While ergonomics studies have explored issues of openability (e.g Yoxall et al., 2007) and marketing studies the impact of packaging at point-of-sale (Nancarrow et al., 1998; Underwood, 2003), these only capture a small part of the interactions between consumers and packaging.

A number of authors have attempted to describe the typical packaging journey (e.g. Goody, 1982; Deasy, 2000; JSA, 2000; Rundh, 2009). Deasy (2000, cited by Ampuero and Vila, 2006) provides a detailed depiction of consumer-packaging interaction points across the packaging journey consisting of: (1) Point of sale; (2) transporting the product home; (3) home storage; (4) opening; (5) serving the product for consumption; (6) reclosing or putting away; and (7) disposal. By exploring the potential effects of the ageing process on the various functions of packaging at each of these stages, managers will be able to gain a richer understanding of older consumers' needs across the packaging journey. This process is depicted in Figure 4.3.

Figure 4.3 Exploring Older Consumers' Packaging Interactions across the Packaging Journey



The above discussions form the basis for the fifth proposition which underpins the conceptual framework:

Proposition 5: Considering the various consumer-packaging interactions which take place across the packaging journey will aid firms in identifying potential product improvements and new product opportunities to add value for older consumers.

4.7. Consumer Involvement in Packaging Development

A review of NPD literature reveals a number of methods and tools to understand and incorporate the needs of consumers. The degree to which consumers are involved in the NPD process varies by different methods. For example, traditional market research techniques will often entail only a limited level of consumer involvement. Dependent on the techniques employed (e.g. a survey compared with ethnographic observations), firms will communicate with consumers, but their involvement on the NPD process may be kept 'at arm's length'. When used in isolation, simulation equipment entails almost no consumer involvement; instead, designers will attempt to experience a snapshot of older consumers' needs themselves and incorporate this into their development process. A variety of studies suggest that firms should employ methods which provide an increased level of consumer involvement within NPD projects (e.g. Kaulio, 1998; Gustafasson, 1999; Nambisan, 2002). By involving consumers more closely within the NPD process firms are able gain a more accurate picture of consumer needs (Kanis et al., 1999; Svendsen et al., 2009; Chen and Chan, 2011). However, despite a wealth of literature highlighting a variety of methods for consumer involvement (e.g. Jeppesen, 2005; van Kleef et al., 2005; Poetz and Schreier, 2012), there is comparatively little knowledge on the appropriateness of different methods in different contexts (Kanssen and Dankbarr, 2008). This is also limited research offering guidance to firms in how they should seek to involve their consumers (Weber et al., 2012). Indeed, models of FMCG and packaging development provide little detail regarding methods for incorporating consumer needs into the NPD process (Cooper and Mills, 2005; Rundh, 2009; Gofman et al., 2010). In particular, the unique needs of older consumers and the multi-dimensional nature of the ageing process are not accounted for. This is despite

recognition of the importance of consumer insights to successful packaging development (e.g. Nancarrow et al., 1998; Robertson, 2013). As such, research is required to uncover how, and to what extent, FMCG firms attempt to understand the needs of and incorporate their consumers in their NPD processes.

The above discussions provide the rationale for incorporating older consumers into the new packaging development process, which forms the sixth principle for the conceptual framework, and the following proposition:

Proposition 6: *The incorporation of older consumers directly into the new packaging development process will provide managers with richer insights than market research or simulations alone. This will aid firms in developing new products which offer greater value to older consumers.*

4.8. Developing New FMCG Products through Packaging Development to Add Value for Older Consumers

The preceding discussions demonstrate that packaging development requires inputs from a number of sources, including various functions of the firm, suppliers, retailers and consumers. Regarding the latter, it is clear that for firms wishing to add value for older consumers through packaging development, understanding of the ageing process is required. This understanding should be considered with regards to the multiple functions of packaging across the various stages to packaging journey. In so doing, firms will gain a more holistic view of older consumers' packaging interactions, thus allowing them to identify and exploit a greater number and variety of new product opportunities. This is conceptualised in Figure 4.4.

The framework is divided into three main parts. Firstly, the large central 'dotted' box represents the process through which firms can deliver value to older consumers through packaging development. This process requires managers to conceptualise ageing as a multidimensional process and packaging as a multifunctional tool with which consumers experience multiple interactions across the packaging journey. These conceptualisations are presented in boxes connected by two-way arrows. The arrows depict the need for these

conceptualisations to be considered in conjunction with one another; thus emphasizing the need to explore how the different dimensions of ageing may impact on packaging interactions across the packaging journey. At the center of this process is consumer involvement. By placing consumer involvement centrally, it is highlighted as a critical component towards generating the insights required to deliver greater value to older consumers through packaging development. The concepts of 'senior aptitude' and 'packaging capacity' represent internal firm factors influencing the ability of the firm to conceptualise ageing and packaging interactions in this way. The concepts are depicted as 'inputs' to this process using arrows to connect the boxes to the large central box. Those firms which are able to develop and exploit 'senior aptitude' and 'packaging capacity' will therefore be more able to deliver value to older consumers through packaging development. 'Senior aptitude' and 'packaging capacity' are presented as distinct entities to illustrate that some firms may exhibit significant capabilities with regards to one of these inputs, whilst performing comparatively weakly with the other. This is likely to affect the type of new product opportunities a firm pursues. In cases where firms exhibit both 'senior aptitude' and 'packaging capacity', they will be able to identify and explore a variety of packaging development opportunities which will incorporate the multiple needs of older people. These outputs in the form of new opportunities for older consumers are depicted to the right of the framework.

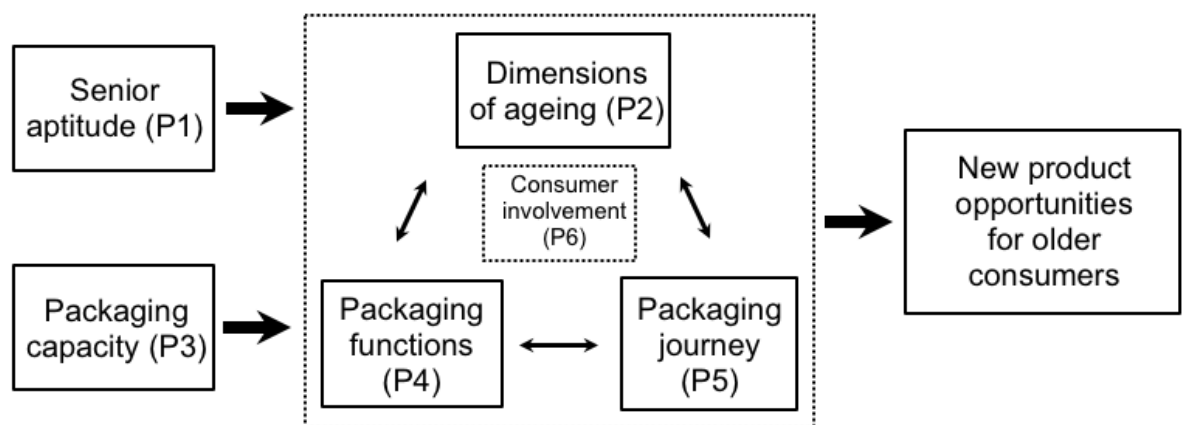
The key propositions are, therefore, based on the following:

1. Developing value-adding FMCG products for older consumers requires firms to recognise the heterogeneity of the senior market and foster senior aptitude (Moschis, 1996; Kohlbacher et al., 2014).
2. Understanding ageing as a multidimensional process will aid firms in identifying product improvements and new product opportunities through packaging development to add value for older consumers (Bond et al., 2007; Ahmad, 2002; Sudbury-Riley, 2014).
3. Developing packaging capacity will allow firms to create and exploit a pipeline of new packaging ideas which go beyond label changes and reprographics (Zahra and George, 2002; Ahmed et al., 2005; Simms and Trott, 2010, 2014).
4. Viewing packaging as a multifunctional marketing tool will aid firms in identifying a greater number of product improvements and new product

opportunities to add value for older consumers (Lockamy, 1995; Lee and Lye, 2003; Robertson, 2013).

5. Exploring the various stages of the packaging journey will aid firms in understanding consumer-packaging interactions, thus highlighting a greater number of possible product improvements and new product opportunities (Deasy, 2000; JSA, 2000; Rundh, 2009).
6. Involving older consumers in the packaging development process will aid firms in better understanding their target consumers' needs (Nambisan, 2002; Svendsen et al., 2009; Witell et al., 2011).

Figure 4.4 Conceptual Framework for Delivering Value to Older Consumers Through Packaging Development



4.9. Summary

The conceptual framework presented in this chapter provides a unique view of product development within the FMCG industry. Packaging development is presented as an integral component to FMCG product development, recognising that consumers often view products and packaging inseparably. The framework provides a lens with which to view packaging development as a means of delivering value to older consumers. By examining the dimensions of the ageing process in relation to consumer-packaging interactions, the framework builds upon prior FMCG and packaging development models by providing greater detail into the process of understanding consumer needs.

The framework also recognises key firm characteristics to facilitate packaging development. By affording packaging development greater attention and investing in relevant technologies, firms will be better placed to identify and exploit a variety

of new packaging ideas. These ideas may range from minor skin-deep enhancements to more advanced format changes. The ability to pursue this variety of packaging ideas will aid firms in identifying a greater number of product improvements and new product opportunities to add value for older consumers. The propositions which underpin the framework recognise that the choice of packaging development is dependent on the subsegment of the senior market a firm wishes to target. For example, those firms which wish to offer value to older consumers whilst pursuing a 'mass market' positioning strategy may be able to do so through the inclusion of an easy-open closure. Other firms may wish to add value for older subsegments of the senior market by pursuing a variety of changes to their packaging, such as changes to reprographics, apportionment, or by exploring alternative packaging formats.

Chapter 5 Methodology

5.1. Introduction

The methodology employed in this research followed an inductive approach and was divided into two parts, preceded by an exploratory preliminary study. Inductive research is suitable when the aim is to generate theory in an under-explored area (Saunders et al., 2009). A preliminary study was conducted in order to provide the researcher with initial insights on which to build, highlighting issues requiring exploration in greater depth. Across the different parts of the study the researcher adopted a multi-method approach as this has been shown to add rigour, breadth and depth to the research and understanding gained (Flick, 1992; Snow and Thomas, 1994; Woodside and Wilson, 2003).

The preliminary study consisted of a focus group with NPD and packaging managers from a variety of FMCG and packaging firms. Drawing upon the principles of the Delphi method (Dalkey, 1969), this preliminary study aided the researcher by offering initial insights into packaging development and firm perceptions of the senior market, thus providing direction for the subsequent data collection. In particular, findings revealed the need for in-depth case study research to understand the role of packaging development within NPD projects in the FMCG industry. This was identified based on the variety of responses regarding packaging development processes across different organisations. Insights also highlighted the need for research into perceptions of the senior market and conceptualizations of ageing among FMCG and packaging firms. This was based on the interest expressed in the senior market by the managers, but also the divergence in opinion on how best to deliver value to older consumers. These findings were incorporated into the research design. Part One of data collection involved qualitative interviews and participant observations with older consumers exploring their experiences with and opinions on packaging. Case study research with FMCG and packaging firms involving qualitative interviews was employed in Part Two to explore the management of NPD, the role packaging plays within these processes, and perceptions of the senior market.

This chapter is structured to systematically detail and justify each of the data collection methods used across the preliminary study and both main parts of the

research. The objectives of each of aspect of the research design are established, followed by details of the data collection methods employed and the rationale for their selection. The research instrument/s utilised are then explained, followed by details of the samples engaged with in each part. Finally, the analytic procedure employed is described, and conclusions are drawn. The purpose of this chapter is to demonstrate the comprehensive consideration that has been given to the chosen research methods and the rigour this selection sought to ensure.

Table 5.1 Overview of Research Design

	Preliminary study	Part One	Part Two
<i>Research purpose</i>	Exploratory	Exploratory	Exploratory
<i>Research approach</i>	Focus group with FMCG and packaging managers.	Qualitative interviews and participant observations with older consumers.	Case study research; qualitative interviews & secondary data collection.
<i>Research questions</i>	RQ 1: How does the process of ageing affect packaging needs? RQ 2: How do FMCG firms incorporate these needs into their new product development processes?		
<i>Objective/s</i>	To gain an initial broad understanding of packaging development and perceptions of the senior market. The study also sought to provide direction for subsequent data collection.	To examine how the multidimensional process of ageing affects packaging needs. Also, to explore how packaging can contribute to the maintenance of independent living.	To examine NPD within the FMCG industry and the role played by packaging within this process. Also, to explore firm perceptions of the senior market and conceptualisations of ageing.

	Preliminary study	Part One	Part Two
<i>Summary of key research questions</i>	<p>How do firms develop new products and packaging for older consumers?</p> <p>What differences in needs do firms perceive between older versus younger consumers?</p> <p>How do firms perceive ageing to affect packaging needs?</p>	<p>How does the process of ageing affect packaging needs?</p> <p>How does the process of ageing affect shopping habits?</p> <p>How do shopping habits influence packaging needs?</p> <p>What other factors influence packaging needs?</p> <p>What impact does packaging have upon an individual's abilities to live independently?</p>	<p>Through what processes do FMCG firms manage NPD?</p> <p>How is packaging incorporated into these processes?</p> <p>What factors influence a firm's ability to pursue a variety of new packaging opportunities?</p> <p>What characteristics do FMCG/packaging firms associate with the senior market?</p> <p>How do FMCG/packaging firms understand ageing?</p> <p>What role do consumers play in the development of new FMCG packaging?</p>
<i>Research strategy</i>	Focus group, drawing upon principles of the Delphi Method.	Interviews and participant observations.	Case studies.
<i>Sample</i>	Managers within FMCG and packaging firms.	Consumers aged between 50 and 85 years old.	Managers within FMCG and packaging firms. Secondary data.
<i>Research instrument</i>	Semi-structured focus group.	Semi-structured interviews and participant observations.	Semi-structured interviews and secondary data.

5.2. Epistemological Perspective

When designing the research, it was important to give consideration to the appropriate philosophy. Whilst not an exhaustive list, Taylor (2006) highlights the main and most commonly cited research philosophies as positivism, interpretivism, and realism (each philosophy is briefly summarised in Table 5.2). Based on the limited prior research in this area, this study is exploratory in nature. Therefore, an interpretivist epistemological approach was adopted. According to Schwandt (1994, p. 118), an interpretive approach provides deep insights into “*the complex*

world of lived experiences from the point of view of those who live it". Similarly, Greene (1994, p. 536) describes the focus of interpretivist research as "*people's interpretations and sense makings of their experiences in a given context*".

Positivism advocates the use of methods of the natural sciences to the study of social reality (Bryman and Bell, 2003, p. 16), viewing knowledge as objective in its nature (Crotty, 2003). Conversely, interpretive research posits that knowledge is subjective and that understanding of reality is gained only through "*social constructions such as language, consciousness, shared meanings, documents, tools, and other artifacts*" (Klein and Myers, 1999, p. 69). As such, interpretivism asserts that "*natural reality... and social reality are different and therefore require different kinds of methods*" (Gray, 2014, p. 23). Robson (2002, p. 24) claims that methods of inquiry commonly associated with a positivistic philosophy are often not conducive to the social sciences due to the nature of the subject matter in this context – people: "*People, unlike objects of the natural world, are conscious, purposive actors who have ideas about their world and attach meaning to what is going on around them*".

As Part One of this study sought to explore how the process of ageing can affect packaging needs, interpretivism was a suitable approach as it recognises the subjective role of the consumer in constructing their experiences (Husserl, 1946; Lincoln and Guba, 1985). The structured experimental research designs employed in prior Ergonomics research (e.g. Langley et al., 2005; Yoxall et al. 2008) are reflective of a positivistic philosophical perspective. Whilst providing insights into particular determinants of individuals' abilities to operate specific closure types, this approach risks overlooking the social context in which people engage with FMCG products. Interpretivism emphasises the importance of viewing the meaning of experience and behaviour in context (Robson, 2002). Comparatively, a number of marketing studies have shown interpretivism to be a useful philosophical approach towards understanding the lived-experiences of older consumers (e.g. Angell et al., 2012; Yin et al., 2013; Sudbury-Riley, 2014). By gathering data in more realistic contexts and environments these and other studies of a interpretivist philosophy are able to provide insights into 'how' and 'why' questions than a positivist perspective would allow (Rowlands, 2005). This is in-keeping with the view of Alvesson and Skoldberg (2009, p. 18) that the aim of interpretivist research (and other alternatives to positivistic inquiry) is to "*conceive [reality] as an expression for, or a sign of, deeper-lying processes*". The same principle applies to Part Two, where

data collection sought to explore the role of packaging in NPD projects and perceptions of the senior market within the FMCG industry. According to Rowlands (2005, p. 83), in the context of organisational studies, interpretivism is based on the view that “*people socially and symbolically construct their own organisational realities*”. An interpretivist approach, therefore, recognises the differences in the way people construct reality, thus allowing the researcher to develop rich, in-depth understandings of different individuals’ experiences and opinions in a way that a positivistic approach would not permit. An inductive case study approach to theory generation was employed in Part Two of this study (see Section 5.5). This was in-keeping with an interpretivist approach and is supported by Orilkowski and Baroudi (1991, p. 14) who argue that “*Social process is not captured in hypothetical deductions, covariance and degrees of freedom. Instead, understanding social process involves getting inside the world of these generating it*”.

Table 5.2 Theory, Design and Methods (Taylor, 2010, with Additional Quotes from Bryman, 2010 to Summarise Each Perspective)

Theory	Research design	Research methods	Emphasis/perspective
<i>Positivism</i>	Social surveys; Experimental.	Structural interviews; Structural observations; Official statistics.	A strategy in which “ <i>science must (and presumably can) be conducted in a way that is value free (that is, objective)</i> ” (Bryman, 2010, p. 28).
<i>Interpretivism</i>	Ethnography.	Participant observations; Unstructured interviews;	A strategy that “ <i>respects the differences between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action</i> ” (Bryman, 2010, p. 30).
<i>Realism</i>	Experimental; Comparative.	Non-specific, but methods are theory focused.	Realism shares the view of positivism that view that there is “ <i>a reality that is separate from our descriptions of it</i> ”, but also includes a subjective dimension based on human actions (Bryman, 2010, p. 29).

5.3. Preliminary Study: Focus Group with Managers

5.3.1. Research Objectives of the Preliminary Study

A preliminary study was conducted in order to develop an initial understanding of packaging development processes within the FMCG industry and to explore packaging professionals' perceptions of the senior market. These initial insights were then used to inform the other parts of the study. In particular, the preliminary study highlighted the need to explore in greater depth the ways in which the multidimensional process of ageing can affect packaging needs and consumer perceptions of FMCG products. Participants in the preliminary study exhibited a variety of opinions regarding what older consumers' 'greatest' needs are in relation to packaging. Some saw improving openability as the most effective way of delivering value to older consumers, whilst others viewed legibility of labelling as being of greater significance. Generally, perceptions of ageing were biological centric. Discussions comparing the needs of older and younger consumers focused on changes to physiology as people age, with comparatively little reference to changes related to social ageing. Aspects of psychological ageing were touched on during discussions related to older consumers' perceptions of 'senior versions' of products in comparison to products developed following an inclusive design approach. No consensus was arrived at; however, the majority of participants described how the senior market was important to their organisation. Despite this, very few provided evidence of efforts towards delivering value to older consumers, with several participants stating that their marketing and NPD efforts never involve input from consumers aged over 60. This suggests that participants were 'playing lip-service' to the importance of the senior market. This revealed that developing a deeper understanding of the way in which ageing affects packaging interactions would both provide a contribution to theory and be valuable to managers within the FMCG industry. The findings from the preliminary study also revealed the need for further research into packaging development within the FMCG industry in the context of an ageing population. Participants commented on the 'balance' they must achieve between developing better packaging for consumers, whilst also providing the protection and containment needed to move products efficiently and safely through the supply chain. In particular, the types of improvements perceived as adding value for older people (e.g. improving openability) were viewed as potentially comprising these basic

packaging functions. These initial insights highlighted the need to develop a better understanding of this process and the role played by packaging within the NPD process. Furthermore, despite the majority of participants in the preliminary study describing the lack of involvement from older consumers in their NPD activities, research investigating the input of consumers generally within the NPD process would provide insights into how this process could be optimized to deliver greater value to older consumers.

5.3.2. Data Collection Methods for the Preliminary Study

The preliminary study for this research featured a focus group with managers involved with the development of new FMCG packaging. These managers were from a variety of FMCG and packaging firms (see Table 5.3 for participant details). When planning and conducting this study the researcher drew upon the principles of the Delphi Method (Dalkey, 1969). Originally developed in the 1940's by the RAND Corporation, the Delphi method was conceived as a "*group technique whose aim was to obtain the most reliable consensus of opinion of a group of experts*" (Landeta, 2006, p. 468). As described by Dalkey (1969, p. 3), the basis of the Delphi method is the age-old adage that "*Two heads are better than one*". As with many data collection methods, use of the Delphi method has evolved overtime (Okoli and Pawlowski, 2004). For example, more recent use of the method will often no longer seek consensus among the group; rather, the aim now is often to obtain a reliable group opinion from the available experts (Landeta, 2006). As Gordon and Pease (2006, p. 322) suggest: "*The value of the Delphi method rests with the ideas it generates, both those studies that evoke consensus and those that do not*".

During the preliminary study, questions were collectively posed to the participants, who responded consecutively. The use of a semi-structured approach allowed the researcher to address particular key questions, whilst also allowing unstructured conversations and exchanges to be pursued in order to compare and contrast thoughts and opinions. Additional consideration was given to the group context in which the data was collected as this can lead to some issues of which are relatively specific to the focus group method (Robson, 2002). For example, Barbour (2014) highlights the importance of considering the location in which the

focus group is conducted, as well as the composition of the group and the effects this may have on data during the analysis process. These factors were accounted for within the data analysis process. Discussions were recorded using a digital dictaphone and were supported by extensive note taking to aid data analysis.

Focus groups can act as an effective precursor to the development of other research instruments (Robson, 2002). According to Patton (2002, p. 386) interactions among participants within focus group discussions can enhance data quality and allow the researcher to quickly assess the relative consistency or diversity of views. Focus groups allow for not only the rapid data collection from a number of respondents (compared with individual interviews), but the dynamics of group discussion also help to provoke spontaneity and candor absent from other methods (Hutt, 1979). As such, utilising the principles of the Delphi method to engage with experts and develop this initial understanding was appropriate for this research and in-keeping with the exploratory approach. The involvement of key informants within the preliminary study followed the principles of Van de Ven's (2007) method of engaged scholarship. Van de Ven (2007) describes engaged scholarship as "*a participative form of research for obtaining the advice and perspectives of key stakeholders... to understand a complex social problem*". The underlying principle of engaged scholarship is captured by Dubin (1976, p. 18) who states that: "*It is exceedingly difficult to say something meaningful about the real world without starting in the real world. Observations and description of the real world are the essential points of origin for theories in applied areas*".

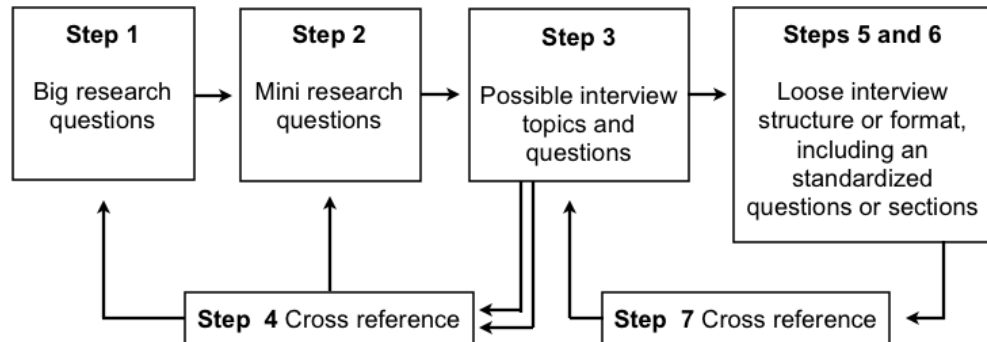
By engaging with individuals with knowledge and experience in the FMCG and packaging industries, the researcher was able to use the preliminary study to guide subsequent data collection with the aim to deliver both a contribution to theory and offer utility to firms (Corley and Gioia, 2011; Van de Ven, 2007).

5.3.3. Interview Instrument for the Preliminary Study

A number of authors highlight the importance of dedicating significant time and effort to preparing interview questions that will generate meaningful knowledge (Bryman and Bell, 2007; Mason, 2002; Patton, 2002). This principle of rigorous planning applies equally to structured and semi-structured interviews, and both to

individual and group discussions. In order to achieve such rigour within this research, interview questions were developed according to Mason's (2002, p. 72) preparation procedure for qualitative interviews (see Figure 5.1). The applied procedure for the preliminary panel discussion is illustrated below.

Figure 5.1 Mason's (2002, p. 72) Overview of the Planning and Preparation for Qualitative Interviews



Step 1 - Big research questions

The preliminary study was designed for the researcher to establish a broad initial understanding of how new packaging is developed within the FMCG industry, and to generate initial insights into firm perceptions of the senior market. Insights gathered from the preliminary study were used to inform and develop research questions, and to guide subsequent data collection. The following mini research questions, interviews topics and structure were based on these aims.

Step 2 - Mini research questions

How do firms develop new products and packaging for older consumers?

How do firms view older consumers compared with younger consumers?

How do firms perceive ageing to affect packaging needs?

Do firms develop products for older consumers, products with the needs of older consumers in mind, or products with little consideration given to older consumers?

Step 3 - Possible interview topics

The effects of population ageing on NPD within the FMCG industry.

How factors facilitate and impede packaging development?

Perceived characteristics of the senior market.

Perceptions of consumer-packaging interactions (e.g., which aspects of a pack are most important to consumers; what associations do consumers hold with packaging).

Step 4 - Cross referencing

Cross referencing to ensure interview topics are in-keeping with the big research question/s and delivering valid data.

Steps 5 and 6 - Loose interview structure

NPD within the FMCG industry and the role played by packaging within this process.

Challenges to packaging development in the FMCG industry.

Perceptions of the senior market (in terms of awareness of population ageing, perceptions of the size, growth and attractive of the senior market).

Challenges to developing new products for older consumers (and reasons why the majority of firms appear to be avoiding targeting older consumers).

Step 7 - Cross referencing

Cross referencing to ensure the loose interview structure is in-keeping with the big research question/s, thus bolstering the validity of the data gathered.

5.3.4. The Sample for the Preliminary Study

During the preliminary study a purposive expert sampling strategy was adopted to generate insights from managers involved in the development of new packaging (Patton, 2002). Neuman (2011) suggests that purposive sampling is appropriate when selecting difficult-to-reach, specialised populations. Purposive sampling was also considered appropriate for the exploratory preliminary study as it can highlight particular areas of interest and particular types of case for in-depth investigation (Neuman, 2011).

Participants were selected as key informants with expertise in NPD and packaging development in the FMCG industry. Patton (2002, p. 321) describes key informants as individuals who are “*particularly knowledgeable about the inquiry setting and articulate about their knowledge*” and who can aid the researcher in understanding “*what is happening and why*”. Engaging with multiple informants has been suggested to increase the reliability and validity of data gathered (Sediler, 1974; Kumar et al., 1993). While gaining access to key informants is recognised as being difficult, they are viewed as a credible and knowledgeable source (Rubin and Rubin, 1995; Bryman and Bell, 2007; Lowman et al., 2012). The researcher was able to gain access to key informants through a collaboration with packaging group ‘Faraday’ (now known as ‘The Retail Institute’) – an organisation that provides access to packaging research to firms on a subscription basis. For this preliminary study, the researcher worked with ‘Faraday’ to organize a one-day event of presentations regarding packaging and population ageing for which an invitation was sent to the organization’s list of subscribers. Attendees

included senior NPD managers from firms including Arla Food and Procter and Gamble (see Table 5.3 for full details). Seidler (1974) highlights the ability of key informants such as these to go beyond describing their own feelings and opinions, to also provide broader understandings of organisational relations. Whilst the relatively limited number of participants affected the researcher's ability to generalise from the data gathered, the access to key informants provided valuable insights towards achieving the objectives of the preliminary study. Details of participants involved in the preliminary study can be found in Table 5.3.

Table 5.3 Details of Participants during the Preliminary Study

Position	Firm	Firm details
Head of Packaging Innovation	Arla Foods	Swedish-Danish dairy product Co-operative. Owners of a number of leading dairy brands, including Cravendale, Anchor, and Lurpak. Annual turnover of £2 billion.
Research and Development Scientist	ASP Flexibles	UK-based SME packaging company. Specialist in shelf-life enhancing packaging technologies.
General Manager	ASP Flexibles	
Market Development Manager	BASF Chemicals	Chemicals company specialising in plastics. Develop products across a number of markets, including packaging, automotive construction and furniture. Sales in 2013 of €73.9 billion.
Marketing Manager	Benson Group	UK-based packaging manufacturer. Developing products for the food and healthcare markets, specialising in cartons and inks.
Group Retail Director	Benson Group	
Packaging Developer	HJ Heinz	Global food processing company.
Packaging Developer	HJ Heinz	Global sales in 2013 of \$11.6 billion.
Senior Scientist: Global Package and Device Development	Procter and Gamble	The world's largest consumer goods company. Global sales in 2013 of \$84.2 billion.
Principal Scientist: Global Package and Device Development	Procter and Gamble	
Principal Scientist: Global Package Development	Procter and Gamble	

5.3.5. Data Analysis for the Preliminary Study

Data collected during the preliminary study was subjected to qualitative data analysis. The same general principles as are applied to the analysis of individual qualitative interviews are able to be applied to focus group discussions (Robson, 2002; Barbour, 2014).

In order to ensure a rigorous approach was adopted during data analysis, the researcher drew upon the naturalistic enquiry guidelines of Lincoln and Guba (1985), and adhered to the process of constant comparison (Glaser and Strauss, 1967). Using the constant comparison technique involved the researcher developing open coding of interview transcripts. Roulston (2014, p, 303) describes open coding as “*a process of associating a conceptual label with a section of the transcript that conveys an idea about the topical features of the talk*”. The process of identifying and attributing these codes consisted of several stages. First, the researcher produced a hard copy of the interview transcript from the group discussion. Using a highlighter pen, key words and phrases were then highlighted to begin developing initial open codes. These open codes were then organised and grouped into emergent categories. This process was conducted several times in order to corroborate these emergent categories and to ensure the researcher identified any divergent findings or differences in opinions among participants. This was in-keeping with Goetz and LeCompte’s (1981, p. 58) description of constant comparison: “*the discovery of relationships, that is, hypothesis generation, begins with the analysis of initial observations, undergoes continuous refinement throughout the data collection and analysis process, and continuously feeds back into the process of category coding*”. These categories were then classified into themes, summarising the core unifying observations. The data analysis process was supported by notes made during the focus group incorporating considerations of the group dynamic. These notes consisted of written quotes and a ‘map’ depicting participants’ positions within the room. This helped to ensure that quotes were attributed to the correct participants, thus aiding the data analysis process. This aided the researcher by enriching the analysis process, allowing more meaningful analytic insights to be uncovered.

5.4. Part One: In-depth interviews and Participant Observations

5.4.1. Research Objectives for Part One

Part One of the research methodology aimed to explore how the multidimensional process of ageing can affect packaging needs. Extensive prior research has explored some of the effects of biological ageing (in terms of changes to strength and dexterity) with regards to packaging openability (e.g. Voorbij and Steenbekkers, 2002; Yoxall et al., 2012). Other studies have considered the effects of packaging on consumer perceptions of food products (e.g. Venter et al., 2011), thus loosely capturing some of the effects of psychological ageing on packaging needs to a limited extent. Beyond packaging, numerous studies from the field of ergonomics have explored product usage experiences of older consumers (Burns, 1999; Dekker et al., 2007; Lopez-Torres et al., 2008), but have also tended to focus largely on physiological needs only. Research exploring older consumers' packaging experiences from a multidimensional perspective of ageing is limited (Sudbury-Riley, 2014). As such, an exploratory approach was considered appropriate. Part One also sought to explore the effects of ageing on an individual's ability to maintain their independence. Particular focus was given to the role played by packaging in aiding older people in living independently, thus addressing research question one.

5.4.2. Data Collection Methods for Part One

5.4.2.1. Qualitative Interviews

The first part of the research methodology involved semi-structured in-depth interviews with older consumers exploring their experiences with and opinions on packaging. Gubrium and Sankar (1994, p. 123), describe in-depth interviewing as being ideal "*when the goal is to collect detailed, richly textured, person-centered information*". Semi-structured interviews were employed as they provide sufficient flexibility to approach participants differently (Noor, 2008, p. 1604) and to allow for further exploration into new and potentially fruitful points as they arise (Nag et al., 2007). As such, semi-structured interviews are characterised by Burgess (1984, p. 102) as "*conversations with purpose*".

Participants were interviewed typically for an hour to an hour and a half. This was followed by further discussions during observations. Discussions were recorded using a digital dictaphone and were supported by extensive note taking to aid data analysis. A loose interview structure was adopted to ensure key themes were addressed whilst allowing scope for exploration of other ideas. The questions posed were designed to stimulate discussions regarding changes to lifestyles and consumption, as well as physiological changes that have come as a result of the process ageing. In addition to recording spoken utterances, the researcher also made note of the context and delivery of utterances (e.g., lengthy pauses prior to speaking or whispered accounts). Roulston (2014, p. 299) suggests that: “*By indicating features of delivery and attending to the contexts in which interview data are co-constructed by speakers, researchers may enrich representations of findings*”. To focus only on spoken utterances and overlook the context or delivery will “*invariably omit features of talk that have important implications for how talk is understood*” (Roulston, 2014, p. 299).

According to Perakyla and Ruusuvuori (2011, p. 529) the use of interviews allows researchers to “*reach areas of reality that would otherwise remain inaccessible such as people’s subjective experiences and attitudes*”. Furthermore, interviews also act as a “*convenient way of overcoming distances both in space and in time; past events or far-away experiences can be studied by interviewing people who took part in them*” (Perakyla and Ruusuvuori, 2011, p. 529). As such, interviews permit researchers to go beyond asking “*What?*” or “*how many?*” questions, to ask questions of “*how and why things happen*” (Miles and Huberman, 1994, p. 10). Interviews were therefore an appropriate method for exploring older consumers’ experiences with packaging and for the provision of rich, contextual data that was sought.

5.4.2.2. Participant Observations

Participant observations were employed to support and consolidate the data gathered during the interviews. Mason (2002, p. 84) describes participant observations as “*methods of generating data which entail the researcher immersing herself or himself in a research ‘setting’ so that they can experience and observe at first hand a range of dimensions in and of that setting*”. According

to Robson (2002, p. 189), researchers that do immerse themselves in such settings may generate data that is “*superior to retrospective accounts*”, thus helping to overcome difficulties some participants may have when attempting to “*verbalize and reconstruct a version of what happened*”. Mason (2002, p. 85) presents a similar view, suggesting that “*meaningful knowledge cannot be generated without observation, because not all knowledge is for example articulable, recountable or constructible in an interview*”. Observations also permit a greater wealth of detail than other data collection techniques (such as a questionnaire) and can increase the soundness of interpretation (Becker, 1958).

The researcher assumed the role of a ‘peripheral member’ within the observer-observed interconnection (Adler and Adler, 1987), meaning they had marginal involvement in what was being observed (Marvasti, 2014, p. 356). The researcher observed and conversed with participants but avoided offering assistance or personal opinions in order to minimise impact upon the participant’s behaviour. Observations followed an unstructured approach. Most observations took place in consumers’ kitchens as this is where the majority of interactions with packaging take place. However, as Deasy (2000) identifies, consumer packaging interactions begin in the store, not the home. As such, several participants were also observed during shopping trips to capture their experiences with packaging from the beginning to end of the product’s life. By observing older consumers engaging with packaging across the ‘packaging journey’ (see Chapter Three, Section 3.8.2), this method followed the principles of service blueprinting from services marketing literature. Based on the concept of molecular modeling, service blueprinting was originally developed by Shostack (1982) to aid marketers in addressing challenges encountered in service design and innovation. According to Bitner, Ostrom and Morgan (2008, p. 67) service blueprints allow firms to “*visualize the service processes, points of customer contact, and the physical evidence associated with their services from their customers’ perspective*”. Drawing upon these principles provided the researcher with a systematic framework through which to observe consumer-packaging interactions. In the cases where the researcher observed participants during shopping trips, these observations took place before the semi-structured interviews in the participant’s homes. The researcher met with the participants at their homes at a convenient time when they would typically go shopping and then accompanied them to the store using their usual mode of

transport. This allowed for the generation of additional insights to combine with and support data gathered from interviews (including interactions during the process of transporting and storing products, thus providing a more holistic overview of the 'packaging journey'). In the cases where the researcher only conducted observations in participant's homes, these generally took place at the end of interviews or occasionally during. These observations typically focused on participants demonstrating issues they encounter with typical pack types and methods for overcoming some of these issues. Engaging with and referring to particular products aided participants in recalling additional past experiences with packaging which they had overlooked during the interview process. During observations in the home the researcher recorded the discussions with a digital Dictaphone. In those cases where observations had also taken place during shopping trips and researcher made written notes following in the interview detailing insights gathered.

According to Patton (2002, pp. 262-264) human observations offer a number of benefits, including being able to "*understand and capture the context within which people interact*", encouraging the researcher to be "*open, discovery oriented and inductive*" and rely less on prior conceptualisations, and affording the opportunity to "*see things that may routinely escape awareness among the people in the setting*". Marvasti (2014, p. 355) also highlights the strength of observations in allowing the researcher to "*observe the many nuances and contingencies of human behaviour as they become manifest in a 'natural' setting*" (as opposed to closed-ended surveys or experimental designs). This suggests that in order to properly understand how older consumers engage with packaging, they should be observed within natural environments and typical social contexts. As such, this data collection method was considered appropriate for achieving the aims of Part One of this study.

5.4.3. Interview Instrument for Part One

In order to ensure that meaningful knowledge was generated from Part One, a rigorous process was adopted when developing interview questions. These questions were developed in accordance with Mason's (2002, p. 72) preparation procedure for qualitative interviews.

Step 1 - Big research questions

How does the process of ageing affect packaging needs?

Step 2 - Mini research questions

How does biological ageing affect packaging needs?

How does psychological ageing affect packaging needs?

How does social ageing affect packaging needs?

How does the process of ageing affect shopping habits?

How do shopping habits influence packaging needs?

What other factors influence packaging needs?

How does packaging impact upon individual's abilities to live independently?

Step 3 - Possible interview topics

The effects of ageing on a person's physiology, cognition (in terms of beliefs, attitudes and opinions) and social circumstances.

Perceptions of packaging (e.g., is packaging perceived in a positive or negative light; which aspects of a pack are most important to consumers (e.g. specific materials, formats, openability, portion size, etc.), etc.)

How ageing related changes impact upon shopping habits (in terms of frequency, location, transport, and motivations).

How ageing related changes impact upon consumption habits (in terms of product selection and related motivations).

How ageing related changes impact upon packaging needs.

Step 4 - Cross referencing

Cross referencing to ensure interview topics are in-keeping with the big research question/s and delivering valid data.

Steps 5 and 6 - Loose interview structure

The effects of ageing on shopping habits (in terms of activities).

The effects of ageing on consumption habits (in terms of products purchased).

The effects of ageing on perceptions of and experiences with packaging.

Step 7 - Cross referencing

Cross referencing to ensure the loose interview structure is in-keeping with the big research question/s, thus bolstering the validity of the data gathered.

5.4.4. The Sample for Part One

In light of the exploratory nature of the research, a purposive non-representative sample was used in Part One of this study. In an attempt to capture changes that occur overtime as a result of the process of ageing, data collection was conducted with individuals aged 50 years and above. This sampling strategy was chosen to aid the researcher in developing an understanding of how ageing can affect packaging needs. The sampling strategy adopted was in-keeping with the exploratory nature of the research. The researcher was not seeking to gather data on which to base encompassing generalisations; instead, the researcher sought what Guba (1981, p. 81) refers to as transferability: “*The naturalist does not attempt to form generalizations that will hold in all times and in all places, but to form working hypotheses that may be transferred from one context to another depending upon the degree of “fit” between the contexts*”. Participants were recruited using a snowball approach. A number of participants were recruited through referrals (e.g. parents and grandparents of friends), while others were recruited through attendance at meetings held by the ‘Pompey Pensioners Association’ which the researcher was invited to following attendance at events organised by the University of Portsmouth ‘Ageing Network’. Attendance at the ‘Pompey Pensioners Association’ meetings involved the researcher outlining the research project, its aims, and inviting interested members to participate. Table 5.4 provides details of the participants during Part One.

Table 5.4 Participant Details for Part One Interviews and Observations

Interviewee Pseudonym	Age (years)	Gender	Total number of People in Household
Maude	82	Female	1
Bill	85	Male	2
June	61	Female	3
Carol	77	Female	1
Philippa	73	Female	1
Elizabeth	72	Female	1
Janet	76	Female	1
Yvonne	81	Female	1
Michael	59	Male	2
Jim	63	Male	4

Interviewee Pseudonym	Age (years)	Gender	Total number of People in Household
Sue	62	Female	4

5.4.5. Data Analysis for Part One

Data collected during Part One was subjected to qualitative data analysis by the researcher. The conceptual framework presented within this thesis provided a guide for data analysis.

In order to ensure a rigorous approach was adopted during data analysis, the researcher drew upon the naturalistic enquiry guidelines of Lincoln and Guba (1985), and adhered to the process of constant comparison (Glaser and Strauss, 1967). This reflected a similar process of data analysis to that performed within the preliminary study. Patterns within the data were identified using analytic induction. Barbour (2014, p. 318) describes the process of analytic induction as involving the “*examination of apparent contradictions or exceptions*”. By observing patterns within the data gathered from interviews and observations, the researcher was able to explore the theoretical propositions underpinning the conceptual framework. Using the process of analytic induction to identify deviant findings provided the researcher with alternative constructs to explore, thus also contributing to the theoretical development.

Discussions during observations were subjected to the same data analysis process, and were also supported by reference to notes. Observations were analysed through the process of “*Description as analysis*” (Marvastia, 2014), wherein the researcher “*conveyed the ambiance of the setting where the observations were collected*”, and through further inductive analysis to connect the observations with larger theoretical arguments (Marvastia, 2014).

5.5. Part Two: Case studies

5.5.1. Research Objectives for Part Two

Building upon the initial findings uncovered within the preliminary study, Part Two of this study sought to develop an in-depth understanding of NPD within the

FMCG industry, with a particular focus on the role played by packaging within this process. Part Two also sought to generate new knowledge regarding industry perceptions of the senior market, as well as firm understandings of the ageing process. In order to achieve these objectives, case study research was conducted with three firms involved in the development of new FMCG packaging.

5.5.2. Case Study Design during Part Two

According to Yin (1994), a case study is a “*strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of information*”. Within qualitative research, case studies can focus upon individuals, groups, neighborhoods, programmes, or organizations (Patton, 2002). Noor (2008) recommends case study research as being a particularly useful approach when the researcher is attempting to understand a specific problem or situation in great-depth. Case studies are appropriate when “how” and “why” questions are being asked (Yin, 2003). Neuman (2011) suggests that a number of strengths of case study research lend themselves to theory generation, such as the gathering of rich detailed data and the elucidation of social processes within a given context. Likewise, Gilmore and Gilson (2007, p. 414) describe the ability of case study research to “*illustrate or explain the decisions and motivations that underlie the observed processes thus providing a rich, multi-dimensional picture of the organization being studied*”.



A number of approaches to case study research are available. A review of literature highlights four key designs: single-case (holistic) designs; single-case (embedded) design wherein multiple units of analysis are explored with a single case; multiple-case designs; and multiple-case (embedded) designs wherein multiple units of analysis are explored within several cases (COSMOS Corporation, 1983; Yin, 2009). Within this research a multiple-case design was adopted involving exploration of six embedded cases (NPD projects) with three organisations. A multiple-case approach was adopted as it is considered to be a more compelling and robust approach (Yin, 2009).

5.5.3. Data Collection Methods during Part Two

Within organisational case study research of number of data collection methods are available to researchers. Figure 5.2 depicts Snow and Thomas' (1994) spectrum of data collection methods, ranging from highly realistic and controlled methods (e.g. interviews and participant observations), to controlled but highly artificial methods (e.g. laboratory experiments).

Within this research, the researcher sought to develop an in-depth understanding of specific organisational practices and opinions and perceptions within a natural, uncontrolled environment. As such, qualitative interviews were conducted with a variety of managers and employees involved with the development of new packaging. Semi-structured interviews were employed based on the flexibility this approach provides whilst still following a particular line of questioning. Interviews were typically one to one and a half hours in length. Shorter follow-up interviews were conducted with some respondents in order to verify facts and corroborate perceptions and opinions (Kisfalvi and Pitcher, 2003). The majority of interviews were conducted on site at the firm premises. These included national headquarters, innovation centers, and factories/production plants. This allowed the researcher to not only conduct interviews within a natural context, thus capturing a more realistic picture of development practice within each firm, but also to draw upon other sources of evidence for data analysis, such as internal documentation, presentations, and other marketing materials. Other sources of evidence used in data analysis included email conversations with respondents and observations made during tours of various manufacturing sites. In so doing, data was collected in accordance with the principles of triangulation (Flick, 1992; Yin, 2009). The triangulation of data collection methods provides stronger substantiation of constructs and hypotheses (Eisenhardt, 1989). The data collection period for Part Two of this study ran from April 2013 to April 2014. Data collection was conducted concurrently across the three case studies during that time period. This presented challenges regarding the organisation of multiple data, but also aided the process of cross-case analysis by allowing the researcher to conduct on-going comparisons between the three cases.

Figure 5.2 Snow and Thomas' (1994) Types of Organisational Research Methods

<p>Highly realistic, uncontrolled</p>   <p>Highly artificial, controlled</p>	Field methods	Direct and participant observation
		Interview
		Questionnaire survey
		Archival analysis
	Computer data bases	Researcher accesses information collected by others
	Experimental simulations	Researcher tries to create a realistic facsimile of a situation, sets it in motion, and observes its behaviour
Laboratory experiments	Researcher examines organizational processes under tightly controlled conditions	
Computer simulations	Researcher uses mathematical modelling to construct a complete and closed model of the phenomenon of interest	

5.5.4. Interview Instrument for Part Two

In order to ensure that interviews delivered valid data, questions were developed according to Mason's (2002, p. 72) preparation procedure for qualitative interviews. All interviews followed the same loose structure, although some variance in questioning was permitted based on the differing roles of respondents.

Step 1 - Big research questions

1. How do firms understand ageing and attempt to incorporate this understanding into their NPD processes?

Step 2 - Mini research questions

1. How is the development of new FMCG products managed?
2. How is packaging incorporated into this process?
3. How do firms developing new FMCG packaging perceive the senior market?
4. How do firms developing new FMCG packaging understand ageing?
5. What role do consumers play in the development of new FMCG packaging?

Step 3 - Possible interview topics

Interview questions and topics varied somewhat dependent on the respondent and the organisation; however, the following general topics were used as an initial guide for developing the research instrument:

1. The NPD process in terms of a series of events.
2. Internal and external inputs into the NPD process and the roles played by each (e.g. which functions of the firm were involved, were consumers involved, were design agencies involved, what influence did each of these have?).
3. Challenges encountered within the NPD process.
4. Perceptions of the senior market (e.g. how aware is the firm of population ageing, how is the senior market defined, how attractive it is, what typical behaviours and issues are exhibited, etc).
5. Understanding of the ageing process (e.g. the influence of ageing on an individual's life, consumption habits, and packaging needs).

Step 4 - Cross referencing

Cross referencing to ensure interview topics are in-keeping with the big research question/s and delivering valid data.

Steps 5 and 6 - Loose interview structure

1. The respondent's role within the firm.
2. The NPD process, either generally at a firm level or regarding a particular NPD project.
3. Perceptions of the senior market.
4. Understanding of ageing.

Step 7 - Cross referencing

Cross referencing to ensure the loose interview structure is in-keeping with the big research question/s, thus bolstering the validity of the data gathered.

5.5.5. The Sample for Part Two

Firms were selected for case study research using purposive sampling. Patton (2002, p. 230) highlights the importance of selecting “*information-rich cases*”, describing these as cases “*from which one can learn a great deal about issues of central importance to the purpose of the inquiry*”. Firms were selected based on their involvement in and knowledge of developing new FMCG packaging. The three firms selected for case study research were also chosen based on the different roles played by each within the FMCG industry; a multinational consumer goods manufacturer (*Procter and Gamble*); a packaging supplier (*Crown Holdings*); and a retailer and own-label product manufacturer (*The Co-operative Food*). This selection of firms provided insights into three of the key roles within

the FMCG supply chain, allowing the researcher to conduct firm level cross-case analysis. Table 5.5 provides details of each of the three firms.

Table 5.5 Case Studies Selected (Firms) and Summary of Details on Each, Based on Interview Data and Information Accessible from Internal Documentation

Cases (Firms)	Summary of Details
<i>Procter and Gamble</i>	<p>The world's largest consumer goods company.</p> <p>Established over 177 years ago in the U.S.; operating in the U.K. for more than 84 years.</p> <p>Global sales in 2013 of \$84.2 billion.</p> <p>Owners of more than 90 global brands, 26 of which generate annual sales in excess of \$1 billion.</p> <p>The first firm to conduct deliberate, data-based market research with consumers, in 1924.</p>
<i>Crown Holdings</i>	<p>A leading manufacturer of metal packaging products for consumer goods.</p> <p>Established over 122 years ago.</p> <p>Manufacturing packaging for food, beverage, household and personal care products, as well as metal vacuum closures and some industrial products.</p> <p>Global sales in 2013 of \$8.6 billion.</p> <p>Operating in 41 countries.</p>
<i>The Co-operative Food</i>	<p>Part of The Co-operative Group, established over 170 years ago.</p> <p>The fifth largest food retailer in the U.K. with over 2,700 local, convenience and medium sizes stores.</p> <p>Generating the second largest number of daily transactions of any store in the U.K.</p> <p>Annual sales in 2013 of £3.6 billion.</p>

Within these three firms, six embedded cases (NPD projects) were explored in detail (see Table 5.6). Cases were selected based on their 'intrinsic value' to the research topic (Stake, 1995) following discussions with managers regarding examples of products which they regarded as 'good' and 'bad' examples of packaging for older consumers.

Table 5.6 Embedded Cases Explored during Part Two

Case (Firm)	Embedded Case (Project)	Good or Bad Example of Packaging for Older consumers (Based on Managers Perceptions)
<i>P&G</i>	'Pantene 2 Minute Deep Repair Masque'	Bad (unintuitive and physically exerting opening requirements)
<i>P&G</i>	'Ariel Excel Liquid Gel'	Good (ease-of-transportation due to small size)
<i>P&G</i>	'Max Factor Clump Defy'	Good (ease-of-opening)

<i>The Co-operative</i>	'Truly Irresistible Conserves'	Bad (Illegible labeling and physically exerting opening requirements)
<i>Crown Holdings</i>	'Easy-Lift Can End'	Good (ease-of-opening)
<i>Crown Holdings</i>	'Orbit Glass Jar Closure'	Good (ease-of-opening)

While a small sample size is said to inhibit the ability to generalise from data (Flyvbjerg, 2006; Bryman and Bell, 2007), the exploratory nature of this research (based on a lack of existing theory in the area) meant that empirical generalisations were not sought. Instead, the researcher aimed to generate in-depth insights and understanding into the phenomenon of packaging development within the FMCG industry. Bryman and Bell (2007, p. 64) say of case study research that “[the] *crucial question is not whether or not the findings can be generalized to a wider universe, but how well the researcher generates theory out of the findings*”. Smaller samples (or even single cases) have been shown to illustrate interesting phenomena and to provide important learnings (Easton, 1995; Patton, 2002; Siggelkow, 2007; Stake, 1995). A smaller sample was therefore considered appropriate, allowing the researcher to draw upon the “*logic and power of purposeful sampling... [to deliver]... in-depth understanding*” (Patton, 2002, p. 46).

According to Halinen and Tornroos (2005, p. 1286), “*The underlying idea for case research is said to be the many-sided view it can provide of a situation in its context*”. In order to gain this holistic understanding within the case studies, interviews were conducted with a variety of employees and managers. This was in keeping with Piekkari et al.’s (2010) recommendation that best practice in case study research should involve data being collected from a variety of “*actors with different perspectives with respect to [the] investigated phenomena*”. As such, researcher gathered interview data from a variety of individuals involved in the product development projects explored within each firm. Due to their involvement with these processes, the interviewees were in-keeping with the description of key informants as “*particularly knowledgeable about the inquiry setting and articulate about their knowledge*” (Patton, 2002, p. 321). As was the case during the preliminary study (see Section 5.3.4), gaining access to these key informants was challenging. Interviewees within Procter and Gamble were recruited following discussions at the location of the preliminary study. Interviewees within Crown were recruited following a meeting arranged by the researcher’s Doctoral

supervisor (utilising an existing contact within the firm). Within The Co-operative, interviewees were recruited during a meeting organised by the researcher at the firm's headquarters in Manchester. Table 5.7 provides details of key interviewees within each case organisation. Other sources of evidence were drawn upon in accordance with the principles of triangulation (Yin, 2009; Flick, 1998). Alternative sources of evidence included: direct observations during attendance at NPD meetings and during site tours; and other documentation, such as emails and presentation materials. This additional evidence helped to corroborate interview findings and provide insights to inform subsequent data collection. Table 5.7 provides details of key interviewees within each case organisation.

Table 5.7 Job Role of Key Interviewees within Each Case Firm

Case (Firm)	Interview Identification	Job Position/Role	No. of Interviews
<i>Procter and Gamble</i>	PG1	Principal Scientist: Global Package Development	Four interviews
	PG2	Principal Scientist: Global Package and Device Development	One interview
	PG3	Packaging Design Manager	Two interviews
	PG4	Packaging Design Manager	Three interviews
	PG5	Marketing Manager	One interview
	PG6	Packaging Design Manager	One interview
<i>Crown Holdings</i>	CH1	Innovation Manager	Two interviews
	CH2	Innovation Manager	Three interviews
	CH3	Innovation Manager	Three interviews
	CH4	R&D Manager	One interview
	CH5	Key Account Manager	Two interviews
	CH6	Marketing Director	One interview
	CH7	Open Innovation Manager	Two interviews
<i>The Co-operative Food</i>	TC1	Environment Manager	Three interviews
	TC2	Packaging Designer (Labels and reprographics)	One interview
	TC3	Packaging Buyer	One interview
	TC4	Merchandising Manager	One interview
	TC5	Retail Manager	One interview

5.5.6. Data Analysis for Part Two

Yin (1989, p. 105) describes case study data analysis as consisting of “*examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial propositions of a study*”. Before embarking on the process of data analysis (or data collection), the researcher first established the general data analysis strategy to adopt from those available. Doing so aided the researcher in treating evidence fairly, producing compelling analytic conclusions, and in ruling out alternatives interpretations (Yin, 2009). Based on the development of the initial conceptual framework, the data analysis process was led by the theoretical propositions. Using theoretical propositions to shape the data analysis process helps to focus attention on certain data, and also helps in organising the study as a whole (Yin, 2009).

In accordance with Eisenhardt’s (1989) process of building theory from case study research, the data analysis for Part Two followed a broad two-stage process detailed in the following subsections.

5.5.6.1. Individual Case Analysis

Firstly, cases were analysed on an individual basis. Eisenhardt (1989, p. 540) recommends that the “*staggering volume of data*” that comes with case study research drives the need to conduct within-case analysis. To do so helps avoid what Pettigrew (1990, p. 281) describes as “*death by asphyxiation*”. Within this study the process of within-case analysis centered on detailed write-ups of interviews, the respective NPD projects, and the (firm level) cases as a whole. These documents provided descriptions of each case and aided the researcher in generating insights. The aims of the within-case analysis focused on pattern matching and explanation building (Yin, 1989).

The process of data analysis followed the four steps described by Green et al. (2007) of data immersion; coding; creating categories; and identifying themes. The first step of data immersion involved listening to interview recordings on multiple occasions, reading and re-reading written notes, and reviewing additional forms of data. This initial step aided the researcher by helping to provide clarity towards the

findings and began the initial stages of data ‘incubation’ – described by Hunter et al. (2002) as “*the process of living and breathing the data, by which the researcher tries to understand its meanings [and] find its patterns*”. In addition to reading and re-reading notes and listening to interview recordings, data immersion also involved extensive note-taking and annotation. Notes and memos (described by Dey (1993, p. 93) as “*notes about notes*”) not only provided clarity, but were also particularly useful towards identifying contradictions and incongruences in the data for further investigation.

The second step of data analysis involved attributing codes to information gathered during the interviews and from the additional data sources. Whilst sometimes viewed merely as technical, preparatory work necessary for higher level thinking about a study, scholars such as Miles et al. (2014, p. 72) view coding as “*deep reflection about and, thus, deep analysis and interpretation of the data’s meanings*”. The process of coding qualitative data can be conducted in a variety of ways; from the use of computer software programmes, to ‘analogue’ note-taking approaches. In this study, an ‘analogue’ approach to attributing and organising codes was adopted, involving a colour coded note taking system. Codes were initially applied to the margins of pages, with colours applied as categories developed. Despite offering some benefits in terms of managing and organising codes (see Yin, 2009, pp. 127-129), software such as NVIVO has been criticised for leading researchers to place greater emphasis on pattern identification at the expense of explanation building and theory development (e.g. Glaser, 1998; Soliman and Kan, 2004). As such, the researcher adopted a more ‘traditional’ approach to ensure that interview and organisational contexts were integrated into theory generation, not just pattern matching.

As the coding process took place, links between codes began to emerge in the form of categories. Green et al. (2007, p. 548) describe category creation as being concerned with “*looking for a ‘good fit’ between codes that share a relationship*”. Using the theoretical propositions underpinning the conceptual framework, links between codes relating to managers’ perceptions of ageing and the senior market, for example, began to emerge. These codes were then grouped into theoretical categories, such as ‘Biological centric’. Such categories were developed in relation to each theoretical proposition.

The fourth and final step of data analysis entailed the identification of themes. These themes moved beyond the description captured within the categories, towards interpretation and explanation (Saldaña, 2012). Themes were formed through continued data immersion and using techniques such as diagrammatic mapping of categories. Dey (1993, p. 96) describes this form of mapping as integrating “*disparate elements to make a common theme*”. Mapping categories enabled the researcher to visualise the insights gained from the data collection and to explore, interpret and plot the relationships between categories in order to generate themes to be further examined in relation to the literature.

5.5.6.2. Cross-case Analysis

Having completed the analysis of individual cases, cross-case analysis was conducted. According to Eisenhardt (1989, p. 541), cross-case analysis helps to “*force investigators to go beyond initial impressions*” and “*enhance the probability that investigators will capture the novel findings which may exist in the data*”. Whilst cross-case analysis can offer the advantage of increased generalisability, at a deeper level it enables the researcher to “*see processes and outcomes across many cases, to understand how qualified they are by local conditions*”, thus allowing for the development of “*more sophisticated descriptions and more powerful explanations*” (Miles et al., 2014, p. 101). Within this study, analysis across the different cases aimed to compare patterns, relationships and themes. As such, this allowed for the comparison and interpretation of the impact of the ‘local conditions’ within each case organisation on their packaging development processes in the context of an ageing society. Cross-case analysis was, therefore, conducted to achieve both “*thick description*” (Geertz, 1973) and “*thick understanding*” (Woodside and Wilson, 2003). Through analytic induction the researcher was able to draw upon replication logic, wherein cases that confirmed emergent patterns enhanced confidence in the theoretical propositions, whilst divergence provided opportunities to revisit the data and refine the propositions. As such, the analysis followed Bogdan and Biklen’s (1992) version of “*modified analytic induction*”, where the researcher developed propositions identifying behaviours, interactions and perceptions, rather than universal or causal hypotheses (as was the original aim of analytic induction) Gilgun (1995, p. 269).

Whilst data analysis was divided into two phases, the process began during data collection. This was in keeping with the recommendation of Glaser and Strauss (1967) to conduct basic level coding and analysis during the data collection process. The joint data collection and analysis manifested in fields notes recording the researcher's initial impressions of and reactions to cases and comparisons between cases. The overlapping of data collection and analysis aided the researcher not only by offering a head start in the process of data collection, but also by taking advantage of the flexible data collection process (Eisenhardt, 1989). As Green et al. (2007, p. 547) describe, the process of constant comparison and early data immersion "*has the added benefit of making analysis more manageable rather than waiting to wade through large amounts of data at the one time*". It also allowed the researcher to make adjustments during the data collection process and to explore and probe unexpected themes which emerged (Eisenhardt, 1989).

5.6. Reliability and Validity

When planning and conducting this study, the researcher had in mind the constructs of reliability and validity. According to Neuman (2011, p. 208), reliability means "*dependability or consistency*" suggesting that "*the same thing is repeated or recurs under the identical or very similar circumstances*", whilst validity "*suggest truthfulness [and] refers to how well an idea "fits" with actual reality*".

Whilst recognising that achieving perfect reliability and validity is seen as impossible (Neuman, 2011), the researcher employed a number of methods to strive towards these ideals. Using the constructs of reliability and validity, Yin (1989) defines four criteria for judging the quality of research designs: construct validity, internal validity, external validity, and reliability. Using these four criteria, Table 5.8 provides meaning for each and outlines how the research was designed for this study to minimize weaknesses in these four areas.

Table 5.8 Strategies Adopted to Ensure the Quality of Data Collection and Analysis (adapted from Yin, 2009)

Quality Criteria	Meaning	Design of research
<i>Construct validity</i>	Establishing correct operational measures for the concepts being studied.	Drawing upon a variety of sources of evidence (achieving triangulation). Reviewing draft case study questions with key informants and presenting findings to interviewees/organisations.
<i>Internal validity</i>	Establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships.	A rigorous data analysis approach was adopted through pattern matching and analytic induction.
<i>External validity</i>	Establishing the domain to which a study's findings can be generalised.	The researcher did not intend to develop generalisations, rather in-depth understanding on which to develop theory and to achieve a level of transferability (Guba, 1981). Transferability was sought through the use of multiple case studies (Yin, 2009), and by tying research findings with comparable studies or cases elsewhere.
<i>Reliability</i>	Demonstrating that the operations of a case - such as the data collection procedures - can be repeated, with the same results.	Procedures used during the data collection and analysis were documented. Available procedures were identified, compared and documented, thus enhancing the transparency of how the research was conducted.

A long-standing criticism of case study research is that results from cases cannot easily be generalised (Bryman, 1989). Although focusing on a limited number of cases has been argued to limit the generalisability of results (Campbell and Stanley, 1966; Johnston et al., 1999), it has also been shown to illustrate interesting phenomena and provide important learnings (Woodside and Willson, 2003; Flyvbjerg, 2006; Siggelkow, 2007; Yin, 2009), with prior studies demonstrating the value of focusing on a smaller number of cases (Mintzberg and McHugh, 1985; Pettigrew, 1990; Klevas, 2005; Bigliardi et al., 2010).

5.7. Summary

This chapter detailed and justified the research design, data collection methods, and analytic procedures adopted within this study. It concluded with a discussion as to the reliability and validity of the sample populations engaged with during the study. This discussion identified weaknesses and highlighted methods employed to minimise these.

The following chapter will present findings and analysis from Part One of the study. The proceeding chapters will then present findings from the three case studies and six embedded cases, followed by cross-case analysis.

Chapter 6 Research Findings and Analysis: Part One

6.1. Introduction

This chapter presents findings from Part One of this study. Findings revealed Deasy's (2000) packaging journey to reflect the consumption processes of most participants. Accompanying participants during shopping trips allowed for observations at point of sale and during transportation to the home. Interviews and observations in participants' homes provided insights into packaging experiences and allowed for exploration of the remaining stages of Deasy's (2000) process. Therefore, this chapter follows the structure of the packaging journey and explores age-related changes in relation to packaging functions at each stage of the journey. The chapter intersects between the experiences of different participants, thus allowing for contrast and comparison. In so doing, a holistic view of packaging experiences is provided with which to examine ageing and consumer-packaging interactions. Findings from Part One, therefore, contribute towards addressing research question one: how does ageing affect packaging needs? Table 6.1 presents an overview of the key findings from Part One using quotes to illustrate themes. Table 6.2 highlights implications for firms based on the experiences of respondents; specifically, implications for packaging development and retail service development are described.

Table 6.1 Summary of Key Findings from Part One

Stage of Packaging Journey	Packaging Function	Theme	Illustrative Quote/s
Point of sale	Communication	Legibility of labels	<i>"When I'm in the shop I can't read the labels. I look for the best-before date but can't distinguish it because all the writing is so small"</i> – June (61).
		Transparent packaging/ consumer mistrust	<i>"On most packaging it seems like the pictures and logos are the things the companies care most about, not about the way the product works. Half the time the thing you're buying doesn't look like the picture anyway"</i> - Philippa (73).
		Choice paradox	<i>"I find the shelves quite terrifying now. There's just too much"</i> – Elizabeth (72).
	Apportionment (product size/weight)	Retrieving large/heavy products	<i>"When I'm in the shop I prefer to use a basket. Leaning on the trolley does things to my balance, and I only ever get a few bits anyway. But when you're buying big heavy things it's a struggle using the basket"</i> – Bill (86).
	Containment/recyclability	Environmental concerns	<i>"I'll always look for the smaller tin. It suits us better and you know it's less harmful to the environment"</i> – Michael (59).
Transporting the product home	Apportionment (product size/weight)	Transporting large/heavy products	<i>"I'll walk to the shops fine, but I have to get a taxi back. I'd rather walk, but the shopping is just too heavy"</i> – Janet (76). <i>"If I get more than half a dozen items getting it home can be hard"</i> – Philippa (73). <i>"The smaller shops are much better for me. I go to them a lot and get small bits and pieces. You might pay a bit more, but it's easier. Most of my friends do the same thing now"</i> (Maude, 82).
		Dependence on others	<i>"When my son is around I can go with him to get the heavy shopping because he's got a car. When he isn't around I have to wait for a few weeks before I buy big stuff like washing powder"</i> – Yvonne (81).
		Changing shopping habits	<i>"I'm beginning to think sometimes, it feels like my shopping is getting heavier pushing it around, maybe I should do online shopping"</i> – Sue (61).

<i>Home storage</i>	Apportionment (product size/weight)	Storing large/heavy products	<i>"I try and avoid using the top shelves in my cupboard. It's too much hard work getting stuff in and out of them. It's like how I struggle with opening and closing the window in my kitchen because it's so high up" – Maude (82).</i>
<i>Opening</i>	Openability	Gross motor skills	<i>"The number one thing I have problems with is jars of pasta sauce. I've found that if you stab the lid firmly with a very sharp knife that often breaks the seal. It's a bit of a concern because it's so dangerous" – June (61).</i> <i>"I'm not happy using them [scissors], but I have to, otherwise I wouldn't physically be able to get to the product" (Bill, 86).</i>
		Fine motor skills	<i>"The cheese from Iceland is skin tight. You can't get a good grip on it which makes it very difficult to open. It's like trying to skin a rabbit" – Yvonne (81).</i>
		Overcoming difficulties	<i>"I haven't been able to open jars properly for a long time. This contraption is a work of art – I couldn't be without it" – Elizabeth (72).</i> <i>"You need an implement for everything. Even with the help of tools it's still hard" – June (61).</i> <i>"My brother influenced me a lot. If he had a problem that he couldn't find a tool to fix, then he'd make his own, so that's what I do [with packaging]. If I still can't open it after that, I don't know what to do..." – Maude (82).</i>
<i>Serving the product for consumption</i>	Apportionment	Inappropriate portion sizes (biological ageing)	<i>"I shan't get them, four [sausages] is too much for me, particularly when you've got to eat them two days after opening" – Bill (86).</i> <i>"For fresh food it's the worst because you can't freeze it. I can't get through two [punnets] of oranges on my own" – Carol (77).</i>
		Inappropriate portion sizes (social ageing)	<i>"As my children have grown up and left home, my shopping basket is now smaller. I don't need to buy giant sized packets of things. Especially things like breakfast cereals that go off" – Sue (61).</i>

			<i>"When we grew up it was just after the war, so there was still rationing. Our parents had to buy what they could and make it last, not have it for one meal and then throw it away [like people do now]" – Philippa (73).</i>
	Communication	Legibility of labels	<i>"The fonts on so many things are rubbish. Silly little letters. I've got about 20 pairs of cheap Primark spectacles around the house, mainly for reading labels" – June (61).</i>
<i>Reclosing or putting away</i>	Reclosability	Preference for re-sealable packaging	<i>"I usually buy 3 packets of crisps a year. I eat them very slowly, so I'll always buy one of the small pipes of Pringles. They're the only ones I can eat at my own pace without them going off" – Maude (82).</i>
		Ineffective solutions (self-blame)	<i>"It's probably me, but I always seem to have trouble with it" – Bill (86).</i>
<i>Disposal</i>	Containment/recyclability	Environmental concerns	<i>"Things have gotten a little bit better in the past few years, but the amount of packaging has just gotten ridiculous. I believe the companies who genuinely care about the environment are still in the great minority" – Jim (63)</i>
	Containment/reusability	Second-life packaging	<i>"I reuse all sorts of stuff; jars, my Jean-Paul Gaultier perfume tins. They're all useful for storing different things" – June (61)</i> <i>"You don't mind paying a price premium for a bottle of water with a sports cap as it means you can reuse it" – Michael (59).</i>

Table 6.2 Implications for Packaging Development and Retail Service Development

Stage of Packaging Journey	Implications for Firms
<i>Point of sale</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • FMCG firms should maximise label space to incorporate <u>larger, more legible fonts</u>. Pertinent product information should be displayed particularly prominently without being obscured by elaborate decoration. • FMCG firms should seek to incorporate <u>transparent packaging</u> more widely to instil a sense of trust in their products. • FMCG firms should offer a greater variety of products in <u>smaller portion sizes</u> to cater to the needs of individuals living alone. Smaller apportionment may also offer value for environmentally-conscious consumers seeking to avoid food wastage, and facilitate consumer socialisation through regular shopping. • A greater variety of <u>recyclable materials</u> should be incorporated in packaging development to add value for environmentally-conscious consumers. <p>Retail service development:</p> <ul style="list-style-type: none"> • Retailers should seek to empower consumers by <u>streamlining their product assortments</u>¹, thus alleviating choice paradox. • Retailers should offer <u>half-price promotional discounts</u> more frequently than BOGOF offers to meet the needs of individuals living alone; individuals who wish to avoid food wastage for environmental reasons; and, to improve retail experiences by reducing shopping weight.
<i>Transporting the product home</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • FMCG firms should <u>reduce apportionment</u> for a greater variety of products to enable easier transportation of goods. <p>Retail service development:</p> <ul style="list-style-type: none"> • Retailers should consider their product assortment decisions between different outlets and use consumer education programs to influence shopping habits. For example, encouraging consumers to <u>purchase larger, heavier goods online</u> will enable smaller, fresh goods to be stocked in greater quantities in bricks-and-mortar stores. This will also improve retail experiences for older people by allowing for the inclusion of in-store facilities which encourage social engagement (e.g. delicatessens) and by making the transportation of products less onerous.

¹ PAP represents an optimisation problem; one where retailers need to choose the optimal set of products to be carried and the inventory level of each product (Kök et al., 2009). According to Kahn (1999, p. 289), addressing this problem involves retailers making a number of decisions: “Retailers have to decide on the breadth of assortment across the store (narrow or wide) and the depth of the assortment within each category (deep or shallow). In addition, retailers have to decide the quality of the items stocked within the assortment – high or low, national brands or store brands. Related to this, retailers need to decide on their pricing policies, across categories and within. Finally, retailers have to decide whether assortments should generally be stable over time or whether there should be surprise, specials, or customization in their assortments”.

<i>Home storage</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • FMCG firms should also seek to reduce apportionment to aid consumer-packaging interactions at home. Exploration of additional user conveniences, such as the inclusion of <u>handles or textured packaging materials</u> to offer improved grip, may also offer older consumers value.
<i>Opening</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • FMCG firms should improve openability through the inclusion of closures which require <u>less opening torque, but are also easier to access and operate</u>, thus incorporating changes to both gross and fine motor skills. • Firms should also develop closures/ends which <u>accommodate common packaging aids</u>, thus preventing consumers from resorting to more dangerous means of opening products (e.g. using a knife). • When positioning products towards older members of the senior market, firms should include logos/marks which <u>identify products as being more accessible</u> for older people.
<i>Serving the product for consumption</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • FMCG firms should, again, seek to reduce apportionment for their products to meet the biological needs of older people (<u>reduced appetites</u>), and the social needs (<u>living alone</u>), to avoiding damage to individuals self-concepts.
<i>Reclosing or putting away</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • Firms should <u>incorporate re-sealable closures</u> and ends in their packaging development; in particular, where reduced apportionment is not possible. The inclusion of intuitive and effective solutions may also enable premium pricing.
<i>Disposal</i>	<p>Packaging development:</p> <ul style="list-style-type: none"> • Greater consideration should be given to developing <u>packaging which encourages re-use</u> among consumers. This may offer value to environmentally-conscious consumers, as well as potentially enabling premium pricing.

6.2. Point of Sale

6.2.1. Difficulty Reading Labels in Store

As all participants were living independently and shopping for themselves, consumer-packaging interactions began in-store, often when locating a product on the shelf. While there is a growing body of literature exploring the role of packaging aesthetics in shaping consumer perceptions at PoS (e.g. Ampurero and Vila, 2006; Becker et al., 2011), participants in this study described packaging functionality (e.g. protection of the product, legibility of product information, ease-of-opening) as being of greater influence on their purchasing decisions than design elements. Despite this, developing an understanding of older consumers' unconscious preferences and motivations towards different packaging formats and

aesthetics is likely to be of significance to firms wishing to target the senior market. Regarding the different packaging functions, a key issue for several participants related to the function of communication; specifically, the provision of nutritional information and cooking instructions (identified by the majority of participants as the most important information conveyed through packaging). Participants expressed dissatisfaction with font sizes used on a variety of packs, linking this to changes in vision as they have aged:

“The information is just too small. Even with my spectacles on I struggle to read some of it without a magnifying glass. I also find I can’t read things against certain colours as easily anymore” – Elizabeth (72).

These issues were found to not only impact upon consumer-packaging interactions, but also to negatively affect shopping experiences:

“The fonts are far too small. I can’t read it when I’m in the shop without my glasses. It’s an inconvenience. When you’re in the shop you don’t want to be fumbling around in your handbag for your glasses, people will think you’re shoplifting” – June (61).

Figure 6.1 June’s (61) Cottage Pie Packaging with Small Font



Particular dissatisfaction was expressed when font sizes of important information were compared with sizes of brand names, logos, and in relation to areas of a pack which went unused. These insights suggest that firms may be able to add value for older consumers by including larger font sizes on packaging; in particular, making use of larger fonts in areas of 'open' and 'wasted' space. This would require consideration of the effects of biological ageing. Furthermore, firms should consider the effects of psychological ageing with regards to consumer-packaging interactions whilst in-store. For example, identifying which information on a pack is perceived as the most pertinent to the subsegment/s of the senior market they wish to target will help add value for those consumers.

6.2.2. Packaging Format Preferences

In addition to concerns regarding the legibility of labels, participants expressed preferences for particular packaging formats and materials. The majority of participants described concerns regarding the environmental impact of what they perceived as 'excessive' packaging. As a result, participants would seek lesser-packaged products or products packed in recyclable materials. This is similar to the findings of Sudbury-Riley (2014) who described the many "*marketing-savvy, environmentally conscious*" older consumers. Environmental concerns were particularly apparent with regards to fresh food. For example, several participants regarded the packaging of cucumbers and other fruits and vegetables to be unnecessary. Such were the strength of her feelings towards over-packaged products, that Philippa (73) would only purchase loose fruits and vegetables and would only place them altogether in one bag:

"If I'm buying five or six different fruits or vegetables I don't want to be getting five or six bags for them, so I just put them all in the same one. Sometimes it annoys the person on the till as they have to get them all out to weigh them, but I don't care" – Philippa (73).

The perceived environmental impact of packaging was of even greater significance at point of disposal. This is explored further in Section 6.8. A growing interest in ecological sustainability among a large portion of

participants is in-keeping with the implications of SST. According to SST, as people age, the regulation of one's feelings and emotions becomes of greater importance than achieving other types of goals (Lambert-Pandraud et al., 2005; Carstensen, 2006). This type of emotional regulation was particularly evident among participants such as Michael (59), who described his frustration at having to pay a price premium for smaller but seemingly more environmentally-friendly products; in this case, a 250g tin of sweet corn:

"It's better size wise for us to get a small tin, and you know it's better for the environment, but it's just bloody extortionate. It actually costs more [per unit] to get the smaller tin. I don't get the logic there. But they must just catch you on a heartstring because you feel bad about throwing away half a tin of corn" – Michael (59).

While discussing her concerns regarding 'over-packaged' products, Janet (76) described in clear terms how psychological changes as she has aged have impacted upon her consumption habits:

"I think when you get older you become more sensitive. I never thought when I was younger that I'd become a vegetarian or would care about the environment, but it's important to me now" – Janet (76).

These findings provide further insights to suggest that opportunities may be available to firms to target environmentally conscious subsegments of the senior market with more sustainable packaging solutions.

A specific user convenience a number of participants expressed a preference for at PoS was transparent packaging. For example, Yvonne (81) described the desire to inspect products before purchase as a reason for avoiding online shopping:

"When I go shopping I like to be able see what I'm buying... I like to keep a pizza in the fridge for when I'm feeling lazy. I'll often buy the little chilled one from Tesco. It's got a little window so I can see what the product is actually going to be" – Yvonne (81).

Other participants expressed cynicism towards marketing communications images, including those on packaging. Participants described the disappointment of opening products which bear little resemblance to the image depicted on the pack. For example, Sue (62) recalled her experiences with a boxed cake:

“The picture of the front of the box suggests that it will fill a plate, but when you get it home it’ll fit on a saucer almost. You think, ‘I’ve been had here’. That makes me cross” – Sue (62).

These feelings contributed to the desire for transparent packaging or methods of shopping which better allowed for prior inspection of products. For example, to avoid similarly disappointing purchases as they had experienced with products in ‘concealed’ packaging, consumers such as Bill (86) and Maude (82) commented on their use of delicatessen facilities. Purchasing products from the delicatessen counter offered a means of inspecting products before purchase, thus instilling a sense of trust. Feelings of cynicism and mistrust towards marketing communications images may also be linked to psychological ageing. The wisdom gathered through a lifetime of knowledge accumulation and, as a result, a greater familiarisation with marketing techniques, means that older people have been described as savvy consumers who will seek product information before purchasing (e.g. Dychtwad, 1997; Myers and Lumbers, 2008). FMCG firms wishing to target the senior market may, therefore, be able to add value for older people by utilising transparent packaging materials or alternative formats which allow consumers the opportunity to inspect a product before purchase. For retailers, these findings provide further insights into salient retail attributes for older consumers (Angell et al., 2012), suggesting that the inclusion of facilities which allow consumers to interact with and gather product information from staff may also add value for older people, thus encouraging repeat patronage.

6.2.3. Packaging Size and Weight

The size and weight of products were found to influence decision-making in-store. Several participants commented on difficulties retrieving certain goods from grocery store shelves as products were too large and/or heavy. These difficulties

and feelings of frustration would continue from product retrieval to point of purchase, thus negatively affecting shopping experiences. As a result, several participants' described changes to their shopping habits. For example, June (61) described her preference for concentrated washing detergent over washing powders due to the convenience the smaller, lighter packaging offers:

"I'll always buy the liquid for my washing. It's far easier to be carrying around the shop than the big box of loose powder" – (June, 61).

These findings suggest that firms may be able to add value for the senior market by offering smaller and/or lighter products which are better suited to the physiological needs of some older consumers. The case of June's (61) washing liquid highlights the inseparability of the core product and its packaging. In order to facilitate the benefits of the core product in terms of cleaning, new packaging was required to effectively contain and dispense the product. In this case, changing from a cardboard container to a plastic bottle. In addition to the central value proposition of the new product (better cleaning), the new packaging also offers benefits to consumers such as June (61) in terms of convenience when shopping. This supports the argument of Simms and Trott (2014) that packaging should be considered early in the NPD process and in conjunction with the development of the core product. In so doing, firms may be able to add value for consumers through both the core product and its packaging. Issues with packaging size and weight continued during the next stage of the packaging journey and are explored in Section 6.3.

6.2.4. Shopping Experiences

While exploring packaging interactions at PoS, a number of participants made reference to their shopping experiences more generally. Several older participants described shopping in larger stores as a 'chore', attributing this to the effects of biological ageing. For some participants, the physical exertion required during shopping trips reinforced negative perceptions of older age:

“...these last three years, going around the big shops is a bit much. It’s something I have to do, rather than something I enjoy doing anymore... I haven’t quite got the stamina for it. It’s very annoying when you can’t do something anymore that you used to like doing” – Maude (82).

In addition to the physical exertion required to navigate supermarkets, several participants also made reference to the wealth of products available. Rather than improving their shopping experiences, the amount of choice was considered overwhelming and of detriment. These feelings are analogous to the concept of choice paradox:

“I used to enjoy shopping more – it’s like a marathon now. It’s frustrating trying to figure out which are the best offers. There’s too much choice” – Phillipa (73).

“I find the shelves quite terrifying now. There’s just too much” – Elizabeth (72).

These insights highlight the importance of packaging’s role in differentiating products on busy and fragmented supermarket shelves (Silayoi and Speece, 2004; Becker et al., 2011). For retailers, these insights provide implications for category management. According to Shankar et al. (2006), rather than empowering consumers, greater choice in supermarket environments can be de-motivating; *“restricting choice within the supermarket environment could actually increase turnover, make shoppers more content with the shopping experience and potentially more loyal as a result”* (2006, p. 1022).

In order to experience the same sense of enjoyment previously gained through shopping in larger stores, several participants described visits to smaller convenience stores on an almost daily basis. Regular shopping as a means of social interaction emerged as a prominent theme:

“Going down the shops helps get me out the house. I go to Iceland everyday so I see a lot of people I know. Sometimes I’ll go twice as I’ll also get shopping for my neighbour” – (Yvonne, 81).

“Shopping is a social thing; it gets you out of the house. When you go to a smaller shop it’s less stressful. You can have a look around, see people you know...enjoy it a bit more” – Carol (77).

For several participants these changes in shopping habits were in response to changes of biological ageing, but also changes in social ageing. For example, those participants who had recently retired such as June (61) described using regular shopping patterns to routinize her schedule. Other individuals who were empty nesters or had suffered bereavement used shopping trips as a means of maintaining social engagement. Recent retiree Michael (59) described his frequent shopping trips, often for specific meals to be consumed on specific days. These examples provide further evidence to the body of literature questioning the accuracy of disengagement theory (e.g. Bengtson et al., 2005; Bowling, 2005). Rather than withdrawing from society, older people adapt their activities and behaviours in order to maintain their desired QoL. These insights suggest that FMCG firms may be able to aid older consumers in maintaining QoL by developing value-adding packaging which facilitates independent living. For example, offering products with reduced apportionment would not only cater to biological needs (both in terms of consumption and transportation – see sections 6.6.1 and 6.3.1), but would also facilitate regular shopping habits, thus accounting for the effects of social ageing and positively contributing to consumers’ self-concepts.

6.3. Transporting the Product Home

6.3.1. Packaging Size and Weight (Continued)

As was identified in section, 6.2.3, packaging size and weight were found to influence purchasing decisions; where possible, a number of consumers selected smaller and lighter products which better suited their physiological requirements which had changed as a result of biological ageing. However, in some cases, finding smaller alternatives was not possible. This meant that those difficulties encountered in-store continued during the process of transporting products home. Participants such as Yvonne (81) described her frustration at changes as a result of biological ageing impacting upon her ability to transport her shopping home:

“I used to go to Commercial Road and come back with 10lbs of potatoes, things like that. I get so cross that I can’t do that anymore. The spirit is willing, but the body won’t allow it” – (Yvonne, 81).

Yvonne’s (81) feelings reflect the continuation of difficulties in-store to the process of transporting products to her home. The negative impact of physiological issues encountered in store on an individual’s self-concept was further reinforced by the onerous and physically exerting process of transporting products home. For participants using public transport or shopping by foot, this negative reinforcement was particularly acute. As a result, those without access to a car (approximately a quarter of participants) would rarely visit larger supermarkets. In Janet’s (76) case, she would visit larger supermarkets only every six to seven weeks when her son was available to drive her. Maude (82) described a similar situation, where she would take infrequent trips to larger stores when her daughter or son could assist her. Instead of visiting supermarkets, many participants would take daily trips to convenience stores to purchase smaller amounts of shopping. For several younger participants, discussions regarding transporting products home evoked greater awareness of ageing. For example, Sue (62) made predictions as to how her shopping habits may change as she aged:

“I’m beginning to think sometimes, it feels like my shopping is getting heavier pushing it around, maybe I should do online shopping. I know that I’ll probably have to come round to it” – Sue (62).

Similarly, Jim (63) anticipated a greater reliance on online shopping as he grew older:

“The only thing I’m tempted by with online [grocery] shopping now is the beer, just because it’s heavy. I suppose in the future everything’s going to become heavier for us, so we may have to start using it more” – Jim (63).

These insights suggest that firms may be able to add value for older consumers by developing packaging which is smaller and lighter, or through the inclusion of handles on particularly onerous products. These findings also offer further insights

into the impact of ageing and consumer-packaging interactions on shopping habits and experiences. While participants such as June (61), Jim (63) and Sue (62) are not current users of online grocery shopping, all made reference to shopping online for others products and services (e.g. books, clothing and holidays). This is in-keeping with the findings of Niemelä-Nyrhinen (2007) who found that baby boomer consumers demonstrate low levels of technology anxiety and engage in high levels of internet usage. This highlights an opportunity for firms to target older consumers by positioning online shopping as offering an easier means of purchasing cumbersome products (e.g. large household cleaners or crates of beer). Firms could use consumer education initiatives to guide shopping habits; highlighting the benefits of shopping for larger, more onerous product online, while visiting bricks and mortar stores for fresh goods (Oumlil and Williams, 2000). Dividing consumers' purchasing behaviours in this way may also aid firms in improving operational efficiency by separating product assortments between multiple channels. By reducing the number of larger goods sold in bricks and mortar stores, greater space could dedicated to facilities which encourage social interaction (e.g. delicatessens), thus facilitating socialisation through shopping.

While older participants were generally less active in terms of technology usage, most showed appreciation for the benefits of online shopping. Participants such as Janet (76) also described a desire to engage with technology, declaring that *"You're never too old to learn something new!"* This counters the view of older people as being technological laggards and suggests that those firms who pursue online shopping strategies for the senior market could gain a first-mover advantage.

6.4. Home Storage

6.4.1. Continuation of Physiological Difficulties

For a number of participants, physiological difficulties encountered whilst transporting products proved unrelenting and continued during home storage. For example, Bill (86) experienced difficulties placing goods in his cupboard similar to those he experienced in-store retrieving products from the shelf. Other participants described similar issues while placing and retrieving items, with several noting that high shelves and cupboards in their homes were rarely used because of

physiological difficulties with packaging. For those participants living alone, these issues were particularly pertinent. As a result of social ageing, participants who were empty nesters had little access to assistance with regards to storing their shopping. Unlike issues of openability, for which some participants were able to develop problem-based coping strategies (see section 6.5.3); difficulties storing products were harder to counter. Participants only utilising lower and more accessible storage points in their homes may also further contribute to the need for regular shopping trips.

Other themes to emerge during home storage included incidents befitting Kanner et al.'s (1981) concept of 'daily hassles', such as products falling whilst in storage:

"It's very annoying when you buy tins that don't stack properly. So many times I've been given a bit of a fright by the noise of tins falling over in my cupboard. I don't know why they make them like that because it must be annoying for people stacking shelves in the supermarket too" – Elizabeth (72).

Figure 6.2: Maude's (82) Seldom Used High Cupboard



By improving the 'stackability' of their products, firms may be able to add value both for the senior market and for consumers at large. In addition to tinned products and other ambient foods, several participants' frequent use of

freezers was observed. In particular, participants used freezers as a means of overcoming issues of inappropriate apportionment. This is explored in greater depth in section 6.6.1.

6.5. Opening

6.5.1. Gross motor skills

Reflective of the attention openability has received in prior literature, the majority of participants highlighted difficulties opening packaging as a particular cause of dissatisfaction. This was the case for younger and older participants, including those who demonstrated a younger chronological age. For example, Janet (76) fervently denied that age related changes had impacted on her shopping habits; however, with regards to opening packaging, she recalled a variety of negative experiences. Describing her interactions with her tin of corned beef, Janet (76) alluded to the sense of fear for her personal safety that these interactions caused her:

“I push it forward and then get my finger hooked in [a ring-pull tin closure], then trying to oink it back... it’s only a matter of time before I take the top of one of my fingers off” – Janet (76).

Figure 6.3 : Janet’s (76) Tin of Corned Beef



Maude (82) commented on and demonstrated the difficulty she suffers with opening jars. She attributed this difficulty to changes in gross motor skills as a result of biological ageing:

“I find jars very difficult now. The strength in my hands isn’t what it used to be when I was younger. I don’t know what I’d do if it wasn’t for my gadgets” – Maude (82).

The prevalence of concerns regarding openability across participants suggests that the inclusion of ‘easy-open’ closures may aid firms who wish to add value for older consumers while maintaining a mass market appeal. This is in-keeping with the principles of inclusive design (Clarkson et al., 2003). Indeed, some participants demonstrated brand loyalty towards products which include easy-open closures without identifying them as products targeted towards a particular demographic. For example, June (61) was a repeat purchaser of ‘Duerr’s’ jams and marmalades which include an easy-open lid (Figure 6.2):

“When I first bought it I didn’t even realise it had the special lid; it looks just like all the others. I even got my silicone glove out to help open it, but it flew off! I always buy that one now where I can. It’s much better not having to use the glove and bash it about to get it open” – June (61).

Figure 6.4 June’s (61) Easy-Open Jam Jar Lid



The inclusion of easy-open closures on packaging may also add value for consumers such as Michael (59) who expresses reluctance towards engaging with tools for assistance with packaging:

“Having complained about having to get my fingers under the ring-pull cap, I’ve never actually got to the point where I’ve purchased a tool to help me. I think it’s a bit precious to be complaining about my fingernails” – Michael (59).

However, the story of June’s (61) experiences with her easy-open jam jar represent a key challenge in positioning inclusive products; achieving a balance between communicating the functional benefits of the product to those consumers who will receive the greatest benefit (e.g. older people or disabled people), whilst maintaining a mass market appeal. In June’s (61) case, the product was positioned to target a mass market; however, the functional benefits of the products were not easily identifiable. For products with improved openability, this presents particular challenges at PoS where consumers will not be able to experience the benefits of the packaging. This, therefore, creates barriers to adoption. Firms may be able to overcome these barriers through consumer education activities (Oumlil and Williams, 2000), or by communicating the benefits of the packaging more clearly through labelling or in-store promotional materials. However, contrary to the view that consumers will not purchase products positioned ‘for’ older people, several participants provided insights to suggest that firms may be able to add value for older consumers by targeting the senior market more explicitly. For example, Janet (76) described her desire for labelling which distinguishes products as being easy for older people to open:

“Like how they put ‘child proof’ on the packaging, I wish they’d put ‘suitable for older people’. They should put elderly person friendly or mature person friendly, something like that [on the label]. If they have a proper notice older people will go for that first” – (Janet, 76).

This idea is analogous to the ‘Owl Mark’ developed by The Centre for Applied Gerontology at the University of Birmingham; a quality mark which accredits products as suitable for the needs of older people (Coleman, 1999). The desire for

'easy-open' packaging demonstrates the value of particular user conveniences to older consumers. For example, Yvonne (81) described a preference and willingness to pay for other user conveniences such as re-sealable packaging. While costs increases are often met with derision in the packaging industry (Ford et al., 2014; Simms and Trott, 2014), these insights suggest that firms may be able to add value for older consumers through the inclusion of user conveniences and, in turn, profit from packaging development.

6.5.2. Fine Motor Skills

In addition to issues of gross motor skills, such as a reduction in hand strength, some participants also described difficulties with fine motor skills. For example, Bill (86) described his experience of engaging with plastic-wrapped multi-packs of soap (Figure 6.3) as "*incredibly annoying*", due to difficulties with gripping the seal of the pack.

"I can't get my finger nail under there...it's too fiddly. You shouldn't have to get a knife to open soap. You don't keep a knife in the bathroom" – Bill (86).

Figure 6.5 Bill's (86) Dove Soap Packaging



While Bill's experience elicited feelings of annoyance and frustration, other participants described feelings of apprehension and fear as a result of issues with fine motor skills and opening products:

“I much prefer a tin you open with a tin opener to a ring pull. I can never get my finger underneath to pull it up. I often feel like I’m going to break a nail, so I try and avoid them altogether. Prying it open with a knife can be as dangerous as opening anything” – June (61).

For some respondents, problems with fine motor-skills were exacerbated further by other effects of biological ageing, such as changes to an individual’s vision:

“Often the tab you’re supposed to pull isn’t very big, so you haven’t got good purchase on it. It’s also hard enough to find the thing” – Elizabeth (72).

Participants such as Yvonne (81) described difficulties with other products such as teabags packaged in a cardboard box wrapped in sealed plastic. In order to overcome these difficulties, Yvonne also resorted to using a knife to open the product. Likewise, Janet (76) also highlighted milk bottle seals as being difficult to grip, thus leading her to stabbing the packaging open with a knife. These findings demonstrate that while issues of gross motor skills evoked feelings of fear and apprehension among some respondents, responses to issues of fine motor skills also placed participants at risk of injury.

6.5.3. Overcoming Openability Issues

Upon describing their difficulties with opening particular types of packaging, several participants revealed methods for overcoming these issues. Aside from a small number of participants purchasing ‘easy-open’ packaging, others utilised a variety of tools to aid opening. Tools ranged from sophisticated electronic jar openers, to more rudimentary tools, such as pliers and screwdrivers. For example, Maude (82) described the influence of her inventor brother when she unveiled her ‘packaging toolbox’ from underneath her kitchen sink. The toolbox contained an array of adapted household tools which were used to assist with different packs:

“In my kitchen I have these [flat-nose pliers with masking taped handles for extra grip]... those are for pulling across plastic caps. I’ve got a few

screwdrivers to help lift the ring pull. I've got difficult sized ones for different sizes tins..." – Maude (82).

In addition to creating her own methods for overcoming difficulties with packaging, Maude's (82) resilient attitude was evident in a number of other ways throughout her home. For example, a mirror was placed in her lounge so that she knew by way of a flashing light on her telephone if anyone was calling her. This system was implemented as a solution to problems as a result of her reduced hearing. Despite her creativity with regards to issues of openability, Maude also conceded that there are particular pack types that she avoids purchasing unless there is someone to assist her. Reliance on others for help with opening packaging was apparent for a number of participants including June (61) and Sue (62) who described how they regularly seek the help of their children when opening packaging, while others such as Janet (76) and Philippa (73) recalled assistance offered by neighbours. Ironically, those participants who required the greatest assistance were also those with the least access to help due to aspects of social ageing. For example, participants who were empty nesters no longer had the regular assistance of children, and those who had suffered bereavement also lacked the support of their partners. Participants such as Carol (77) who live in greater isolation have established supportive relationships with other individuals for assistance:

"A long time ago I made an arrangement with my postman to help me with packaging. Most things I'm fine with, but products like bottles of bleach I just can't get into no matter what I try... so what I do is leave a few things on my doorstep every day and my postman comes along, opens them up for me and leaves them ready for me to get later on. I don't know what I'd do without him!" – Carol (77).

On this occasion, it was household cleaning products which Carol (77) required assistance from her postman with (see Figure 6.4).

Figure 6.6 Products to be Opened by the Postman



The variety of problem-based coping mechanisms exhibited demonstrates high levels of mastery among participants. For example, when Maude (82) encountered problems opening products, rather than regarding the process as being under fatalistic control, she employed a number of different tools to overcome her difficulties, thus regarding her consumer-packaging interactions as being under her personal control (Ben-Zur, 2002). In Carol's (77) case, when attempts to overcome difficulties opening products with tools proved ineffective, she employed other creative coping mechanisms, such as calling upon her postman for assistance. This example demonstrates Carol's (77) "*perceived ability to significantly alter events*" (Burger, 1989, p.246). The creativity demonstrated by these participants suggests that involving older consumers in the new packaging development process may benefit firms. Participants such as Maude (82), Carol (77) and others demonstrate the characteristics of emergent consumers, in that they are "*capable of applying intuition and judgment to improve products concepts that mainstream consumers will find appealing and useful*" (Hoyer et al., 2010, p. 288).

While the mastery and stoicism demonstrated by these participants may positively contribute to their QoL, this does not make them exempt from the damage of negative packaging experiences. Indeed, for those participants who do demonstrate high levels of mastery, encountering difficulties which their coping mechanisms cannot overcome may be particularly damaging for their self-

concepts. As Carol (77) described, if her tools failed her and the assistance of her postman was no longer available, she would not know what to do.

6.6. Serving the Product for Consumption

6.6.1. Inappropriate Apportionment

A cause of frustration for a number of participants was the portion sizes of many FMCG products. Household products such as washing detergents and other cleaning products were seen as being ‘oversized’, resulting in difficulties transporting the product home (see Section 6.3) and during product usage. In the case of food and drink, many products were also considered to be oversized. In particular, those participants living alone made reference to the benefits of reduced apportionment:

“Most of the time I’ll buy a pre-made salad from Waitrose for lunch. That’ll normally last me two days. The other day I bought a big bag of lettuce that I wouldn’t normally get, but my son was coming over for lunch” – Maude (82).

In addition to fulfilling the need for smaller portion sizes made necessary by the effects of biological ageing, social ageing was also shown to impact upon appropriate apportionment:

“As my children have grown up and left home, my shopping basket is now smaller. I don’t need to buy giant sized packets of things. Especially things like breakfast cereals that go off” – Sue (62).

The development of products apportioned for individuals may also provide a means of satisfying the latent need for social interaction through shopping. As such, firms may be able to offer older consumers products that are better suited to their biological needs and products that, in turn, offer greater value by facilitating social interaction through regular shopping trips. Given the growth of convenience stores in the UK (Barford, 2014), individualised apportionment may also offer firms which wish to target a wider market whilst better integrating the needs of older consumers a means of adding value through packaging development.

Several participants expressed concerns regarding the environmental impact of food wastage as a result of inappropriate apportionment. Older participants made reference to the 'waste not want not' attitude of their generation. Participants who lived during years of rationing expressed particular dismay toward wastage of any kind, be that food waste or packaging waste. This suggests that firms would benefit from considering both micro factors affecting the process of ageing for individuals, and macro factors such as major political and cultural events which may impact upon consumers' values and opinions. However, participants such as Bill (86) also revealed negative associations between food wastage and biological ageing. Recalling their youth, Bill (86) reflected on changes to his and his wife's appetites and the influence this has on their consumption habits:

"I never buy packed meats. I always get it from the deli counter. If I want a slice of turkey I want one slice, not six or seven slices. The situation I'm in, there's just two of us and my wife's not a big eater anymore...she'll have a slice of bread in half for a sandwich... any more would go to waste" – Bill (86).

The availability of meats in smaller portions offered Bill more satisfying consumption experiences by avoiding actions (e.g. wasting food as a result of reductions in his appetite) which triggered negative associations with biological ageing.

6.6.2. Difficulty Reading Labels at Home

As was identified in section 6.2.1, a number of participants highlighted small font sizes on packaging as a source of dissatisfaction whilst engaging with products at PoS. For several participants this issue was also present in the home when serving products. For example, Bill (86) bemoaned the miniscule font used on his ginger sponge pudding (Figure 6.5), describing the cooking instructions as "*bloody useless*" while recalling a number of incidents where his dessert had been unsatisfyingly tepid or dangerously hot having not been able to read the instructions. This example demonstrates the importance of packaging in delivering

value to consumers; the satisfaction gained from the core product is facilitated by the consumers' interaction with the packaging.

Figure 6.7 Bill's (86) Ginger Sponge Pudding Packaging with Small Font



Much like experiences at PoS, several participants expressed dissatisfaction with packaging which they felt contained excessive 'open' or 'wasted' space. For example, Sue (62) described her frustration with struggling to read the nutritional values of her bran flakes (see Figure 6.6):

“They put the exact same picture on both the front and back on the pack but cram all the stuff you actually care about onto the side of the box. Why not just put it on the back and make use of that space?” - Sue (62).

Figure 6.8 Sue's (62) Bran Flakes Packaging



These examples provide further evidence to support the claim that including larger font sizes of nutritional information and cooking instructions on packaging may add value for older consumers and positively contribute to QoL.

6.7. Reclosing or Putting Away

6.7.1. Re-sealable Packaging

Several participants expressed a desire for re-sealable packaging, highlighting this form of user convenience as a possible solution to issues with apportionment. However, dissatisfaction was expressed towards current re-sealable packaging solutions. For example, Bill (86) described his negative experiences with re-sealable cheese packets (both 'zip-lock' and adhesive seals):

"I don't get on with them. It's probably not their [the manufacturer] fault though, it's more me doing it wrong" – Bill (86).

Bill's feelings of self-blame were typical of the many participants who suffered difficulties with packaging. For example, June (61) blamed herself for her difficulties attempting to read labels in-store, describing herself as "*foolish*" for not having her spectacles to hand. According to Stephens and Gwinner (1998, p. 182), in some cases of self-blame, consumers truly believe a negative consumption experience is a result of their own actions; however, in many cases individuals will convince themselves that they are to blame. Blaming one's self is

perceived as being easier than the challenge of voicing complaint. In the case of negative packaging experiences, the distance between consumers and packaging manufacturers may also lead individuals to use self-blame coping tactics more readily than with negative retail experiences. For participants such as Bill (86) and June (61), much of this self-blame is manifested by negative perceptions of biological ageing. This then has implications for psychological ageing; self-blame elicits feelings of uselessness and inadequacy which negatively impact upon an individual's self-concept and, in turn, their QoL. With regards to larger products, this stage of the packaging journey represented further continuation of physiological difficulties lifting and storing products. Much like the long-term damage caused by the accumulative effect of daily hassles (Lay and Safdar, 2003), the stresses experienced during the process of locating, transporting, storing, using, storing, reusing and disposing of a product may also cause profound harm to an individual's QoL.

6.8. Disposal

6.8.1. Environmental Concerns

As was identified in section 6.2.2, concerns regarding the environmental impact of packaging were identified by participants as impacting upon their purchasing decisions. At the point of disposal, these concerns arose again. In addition to the excessive 'over-packing' of products, several participants expressed a desire for recyclable packaging materials. The ubiquity of non-recyclable plastics was a particular cause of frustration for several participants. For example, June (61) described her annoyance over plastic packaging and subsequent feelings of guilt during disposal. Such was the strength of his feelings that Jim (63) described changes to his purchasing habits:

“As everyone has become more environmentally aware, you do think twice about what you buy. For me, I've always preferred the taste of beer from a bottle, but the cans are so much easier to recycle and must cost the companies so much less fuel to ship. It's also easier taking it to your recycle bin than going to be bottle bank!” – Jim (63).

For those environmentally-conscious participants, their reasons for purchasing more sustainable packaging were often coupled with particular user conveniences. For example, in Jim's (63) case, he gained satisfaction through purchasing what he perceived as being more sustainable packaging, whilst also gaining the conveniences of a lighter product which was easier for him to dispose of. These insights suggest that firms may benefit from considering environmental sustainability in relation to the functions of packaging during product development. By coupling the psychological benefits of purchasing more sustainable products with functional benefits, firms may be able develop products which offer older consumers value in a variety of ways. In so doing, firms would be able to differentiate their products by adding additional levels of value, thus elevating a product from commodity status (Lager, 2000; Lager and Blanco; Ford et al., 2014). A further example of sustainable packaging offering a user convenience is reusable packaging. Packaging reuse is explored in the following subsection.

6.8.2. Reuse

In addition to recycling and avoiding 'over-packaged' products, a number of participants also described methods for reusing packs. For example, Sue (62) described reusing ice cream tubs and other packaging formats:

"They're great for storing little bits and bobs. I put Christmas lights in one the other day. I also have quite a collection of shampoo bottles that I fill up and take again on holiday with me" – Sue (62).

June (61) expressed her disappointment at changes to the packaging of 'Vitalite' dairy-free spreads; 'Vitalite' had previously been packaged in wide, shallow circular containers but are now in taller, narrowed rectangular containers which resemble rival products more closely:

"I used to always buy Vitalite as the packaging was so useful afterwards. I never buy it anymore. Since the tub is much the same as all the others I tend to just go for whatever's cheapest now" – June (61).

June's (61) former loyalty to Vitalite demonstrates the value-adding potential of packaging. While FMCG firms may be under increasing retailer pressure to conform with shelf-space requirements, these insights suggest that firms may be able to achieve competitive advantage through unique reusable packaging. While government bodies such as WRAP have previously encouraged firms to reduce packaging weight, these examples suggest that equal consideration should also be given to reusable packaging. In so doing, firms may be able to both reduce the environmental impact of their packaging, while also adding value for older consumers.

6.9. Discussion

The findings from Part One of this study reveal the inseparable nature of the dimensions of ageing (Riley, 1985). For example, difficulties reading labels in-store were found to negatively impact up participants' self-concepts. For some, these feelings were further exacerbated by the effects of social ageing, such as living and shopping alone. In cases such as this, individuals felt reliant on others for assistance, thus reinforcing a negative self-concept and, in turn, affecting QoL. These insights, therefore, provide support for proposition two of the conceptual framework which argues that understanding ageing as a multidimensional process provides a more accurate vantage point from which to understand older consumers' needs.

While difficulties with packaging for younger participants were befitting of Kanner et al.'s (1981) description of daily hassles as being irritating or frustrating, the negative effects for older participants were often greater. Several older participants exhibited feelings of uselessness and self-reproach following negative experiences with packaging. In particular, negative packaging experiences severely impacted on the self-concepts of those individuals who suffered difficulties despite demonstrating high levels of mastery and employing problem-based coping mechanisms. This suggests that firms may be able to offer older cohorts within the senior market considerable value through packaging development and significantly contribute to their QoL by aiding independent living. For younger cohorts who generally demonstrated less awareness of age and ageing but still experience particular difficulties, an inclusive approach to packaging development may be

more appropriate and value-adding. However, such an approach would pose its own challenges, one of which being the effective positioning of inclusive products to appeal to a mass market without the functional benefits of the product being overlooked by consumers. These findings then provide support for the basis of proposition one; that firms should view the senior market as a heterogeneous collection of subsegments, each of which will exhibit different needs and wants. With regards to the different functions of packaging, the majority of experiences recalled by participants (both positive and negative) related to user convenience and communication. For example, many experiences related to user convenience involved packaging openability and reclosability, while experiences regarding communication often focused on font sizes or psychological preferences for particular packaging formats. Physiological difficulties with packaging reflect the balance of power between functions. For example, the importance of product protection and containment meant that many participants found a variety of products difficult to open. For some products, individual functions had to fulfil several different requirements. For example, packaging has to communicate a variety of information, often to multiple parties. This can include nutritional information to consumers and barcodes to retailers. As a result, the effectiveness of certain functions can become compromised, thus contributing towards consumer dissatisfaction and negative packaging experiences. These findings highlight the importance of considering all of the functions of packaging, and the interrelationships between them, when developing new products for the senior market. These findings also, therefore, provide support for proposition three by demonstrating the variety of packaging functions which influence consumer-packaging interactions. This suggests that viewing packaging as a multi-functional tool will aid firms in identifying a greater variety of possible product improvements and new product opportunities for the senior market.

Exploring consumer-packaging interactions across the packaging journey revealed the continuation and impact of physiological difficulties with packaging on participants' self-concepts. While prior studies have explored particular consumer-packaging interactions or specific stages of the packaging journey in-depth, these findings highlight the need to consider the impact of the variety of packaging functions across the packaging journey. This provides support for proposition four which argues that exploring consumer-packaging interactions across the

packaging journey will aid firms in identifying potential product improvements and new product opportunities for older consumers.

Finally, findings from Part One also highlighted the ways in which the process of ageing can impact upon older consumers' shopping experiences. Changes in shopping habits (in terms of location, frequency, and quantity of goods purchased) were found to affect packaging needs. Understanding these changing needs would offer firms opportunities with which to add value for older consumers through packaging development. For example, offering products with reduced apportionment may add value for older consumers in several ways: firstly, by better meeting the biological needs of older people in terms of appetites and allowing for easier transportation and storage of products; secondly, by facilitating regular shopping habits, thus incorporating changes of social ageing; and finally, by positively contributing to psychological ageing by avoiding actions which trigger negative associations with biological ageing (e.g. wasting food).

6.9. Summary and conclusions

Findings from Part One revealed the variety of factors influencing packaging experiences for older consumers. Using the multiple dimensions of ageing as an analytical tool highlighted the need for firms to look beyond openability and to also consider how ageing may impact upon other packaging functions. Difficulties with packaging were found to damage participant's self-concepts. This damage was particularly acute for older participants who were living alone. However, several participants also described positive experiences with particular packaging formats and expressed a willingness to pay for packaging which they perceived as offering value to them. Examining packaging experiences also revealed insights into the shopping experiences of older consumers. Exploration of shopping habits uncovered the close relatedness of consumer-packaging interactions and retail environments. This revealed potential opportunities for firms to tailor product assortment choices between different retail outlets to add value for older consumers.

Chapter 7 Research Findings: Part Two

7.1. Introduction

This chapter presents findings from each of the embedded cases of NPD projects within the three firms studied. An overview of each firm is provided, followed by descriptions of the embedded cases.

7.2. Case Study 1: Procter and Gamble

This case study explores NPD and perceptions of the senior market within the world's largest FMCG manufacturer. Established on October 31st, 1837, in Cincinnati, Ohio, the firm now operates in eighty countries, with operations in the UK commencing more than eighty-four years ago. Owners of more than 90 global brands, the firm specialises in beauty and grooming products, as well as household care. During 2013, the firm achieved global sales in excess of \$84billion, with twenty-six of their brands generating more than \$1billion of sales annually.

Packaging development is viewed within the firm as being of great significance. Within their UK R&D base, the firm employs more than one hundred packaging professionals who work within a number of different functions of the firm. Packaging design and management positions are as follows: industrial designers who work on front-end innovations; consumer-insight managers who work closely with industrial designers to generate new packaging ideas; and, packaging development managers who ensure the viability of up-scaling new packaging prototypes to mass production.

Managers considered there to be a high level of awareness of population ageing within the firm. However, all respondents also believed that the firm could, and perhaps should, be doing considerably more to understand the senior market. This was supported by the embedded cases. Despite dedicating significant resources to market research and understanding their consumers, a lack of understanding towards older consumers was evident.

7.3. Embedded Cases within Procter and Gamble

The embedded cases studied include products from the beauty and grooming and household sections of the business. The projects are as follows:

- A. A 're-stage' project for an intensive hair conditioning product, focusing on the development of an improved closure.
- B. A new laundry washing gel which was targeted at consumers wishing to wash clothes at low temperatures.
- C. New packaging for a mascara product which was positioned as offering consumers a means of achieving fuller eyelashes without the formation of 'clumps'.

All three projects resulted in product launches and are currently available on the market.

7.3.1. Project A: The Development of 'Pantene 2 Minute Deep Repair Masque' Conditioner

The first embedded case explores the development of new packaging for an existing intensive hair conditioning product. The product was positioned as offering consumers a means of rehydrating their hair and protecting it from damage caused by styling. The new packaging was a direct replacement for the existing product. This 're-stage' development included an improved product formulation, as well as new packaging. Re-stage development projects typically focused on minor packaging changes, such as alterations to graphics in order to periodically rejuvenate products, although in some cases they involved more advanced packaging change where product formulations had been significantly improved:

"It would be unusual for us to develop new packaging [beyond label changes] were there no changes to the product formulation. We will use the packaging to communicate formulation news. It signifies to the consumer that this is something new and better" (PG3).

In this case, the new packaging was used to attract consumers' attention in this way, but was also in response to consumer insight gathered regarding the existing

product. Previously packaged in a shallow circular container with a screw-top closure, post-launch research revealed weaknesses regarding the openability of the product:

“We understood that consumers used this product in the shower, but learnt that the screw top was difficult to open. If you imagine you’re wet and soapy, unscrewing the lid may be a troublesome or bothersome activity” (PG3).

The development team went about generating new packaging ideas to improve openability. Following a brainstorming session it was decided that the inclusion of a flip-top closure would provide consumers with additional value by providing an easier method for opening. The team believed this would deliver greater value by offering consumers an easier means of achieving the *“luxurious, hydrated hair they desired”* (PG6). Despite being described as *“not positioned towards the elderly market”* (PG3), the team had hoped that the inclusion of an ‘easy-open’ flip-top closure would not only add value for existing consumers, but may also bring new consumers from the growing senior market to the ‘Pantene’ brand. The development of a new closure also had the benefits of incurring little changes to the manufacturing process; existing production and capping machinery could be used. This brought significant cost benefits by avoiding investment in new equipment and machinery.

In order for the project to progress, the development team was required to consult with senior marketing managers to confirm that the new closure would meet ‘Franchise fit-for-use’ criteria. These criteria pertain to specific marketing-related considerations, such as the retail shelf-space which the packaging had to conform to or any specific design guidelines in terms of aesthetics. Later in the project, the new packaging would also have to be verified as conforming to other ‘Technical’ and ‘Compatibility’ fit-for-use criteria. The three categories are defined below in Table 7.1.

Table 7.1 Three Categories of Packaging Fit-For-Use Criteria (Descriptions Based on Findings)

Fit-For-Use Category	Description
Franchise (Marketing)	Criteria which relate to specific marketing considerations such as: packaging size based on the target market; shelf-space restrictions; and any specific design guidelines. These criteria are provided by senior Marketing Managers.
Technical (Production)	Criteria which refer to packaging requirements in terms of scaling up production and are provided by senior Packaging Development Managers.
Compatibility (Manufacturing/distribution/safety)	Criteria which refer to packaging requirements in terms of ensuring product integrity during manufacturing and distribution, and include safety considerations such as product tainting and packaging degradation. These criteria are provided by senior Scientists and Managers involved in product formulation.

In this case, franchise fit-for-use criteria required that the new packaging maintained the ‘shape language’ of the existing range of products. Maintaining shape language within a family of branded products was common practice across the various areas of the firm in order to ensure consistency within a product range. This was seen as a means fostering an identifiable visual brand, thus accelerating consumers’ product identification process in-store and instilling trust in new products. The product is depicted below in Figure 7.1.

In addition to franchise and technical criteria, the new packaging also had to conform to compatibility fit-for-use criteria which involved assuring the integrity of the product and it’s packaging during manufacturing, distribution, consumption and disposal. Based on these criteria, the team began development for the new flip-top closure. The packaging changes in this project can, therefore, be categorised using the typology of Simms and Trott (2014) as ‘body modification’.

A critical challenge during the initial industrial design phase was achieving appropriate opening force requirements:

“We had to get a balance between maintaining the form of the packaging [keeping the lid attached to the hinge], whilst achieving a reasonably easy opening force. That was half the reason for developing the new pack, so we had to get it right” (PG6).

In order to judge the appropriate opening force requirement the team developed several prototype closures in their R&D center and conducted small-scale product testing with colleagues. Several variations of the flip-tops were produced which were tested in the employee cafeteria. A clear winner emerged which was judged to be the easiest to operate and the most in-keeping with the 'Deep Repair' shape language. Using these insights, further prototype development took place to fine-tune the molds and achieve the desired force requirement. The process of prototype testing involved no input from older consumers, despite feelings that improving the openability of the product would add value for this segment.

Figure 7.1 A Jar of 'Pantene 2 Minute Deep Repair Masque'



Having developed a prototype, the new packaging then moved into the technical development stage where it's suitability for mass production would be examined. At this stage of the development process, the various fit-for-use criteria were revisited. In terms of franchise fit-for-use, the new packaging was deemed to be acceptable. For technical fit-for-use, in terms of the viability of scaling up production, the new packaging again appeared acceptable in its prototype form as the development team had prior experience with similar closures on other products. However, issues were identified in terms of compatibility fit-for-use; specifically, the ability of the new packaging to contain and protect the product formulation. While the previous iteration of the product included a circular seal in the closure itself which was released on initial opening, the same was not possible

with the new flip-top. This was an issue the industrial design team had failed to recognise. In order to overcome this issue, a foil seal which consumers would remove on initial opening was included. Once versions of the pack with foil seals were developed, stability tests took place for several months to ensure that the packaging maintained its integrity in the long term. Following this, drop tests were also conducted as part of the compatibility fit-for-use examinations. While the inclusion of a foil seal overcame the issue of containing and protecting the formulation, the packaging development team considered the solution to be unsatisfactory and one which negatively impacted on consumer-packaging interactions:

“This is where we start to slip down the slope of undesirable packaging for the consumer, because the consumer now needs to unscrew the lid, peel off the foil, then put the lid back on, and then flip it open, all before they use the product for the first time. For me, as an industrial designer, that is a negative consumer experience” (PG6).

The inclusion of a foil seal was seen to compromise the functionality of the new packaging at initial opening, particularly among the industrial designers acting as packaging champions who generated the new packaging idea. The steps required to open the product for the first time were considered so elaborate and unintuitive that a decision was taken to include opening instructions on the top of the closure. Despite this disappointment, the new packaging was deemed to be of sufficient quality for production to proceed. However, the results of scaling up production brought further issues. Having dedicated a considerable portion of their early development phase to achieving appropriate opening force requirements, the team was disappointed to discover the up-scaled version of the packaging was not as easy to open as their prototypes:

“Fine-tuning the molds so they are ready for mass production is a pretty technical piece of work, and it has to be said that we didn’t do a particularly great job of that. It is often the case that what the suppliers produce is not quite what we produce here” (PG3).

Despite the 'excessive' force required to open the product, this issue was considered by senior management to be relatively minor; the packaging was deemed to be acceptable and the issues ones which consumers could 'deal with'. The product was subsequently launched and is still available at the time of writing this thesis. For those industrial designers assuming the role of packaging champions, the new packaging failed to meet their expectations in terms of offering consumers value:

"It's safe to say we didn't do a particularly great job with this packaging. It's not the worst thing we've ever done, but I'd say it is a step backwards from the old pack in terms of usability" (PG6).

7.3.1.1. Summary of Case Findings:

While the development of 'Pantene 2 Minute Deep Repair Masque' was a re-stage project, the team considered the project to involve more advanced packaging development than many other re-stage developments. Despite representing 'body modification' level packaging change (Simms and Trott, 2014), there were a variety of restrictions placed on the development team as a result of the fit-for-use criteria. For example franchise fit-for-use criteria restricted the type of jar the team could develop; technical fit-for-use reflected the significant investment required in new production equipment which the firm attempted to avoid, thus restricting development choices; and compatibility fit-for-use meant that the original design intent for the packaging was compromised. The development team felt that the functionality of the packaging had become compromised due to these restrictions and labelled the product as a poor example of packaging for older people as it required excessive force to open. As a result, this product was deemed by the project team to be a step backwards from the performance of the prior packaging, and one that was unlikely to bring older consumers to the 'Pantene' brand.

7.3.2. Project B: The Development of 'Ariel Excel Liquid Gel' Washing Gel

This case focuses on the development of a new laundry washing product. The process began with a broad brief being provided to both packaging and formulation managers:

“The brief was unusually broad. All we were asked was: how can we bring consumers to the Ariel brand? Together, we then had to come up with ideas. It was the definition of a blue sky project” (PG4).

The impetus for the new product idea was the growth in ethical consumerism. The team wished to target ethically-conscious consumers with their laundry products, but needed to position the product in a way which avoided being perceived as ‘greenwashing’. Following several weeks of brainstorming across the various functions of the firm, the team decided that the most realistic way of promoting laundry products as being ‘green’ was to develop one which allowed consumers to wash their clothes as effectively at cold temperatures as traditional products allow only at much higher temperatures. The team also saw the development of a green product as a way of preventing further commoditization in the laundry sector:

“Retailer brands are constantly pricing stuff down and commoditizing laundry liquids. We needed to do something different and something that would add value” (PG5).

While ethical consumerism was the main theme on which the new product was to be based, members of the project team described their attempts to “sneak in” packaging design elements which they felt would add value for the senior market:

“Myself and some of the others on the team had experience with developing another laundry product after learning about inclusive design. We felt like we’d come up with a nice small, easy to carry, easy to open product that performed well... the product never reached the market though. The guys at the top [corporate management] weren’t so keen on the idea” (PG4).

This reluctance to target older consumers with a new laundry product was attributed to conservatism among those at the top of the firm who feared alienating other consumers. Corporate management also believed that the laundry category did not require products catering to the needs of older consumers in the same way that beauty and toiletries did (e.g. face creams for older consumers). As a result, the team tasked themselves with

developing a product which was positioned as being more environmentally friendly, whilst also surreptitiously incorporating design elements which they felt would appeal to older consumers.

With this concept in mind, the product development team began experiments that eventually culminated in the development of a new gel formulation. This formulation offered the environmental benefits the team was seeking by providing allowing consumers to wash effectively at low temperatures. Compared with traditional washing liquids, the new formulation was considerably thicker. This meant that existing washing liquid packaging was unsuitable; the new formulation was too dense to be packaged in the same bottles as regular liquids. It also required a new closure which would allow for more accurate dispensing as experiments showed that the formulation required more specific dosing than liquids or powders to achieve optimum washing performance. Based on these requirements, the packaging development team (comprised largely of industrial packaging designers with experience in 3D front-end innovation design) began their work.

Unlike other product development projects, the team was afforded considerable freedom in terms of franchise fit-for-use criteria. While the new product would become an extension of the Ariel brand, restrictions regarding shape language were minimal, thus affording the designers free reign to experiment with a variety of packaging shapes (providing they conformed to retail shelf-space constraints). The team decided to break convention and avoid traditional square and triangular packaging shapes in favour of a distinctive circular shape bottle (see Figure 7.2).

Figure 7.2 A Bottle of 'Ariel Excel Gel'



Such was the cleaning power of the new gel that the team was able to develop a smaller pack than traditional liquids and powders are commonly found in. This offered the advantage of accelerating distribution as delivery trucks were able to carry greater numbers of the product during each shipping. This also reduced shipping costs and harm to the natural environment. The product was, therefore, able to be differentiated in a number of ways: firstly, based on the environmental benefits; secondly, based on the unique gel formulation; and thirdly, based on the unique packaging:

“The other aspect regarding sustainability was that the product was compacted - less packaging, less weight on the trucks, etc. By combining this with having superior performance washing at cold temperatures and the distinct thick gloopy gel you’ve suddenly got a distinct proposition in store” (PG1).

In addition to its unique shape and small size, the new packaging was also differentiated from other laundry products by the inclusion of a detachable dosage cap. As the product performance was particularly sensitive to dosage levels, a cap to aid accurate dispensing was required. While the team was able to create an appropriate cap in terms of size, they encountered difficulties with its shape. Such was the thickness of the gel that when dispensed, a peak would form in the center

of the cap. The team was concerned that consumers would judge the necessary dosage of the formulation by the height of this peak, resulting in an insufficient amount being dispensed. Squeezing the formulation onto a flat surface resulted in a particularly prominent pyramid-like peak. Developing an optimum cap shape required several months of experimentation. Eventually, a solution emerged during a fortuitous lab experimentation with the formulation:

“A member of the packaging team happened to be visiting the formulation guys in the lab and noticed that when the product was poured into a test tube that peak that formed wasn’t nearly as big. That was our inspiration!” (PG4).

With this new knowledge, the team was able to develop a ‘cap within a cap’ that tapered to a narrow point, thus creating a similar effect to the test tube and significantly reducing the peak formation. With this new receptacle consumers were able to gauge the correct dosage levels with greater accuracy. However, other dispensing issues emerged.

Product testing revealed that following several uses of the product, the gel became increasingly difficult to dispense. As the volume of the gel within the packaging decreased, the force required to expel the formulation from the pack became physically exerting. The issue was further exacerbated by compatibility fit-for-use criteria which required the packaging to be constructed of a thicker polymer than standard washing liquid packaging to reduce the impact of natural light on the formulation. This realization came as a blow for the development team:

“We put a lot of effort into the cap and into making sure it’s easy to open... we were pleased with that. I would question whether the dispensing is as good as it could be though...” (PG4).

In addition to the packaging failing to meet expectations in terms of ease-of-use, the team was also disappointed to learn that their attempt to develop a product which would avoid commoditization had also fallen short. Having overcome various difficulties during the initial industrial design phase and successfully passing through the packaging development phase, the firm placed orders of the

new packaging with their suppliers. These suppliers also happened to provide packaging for several of the major UK supermarkets. As a result of information leakage during the development process, a Tesco own-brand version of the product had reached the market sooner than the original. However, much to the amusement of the packaging development team, this copy-cat version had been replicated to such an extent that the product even contained mistakes made on the original version of the pack which the team had later remedied. Despite these issues, the product was launched and has since been expanded into a range of laundry washing gels, effectively creating a new product category for the market. The team was also reasonably satisfied with their attempts to surreptitiously incorporate design elements which they felt would appeal to older consumers:

“We presented the vision of a more sustainable laundry product which was well-received and we executed well. Along the way we were able to sneak in and stumble across a few things that make this not a bad example of inclusive packaging” (PG1).

In particular, the small size of the packaging was seen as offering value to older consumers by facilitating easy retrieval from the shelf and transportation to the home. The team also felt that their efforts towards developing an intuitive, easy-to-use dispensing cap were of benefit to some older people who may experience difficulties reading dosage requirements on labels. However, difficulties with dispensing the product after several uses were viewed as a source of dissatisfaction for older consumers in particular.

7.3.2.1. Summary of Case Findings:

The development of ‘Ariel Excel Liquid Gel’ is a unique case in that the team was afforded considerable creative freedom, both with regards to the core product and the packaging. The case sheds light on the interrelationships between different packaging functions. The various fit-for-use criteria provide a useful framework with which to further understand the roles and requirements of packaging. For example, user conveniences such as ease-of-use and dispensing were compromised by fit-for-use criteria relating to the functions of containment. The case also provides insights into the role of packaging in facilitating product

(formulation) innovations; were it not for the new packaging, the benefits of the new formulation could not have been delivered. Finally, the case illustrates barriers to project teams in delivering value to the senior market due to a lack of support from corporate management. The negative perceptions of managers at the top of the firm towards the senior market inhibited the team's ability to develop new products with which to add value for old consumers.

7.3.3. Project C: The Development of 'Max Factor Clump Defy' Mascara

This case study details the development of a new mascara product. In this project the new product was created through packaging development alone; no development took place in terms of product formulation. This decision was cost-based:

"The vast majority of the time with mascara we do very little work with the formulation. It's barely changed for decades. In terms of consumer benefits, the delivery system is far more important anyway. There's also too many hoops to jump through and tests to complete when you create a new formulation, so we try and avoid those costs" (PG4).

Rather than pursuing new formulas, packaging managers were instructed to develop a new pack which would deliver the benefit of fuller-looking eyelashes without the formation of mascara 'clumps'. The basis for the new product idea came from consumer insight gathered by marketing managers. The project then became a cross-functional process when packaging managers became engaged. This process was described as being fairly typical of how most NPD projects within the beauty category commence; consumer-insight managers will identify a market need, and then engage with packaging development managers to describe the new product idea and explore appropriate delivery systems. The packaging development team, however, described the disparity in estimated development times between the different functions of the firm and the necessary actions they take to overcome challenges which arise from this:

"Normally marketing will come to us with an idea and say 'we want that to market in a year's time'. As a broad rule of thumb, what we do

usually takes about 2 years... marketing don't like that! To counteract this, we have to anticipate what it is they're going to want...to guess what's coming through the pipeline so we can get a head start" (PG6).

In this case, the new product idea was described as 'easy to see coming' as the problem of clump formation was well-known. The packaging development team were responsible for the development of a new 'wand' with which to apply the mascara, as well as the bottle within which the wand and formulation would be contained. In their pursuit of a volumising wand, the team broke convention and began experimenting with alternative materials. Historically, mascara wand heads were comprised on twisted wire; usually, nylon fibers are wrapped around twisted wire then mounted on a straight-headed implement. More recently, the firm had been experimenting with alternative wand-head shapes to improve application. In the case of 'Max Factor Clump Defy', the packaging team identified benefits of combining a curved wand-head with rigid plastic bristles:

"Using plastic allowed us to be for more accurate in our design. While you can achieve relative uniformity with the traditional wand, the plastic head delivered total consistency. The curved shape of the wand head follows the shape of the consumer's eye much better than a straight head" (PG4).

Figure 7.3 Max Factor 'Clump Defy' Mascara



Consistency in production was critical to delivering consumer benefits; variation in the wand head would have meant variation in product performance. Using a curved plastic wand was found to facilitate the consumer benefits the team desired. However, going against the dominant design for mascaras posed some risks; in particular, the increase in costs the new packaging would incur. The industrial packaging designer driving the project forward described the tension between delivering consumer benefits and achieving cost efficiency:

“A big part of our jobs is finding that sweet spot between the cost of manufacture versus doing what’s right for the consumer. That’s in a nutshell what we do” (PG2).

Convincing senior management that product development projects would deliver profit to the firm despite increases in manufacturing costs was described as a major barrier to packaging change. In this case, the product development team was able to argue their case based on the consumer insight they had gathered and by demonstrating the effectiveness of the new application wand:

“There will be a natural apprehension from management about anything that’s different, which I think is fair. But we’ll then do consumer research, who will get excited about an idea, and this would appease those concerns” (PG6).

It was also described that the project came at a time when *“there was a lot of money flying around the organisation”*, and that *“it probably wouldn’t have got off the ground if we did it now” (PG4).*

Having developed an effective application wand, the team then moved on to the development of the receptacle. In the case of beauty products (in particular make-up products), product developers are less restricted by retailers in terms of packaging shapes and sizes. Rather than stacking products on a normal supermarket shelf, make-up manufacturers are provided with shelf-space in which to install their own fixtures. This allows firms to experiment with packaging shapes, sizes and formats more freely, providing that the range of products remains within the boundaries of the firm’s fixtures and can be easily replenished by retail staff. In

this project, the product development team was also afforded relative freedom in terms of the shape language. Such was the team's confidence, they felt the new product could become a 'show-stopper' which could redefine the mascara category and establish its own shape language. In terms of shape, the team wanted to reflect the volumising effect of the product in its packaging. With this intention, influence was taken from a rival manufacturer's product:

"At L'oreal they have a mascara called 'Telescopic lashes' that is designed to lengthen your lashes. They use the metaphor of a telescope lengthening and so the pack looks like a telescope. To reflect the volumising effect of our product, we made the pack really volumous and chunky" (PG4).

The chunky cigar-like pack shape was used to 'amplify' the benefits of the product. In order to judge the attractiveness of the new packaging and the effectiveness of the metaphorical shape, small scale testing was conducted with employees of the firm. This activity allowed the team to narrow to a smaller selection of prototype shapes to review with consumers. Several methodologies for reviewing the impact of packaging at the 'first moment on truth' (when consumers encounter a product in-store) were considered; these include individual interviews and focus groups with consumers where prototypes of new packaging or images of computer-aided designs are inspected. In this case, the team opted for a series of focus groups which involved "*sticking stuff on a table and seeing which the consumer gravitated to*" (PG6). Using this method the team was able to identify the eventual preferred shape. Despite describing awareness within the team of population ageing, no consumers aged over 60 were involved in the process of concept development. Indeed, managers described how consumers aged over 60 were never involved in NPD projects within the beauty category. This is despite the opinions of managers that particular make-up brands within the firm's portfolio appeal to older consumers (e.g. 'Olay'), and despite the firm offering a small number of products specifically targeted towards older people (e.g. day cream for 'mature skin').

Following further development of the new wand and receptacle, products research managers conducted further consumer research at the 'second moment of truth', involving openability, application and resealing tests using physical prototypes.

Referred to as the 'learning phase', this consumer research again featured no involvement from older consumers. However, through this research the team was able to discover an unexpected benefit of their oversized pack design; the large size and shape of the product made opening the product considerably easier than standard mascaras. Unwittingly, the team had created what they felt was 'a very good piece of ergonomic design'. Breaking away from the previous shape language for the Max Factor brand had unexpectedly enabled the development of packaging which the team believed could add value for older consumers. The packaging development team described how packaging formats and shapes are influenced by the equity of a brand:

"If you had a very sensorial brand, you might have something that was a very voluptuous sensorial shape, whereas if you were more of a professional brand, it will be less expressive and much more functional looking" (PG4).

While the improved functionality of the 'Clump Defy' packaging was unintentionally stumbled upon, the example suggests that if the product were part of another brand then these benefits could easily have been missed.

Following completion of the 'learning phase', the project then moved into the 'development stage' where prototype designs were provided to packaging development managers in order to assess the suitability of the packaging for mass production. At this stage, control was passed from industrial packaging designers who had been driving the project onto packaging development engineers. For those industrial packaging designers assuming the role of packaging champions, this stage of the development process was described as often being a source of frustration, where promising new product ideas were rejected based on the perceived cost and level of change required to manufacturing processes. Through fear of this becoming the fate of their new mascara, the team described their input to the up-scaling process:

"Engineering may say 'you can't change this on the line, you can't change that, you can't change anything' to the point where you start looking at the line yourself trying to find areas that you can change that

may make a significant difference to your pack. That was what we did in this case as we saw the warning signs early” (PG6).

Monitoring the progress of the project allowed the original members of the team to collaborate with the packaging engineers. This helped to in ensuring that the original design intent remained intact when up-scaling to mass production. The new product was launched and has since gone on to be replicated by a number of rival firms in terms of receptacle shape. Sufficient patent protection has allowed the firm to maintain rights over the unique wand.

7.3.3.1. Summary of Case Findings:

This case provides insights into several barriers to packaging change within the firm, as well as methods which the packaging development team used to overcome these barriers. For example, cost aversion with regards to packaging development was apparent in this case. As a result, the packaging development team conducted market research to demonstrate the effectiveness of the new product in order to persuade senior management of its profitability. The case also sheds light on the relationships between different functions of the firm during the packaging development process. For example, the packaging development team encounters regular challenges such as having to anticipate the requests of customer-insight managers to ensure expected development times are met. Other challenges in this case included having to monitor the progress of the project to ensure that the original design intent of the product was maintained and that the perceived costs and level of manufacturing change required to produce the product did not result in the product becoming compromised or abandoned. The case also provides an example of packaging development unintentionally delivering what was regarded as a good piece of inclusive design. Finally, the case provides insights into the relationship between packaging and brand equity in relation to older consumers and inclusive design. By breaking from shape language, the team was able to develop a more functional product which may not have been possible with an alternative brand.

7.4. Case Study 2: The Co-operative

This case study will explore packaging development and management perceptions of the senior market within the UK's fifth largest retailer. With more than two thousand seven hundred convenience and medium sized stores, the firm's number of daily transactions is second only to Tesco. These transactions delivered sales in 2013 of £3.6billion. In addition to retailing, the firm also manages hundreds of own-brand products. These products cover an array of FMCG categories, including food and drink, household products, pet food, and toiletries.

Managers describe the belief that a large portion of the firm's market share is comprised of older consumers as a misconception. Despite claiming to recognise and understand population ageing, the future strategy of the firm is to target younger people through their convenience stores with promotional offers on products such as fizzy drinks and savoury snacks. As a result, there is little evidence of the firm attempting to understand the needs of older consumers. This was despite the opinion of members of the development team involved in embedded case D that the product was likely to appeal to older consumers more so than younger segments. In general, consumer input to the packaging development process within the firm is minimal.

7.5. Embedded Cases within The Co-operative:

In addition to extensive exploration of NPD in general within the firm and of management perceptions of the senior market, the following embedded case study was also investigated in detail:

- A. The development of a new range of 'Truly Irresistible Conserves'.

The project resulted in the launch of a product range that is still available at the time of writing this thesis.

7.5.1. Embedded case D: The Development of a New Range of 'Truly Irresistible Conserves'

This embedded case details the development of a new range of own-label jams and marmalades within The Co-operative. The conserves were part of the firm's

premium 'Truly Irresistible' range, which spans across food and drink categories and includes more than four hundred products such as cakes, snacks, sauces, and a variety of drinks. Marketed as offering 'quality, great-tasting and affordable food', the 'Truly Irresistible' range was designed to compete with the premium own-brand products of the firm's competitors, such as 'Tesco Finest' and 'Asda Extra Special'. During 2011 the firm undertook a rebrand for 'Truly Irresistible' which included the development of new graphics and the addition of fifty new products. Included in those fifty new products was the range of conserves.

With brand values for 'Truly Irresistible' already established, the first stage of the project was the development of the conserves. This involved kitchen work and taste testing conducted by the firm's produce suppliers in conjunction with members of the development team. At this point, the development team was comprised of category managers for jams, marmalades and preserves, produce buyers, food technologists and product development managers. When engaging with their produce suppliers, it was important to the team that the product was of sufficient quality to compete with the premium ranges of their competitors. Part of the brand values for 'Truly Irresistible' was to use homegrown British produce as widely as possible. However, for the production of foodstuffs such as fruit jams this poses some difficulties as the seasonable nature of the produce leads to inconsistent production periods throughout the year. Therefore, in the case of products such as strawberry jam reliance on British produce year-round is not possible. The team did, however, describe technologies which the firm had been exploring to enable the harvest of British strawberries (and other fruits) all year long:

"Some of our produce suppliers are experimenting with UV technology that makes the plants think it's spring even in the depths of winter. This would be great in that we could stick to our brand value of wishing to deliver British produce. We would want to see the effect on the quality of the produce though as that's still a bit unknown" (TC1).

Given the product's positioning as offering consumers a higher quality alternative to other conserves, the team had reservations regarding the effects of these UV technologies on produce quality. As such, the new technology was not adopted.

Following the development of several recipes, the produce supplier, along with members of the development team, conducted consumer taste tests. Engaging with consumers allowed the team to identify several popular recipes which were subsequently approved by senior management and chefs within the firm. Despite the belief within the team that premium preserves were likely to be purchased by older consumers, the consumer test tastes featured no involvement from older people.

Following the development of the recipes, the packaging development team became engaged in the project. This team was comprised chiefly of packaging buyers and retail merchandisers, with a small number of packaging scientists providing additional input. Packaging buyers were dominant within the packaging development team and were responsible for controlling packaging costs. Merchandisers focused on ensuring new packaging conformed to shelf-space requirements, while packaging scientists were responsible for understanding and communicating with the firm the environmental impact of different packaging formats and materials. The process of packaging development was described as typical of the majority of projects:

“We’re usually given a brief detailing the sort of ‘look’ they want for the product. This will be in terms of the generic format they want and the graphics. That was what happened here” (TC2).

In this case, the format to be adopted was a traditional glass jar with metal closure. A metal closure was adopted rather than plastic as this was perceived as being more in-keeping with the high-quality image the brand was attempting to project. As the packaging format was already decided, this meant that the packaging development focused entirely on graphics and labelling. This low level of packaging development was described as being ‘fairly commonplace’ across development projects within the firm. The team suggested this was for two reasons: firstly, to ensure new products were able to be manufactured, filled and capped without needing to invest in new machinery; and, secondly, because the firm yielded considerably less buying power with packaging suppliers than their larger rivals:

“We might want to develop something new, something innovative, but senior management knows that they’re going to struggle to convince our suppliers to go for it. When they’re getting orders from Tesco and Asda that are ten times as big as ours, they will of course tend to their needs more than ours” (TC2).

As a result of this situation, the level and choice of packaging change the team is able to pursue is restricted. Such is the influence that larger retailers have over packaging suppliers (due to the size of their orders), that the firm often has no choice with regards to the packaging formats they adopt. They have to accept what the larger retailers are requesting:

“If one of the big boys changes their packaging, chances are we’re going to end up having to adopt that too. In some respects this can be a good thing, as the changes they make might improve the quality of the product, but it also means that we’ll have to incur the cost increases that inevitably come with that change” (TC1).

The scope of packaging development during this project was, therefore, restricted to graphics and labelling. Much like the consumer taste tests, the process of designing the new labels included no involvement from older consumers. In fact, due to time pressures and strict deadlines regularly placed upon the team, input from consumers during packaging development for any project was described as rare:

“We don’t involve consumers with our packaging development. It would just take too much time that we don’t have” (TC3).

However, evidence from prior development projects suggests that consideration had been given to the needs of older consumers in relation to biological ageing and the legibility of labels. For example, The Co-operative was the first firm to introduce pizza packaging with font sizes no smaller than 11pt. However, in the development of their new conserves packaging the small size of the product meant that this was not possible:

“There’s so much information you need to include on any item of packaging for it to be approved legally. When you’ve got something like a jar of jam, there’s only so much space on the label that we have to fill, so unfortunately there will be things that are hard for anyone to read” (TC2).

Despite recognising the negative impact of small font sizes on consumer-packaging interactions, much of the labelling for the new product is dominated by decoration. To develop the new graphics, the team provided a design agency with a brief for the new graphics which outlined basic colour schemes. The design agency included individuals with specialist experience in developing a variety of different packaging formats, as well as in-house photographers to ensure a consistent final design. The designs were in-keeping with the black and silver colour-scheme of the ‘Truly Irresistible’ range and featured graphics to reflect the different jam varieties. For example, as Figure 7.4 depicts, the labeling for the Seville orange marmalade features a decorative orange pattern to reflect the product. The packaging team received five designs for each conserve which were then assessed and narrowed down to the final choice. The labels were then reviewed with senior management and approved for manufacture.

Figure 7.4 A Jar of Seville Orange Marmalade from the Range of 'Truly Irresistible' Conserves



In their assessment of the final product, the team considered the functionality of the packaging and concluded that improvements could be made in terms of consumer-packaging interactions for older people. These largely related to openability. However, concerns were also raised regarding the appeal of products which could be perceived as targeting older consumers. The team feared that obvious functional improvements to a pack we evoke negative associations with age and ageing:

“If we were to develop a pack which clearly was easier for elderly people to open, no one would buy it. Elderly people wouldn’t want to label themselves as being old, and our young consumers would never buy it” (TC1).

Other concerns were raised regarding merchandising and shelf space if the firm were to target the senior market:

“There just wouldn’t be enough space [on the shelf]. We need to appeal to the mass-market...there’s no room to target minorities as well. It wouldn’t be commercially viable” (TC4).

As a result of these concerns, as well as restrictions placed upon the packaging development team in terms of the level of packaging development they are able to pursue, the integration of older consumers' needs within this project was lacking. In order for older people to be afforded greater attention in future projects, it was suggested that the effects of population ageing would need to become more apparent:

“We are waiting for a tipping point [in terms of demographic change]... we haven't reached that point yet. Until we do, older people will still be considered as a minority” (TC2).

7.5.1.1. Summary of Case Findings:

This embedded case provides insights into the product development processes of own-label food manufacturers. While generating the second largest number of daily transactions of any FMCG retailer in the country, the size of these transactions pales in comparison with those of its larger rivals. As a result, The Co-operative yields significantly less buying power with packaging suppliers than their competitors. This was found to impact upon packaging development as the firm is often bound to adopting the same formats as those selected by the likes of Tesco and Asda. As such, the scope for creativity afforded to the packaging development team is limited. These restrictions were apparent in this case. Despite this, the team claimed that packaging was considered early in the NPD process. However, this consideration consisted of little more than senior management effectively ticking a box from a small number of familiar packaging formats. Little to no consideration was given to the exploration of new packaging formats. Input from consumers during the packaging development process was also lacking. While prior development projects had involved consideration of certain biological changes as a result of the ageing process, little evidence of was uncovered in this case to suggest that the needs of older consumers had influenced this development project. The team expressed concerns regarding the mass-market appeal of their products were the firm to develop strategies for appealing to older consumers. At most, basic functional improvements were

considered as being potentially value-adding for older people in a way which would not be to the detriment of other consumers.

7.6. Case Study 3: Crown Holdings

This case study will explore packaging development and perceptions of the senior market within Crown Holdings. Established in 1892 in Baltimore, Maryland, Crown Holdings is now one of the world’s leading metal packaging manufacturers. The firm employs more than twenty-one thousand people within its 139 manufacturing plants across 41 different countries generating in excess of \$8.7billion in net sales. The firm is divided into four broad categories of metal packaging. Table 7.2 outlines the four categories and offers a non-exhaustive selection of example products from each.

Table 7.2 Four Sections of Crown Holding’s Business with Example Products

Product Category	Example Products
Food	Aerosol cans (e.g. cream, pancake batter), food containers, easy-open ends, metal closures, and speciality containers (e.g. biscuit tins).
Drinks	Aluminum beverage cans, metal closures, beverage ends, promotional tabs, and speciality containers (e.g. whiskey tins).
Healthy and beauty	Aerosol containers (e.g. deodorants, shaving gels), high-impact decoration (e.g. colour changing packaging), and speciality containers (e.g. metal perfume containers).
Household and industrial	Aerosol containers (e.g. air-fresheners), shaped containers, speciality containers (e.g. paint buckets, oil canisters).

Managers attributed much of the firm’s success is attributed to its continued investment in R&D:

“Currently we have more than twenty on-going ‘breakthrough technology’ projects. These are projects ranging from the development of new interactive

packaging to threadless closures and the light-weighting of beverage packaging” (CH3).

This investment is also reflected in the scale of the firm’s UK packaging R&D centre, which is one of the largest in the country. Managers described particular expertise in developing ‘easy-open’ closures for a variety of products across the four sections of the business. In this respect, managers feel that the firm is well placed to develop value-adding packaging for older consumers. Indeed, such is the strength of this belief that promotional materials for their easy-open jar closures contain images of a grey-haired bespectacled woman opening multiple jars at great speed. While findings reveal the firm to have greater involvement with and input from older consumers in their NPD processes than other firms, this involvement is still relatively superficial. Input from older consumers to the packaging development process appears to focus largely on consumer-packaging interactions with respect to biological ageing-related changes. Comparatively little consideration is given to the other dimensions of the ageing process.

7.7. Embedded cases within Crown Holdings:

The following embedded cases were explored in depth:

- A. The development of the ‘Easy-lift’ easy-open metal can closure.
- B. The development of the ‘Orbit’ easy-open glass jar closure.

Both projects resulted in product launches and still available at the time of writing this thesis.

7.7.1. Project E: The Development of the ‘Easy-lift’ Easy-Open Metal Can End

This embedded case explores the development of an easy-open full aperture food can end; the ‘Easy-Lift’ end. Within Crown Holdings, the majority of product development projects are driven by customer requests. In a smaller number of cases, the firm initiates ‘carrot projects’, wherein a new product or process is developed and presented to prospective customers. As is the case for many carrot projects, the impetus for the development of ‘Easy-Lift’ came from consumer insight gathered by the firm. Despite the success of traditional ring-pull ends,

managers within the firm were aware of difficulties encountered by some consumers when engaging with this form of packaging:

“We knew that a ring-pull would offer a lot of consumers a new form of convenience, but for many elderly or infirmed people it presented new challenges when attempting to open the packaging. This was a problem that we wanted to solve” (CH1).

Consumer research revealed two key issues with traditional full aperture ring-pull ends: firstly, consumers were suffering difficulties placing their fingers underneath the pull tab as it was placed tightly to the can end; secondly, consumers experienced difficulties removing the detachable panel due to the physical exertion this required. Issues removing the detachable panel were further exacerbated by consumer fears that they would cut themselves on the panel’s sharp edges. These difficulties and concerns were described as particularly apparent among older respondents. Based on these difficulties, the development team established a brief for their new project. At this stage of the project, the development team was comprised of individuals across the various functions of the firm. Contributors to the brief included industrial packaging designers, packaging scientists, engineers, and marketing managers. This cross-section of expertise was drawn upon to ensure the brief would generate a variety of ideas which were novel and appealing, as well as feasible in terms of engineering and manufacturing. Within the project brief, a key development criterion was established stating that adoption of the new closure should entail minimal adaptation of existing filling machinery for customers. The team recognised the likely resistance they would face from customers if significant investment was required to adopt the new can end. A further criterion was established stating that the new end should be applicable to a variety of can sizes to maximise adoption potential.

Having established the project brief, the team began generating ideas for the new end. Much like the development of the brief, the idea generation process included inputs from individuals across different functions of the firm. In this case, a greater level of input was sought from packaging engineers in order to ensure that ideas were technically feasible. In projects where the development was less technical in its nature, greater emphasis would be placed on gathering inputs of individuals

from functions such as marketing. The idea generation process involved brainstorming, where team members would share their thoughts and sketch ideas on a white board. Following the first brainstorming session, the team allowed themselves a week to reflect on their ideas, and each returned with short presentations explaining their preferred choices. These presentations were again attended by a cross-section of managers with a variety of different expertise. This allowed the team to narrow the field and select six ideas which would be further developed into product concepts. During concept development, industrial packaging designers created CAD images of the new packaging concepts. These images were then used during consumer research activities to gauge initial reactions to the concepts. As was the case in this project, consumer research during concept development was described as typically being 'small-scale', often taking place with employees from within the firm's R&D site. The consumer research generated positive responses on several ideas. In addition to 'Easy-Lift', the team described the other successful concepts to emerge from the project:

"As we weren't responding to a customer request we had a quite a lot of freedom with this project. Although we were concentrating on improving ring-pulls, we didn't restrict ourselves too much. We had several good concepts come out of this project; things like our peelable foil closure for food cans which also made it to market" (CH5).

The development of the 'PeelSeam' peelable end came from the team's pursuit for a detachable end which could be removed in an easy, fluid motion. While 'PeelSeam' offered clear benefits in terms of ease-of-opening and has since become adopted for products such as tinned tuna in European markets, it did not offer the level of protection the team felt the end needed to capture a wider share of the canned food market. This limitation of 'PeelSeam' was identified during the QFD process used to evaluate the new packaging concepts. Following a QFD approach provided a more objective method for concept evaluation:

"When you come up with a new concept that you think could really work you can become quite emotionally attached to it. Using the QFD matrix helps you to be impartial and select concepts based on their merit" (CH4).

The criteria used in the QFD exercise included those requirements already established in their brief, such as delivering an easy-to-open end which could be applied to a variety of can sizes at minimal cost to the customer. Other criteria included assuring protection through the entire supply chain and allowing for application to a variety of foodstuffs. Based on these criteria, 'PeelSeam' lacked the protection the team sought. As such, efforts were concentrated on ideas which would offer the same level of protection as a standard ring-pull end without the need for additional protective lids. Following the QFD exercise, one concept was selected for further development. At this stage of the project, prototype development and feasibility testing commenced, meaning greater responsibility was passed from the industrial design team to packaging scientists and engineers.

While the general appearance of the 'Easy-Lift' end is similar to that of a traditional ring-pull end (see Figure 7.5), closer inspection reveals some unique characteristics; most notably, the clearance between the pull tab and the surface of the end itself. This separation is essential to delivering ease-of-opening as it allows for improved access to the pull tab. In a previous development project, the firm had experimented with using indentation to facilitate easier access to pull tabs. These experiments led to the development of the 'EOLE' end (Easy opening, little effort). While 'EOLE' was adopted by several customers, consumer research revealed that for many people with reduced dexterity and inhibited fine motor skills the indentation provided in 'EOLE' was not large enough to improve ease-of-opening. This led the team to remark that for many older consumers 'most easy-open ends aren't very easy to open'. Based on these insights, 'Easy-Lift' would require a larger area of indentation to facilitate improved access to the pull tab. In order to establish this larger indented area, a different manufacturing process to that of 'EOLE' was required. The team began by experimenting with flat ends which featured pull tabs mounted on protruding rivets. Whilst providing greater access to the pull tab, the flat end was found to be too susceptible to breakage during the filling process. The team realised that 'Easy-Lift' would, therefore, have to include ridges on the can end. The team conducted experiments with ridges of different shapes and sizes. By graduating the size of the ridges towards the center of the end, a significant indentation could be created. However, the circumference of the indentation became smaller as a result. As the team wished to develop an

end which could be applied to a variety of can sizes, this approach was not viable. Instead, prototypes were developed which included narrow ridges around the periphery of the end, leading to a larger indented area at the center of the pack. This not only provided an area of sufficient size to allow for easy access to the pull tab, but also provided a moveable portion of the end beneath the pull tab which could be moved both upwards and downwards. The team found that positioning the moveable portion to protrude upwards aided manufacturing and distribution by allowing the ends to be more densely packed. When the end is attached to a can, the moveable portion is placed in a downwards position, thus creating the increased space between the pull-tab and the surface of the end. The downwards position can be assumed through two methods dependent on the nature of the product being packed; firstly, for foodstuffs which are filled at cold temperatures, the end is attached and the moveable portion is placed in a downwards position using machinery; secondly, if the foodstuff is hot upon filling, the reduction in pressure and subsequent vacuum formation, as a result of the product cooling to reach an ambient temperature, pulls the moveable portion into a downward position with no mechanical aid. The separation this process creates permits greater access to the pull tab whilst maintaining the same functionality of a traditional ring-pull wherein the tab fractures a weakened area on the periphery of the end panel, thus allowing for the remainder of the end to be ruptured and removed.

Figure 7.5 An Aerial View of the 'Easy-Lift' Can End



Providing extra clearance between the can end and the pull tab was found to address the first issue many consumers encountered when opening a traditional ring-pull. However, it did not address concerns over the strength required to remove the detachable end. The development team wished to create a can which required less opening force, but described the difficulty of providing ease-of-opening whilst also providing protection for the product:

“Obviously we wanted to make an end that needed less force to remove, but we couldn’t risk having the end coming off on its own... particularly as we only wanted our customers to make minor modifications to their capping machinery, we couldn’t expect them to invest in other equipment to protect the pack” (CH1).

This left the team in a difficult position. Whilst they could improve the ease-of-opening for the end, this came at the expense of the containment and protection the packaging afforded to the core product. At this point of the project the team recalled the original consumer insights which provided the impetus for the development and considered the impact on opening experiences of fears over sharp pack edges:

“Observing consumers we quickly realised that physical difficulties they had with ring pull ends were made much worse by concerns about cutting themselves. People were hesitant because they didn’t want to hurt themselves” (CH1).

Based on these insights the team believed they could improve consumer-packaging interactions with the ‘Easy-Lift’ end further by developing a detachable panel which featured blunt edges when removed. It was hoped that when consumers recognised that they were unlikely to cut themselves when opening the packaging they would be able to open the product with greater confidence, thus facilitating ease-of-opening. Through experiments with patented forming methods (US patent number 4,511,299) the team was able to create a panel which not only featured blunt edges upon removal, but also offered consumers a greater of control when opening the packaging.

Following the development of prototypes of the new can end, the team conducted further consumer research within their R&D centre to gather feedback on the level of improvement 'Easy-Lift' made on traditional ring-pulls. Following the receipt of positive feedback on the new end, packaging engineers commenced work on up-scaling production. The initial manufacturing line for 'Easy-Lift' was built around the original machinery used to create the prototypes.

Since the launch of 'Easy-lift' the closure has been adopted by a number of firms within the UK, Europe and the US. In Europe, the leading customer for the closure is Nestlé who now include 'Easy-lift' on their Purina pet care range. This includes products such as cans of 'Baxters' dog food and 'Felix' cat food (see Figure 7.6). The team was aware that Nestlé had initiated a drive towards inclusive design for their packaging, so that firm was contacted directly by Crown Holdings. Other customers were recruited through attendance at packaging exhibitions in Europe where 'Easy-Lift' was promoted.

Figure 7.6 A Can of 'Felix' Cat Food Featuring the 'Easy-Lift' End



Given the additional costs incurred by 'Easy-lift' in comparison with traditional can ends, it came as little surprise to the firm that those customers who were forthcoming in their adoption of the closure were larger manufacturers purchasing for branded goods. The cost-reduction motives of large retailers purchasing

packaging for own-label products were highlighted as a barrier to adoption of 'Easy-lift'. Members of the packaging development team felt that this issue was further exacerbated by perceptions of metal packaging compared with other substrates:

“The trouble with differentiating metal packaging is that most firms view it as a commodity. They want a plain, cheap can which they can put their own stamp on. A packaging format like Tetra...they’ve developed their own brand; consumers have much stronger feelings towards their products than metal packaging. For them, developing new more expensive products is easier” (CH3).

Not only have retailers been reluctant to consider adopting 'Easy-lift', but in some cases have also created barriers to adoption for other manufacturers:

“A customer of ours informed us that one of the retailers wasn’t happy with them using the closure as it says ‘easy lift’ on the top of the can. The retailer said this would put other products, meaning their own-label products, at an unfair disadvantage. We almost lost that customer as they were worried about where the retailer would end up putting their product on the shelf if they continued with ‘Easy-Lift” (CH4).

The success of 'Easy-Lift' has given rise to other development projects where the team has been able to utilise similar technology and offer consumers easy-open packaging for a greater variety of products. For example, a recent development includes the '360' end; a full aperture, easy-open beverage can intended for use at outdoor music events to simulate the experience of drinking from a glass. Building upon 'Easy-Lift', the firm is now undertaking a development product for the 'Extremely-Easy-Lift' end which will seek to improve upon the ease-of-opening of its predecessor further using laser-cutting technologies. Managers involved in these projects expressed belief that Crown's continued investment in easy open closures will place the firm in an advantageous position as populations continue to age and as more FMCG firms begin to take greater notice of older consumers.

7.7.1.1. Summary of Case Findings

This case provides insights into the development of new packaging which attempted to incorporate the biological needs of older consumers. Crown Holdings recognised the difficulties encountered by some older consumers with traditional ring-pull can ends in terms of openability. This provided the impetus for the development of 'Easy-Lift'. Through a combination of product innovation (the can end itself) and process innovation (the unique manufacturing process), the firm was able to deliver the new end at a relatively minor cost increase to customers. However, while modest compared with the potential investment required to change packaging format, the costs increases of adopting 'Easy-Lift' have still inhibited adoption of the end; in particular, among retailer own-label manufacturers. The case also highlights the power and influence of large retailers; even over large branded goods manufacturers who came to fear the implications for their positioning on the supermarket shelf were they to adopt 'Easy-Lift'. During the development project, awareness of population ageing was apparent. Generally, older consumers' needs were viewed through the lens of biological ageing in relation to openability. However, the team also demonstrated consideration of the psychological effects of engaging with what was perceived to be a potentially dangerous form of packaging for older people, thus tending towards a multidimensional perspective on ageing.

7.7.2. Project F: The Development of the 'Orbit' Easy-Open Glass Jar Closure

This embedded case explores the development of a new easy-open closure for glass jars; the 'Orbit' closure. Launched within Europe in 2011, the project began in 2006. The impetus for the project came following the success of a previous easy-open closure: the 'Metal Ideal' closure. This product was launched in 2000 in the US and was initiated following complaints from customers regarding the ease-of-opening of jar closures. The closure is comprised of two parts: a central panel which is vacuum sealed to the jar, and a separate outer ring which acts as the opening/reclosing device. By eliminating friction between the opening device and the jar itself, 'Metal Ideal' required fifty percent less opening torque than a standard jar closure. Functioning in much the same way, 'Orbit' is able to achieve similar ease-of-opening, but is instead comprised of two metal panels. For the US market, the firm opted for a plastic outer layer as this provides a more precise seal

on plastic jars (which are the dominant design in the US) than metal closures. The popularity of plastic jars in the US is attributed to two reasons: firstly, higher distribution costs in the US meaning firms wish to avoid transporting heavy glass products; and, secondly, because American retailers fear consumers pursuing legal action against them (as is fairly commonplace in the US) due to accidents and injuries with glass jars. Plastic jars significantly reduce this risk. Figure 7.7 depicts the 'Metal Ideal' closure.

Figure 7.7 The 'Metal Ideal' Closure



Following the success of 'Metal Ideal' in the US, the firm decided to bring the product to Europe having received similar complaints regarding openability from firms on the continent. Consumer research suggested that easy-open closures would be well-received by European shoppers. The firm also wanted to build upon their prior success with easy-open closures in order to maintain their portfolio of customers in the face of increasing competition within the packaging industry:

"We wanted to be the innovators who solve this long-known underlying issue with jar closures. We knew it would put us on a good front as a company, and knew that it would help reduce the risk of customers

migrating to other packaging formats [which were easier to open]"
(CH5).

A production line for 'Metal Ideal' was installed in the firm's UK manufacturing plant; however, adoption of the closure was extremely slow. This came as a considerable blow following the significant investment in the production equipment. The development team for 'Orbit' believed this failure was due to cultural differences between American and European consumers with regards to perceptions of plastic jars:

"There just wasn't the demand for plastic caps, even if they were easy to open, because the majority of European firms don't use PET jars. Consumers here see plastic as being of inferior quality compared with glass. Glass is also seen as providing better long term storage, so 'Ideal' just didn't take off" (CH1).

Despite the disappointing reception received by 'Metal Ideal', the firm still had the problem of customer complaints to address. Based on their consumer insights, the firm was also still confident that there was a place in the European market for an easy-open jar closure. Awareness of population ageing fueled this belief further. The firm's UK R&D team was, therefore, given the task of re-developing a 'Metal Ideal' equivalent for the European market. Rather than begin the project with new packaging ideas, the team first considered how they would position the new closure and for which categories of food it would be most suitable. Discussions began by considering the effects of different food production processes on packaging openability:

"We knew that if a product had a high vacuum that it would require greater torque to operate the closure. This makes it tough to open, especially if the consumer has reduced hand strength. Foods which require cooking before being packaged have much higher vacuums. That's why you'll find a jar of strawberry jam to be much harder to open than a jar of mayonnaise" (CH5).

With this knowledge in mind, it was felt that an easy-open jar closure would be attractive to manufacturers of jams and marmalades. The team also believed that

a large portion of the market for preserves was comprised of older people who would experience particular benefit from the new closure. This provided further rationale for their choice. With a target market in mind, the packaging innovation teams began brainstorming ideas for the new closure.

Figure 7.8 A Jar of 'Duerr's' Marmalade Featuring the 'Orbit' Closure



Figure 7.9 An Ariel View of the 'Orbit' Closure



During the brainstorming process, the team divided ideas into two categories: technical development and aesthetic development. In the case of the latter, ideas included adding different textures to the rim of the closure in order to increase the level of grip. Technical developments involved more advanced changes to the closure, such as altering the helix angle of between the closure and the receptacle

to improve openability. In the case of technical developments such as this, the team found solutions to sometimes be too effective:

“Experimenting with the helix angle, we found that increasing it made the closure considerably easier to open. In fact, it was far too easy to open, to the point where it would be proved to be a liability during distribution! We just couldn’t get the balance right” (CH1).

Having generated a dozen ideas during their brainstorming, the team then narrowed down to three technical developments and three aesthetic developments based on their perceived efficacy, feasibility, and cost effectiveness. In order to identify the optimum solution, the team conducted consumer research with all six prototypes. This consumer research involved two visits to a local nursing home where members of the development team conducted focus groups with residents. The first visit involved preliminary discussions regarding packaging experiences and perceptions of easy-open closures. During the second visit, the team provided residents with prototypes of the new packs in order to gauge their effectiveness as easy-open solutions. From this consumer research the team was able to conclude that ‘Orbit’ was the best performing solution. However, there were concerns over the cost of the closure. As ‘Orbit’ consisted a two pieces of metal, the combined cost of materials and production were almost double that of a standard metal closure. The innovation manager driving the project described the barriers to adoption this created:

“Where you’ve got a closure that is much more expensive, you’ve got to have very, very good reasons for people to switch. So, while reducing the torque is useful, it doesn’t allow you to increase you price by 50%. Food manufacturers find that very difficult to look past, especially the own-label guys” (CH4).

In order to reduce these barriers to adoption, the team needed to identify methods for reducing manufacturing costs and, if possible, material costs. In terms of manufacturing, the team was hopeful that in time they would develop more efficient processes, thus achieving economies of scale. For material costs, the solution was less obvious. In terms of availability and recyclability, the firm was

restricted to a very limited number of metals for their closures. Rather than changing materials, the team had to find a solution through process innovation. Following months of experimentation involving material light-weighting and laser-cutting, the team eventually found that alterations to the manufacturing process would allow for the closure to be developed from a single sheet of metal:

“‘Orbit’ now starts life as a single sheet of metal. Rather than having two production lines that come together at the end, we now have one production line that for a portion of the process divides into two lines [where the material is divided], and eventually becomes a single line again” (CH5).

In this case, the team was able to develop a manufacturing process which delivered both cost benefits and product improvement. Following this breakthrough in process innovation, the new closure was successfully feasibility tested and launched in 2011. In order to promote the new closure, the team worked with ergonomics researchers at Sheffield Hallam University to compare the ease-of-opening with ‘Orbit’ compared to traditional closures. Researchers at the university conducted structured experiments with older consumers demonstrating that ‘Orbit’ was indeed significantly easier to open. Aside from promoting the results of these experiments at trade shows and in meetings with customers, the university researchers had no other input to the development of the closure.

Since the product’s launch, the team has gone on to improve the functionality of the closure further by drawing upon ideas generated in their aesthetic development brainstorming. For example, new versions of the closure include a series of radially extending asymmetric protrusions to facilitate enhanced gripping. This improvement received a successful patent application (patent number WO2013107736A1), wherein older people are specifically highlighted as particular beneficiaries of the closure. ‘Orbit’ has since been adopted by several European food manufacturers, with the closure proving to be particularly popular in Northern European countries such as Holland and Norway. Elsewhere, adoption has been comparatively limited; this includes the UK where the firm has acquired only one major customer for the closure. Despite this, production is said to be at maximum capacity. This places the firm in a catch-22 like situation, where further adoption of the closure would be driven by reductions in manufacturing costs, but achieving

the necessary economies of scale to reduce costs is dependent on further adoption of the closure. Such is the difficulty of expanding production that managers believe the product may have reached its peak in terms of growth:

“Although we can’t keep up with the current demand for Orbit, the costs of scaling up the production might be too much for the firm. Many projects fall by the wayside, and Orbit might be one of those” (CH5).

7.7.2.1. Summary of Case Findings:

The development of the ‘Orbit’ closure provides insights into the challenges faced by packaging suppliers when attempting to develop new packaging solutions. In this case, the cost increases required by firms investing in ‘Orbit’ acted as a significant barrier to the adoption of the closure. While senior members of development team had prior experience contending with customers seeking packaging at the lowest possible price, the growth of own-label products and dominance of the large retailers was described as exacerbating this problem further. Whilst only representing ‘body modification’ levels of packaging change for firms adopting ‘Orbit’ (Simms and Trott, 2014), this project featured the greatest involvement of older consumers. However, the development team’s perspective on ageing was largely biological-centric. This was reflected in the choice of individual’s living in nursing homes as prototype testing respondents. The implications of this respondent choice are discussed further in the following chapter.

7.8. Summary

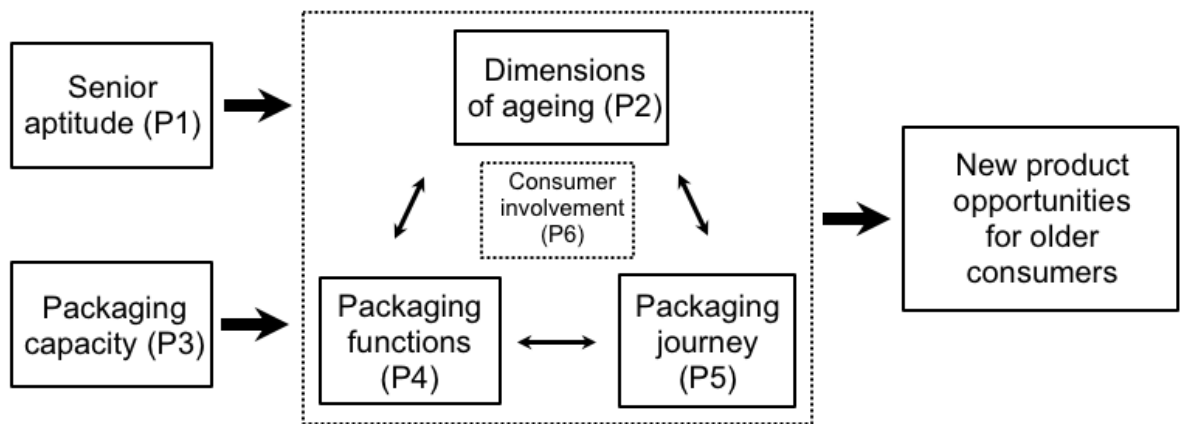
This chapter presented findings from case studies exploring the NPD activities of three firms involved in the development of new FMCG products. The chapter provided insights into managers’ understanding of the ageing process and perceptions of the senior market. The findings also revealed the role of packaging during the NPD process factors influencing packaging development. The next chapter presents an analysis of these findings and explores in greater depth factors contributing to a firm’s ability to deliver value to older consumers through packaging development.

Chapter 8 Cross-case Analysis: Part Two

8.1. Introduction

This chapter presents a cross-case analysis of the development projects presented in Chapter Seven. The cross-case analysis is guided by the conceptual framework developed in this study (reproduced in Figure 8.1).

Figure 8.1 A Conceptual Framework for Delivering Value to Older Consumers Through Packaging Development



The cross-case analysis presented in this chapter focuses on understanding packaging development in practice and perceptions of the senior market within the projects studied. Based on the framework, the cross-case analysis examines each of the following:

1. The level of senior aptitude evidenced within the project.
2. The level of packaging capacity evidenced within the project.
3. The dimensions of the ageing process considered by the development team within the project.
4. The level of consideration given to the various packaging functions within the project and the interrelationships between the different functions.
5. The level of consideration given the different stages of the packaging journey within the project and perceptions of consumer-packaging interactions at each stage.
6. The level of and method for consumer involvement.

Following this, perceptions of the senior market are explored further and analysed in relation to the experiences of consumers involved in this study. The chapter concludes by drawing these analyses together and summarising key findings. Table 8.1 attempts to present a summary of key findings from each of the embedded cases. Support for propositions is identified and evidence is described. Support for propositions was found to be both positively and negatively reinforced. For example, evidence from P&G provided positive reinforcement to support Proposition Two which states that firms demonstrating high levels of packaging capacity are more likely to engage in advanced packaging development. Conversely, relatively low levels of packaging capacity within The Co-operative were found to provide support for this proposition through negative reinforcement.

Table 8.1 Summary of the Embedded Cases

Embedded Case	Project A: <i>'Pantene 2 Minute Deep Repair Masque'</i>	Project B: <i>'Ariel Excel Liquid Gel'</i>	Project C: <i>'Max Factor Clump Defy'</i>	Project D: <i>'Truly Irresistible Conserves'</i>	Project E: <i>'Easy-Lift End'</i>	Project F: <i>'Orbit Closure'</i>
Firm	P&G	P&G	P&G	The Co-operative	Crown Holdings	Crown Holdings
Project type Focus	Re-stage development: New closure to improve openability.	Product and packaging development: New laundry formulation and advanced packaging development.	Packaging development: New packaging to facilitate improved 'anti-clumping' application.	Packaging development: Label development for own-label conserves range.	Packaging development: Easy-open food can end.	Packaging development: Easy-open jar closure.
Result Success/failure	Success: Product launched.	Success: Product launched.	Success: Product launched.	Success: Product launched.	Success: Product launched.	Success: Product launched.
Senior aptitude Activities and cognitive frames	Activities: None. Consumers aged 60 and above never involved. Cognitive frames: Positive perceptions of the senior market. Older consumers were regarded as demonstrating unique needs.	Activities: None. However, prior experience developing an 'inclusive' laundry product influenced some design elements. Cognitive frames: Positive perceptions of the senior market. Older consumers regarded as demonstrating unique needs. Unable to pursue the senior market due to corporate management.	Activities: None. Consumers aged 60 and above never involved. Cognitive frames: Positive perceptions of the senior market. Older consumers regarded as demonstrating unique needs. Unable to pursue the senior market due to corporate management.	Activities: None. Senior marketing perceived as an insignificant part of the firm's market share. Cognitive frames: Negative perceptions of the senior market. Concerns that older people may alienate 'mass markets'. Limited recognition of the heterogeneity of the senior market.	Activities: Engagement with residents of a nursing home. Cognitive frames: Positive perceptions of the senior market. Limited understanding of the heterogeneity of the senior market.	Activities: Engagement with residents of a nursing home. Cognitive frames: Positive perceptions of the senior market. Limited understanding of the heterogeneity of the senior market.
Dimensions of ageing considered Focus	Biological: Changes to strength and dexterity. Psychological: Limited attention afforded to the implications of frustrating packaging experiences on individuals' self-concepts.	Biological: Changes to strength and dexterity. Psychological: Implications of encountering difficulties with packaging. Social: Lifestyles and living arrangements.	Biological: Changes to strength and dexterity.	Biological: Changes to eyesight in relation to font sizes on labels.	Biological: Changes to strength and dexterity. Psychological: Implications of negative packaging experiences on individuals' self-concepts.	Biological: Changes to strength and dexterity. Psychological: Consideration given to the impact on psychological ageing of including 'easy-open' labelling.

Level of Packaging capacity Capacity and details	Moderate: A variety of packaging expertise within the project team. However, the nature of a re-stage project and the focus only on improving openability restricted the exploitation of this expertise.	High: Variety of industrial packaging capabilities; presence of a packaging champion; positive perceptions of packaging development.	High: Variety of industrial packaging capabilities; presence of a packaging champion; positive perceptions of packaging development. Freedom with shelf-space/merchandising facilitated greater change.	Limited: Lack of packaging champion. Unexploited capacity among scientists Developed constrained by relationships with suppliers compared to larger rivals.	High: Variety of industrial packaging capabilities; presence of a packaging champion; positive perceptions of packaging development. Lack of senior aptitude, limited exploration to improving openability.	High: Variety of industrial packaging capabilities; presence of a packaging champion; positive perceptions of packaging development. Lack of senior aptitude limited exploration to improving openability
Packaging Functions considered Focus	Openability: Focus on improving openability.	Protection, containment, openability, and re-usability: Breaking from the dominant design required consideration of all dimensions.	Openability and communication: Packaging used to improve product quality and attract consumer attention.	Communication: Label development only.	Openability and protection: Focus on improving openability whilst maintaining levels of protection.	Openability, communication and protection. Focus on improving openability whilst maintaining levels of protection. Consideration of 'easy-open' labelling.
Stages of packaging journey considered Focus	Opening and dispensing: Initial focus on opening; subsequent consideration of dispensing.	POS, transporting product home, opening, and dispensing product for use: Uniqueness of the product demanded consideration of multiple stages.	POS, opening, and dispensing: Focus on attracting attention and improving application/dispensing.	POS: Label development for the new product focused on attracting attention.	Opening: Focus entirely on opening.	POS, opening and re-opening: Consideration of POS interactions, but focus on opening.
Level of and method for consumer involvement Details	Market research during concept development: Impetus for project from consumer research. Limited consumer involvement in later stages.	Market research during idea generation, concept development and concept testing: Focus groups provided impetus for the new product. Additional focus groups to evaluate new product and packaging concepts and of subsequent prototypes.	Market research during concept development and concept testing: Focus groups provided impetus for the new product. Additional focus groups to evaluate new product and packaging concepts and of subsequent prototypes.	Consumer taste tests: Taste tests for new recipes. Consumer describes as rarely ever involved in packaging development.	Market research during concept development and concept testing: Focus groups within nursing homes to evaluate new packaging concepts. Subsequent focus groups in nursing homes to test prototype ends.	Market research during concept development and concept testing: Focus groups within nursing homes to evaluate new packaging concepts. Subsequent focus groups in nursing homes to test prototype closures.

Table 8.2 Summary of the Propositions; Relative Level of Support from each Embedded Case; and Descriptions of Evidence to Support Propositions

	Embedded cases					
Proposition	Project A: <i>'Pantene 2 Minute Deep Repair' Conditioner</i>	Project B: <i>'Ariel Excel' Washing Gel</i>	Project C: <i>'Clump Defy' Mascara</i>	Project D: <i>'Truly Irresistible' Conserves</i>	Project E: <i>'Easy-Lift' End</i>	Project F: <i>'Orbit' Closure</i>
1) Senior aptitude impact on conceptualisations of ageing	Partial evidence: Development team aptitude: exploration of biological and psychological ageing post-launch.	Evidence to support: Development team aptitude: exploration of all dimensions of ageing post-launch. Consideration given to some aspects of biological ageing during project.	Partial evidence: Development team aptitude: exploration of biological and psychological ageing post-launch.	Evidence to support: No consideration of the senior market leading to myopic views of ageing.	Partial evidence: Positive perceptions of the senior market, but limited understanding of ageing.	Partial evidence: Positive perceptions of the senior market, but limited understanding of ageing.
2) Multi-dimensional conceptualisations of ageing generating new product ideas	Partial evidence: Exploration of product usage and perceptions of brands among older consumer offered insights into product improvements post-launch.	Evidence to support: New product/service ideas generated from multidimensional view.	Partial evidence: Exploration of product usage and perceptions of brands among older consumer offered insights into product improvements post-launch.	Evidence to support: Myopic view of ageing contributed to limited ideas with which to add value for older consumers.	Evidence to support: New packaging ideas restricted to improving openability based on limited understanding of ageing.	Evidence to support: New packaging ideas restricted to improving openability based on limited understanding of ageing.
3) Packaging capacity generating new product ideas	Partial evidence: Industrial packaging capabilities facilitated exploration of several closure types.	Evidence to support: Industrial packaging capabilities and positive perceptions of packaging were required to break from dominant design.	Evidence to support: Industrial packaging capabilities and positive perceptions of packaging were required to break from dominant design.	Evidence to support: Limited (exploited) packaging capacity perpetuated a reliance on existing formats and label development.	Partial evidence: Industrial packaging capabilities offered a variety of easy-open closure ideas; ideas beyond easy-open were limited.	Partial evidence: Industrial packaging capabilities offered a variety of easy-open closure ideas; ideas beyond easy-open were limited.
4) Consideration of multiple functions of packaging generating new product ideas	Partial evidence: Combining exploration of openability and communication contributed to the development.	Evidence to support: Several new pack features derived from exploration of different packaging functions.	Partial evidence: Combining exploration of openability and communication contributed to the development.	Evidence to support: Limited exploration of functions perpetuates reliance on existing formats and level development.	Partial evidence: Expertise with easy-open packaging lead to several developments in this area. Path dependent development behaviours may restrict development opportunities.	Partial evidence: Expertise with easy-open packaging provided several new ideas. Path dependent development behaviours may have restricted development opportunities.
5) Consideration of different stages of packaging journey generating new product ideas	Partial evidence: Evaluation at first and second 'moments of truth' offering insights into two stages of journey.	Evidence to support: Exploration of interactions across multiple stages provided the impetus for several pack features.	Partial evidence: Evaluation at first and second 'moments of truth' offering insights into two stages of journey.	Partial evidence: Focus on POS (as a result of limited packaging capacity) perpetuated label development rather than packaging development.	Partial evidence: Focus on opening limits ideas to that of improved openability.	Partial evidence: Focus on opening limits ideas to that of improved openability.

6) Older consumer involvement positively affecting development	Partial evidence: Lack of involvement lead to insufficient knowledge of consumer experiences. No involvement of older consumers	Partial evidence: Direct consumer involvement at several stages of the project. No involvement of older consumers	Partial evidence: Direct consumer involvement at several stages of the project. No involvement of older consumers	Insufficient evidence No consumer involvement in packaging development.	Evidence to support: Older consumer involvement during concept development and testing. Focus largely on openability, thus limiting insights.	Evidence to support: Older consumer involvement during concept development and testing. Focus largely on openability, thus limiting insights.
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8.2. Senior Aptitude

The propensity of firms to incorporate the needs of older people into development projects was influenced by the level of senior aptitude within development teams. Senior aptitude was manifested in two ways: firstly, through activities where older people were involved in development projects; and, secondly, by teams adopting positive cognitive frames towards the senior market. Activities and cognitive frames which contributed to senior aptitude are explored in the following subsections.

8.2.1. Activities Contributing to Senior Aptitude

Despite managers in all cases claiming that they were aware of population ageing, varying degrees of interest in the senior market were demonstrated during development projects. Managers at The Co-operative believed that older consumers represented a minority of their market share. It was described that the firm is waiting for a 'tipping point' in demographic change where older people represent the majority of the population before steps are taken towards targeting the senior market. As such, during development Project D, meagre attention was afforded to the senior market and no efforts were made to engage with older people. Within P&G, evidence of managers engaging with older consumers was scarce. This was, again, in spite of many individuals claiming that the firm was aware of population ageing. Reasons for P&G's inaction towards the senior market included: perceptions among corporate management of older consumers as representing an insignificant segment in terms of size; and, managers wishing to avoid the perceived risks of targeting consumers with whom the firm has little experience. This is analogous to the observations of Thompson and Thompson (2009) who describe how firms have overlooked older consumers for so long that it has become the norm. These findings suggest that P&G's approach to segmentation, targeting and positioning (STP) is path dependent as their decisions are shaped by prior experiential knowledge from targeting younger consumers. This sheds light on reasons for the continued neglect of the senior market. During both projects within Crown Holdings, development teams engaged in activities which allowed older people the opportunity to contribute to the packaging development process. These activities included interacting with older people in nursing homes to gain feedback on new product concepts and subsequent product

prototypes (further details of these activities are found in section 8.7). Engaging in these activities offered the teams opportunities to better understand the needs of older people. Within these projects, the decision to include older people in development activities was taken by project leaders who described doing so as being out of the ordinary for the firm. By challenging prior convention, the industrial packaging designer and marketing manager leading the projects assumed the role of senior champions. Much like the role of the product champion in overcoming organisational inertia towards NPD (Frost and Egri, 1991), the senior champions in Crown Holdings were able to overcome reservations towards targeting the senior market. The actions of the senior champions were befitting of Thrane et al.'s (2010, p. 238) description of champions as individuals who "[work] *passionately and [want] to improve the end-user's quality of life*". However, while the development teams in Projects E and F went further to engage with older people than managers within other firms, their exploration of older consumers' packaging interactions were limited to that of initial opening. This demonstrates a short-sighted view of ageing; one which is focused on physiological decline. The following subsection will explore the impact of this myopic view on senior aptitude in contrast with the views of P&G and The Co-operative.

8.2.2. Cognitive Frames Contributing to Senior Aptitude

Despite showing evidence of path dependency in their approach to STP, insights from a number of managers within P&G demonstrated their multidimensional perspective on ageing. For example, in their assessment of the suitability of 'Ariel Excel Liquid Gel', managers described the product as being 'not bad' for the senior market in terms of functionality, but pondered the value-adding potential of service development in conjunction with packaging development: "*Maybe packaging is just one piece of the puzzle; perhaps we should be thinking about developing laundry services to better meet the lifestyles of older people. Services which help people maintain their independence...*" (PG4). These ideas for new service development demonstrate managers contextualising their consideration of biological age-related changes in relation to aspects of social ageing. Viewing ageing in this way allowed the teams to look beyond 'obvious' packaging changes (such as enhancing ease-of-opening), and to instead identify a greater variety of product and service development opportunities for the senior market. Despite this, managers at project level found their ability to develop products for older consumers hindered by

corporate management's negative perceptions of the senior market. The process of changing corporate perceptions towards the senior market was likened to recent investments in environmental sustainability and the reluctance of the firm to invest in activities which they perceived as contributing to costs rather than profits: "*To get ageing consumers on the agenda the company will have to have its arm twisted in the same way it was with sustainability. Ten years ago hardly any companies cared about the environmental impact of what they were doing... now they have to care*" (PG5). This reveals differences in cognitive frames towards ageing and the senior market between managers at project and corporate level. The reluctance of corporate managers to adjust their NPD strategies exemplifies what Schreyögg and Sydow (2011, p. 325) describe as, the "*dark side of path dependence*", where organizational lock-in based on prior successes becomes dysfunctional, rendering firms unable to adapt to new external circumstances which demand new solutions. As a result of this inflexibility at corporate level, project development teams are unable to exploit their potential senior aptitude (Todorova and Durisin, 2007).

The above findings highlight development activities and cognitive frames which were found to positively contribute to senior aptitude. Based on the findings presented in Chapter Seven, no firm exhibited excellence in both these respects. However, the engagement with older people by development teams at Crown Holdings provides evidence of activities contributing to senior aptitude, while insights from P&G provide evidence of positive cognitive frames towards the senior market contributing to senior aptitude. By combining the activities of Crown Holdings with the cognitive frames of development teams within P&G, firms will afford themselves greater opportunities to understand the needs of older consumers and identify new product opportunities for subsegments of the senior market. As such, evidence from this study provides support for Proposition One. The following section will explore further how ageing was conceptualised within the case studies, with reference to the different dimensions of ageing considered during development projects.

8.3. Dimensions of Ageing

Awareness of the multiple dimensions of ageing varied across cases. As a result of their positive cognitive frames towards the senior market, development teams within P&G were able to consider the effects of biological ageing in the context as social ageing; their ideas for laundry service development providing an example of this. Critical assessments of the attractiveness of easy-open packaging to older consumers provided further evidence of managers exploring multiple dimensions of ageing: *“Will improving openability drive sales? In a very tough environment where you’ve got milliseconds to communicate to the consumer, the main message they’re looking for is the benefit of the product: washing detergent, cleans your clothes... you got to find a way of combining functional product improvements with brand equity”* (PG1). This critical assessment of easy-open packaging demonstrates consideration of psychological age-related changes; managers considered the acceptance among older consumers of easy-open packaging and the connotations this carried with regards to ageing. Development teams within P&G, therefore, demonstrated a multidimensional view of ageing which incorporated aspects of biological, psychological and social ageing (Ahmad, 2002; Bond et al., 2007; Hooyman and Kiyak, 2008; Young et al., 2009). These findings suggest that understanding ageing as a multidimensional process will aid development teams in identifying a greater variety of new product opportunities than by viewing ageing simply as a process of physical decline. However, insights into the cognitive frames of corporate management reveal the need for senior aptitude to be assimilated throughout a firm in order for these opportunities to be taken.

Development teams within Crown Holdings demonstrated a biological-centric view of ageing. This was reflected in their consumer research activities which, despite offering the opportunity to gain a greater understanding of the needs of older people, focused primarily on assessing openability. The sample for this consumer research further reflected this biological-centrism as managers described the need to test prototypes on *“individuals with really reduced physical capabilities”* (CH5). While managers expressed empathy towards the ‘frustration’ of openability issues, little evidence of was available of development teams attempting to understand the effects of this frustration. Likewise, scarce evidence of considerations regarding

social ageing was found. Failing to consider the other dimensions of ageing limited the scope of new packaging ideas to only include improved closures and ends. Despite demonstrating low levels of senior aptitude in terms of activities with older people, insights from interviews within The Co-operative did suggest awareness of both biological and psychological aged-related changes among managers. Much like the concerns of P&G, managers during Project D questioned the likely acceptance of easy-open packaging amongst older consumers. Unlike P&G, however, rather than seeking to offer older consumers value through improved packaging, the development team wondered whether they should instead “*start manufacturing tools for older people*” (TC1). This reflects the low levels of packaging capacity within the firm (see Section 8.4).

The above findings, therefore, provide support for Proposition Two which argues that viewing ageing as a multidimensional process will aid firms in identifying new product opportunities for the senior market. In particular, insights from P&G highlighted the variety of opportunities able to be generated by adopting this perspective on ageing. Conversely, the limited biological-centric perspective apparent within Crown Holdings was shown to limit opportunity identification. In addition to understanding the multidimensionality of the ageing process, the conceptual framework presented in this study proposes that for firms to offer older consumers value through packaging development they must also possess high levels of packaging capacity. The following section will explore the development of packaging capacity in relation to the three case studies.

8.4. Packaging Capacity

The level of packaging capacity exhibited by development teams was found to vary across cases. While factors such as teams possessing a variety of packaging expertise were found to positively affect development projects, situational and environmental factors inhibited the ability of managers to harness this expertise and exploit their potential packaging capacity. The following subsections will detail facilitators of and inhibitors to the exploitation of potential packaging capacity.

8.4.1. The Composition of the Development Team

A key factor affecting the development of packaging capacity was the composition of the project development team. The dominant position held by buyers within The Co-operative's development team was found to inhibit packaging change. While the presence of packaging scientists afforded the development team access to technical packaging knowledge, the dominance of buyers constrained the exploitation of this knowledge. The composition of the team meant that packaging decisions were ultimately made on a cost-basis, despite the availability of knowledge to facilitate more advanced change. These findings highlight the need for firms to not only recruit individuals with the ability to understand and recognise the value in new packaging technologies (Tsai, 2002; Abecassis-Moedas and Mahmoud-Jouini, 2008), but to also foster an environment which is receptive to technical change (Schrader, 1991) should they wish to pursue advanced packaging development.

The packaging development teams within P&G featured individuals with a variety of packaging expertise; ranging from packaging scientists with specialist knowledge of different product sectors, to industrial packaging designers and engineers. This afforded the teams scope with which to explore a wider variety of packaging developments. For example, Project A featured relatively minor change in the form of an alternative closure system, whilst Projects B and C were more radical in nature, both breaking from the dominant designs in their respective sectors. While the influence of buyers rigidly seeking cost reductions at the expense of more advanced packaging development was less apparent in P&G, managers still commented on the need to control costs: "*We're working with cents and not dollars, so what is the best thing you can deliver with so many cents?*" (PG2). In addition to increased material costs and investment in new equipment, the firm also wished to avoid the opportunity cost of manufacturing downtime required to install new machinery. This provides further evidence of packaging development being analogous to developments activities in many process industries, characterised by high production speeds, rigid process controls, and strong impact of changeover times (Wallace, 1984; Fransoo and Werner, 1994; Ford et al., 2014). These characteristics were found to act as barriers to packaging innovation, inhibiting firms from exploiting new packaging opportunities: "*We often*

end up innovating to reduce costs, rather than innovating to improve consumer experiences” (PG3).

8.4.2. The Perceived Importance of Packaging

Perceptions of the importance of packaging development to NPD success were found to influence packaging development activities. For example, within The Co-operative it was claimed that packaging was considered at an early stage of development projects. However, this consideration was revealed to be little more than the process of ticking a box to select an existing packaging format which was deemed as appropriate for that product category. Despite the presence of individuals with technical packaging expertise, the dominance of buyers within The Co-operative’s development team affected their perceptions of packaging development. As a result of their limited application of packaging knowledge, the team exhibited a myopic view towards packaging; one which focused largely on product containment and the display of information. This meant that the team was unable to pursue packaging development beyond that of skin-deep label changes during Project D (see Simms and Trott, 2014). This packaging myopia is further embedded by The Co-operative’s position with packaging suppliers relative to its larger rivals. As the orders placed with their packaging suppliers are far smaller than the likes of Tesco and Asda, the firm has little say with regards to the choice of format they are able to pursue. As a result of this lack of influence over format decisions, apathy towards packaging development is further reinforced, thus encouraging path dependency with regards to packaging development activities (Schreyogg and Sydow, 2011).

Within P&G, packaging development was regarded more highly. This was evidenced by the number of variety of packaging design, engineering and management positions within the firm’s R&D centre (see Section 7.2), as well as the significant investments made in packaging science and technology. Rather than acting only as a container and information vessel, packaging was viewed as a “*system for delivering consumer value*” (PG6). Product development projects were often a combination of new formulations and new packaging (e.g. Project B). In other cases, new products emerged purely as a result of packaging development (e.g. Projects A and C). By affording packaging development attention during the early stages of projects, the teams were able to identify a greater variety of new

product opportunities. This variety of new product opportunities reflects P&G's holistic perspective towards packaging, incorporating the product (formulation), the package, and brand equity (Ahmed et al., 2005). The significance afforded to packaging development was found to aid P&G in creating a pipeline of new packaging ideas. However, according to Ahmed et al. (2005), many other firms do not have such a pipeline in place; rather than pursuing packaging innovations, they seek cost savings from packaging suppliers. In this study, the pursuit of costs savings on behalf of large retailers was found to affect packaging development both for branded goods manufacturers and packaging suppliers. This is explored in greater depth in the following subsection.

8.4.3. The Influence of Retailers

The power of retailers in the FMCG industry has been discussed in prior research (e.g. Urban and Hauser, 1993; Corstjens and Corstjens, 1995; Luo et al., 2007; Simms and Trott, 2014). This study provides further evidence of the influence of conforming to shelf-space requirements on packaging development decisions. This was a factor highlighted by managers in every project as influencing packaging development decisions. In most cases, managers feared that if they broke from dominant packaging designs they would risk losing sales by upsetting retailers and having their products positioned in an unfavourable position on shelf. This was less of a concern during Project C where P&G was responsible for producing its own merchandising displays; however, the development team still described the need to conform to their self-imposed restrictions in order for a sufficient variety of products to be displayed. Despite being an own-label product, conforming to shelf-space requirements was also found to influence development decisions during Project D and contributed further to the low level of packaging change exhibited.

Further to shelf-space requirements, Project E revealed the power of retailers over packaging format decisions for branded goods manufacturers. In this case, a large retailer was concerned that the adoption of the 'Easy-Lift' can end would offer the branded product unfair advantage over the firm's own-label alternative (see Section 7.7.1). By opting to keep the new end, the branded product was repositioned to a lower shelf point, but was not delisted. This demonstrates other detrimental implications of retailer dominance and the growth of own-label

products for packaging suppliers. Crown Holdings described that the majority of their sales were from retailers purchasing for own-label goods. The majority of these transactions were based almost entirely on cost-reduction motives, rather than the pursuit of new packaging developments to add value for consumers. The pursuit of cost-reductions perpetuated an emphasis on minor, incremental development, often requiring process developments, such as improving manufacturing efficiency, rather than more advanced product innovation. This is reflective of Benner and Tushman's (2002) findings from the paint and photographic industries, where an emphasis on exploitative activities resulted in more radical innovations being crowded out. While the firm was able to shift buying decision-making away from being purely cost driven to an extent by adding levels of differentiation to otherwise commoditised products (Linn, 1984; Bomsel and Roos, 1990; Lager, 2000), the dominance of the retailers was still found to jeopardise the success of these innovations.

The above findings highlight a number of facilitators to and inhibitors of firms exploiting their potential packaging capacity. Key facilitators include: the recruitment of individuals with technical packaging expertise to understand and apply knowledge of new packaging technologies; the inclusion of packaging champions; and, the adoption of a holistic perspective on packaging which also incorporates core products and brand equity. These findings, therefore, support and build upon those of Simms and Trott (2014). Possessing these characteristics will aid firms in overcoming barriers to packaging development and in creating a pipeline of new packaging ideas. These findings provide support for Proposition Three which argues that demonstrating high levels of packaging capacity will aid firms in developing a pipeline of new packaging ideas. However, consideration must also be given to situational and environmental factors which may inhibit the exploitation of potential packaging capacity. Factors within The Co-operative highlight both situational inhibitors (e.g. negative perceptions of packaging development within the team constraining the utilisation of packaging knowledge) and environmental factors (e.g. the lack of packaging development options afforded to the firm as a result of their position relative to their larger competitors) inhibiting packaging capacity. The following section will explore the levels of attention afforded to different packaging functions by development teams and the influence of packaging capacity on this exploration.

8.5. Packaging Functions

The degree to which the multiple functions of packaging were considered during development projects was influenced by the level packaging capacity within the project teams. At The Co-operative where relatively little packaging capacity was demonstrated, the packaging development team concentrated heavily on label changes and reprographics. This meant that attention was afforded to the function of communication, while other functions received little consideration. As a result, only a limited number of packaging development opportunities were considered. Expertise with metal packaging at Crown Holdings allowed development teams to consider multiple packaging functions. However, the focus of projects E and F was on the user convenience of openability. While the majority of projects within Crown Holdings were shaped by customer requests, a number of 'carrot projects' (see Section 7.7.1) had allowed the firm to develop particular expertise with easy-open packaging. This afforded the firm new product opportunities with a variety of easy-open closures and ends. However, this may also have contributed to an over-emphasis on openability at the expense of exploring other packaging functions.

Hutzschenreuter et al. (2007, p. 1058) describe how developing such expertise may lead firms to pursue path-dependent trajectories which "*suppress attention span and the capacity to absorb new information by spelling out behaviour that permits search for new ideas that are consistent with prior learning*". By limiting the scope of their idea generation processes to improving openability, the firm will likely miss other new packaging opportunities. As the findings from Part One of this study demonstrate, improving openability is just one way of adding value for older consumers.

Within P&G, the higher level of packaging capacity demonstrated by development teams with considerable industrial packaging design knowledge allowed for multiple packaging functions to be explored. For example, during Project B, the team was afforded the freedom and possessed the expertise to pursue advanced packaging change which required consideration of all of Robertson's (2013) packaging functions. This contributed to the inclusion of several unique pack features to add value for consumers. These included a dispensing cap with

dosage measurements, and a thin transparent side panel to protect the liquid from natural light whilst still allowing consumers to recognise how much of the product remained. The development team described how features included in the 'Ariel Excel Liquid Gel' packaging had since been incorporated into other new products. This highlights the significance of conceptualising packaging as a multi-functional marketing tool in identifying new product opportunities. Furthermore, findings also highlight the risks of failing to afford to multiple packaging functions adequate attention. For example, during Project A, market research suggested that improving openability would enhance consumer-packaging interactions. However, the chosen method for improving openability reduced the pack's ability to contain and protect the core product. As a result, consumer-packaging interactions were felt to have been hindered, rather than improved, by the packaging change. Packaging development, therefore, provides an example of a classic optimal design dilemma (Lai et al., 2006).

Several embedded cases highlight the challenge of balancing between different packaging functions and the multiple requirements of each function. For example, managers within The Co-operative described the difficulty of balancing between offering consumers value through the inclusion of large font sizes, whilst also conforming to regulatory and legal requirements in terms of the display of vital product information. Circumstances such as these push delivering consumer value further down the list of packaging priorities. Firms are caught 'between a rock and a hard place', wanting to develop products which enhance consumer-packaging interactions, but finding themselves constrained by needing to deliver the basic functions and legal requirements of packaging. Packaging change perceived as offering consumers' value, such as the inclusion of an easy-open end or more legible labeling, is, therefore, often regarded as coming at the expense of other packaging functions. As a result, the intention to enhance consumer-packaging interactions is demoted from a priority at the beginning of development projects, to a bonus at their completion. This problem is further exacerbated by the priorities of managers responsible for different stages of the packaging development process. Typically, industrial packaging designers and marketing managers were responsible for establishing and guiding the early stages of development projects, with comparatively marginal inputs from packaging scientists and industrial engineers (e.g. Projects A, C, E and F). As projects progressed from concept

development to the process of up-scaling manufacturing, scientists and engineers assumed greater responsibility for the projects. Industrial packaging designers during Project A described the need to remain in touch with the new product to ensure that the original design intent was not lost along the way: *“We don’t say goodbye to the product, but we become less involved. It’s always good to keep an eye on it though. The engineers don’t always want exactly what we want... you can end up with something quite different to what you’d envisaged”* (PG3). As a result of this situation, the intent to develop value-adding packaging for older consumers may become muddled as projects progress.

These findings highlight not only the variety of new product opportunities which can emerge from conceptualising packaging as a multifunctional marketing tool, but also the risks of failing to afford all functions adequate attention. The above findings, therefore, provide support for Proposition Four.

8.6. Packaging Journey

Exploration of the various stages of the packaging journey was influenced by the level of packaging capacity within the project team and, in turn, the attention afforded to different packaging functions. As the packaging capacity demonstrated within The Co-operative only afforded the team the ability to consider containment and communication during Project D, the focus of their attention was on consumer-packaging interactions in-store. This provided further reinforcement for the emphasis placed on label changes, rather than the pursuit of more advanced packaging change.

Within Crown Holdings, both development projects focused on initial product opening. This was reflective of the nature of the projects and the emphasis on openability, suggesting that the team viewed this stage of the packaging journey as critical to delivering consumer value. Attention was also afforded to consumer-packaging interactions at POS during both Projects E and F; in particular, consideration was given to likely consumers responses to the inclusion of ‘easy-open’ labeling on the new closure. The myopic view of ageing exhibited by team members within Crown Holdings (characterised by an emphasis of physiological

decline – see Sections 8.2.1 and 8.2.2), however, meant that exploration of other stages of the packaging journey was lacking.

Evidence of the greatest consideration given to multiple stages of the packaging journey was found in Project B. As the team were creating an entirely new pack, which broke from the dominant design for the category, a more systematic approach to understanding consumer-packaging interactions was required. This involved exploring consumer-packaging interactions across the packaging journey. The first and second ‘moments of truth’ provided a basic framework on which to explore interactions. This exploration provided the impetus for several of the unique features which would be installed in the new pack. For example, exploration of interactions at the point of dispensing highlighted the need for a cap which doubled as a dosage measuring device.

Evidence from Project B, therefore, provides support for Proposition Five which argues that exploring consumer-packaging interactions across the packaging journey will aid firms in identifying a greater number of potential product improvements and new product opportunities. Building upon the first and second ‘moments of truth’ framework provided the development team with a systematic approach for exploring consumer-packaging interactions. This framework was found to aid the pursuit of advanced packaging change by providing a platform with which to identify a number of packaging features to add value for consumers. Findings from Part One of this study confirm that exploring a greater number of stages of the packaging journey would aid firms in identifying value-adding new product opportunities for the senior market. Doing so may also aid retailers in identifying aspects of their service delivery which could be developed to better meet the needs of older consumers. By considering older consumers’ packaging interactions in greater detail firms may be able to gather insights with which to inform not only packaging development decision-making, but also PAP and retail service development decisions. By strategically aligning packaging development, PAP, and retail service development, firms may be able to enhance the ability of older people to live independently. These opportunities are explored in greater depth in Section 9.3.

8.7. Consumer Involvement

The extent to which consumers were involved in development projects was found to vary across cases. As a packaging supplier, input from consumers for Crown Holdings focused on packaging development, whereas The Co-operative and P&G were also able to involve consumers during the development of core products. However, the level of consumer involvement across cases was relatively low for the development of core products. For packaging development, consumer involvement was equally low, or sometimes non-existent.

During the development of The Co-operative's premium conserves range, the firm conducted consumer taste tests for the new recipes, but acknowledged that consumers were not involved in the development of the new packaging and typically made no input to packaging development in the majority of projects. This is reflective of the low levels of packaging capacity within the team and the resultant lack of attention afforded to packaging development as a whole. As the new products would feature the same packaging as previous conserves (aside from label changes), the packaging development team felt that there was no need to engage with consumers. Furthermore, as packaging was often considered relatively late in development projects, the team was under pressure to meet short deadlines. This afforded little scope to engage with consumers.

Within P&G, insights gathered from consumer research provided the impetus for Projects A and C. In these embedded cases, consumers were involved in projects relatively early through traditional market research techniques. Interviews with consumers as part of Project C highlighted the demand for a volumising mascara which reduced the formation of 'clumping' when the product was applied. Based on this insight, the team was able to develop new packaging which provided a better quality of product and went against the dominant design for the category. These findings counter the view of scholars such as Kumar et al. (2000) who suggest that product development based on the views of consumers will typically generate only incremental innovation. As the new packaging went against the dominant design for mascaras, the team also involved consumers at a later stage of the project in order to gather additional feedback on prototype designs. For projects where an existing packaging format was adopted, less emphasis was placed on involving consumers at multiple stages of the development process. For

example, Project A involved transitioning from a screw-top closure to a flip-top; a packaging change the team assumed would benefit consumers. However, unforeseen by the team, the change required the inclusion of a foil seal. Furthermore, the flip-top closure was also found to require significant opening force, particularly at first opening. As the team failed to subsequently engage with consumers following their initial market research, the extent to which this change affected packaging interactions was unknown. Using Kaulio's (1998) framework for consumer involvement, the development team's "*design with*" approach provided insufficient insights into consumer-packaging interactions. Pursuing a "*design by*" approach would have afforded the team a greater number of opportunities with which to identify issues with the new packaging.

Unlike The Co-operative and P&G, both projects within Crown Holdings featured the involvement of older consumers. Conducting focus groups with nursing home residents allowed the team to gather consumer insights regarding easy-open packaging and to subsequently test prototypes designs. This afforded the development team the opportunity to gather first-hand insights into the experiences of their target market (Lagrosen, 2005; Essen and Ostlund, 2011). However, the chosen sample of individuals living in nursing homes may have limited the validity of the findings for the majority of older people living independently. While engaging with people with the greatest physiological needs may help to improve product functionality and benefit consumers in this respect (Dong et al., 2005), it may also overlook the significant effects of social ageing for the majority of the senior market. As a result, the choice of nursing home residents as respondents may perpetuate a focus on biological ageing and packaging openability, meaning that opportunities to add value for other larger subsegments of the senior market remain unidentified.

The above findings, therefore, provide partial support for Proposition Six. Those projects which featured the involvement of older people generated value-adding products for some members of the senior market (e.g. Project F). However, methodological limitations meant that other new product opportunities may have been missed. Those projects which featured comparatively little input from consumers were characterised by minor packaging development (e.g. Project D), or the development of products which negatively impacted upon consumer-

packaging interactions (e.g. Project A). Given the insufficient depth of knowledge regarding ageing and the senior market apparent in many of the embedded cases, firms would benefit from involving older people in their NPD processes to gain a more accurate understanding of their needs. The following section will explore further the disparity between older consumers' packaging experiences and managers' perceptions of ageing.

8.8. Validation of Conceptual Framework

As was identified in Section 8.3, varying degrees of understanding regarding the multidimensionality of the ageing process were demonstrated across the three case studies. Despite being restrained in terms of their activities towards the senior market, development teams within P&G demonstrated understanding of the multiple dimensions of ageing. Comparatively, Crown Holdings and The Co-operative demonstrated biological-centric views, with little consideration being given to aspects of psychological or social ageing. Findings from Part One confirmed that while biological ageing significantly affected the packaging experiences of many older people, aspects of psychological and social ageing also impacted upon packaging interactions. This was in-keeping with the findings of Sudbury-Riley (2014). Findings from both parts of data collection, therefore, provide support for Proposition Two.

While conceptualising ageing as a multidimensional process was shown to aid managers in generating new product ideas for the senior market, this did not lead to firms recognising the heterogeneity of the senior market. Despite demonstrating understanding of the multidimensional nature of the ageing process, findings suggest that development teams within P&G perceived the senior market as a largely homogenous segment. This was also the view of development teams within Crown Holdings and The Co-operative. Broad generalisations were made regarding the behaviour and socio-economic standing of the senior market. For example, it was described how "*everybody knows that old people hold the money, but it's harder to get it out of them*" (PG5), and that "*older people now don't touch computers, but in the future everyone will be using tablets having done it all their lives*" (CH3). This suggests that while certain stereotypes of older people may be fading, such as the senior market being characterised by low levels of financial

wealth (Visvabharathy and Rink, 1984; Stroud, 2005), the view of the senior market as a homogenous segment is still apparent within the FMCG industry. Generalisations such as these were in contrast to the findings from Part One which provided further evidence to confirm that the senior market is indeed heterogeneous and comprised of many smaller segments of consumers (Greco, 1986; Mattila et al., 2003).

A notable difference in perceptions between firms and consumers was regarding the positioning of products towards the senior market. Managers across the three case studies expressed concerns about labeling products as being 'for' older people, as they feared this would alienate both older and younger consumers alike. Evidence from examples such as 'Heinz Senior Foods' and Age Concern's membership organisation 'Heyday', suggest that these concerns may not be unfounded (Schewe, 1991; Metz and Underwood, 2005; Plummer 2009). Such was the extent of these concerns that managers within The Co-operative and customers of Crown Holdings feared the inclusion of 'easy-open' labels on products positioned for 'mass markets' would carry negative associations with ageing and older consumers. However, findings from Part One of this study suggest that for some older consumers, products developed for and positioned more explicitly towards the senior market would offer value. Evidence of the success of products targeted towards segments of the senior market is available in the literature (e.g. Chaston, 2011; Kohlbacher et al., 2014), and in practice. For example, 'On the Menu' has developed ready-meals for older members of the senior market which cater to the biological, psychological and social needs of their consumers. These findings, therefore, confirm the need for firms to develop detailed methods for segmenting the senior market in order to identify profitable subsegments for which new products can be developed for.

The findings from Parts One and Two of this study provide support for the propositions which underpin the framework. The framework offers a new vantage point from which to view and understand the process of packaging development in the context of an ageing society. Using the framework as a guide for analysis also demonstrated its potential for further development into a management tool with which to evaluate a firm's ability to add value for older consumers through packaging development. Findings from Part Two revealed factors which contribute

to the development of senior aptitude (see Section 8.2). These include the assimilation of positive cognitive frames towards the senior market throughout the relevant functions of the firm, and the inclusion of senior champions within product development teams. Further research is required to build upon these findings and to identify additional factors which contribute to the development of senior aptitude. Identifying these would allow managers to evaluate their own firm's resources and competencies to more effectively understand ageing and to deliver value to older consumers. Findings from Part Two also provided insights into factors contributing to packaging capacity (see Section 8.4). For example, the inclusion of packaging champions to mediate the influence of buyers towards cost savings at the expense of advanced development opportunities. Additional research is required to further corroborate the influence of these factors on a firm's ability to identify and exploit new packaging opportunities. This would allow for the assembly of a comprehensive overview of resources and competencies which contribute to the development of packaging capacity. This would allow managers to evaluate their firm's strengths and potential deficiencies in developing and exploiting potential packaging capacity. Combining these two areas of evaluation would enable exploration of causal relationships between these factors and management behaviours during development projects. As such, further research may also permit further development of the framework to incorporate a predictive element with which to estimate likely project success. Developing a predictive model of this nature would allow for deficiencies in firms resources and competencies to be identified, thus helping to overcome barriers to targeting the senior market. More detailed recommendations for future research can be found in Section 9.5.

8.9. Summary and Conclusions

The cross-case analysis presented within this chapter provides an overview of findings from Chapter Seven. Consumer experiences documented in Chapter Six were also compared with management perceptions of ageing and the senior market. Evidence was presented confirming the validity of the conceptual framework presented in Chapter Four. Evidence from the embedded cases revealed the significance of conceptualising ageing as a multidimensional process for firms wishing to develop an understanding of older consumers' packaging

needs. Those development teams which conceptualised ageing in this way were able to generate a greater variety of new product (and service) ideas for the senior market, while those which adopted a myopic view of ageing generated a limited number of narrowly defined ideas. The level of senior aptitude within developments teams was found to influence the extent to which the multiple dimensions of ageing were explored during development projects. Teams were able to develop senior aptitude by adopting positive cognitive frames towards the senior market and by initiating activities which allowed older people to contribute to development projects. In addition to developing senior aptitude, the findings also revealed the need for development teams to possess high levels of packaging capacity. Several facilitators of and inhibitors to the development of packaging capacity were identified, such as the presence of packaging champions as a facilitator, and the dominance of buyers as an inhibitor. Those development teams which demonstrated high levels of packaging capacity were able to identify and to exploit a greater number of new packaging opportunities by examining the multiple functions of packaging across the various stages of the packaging journey. Therefore, the ability of firms to develop new value-adding products for the senior market through packaging development is dependent on the senior aptitude and packaging capacity. Of the three firms and six development projects studied, no development team demonstrated high levels of both senior aptitude and packaging capacity. As a result, a limited number of attempts were made at delivering value to older consumers through packaging development. Those projects which did attempt to offer value to older consumers did so only through improvements to openability.

Chapter 9 Conclusions

9.1. Introduction

As global populations age, the importance of understanding the needs of older consumers grows for firms. The process of ageing renders a variety of products and services unsuitable for many older people. In particular, ageing can affect the value derived from FMCG products due to negative packaging experiences.

Difficulties with packaging may inhibit older people's abilities to lead independent lives. Negative packaging experiences can, therefore, detract from QoL.

Within the FMCG industry, increased competition from both private and own-label products has placed greater emphasis on packaging development. History has shown the importance of packaging innovations in offering new product opportunities to FMCG firms. However, the majority of firms have yet to target older consumers with new FMCG products. Packaging development provides firms with a variety of new product opportunities with which to offer older people 'that little bit of help' in maintaining their independence.

This study was divided into two parts: Firstly, older consumers' interactions across the packaging journey were investigated in order to understand the effects of ageing on packaging needs; secondly, the NPD processes of three firms within the FMCG industry were examined to understand how firms manage packaging development and attempt to add value for the senior market. The combined findings from these two parts provided a basis to validate the new conceptual framework developed in this study which represents a significant contribution to literature.

The following sections will: evaluate the substantive findings of the research and the contributions to literature they provide; examine the implications of these findings; and, detail the limitations of the study and implications for future research.

9.2. Evaluation of the Substantive Findings and Contributions to the Literature

9.2.1. Development of the Framework

The conceptual framework developed in Chapter Four (Figure 4.4) represents a key output of this study. Developed from the literature, findings from Parts One and Two of this study provided insights with which to validate the framework. Studies highlight that within the Marketing literature packaging theory is lacking (Saghir, 2002; Rundh, 2005; Simms and Trott, 2014). In particular, the literature lacks packaging theory which relates to older consumers (Sudbury-Riley, 2014). This study has contributed to the current stock of knowledge by providing conceptually developed and evidence based research.

The framework provides a lens with which to view the process of developing new FMCG products through packaging development which offer value to older consumers. It, therefore, recognises the importance of packaging to NPD in the FMCG industry to a greater extent than prior models (e.g. Ernst and Young, 1999, cited in Francis, 2006; Cooper and Mills, 2005). The framework incorporates theories of ageing which recognise the multidimensionality of the ageing process. Concepts derived from packaging theories are also incorporated, such as the multiple functions of packaging and the concept of the packaging journey. The framework is also underpinned by theories relating to path dependency and absorptive capacity (see Section 3.5.1).

The framework builds upon many prior models of packaging development which are conceptual in nature and lack the evidence base to provide detailed insights in this process (e.g. Rundh, 2005, 2009; Vernuccio et al., 2010; Azzi et al., 2012; see also Section 3.4). The case study research method allowed for the collection of rich insights with which to validate the framework. Prior packaging development models have also overlooked or provided limited insights into the role of consumers in development projects (e.g. Francis, 2006; Francis et al., 2008; Bramklev, 2009). In particular, no models explicitly address the incorporation of older consumers' needs. This framework provides a unique perspective with which to understand older consumers' packaging needs, where the multiple dimensions of ageing are considered in relation to the various functions of packaging across

the packaging journey. Findings from Part One of the study provided evidence to validate this perspective (see Section 6.9). The framework also recognises the input of consumers into the packaging development process and the potential impact of consumer involvement on project outcomes (see Section 8.8).

Prior ergonomic studies into older consumers' packaging interactions focus on the operation of particular closure types. This framework builds upon these studies by providing a unique vantage point from which to understand older consumers' packaging needs (see Section 4.6). This vantage point provides a more detailed and holistic perspective with which to identify a greater number of new product opportunities than by only considering biological ageing and openability. Few Inclusive Design studies have explored packaging development (e.g. Langley et al., 2004; Yiangkamolsing et al., 2010). These studies focus largely on considerations of biological ageing, and afford firm characteristics and environmental factors which influence development projects relatively limited attention. The framework presented in this study provides new insights by highlighting the need for firms to develop 'Senior Aptitude' and 'Packaging Capacity' in order to identify and exploit a variety of new products opportunities for the senior market. Findings from Part Two confirmed the validity of these constructs and provided insights into factors affecting their development within firms (see Sections 8.2 and 8.4).

The framework also contributes to the limited NPD and innovation literature on process industries (e.g. Lager and Blanco, 2010; Ford et al., 2014; Simms and Trott, 2014). The case study research method allowed for the collection of rich insights into challenges to packaging development and to targeting the senior market. These challenges are incorporated into the propositions which underpin the framework.

9.2.2. Ageing and Packaging Needs

Prior research exploring older consumers' packaging needs from a multidimensional perspective of ageing is scarce (Sudbury-Riley, 2014). While a number of ergonomic studies offer insights into the effects of biological ageing on particular consumer-packaging interactions (e.g. Voorbij and Steenbekkers, 2002;

Lewis et al., 2007; Yoxall et al., 2007; Pascal et al., 2009), these studies largely overlook the effects of psychological and social ageing.

Findings from Part One revealed the variety of ways in which ageing can affect packaging needs. Aspects of biological, psychological and social ageing were all found to affect packaging needs and the value derived from FMCG products. For example, biological ageing affected consumers' abilities to read labels, access products from supermarket shelves, transport products home, store and retrieve products in their homes, and to consume typical food and drink products due to inappropriate apportionment. Negative packaging experiences as a result of biological ageing were often exacerbated by the effects of social ageing. For example, those individuals living alone experienced greater difficulties with transporting and consuming large goods. Aspects of psychological ageing also affected packaging preferences, including the accumulation of marketing knowledge leading to cynicism towards packaging imagery. As such, the inseparability of the multiple dimensions of ageing was revealed (Riley, 1985). This confirms the need to look beyond only biological ageing to gain a holistic understanding of older consumers' packaging needs.

Findings also revealed the perpetuation of difficulties with packaging at multiple stages of the packaging journey. For some individuals, difficulties were apparent throughout the entire journey. The accumulated effect of these negative experiences was befitting of the concept of daily hassles (Pearlin and Schooler, 1978; Kanner et al., 1981; Jeon et al., 2006). While participants displayed positive coping mechanisms in response to difficulties with openability (Ben-Zur, 1999; Ben-Zur, 2002; see Section 6.5.3), other challenges were more difficult to overcome. For example, several participants described dependence on family members to help in transporting larger products (see Section 6.3.1). Exploring experiences across the packaging journey in this way provided a more holistic understanding of older consumers' packaging needs than the majority of the literature offers.

Findings from Part One also provided insights into the effects of ageing on shopping habits. Building upon studies such as Hare et al., (1999), Hare (2003), and Meneely et al. (2009), insights from older consumers offered a variety of

implications for retail service development. For example, evidence of choice paradox among several consumers highlights the ability of retailers to offer value to older consumers by streamlining their product assortments (Shankar et al., 2006). These findings also reveal the need for firms to consider different retail environments during packaging development. Several studies highlight the impact of negative packaging interactions on retail experiences (e.g. Oates et al., 1996; Leighton and Seaman, 1997; Yin et al., 2013). However, little detail of the types of difficulties encountered is provided, and no analysis of packaging development for alternative retail environments is presented. Insights from Part One of this study suggest that tech-savvy older consumers may make increasing use of online grocery shopping in the future when purchasing larger items (see Section 6.3.1). This suggests that firms may be able to deliver value to older consumers by tailoring product assortment choices between multiple retail channels. In so doing, firms may also be able to alleviate feelings of choice paradox in physical retail environments and be able to offer a greater variety of value-adding features within these stores.

These insights, therefore, provide a more comprehensive analysis of the linkages between ageing, packaging interactions and retail environments than prior research and highlight a number of potentially fruitful areas for future research (see Section 9.5).

9.2.3. Understanding the Senior Market

Findings from Part Two of this study provided new insights into organizational factors and development team characteristics which contribute towards the ability and propensity of firms to target the senior market. These factors and characteristics are captured in the concept of 'Senior aptitude'. Research into the management of NPD projects targeting older consumers is limited (Kohlbacher et al., 2014). In particular, literature exploring the management of packaging development in the context of population ageing is extremely scarce. This study offered new insights.

At the development team level, the importance of 'senior champions' in driving projects towards the senior market was identified. This was particularly evident in Projects E and F (see Sections 7.7.1 and 7.7.2), where senior champions within

Crown Holdings led development projects which they believed would add value for older consumers. Much like the role of the product champion in overcoming organisational inertia towards NPD (Frost and Egri, 1991; Howell et al., 2005; Hauser et al., 2006), the senior champions within Crown Holdings were able to depart from conventional development processes and initiate activities which involved input from older consumers. Subsequently, consideration of older consumers' needs became a component of all development projects within the firm. At The Co-operative, no such component was evident. In the case of P&G, older consumers were also overlooked in NPD projects. Crown Holdings also went further in attempting to develop senior aptitude by engaging with universities to explore the ergonomics of packaging openability for older consumers. This provides evidence of activities contributing towards the development of senior aptitude within Crown Holdings. The recognition of population ageing and the opportunities this afforded the firm also demonstrated positive cognitive frames towards the senior market. However, the development teams' focus on openability demonstrated little exploration of the different effects of ageing on packaging experiences.

Within P&G, project level managers exhibited a greater level of exploration into the effects of ageing on packaging experiences. Managers demonstrated consideration of older consumers' physical needs, as well as reflection on changes to lifestyles and living arrangements as people age. This exploration facilitated recognition of the multiple dimensions of ageing. Adopting this perspective enabled the team to generate a greater number of new product opportunities with which to add value for older consumers (see Section 8.2.2). However, the cognitive frames of corporate management towards the senior market inhibited development teams from targeting older consumers. Negative perceptions of the senior market on behalf of corporate management further reinforced a path dependent approach to STP (Thrane et al., 2010; Schreyögg and Sydow, 2011). Development teams, therefore, were unable to exploit their potential senior aptitude. As a result, new product opportunities with which to add value for the senior market may have been missed. This reveals the need for alignment between the cognitive frames of managers across the different functions of levels of the firm for senior aptitude to be developed and exploited. This study is understood to be the first to apply the concept of path dependency to the context

of targeting the senior market. In so doing, insights from Part Two contribute to the literature by offering more detailed insights into why many firms have yet to target the senior market.

Findings from Part Two of this study, therefore, offer new insights into the management of NPD for the senior market. These findings also provide a base on which to develop further research identifying other organisational characteristics to facilitate the development of value-adding products for older consumers.

9.2.4. Exploiting Packaging Development Opportunities

Findings from Part Two revealed insights into organisational and environmental factors influencing to the ability of firms to identify and exploit a variety of new packaging opportunities. Central to this ability is the development of 'Packaging capacity'. Several organisational and firm level factors were found to contribute to the development of packaging capacity.

Firstly, the composition of the development teams was found to influence the type of packaging development pursued. For example, during Project D, the dominance of buyers within the team contributed to a focus on cost-based decision-making at the expense of more advanced development opportunities. The presence of packaging champions was also found to determine the level of exploited packaging capacity within development teams. Projects which featured the inclusion of individuals with industrial packaging capabilities driving packaging development were found to pursue more advanced change (e.g. Project B). The level of packaging capacity within development teams was found to influence the ability of firms to pursue a greater variety of new packaging opportunities. For example, whilst being constrained in terms of their ability to target the senior market, managers within P&G demonstrated high levels of packaging capacity. This allowed for the generation of a greater variety of new product ideas to add value for the senior market than was evidenced in The Co-operative and Crown Holdings.

Secondly, perceptions of the importance of packaging were found to influence the level of packaging capacity within development teams. For example, within P&G packaging was perceived as being of greater importance to delivering value to

consumers than within The Co-operative. As such, packaging was considered late in the NPD process in Project D. This meant that limited exploration of packaging development options was allowed, thus reducing the number of new product opportunities available to the firm. This was also found to constrain the inputs of individuals with industrial packaging capabilities, thus further affecting the level of packaging capacity within the team.

However, supply chain factors beyond the control of the firms were found to influence the exploitation of potential packaging capacity. In particular, the power of large retailers was found to influence packaging development. For The Co-operative, their development choices were directly influenced by their larger rivals that purchased from many of the same packaging suppliers. Within Crown Holdings, the majority of their development projects were driven by large retailers seeking cost reductions, rather than more advanced innovations. For private manufacturers like P&G, retailers influenced packaging development by requiring firms to conform to rigid shelf fixtures. Insights from Crown Holdings also suggest that some retailers may be influencing and restricting development options for FMCG manufacturers. The research, therefore, provides new insights to the growing body of literature examining the influence of large retailers over NPD within the FMCG industry (e.g. Corstjens and Corstjens, 1995; Luo et al., 2007).

Finally, the findings provided insights into consumer involvement during packaging development. Findings revealed the importance of involving consumers at multiple stages of the NPD process to ensure that new products deliver their intended consumer value. Prior literature suggests that involving consumers more heavily in packaging development projects risks facilitating online minor change (Simms and Trott, 2014). However, those projects which featured greater involvement from consumers in this study showed more advanced change, with Projects B and C breaking from the dominant design for those categories. These contradictory findings suggest that more detailed research is required to explore the optimum roles of consumers within the NPD process for FMCG products (Costa, 2006; MacFie, 2007).

9.3. Implications of the Findings

Insights gathered from both Parts One and Two of this study provided implications for firms. These implications relate to packaging development, but also extend to retail service development and PAP decisions (see Section 6.1).

The findings from Part One highlight the needs for firms to conceptualise ageing as a multidimensional process, where needs are affected by aspects of biological, psychological and social ageing. In the case of packaging development, this entails that development teams give consideration to the different dimensions of ageing in relation to the multiple functions of packaging. Development teams must think beyond just openability. Understanding ageing in this way will aid firm in identifying a greater number potential products improvements and new product opportunities. In order to achieve this understanding, firms must develop their senior aptitude. Findings from Part Two revealed the need for firms adopt positive cognitive frames towards the senior market and to engage in activities which place older consumers at the centre of NPD projects. In order to achieve senior aptitude, firms should include senior champions within development projects. Findings from within P&G also highlight the need for assimilation of senior aptitude across all functions and levels of the firm in order for development teams to exploit their potential senior aptitude.

Insights from Part One of the study also highlight an opportunity for firms to develop new packaging with which to target this subsegment of environmentally conscious older consumers. However, optimum solutions for reducing the environmental impact of packaging and food wastage are unclear. Firms must balance between providing products with sufficient protection to reduce food wastage, whilst attempting to lessen the environmental impact of shipping and disposing of their packaging. In order to achieve this balance, further research is required exploring alternative packaging materials and retail service development, as well as considering the overall reduction of packaging as has been the focus of previous initiatives.

Implications for segmenting the senior market were also identified. Firstly, the findings reveal chronological age to be an insufficient segmentation variable when

used in isolation. The variety of needs demonstrated by individuals within different age brackets highlights the need to incorporate additional segmentation variables. This is in-keeping with the implications of many senior segmentation models (see Faranda and Schmit, 2000). Additional segmentation variables may include psychographic variables (e.g. Day et al., 1988; Moschis, 1996). For example, generating understanding of individual's cognitive age in addition to their chronological age will help to provide a richer picture of the senior market and a more accurate approach to segmentation. Using these variables (among others) to segment the senior market would aid FMCG when developing new products. In particular, understanding individual's perceptions of age and ageing may help to inform decisions regarding packaging imagery (see Section 2.4.3.2). In addition to the inclusion of psychographic variables, a combination of lifestyle variables (e.g. Sorce et al., 1989) and shopping orientation variables (e.g. Lumpkin, 1985) may also enhance a segmentation model for the senior market in the context of the FMCG industry. This is due to the clear links demonstrated in this study between shopping habits and the value derived from FMCG products. However, contrary to the assertions of Moschis (1992, 1996), data gathered during this study suggests that the inclusion of particular demographic variables may improve approaches to segmenting the senior market adding utility for managers. For example, while heterogeneity of needs was demonstrated within particular age brackets, some similarities and distinctions were observed between cohorts (see Section 6.9). This highlights the potential value of chronological age as a segmentation variable when used in conjunction with other variables. Sudbury and Simcock (2009) demonstrate the value of such an approach with their multivariate segmentation model.

Whilst focusing solely on biological ageing will provide a limited understanding of ageing and, in turn, an inaccurate basis for segmenting the senior market, findings from Part One demonstrate the importance of appreciating physiological changes as a result of ageing in the context of consuming FMCG products. In particular, and physical process of consuming food and drink products may mean that understanding aspects of biological ageing may be of significance during the development of new FMCG products. This reinforces the view that managers would benefit from the development of industry-specific segmentation models for the senior market. As populations continue to age and consumption habits

change, such models should be continually updated. As Sudbury and Simcock (2009) describe “*Segments are snapshots in time, and change as people change*”. Findings from Part One of this study illustrate how participants’ needs have changed over time and how they anticipate they will change in the future. As such, on-going research is required for approaches to segmenting the senior market to remain accurate across different industries.

Insights gathered in Part One also highlight the need for firms to consider the different requirements of packaging in a variety of retail environments. Doing so may offer opportunities with which to add value for older consumers. For example, products sold through online stores may require less elaborate decoration and branding as this could be displayed online. Removing decoration would allow for the inclusion of considerably larger font sizes displaying pertinent product information. Furthermore, evidence of choice paradox among participants reveals opportunities for firms to add value through a combination of packaging development, retail service development and PAP. For example, by aligning packaging development with PAP decisions, firms may be able to tailor both packaging development and retail service development to offer greater value to older consumers. This may involve using consumer education programmes to encourage consumers to purchase larger items online. This would not only facilitate the inclusion of clearer labelling and help to alleviate physiological difficulties with transporting large goods, but also allow for the dedication of space in tangible stores to value-adding facilities which encourage social interaction (e.g. delicatessen counters). This provides further evidence to suggest that firms should consider changes to older consumer’s shopping habits in relation to packaging needs. Doing so may aid the identification of both new product and service opportunities with which to add value for the senior market.

Findings from Part Two revealed a number of organisational characteristics which contribute towards the ability of firms to pursue such a variety of packaging development opportunities. In order to facilitate the identification and exploitation of these opportunities, firms should ensure that development teams include individuals with industrial packaging capabilities. In particular, the inclusion of packaging champions will aid firms in ensuring that packaging development is afforded attention at the beginning of NPD projects.

Finally, FMCG firms should seek to involve older consumers in their development projects. Doing so will aid them in gaining a more accurate understanding of their needs and, in turn, identifying opportunities with which to add value using packaging development.

9.4 Recommendations for Firms

Based on the insights gathered during this study, a number of practical recommendations for firms can be made towards generating and exploiting senior aptitude and packaging capacity.

In order for firms to build senior aptitude, NPD teams should include 'senior champions'. These individuals should not only be present, but to also yield sufficient influence over NPD activities to drive projects towards delivering value to older consumers. Furthermore, firms should seek to generate and share knowledge of the senior market across the various functions of the organisation and throughout the various levels of management; from the project team to corporate management. This will involve managers generating knowledge of older consumers' packaging interactions and integrating these in to the NPD process. At the project team level, this may entail affording particular packaging functions/interactions which may detract from the value derived from the product (e.g. openability, legibility of labels) greater prominence when evaluating projects using approaches such as a TQM 'House of Quality'. Given the multidimensionality of the ageing process and the variety of ways in which this can impact on packaging interactions, it is clear that understanding ageing is also of equal importance for marketers and other individuals involved with NPD as it is for product designers. As such, firms should engage in market research activities to capture older consumers' lived experiences in real-life contexts, using the outputs of these activities to inform NPD projects.

In order to generate useful knowledge towards delivering value to older consumers, firms should not only involve older people within their NPD processes, but also engage with relevant industry bodies, charities and academic groups. Such organisations may include the Mature Marketing Association, Age UK, and

the Joseph Rowntree Foundation. Whilst engagement with such groups is likely to impact upon the firm's short-term profit generation, it may provide knowledge and expertise which will positively contribute to long-term market performance as populations continue to age. Those firms who do not generate such knowledge risk experiencing long-term market performance decline as consumer bases continue to age and, in turn, consumer needs and behaviours change. Similarly, the complexity of involving consumers in the NPD process and the considerable changes this would entail for many firms (Hoyer al., 2010) may also negatively affect short-term profit maximization. However, based on the findings from several cases explored in Part Two of this study, involving consumers more intensely in the NPD process may not only contribute to the generation of new products which add value by closely mirroring consumers' needs, but may also aid firms by highlighting issues and deficiencies with new product concepts early in the NPD process. These findings reinforce the view that older consumers can provide significant value in the NPD process, thus supporting the recommendation that firms should place older people at the center of their NPD activities.

Overcoming short-term cost reduction-focused profit maximization initiatives also represents a barrier to establishing packaging capacity within a firm. Based on the findings of Part Two, the influence of buyers during the packaging development process can restrict the likelihood of advanced and potentially value-adding development opportunities being pursued. As such, it is recommended that firms ensure that 'packaging champions' much like 'senior champions', are present within NPD teams and carry sufficient influence to force the firm to explore a variety of packaging development opportunities. Such is the significance of packaging in delivering value to consumers in the context of FMCG products; it is also recommended that a variety of packaging options are considered at the beginning of the NPD process. For those firms adhering to a stage-gate approach to NPD, these models should be adjusted to incorporate this greater focus on packaging. Whilst exploring a wider range of new packaging opportunities may enhance a firm's ability to deliver value to older consumers, the barrier of perceived switching costs cannot be overlooked. Perceptions of the costs of altering existing production lines to incorporate new packaging formats was found to inhibit the firm's propensity to pursue radical change. However, prior research has argued that in a number of cases concerns over switching costs may be

overstated and are often underexplored (e.g. Simms and Trott, 2014). Findings from this study also illustrate the potential to adjust existing production lines to allow for the production of significantly different new packaging (see Project F, Section 7.7.2). Therefore, it is recommended that greater effort is dedicated to exploring opportunities to process innovation with regards to utilising existing production equipment to pursue more radical packaging development opportunities.

Based on the insights gathered during this study, it is argued that following these recommendations will aid firms in delivering value to older consumers through packaging development.

9.5. Limitations of the Research

The findings of case studies have limitations in terms of generalizability. Further research is required to test the validity of the propositions developed in this study among different sectors within the FMCG industry. Quantitative research would offer benefits in this respect. For example, a large-scale survey of the product development processes and perceptions of the senior market among a broader sample of food, drink, household and beauty manufacturers.

Access to respondents within the case studies posed its own limitations. The voluntary nature of respondent's involvement in the research reflected a personal interest in the project. This will have affected the representativeness of the sample. Across the case studies there was a bias towards individuals involved in front-end innovation. As such, there is a need for further research with greater input from individuals more involved in latter stages of the NPD process. Differences in cognitive frames among project and corporate level management within P&G also highlighted the need for input from corporate management in future research.

Access to this sample was also restricted, based on respondent's availability. As a result, all key decision-makers could not be involved in the research. The choice of qualitative interviews was limited as manager's recollection of development projects may be different to reality. However, employing Yin's (1994) strategy of

engaging with multiple interviewees and drawing upon a variety of data sources overcame these limitations to an extent.

Similarly, data collection during Part One of the study was also limited by the choice of qualitative interviews as consumers' packaging experiences may be different to events they recall. However, conducting observations with individuals shopping and engaging with packaging overcame these limitations to an extent. Based on the sample size during Part One, there is a need for further research exploring the packaging needs of a greater number of older consumers. Despite these limitations, this thesis represents a significant advance in understanding of packaging development for the senior market.

9.6. Implications for Future Research

This thesis has examined the process of developing new FMCG products through packaging development in the context of an ageing society. The packaging needs of older consumers were explored in Part One of the study, while Part Two explored the packaging development processes of three firms within the FMCG industry. The findings of this thesis offer implications for areas of future research. Findings from Part One of the study highlight the need for further research exploring retail service development in light of population ageing. In particular, research is required to understand the relationships between older consumers' packaging needs and retail environments. This is particularly pertinent given the evolving nature of the FMCG retail environments, characterised by the growth of online retailing and convenience shopping (e.g. Sorescu et al., 2011). Research should seek to explore in depth the different requirements of packaging (in terms of the balance of packaging functions) during supermarket shopping compared with online and convenience shopping.

There is also a need for research exploring PAP between different retail channels. Research is required which builds upon the findings of this study to examine older consumers' shopping habits in alternative retail contexts. Building on prior research into PAP (e.g. Mantrala et al., 2009) will aid firms in improving operational efficiency across multiple retail environments, and in so doing, offer older consumers greater value through improved service experiences.

Findings from Part Two highlighted the need for further research exploring the concept of path dependence in the context of targeting the senior market. In particular, studies should seek to understand methods for overcoming inertia towards product development for older consumers. Research exploring path dependency and internationalisation has identified organisational slack as a determining factor in firms overcoming inertia towards entering new foreign markets (Hutzschenreuter et al., 2007). Studies exploring the senior market should follow suit and seek to identify organisational factors which contribute to the generation of senior aptitude, thus building upon this research.

Findings from Part Two also reveal the need for further research to explore the roles of consumers in the development of new FMCG products. In particular, there is a need for research investigating the optimum roles of older consumers during development projects. This study provided some insights into the potential advantages of involving consumers in development projects; however, only two of the six projects featured the involvement of older consumers. Therefore, further research is required to build a more substantial evidence base in this area.

Findings from Part Two build upon the research of Benner and Tushman (2002) and Simms and Trott (2014) by providing insights into barriers to innovation in a process industry. In particular, the influence of retailers on packaging development is revealed. These insights are not fully captured in the literature and warrant further exploration.

Finally, further research is required applying the principles of the framework developed in this study to other industries and contexts. For example, studies using multiple dimensions of ageing to analyse consumer interactions with the multiple functions of an automobile or of electronics products. Research of this nature would further validate the framework and may aid a variety of firms in identifying a greater number of new product opportunities with which to add value for the senior market. Studies examining the development of senior aptitude within other industries would also provide contributions to NPD and innovation management literature.

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Appendices

Appendix 1: Interview Templates

Part One interview structure

Shopping habits:

Tell me about a typical food and drink shopping trip for you...

Where do you shop? Supermarkets; hypermarkets; convenience stores; independent shops; online shopping; other.

Why do you choose to shop here and not at other stores?

Has your choice of store changed from 5 or 10 years ago?

How often do you go shopping (on a weekly basis)?

Do you go shopping with other people?

How do you get to and from a store? Are there other methods of transport you could use and reasons why you avoid them?

Food and drink buying habits:

Typically what food and drink products do you purchase on a regular basis? How often would you purchase these products?

How do you prepare a typical meal? Microwave? Oven?

Are there any particular products you purchase more often now than you would have done in the past? Why?

Opinions on the experiences with packaging:

Tell me about any positive or negative experiences you've had with food and drink packaging...

Are there any particular forms of packaging you like? Why? Particular features helpful?

Are there any particular forms of packaging you dislike? Why?

Are there any particular food and drink products that you would avoid because of the packaging?

Are there any problems you experience with packaging now that you perhaps wouldn't have 10 years ago?

Have you ever required assistance to open an item of packaging?

Part 2 interview structure (example)

New product development process for Orbit:

Describe to me the new product development process for the Orbit closure.

What was the impetus for this new product?

What were the key external and inputs into this NPD process?

What challenges did you face in this process?

What was the target market for this product?

Do you believe consumers know this product is easy-open?

Are there particular product categories you see this product as appropriate for?

What should Crown do to drive adoption of the closure?

New product development within Crown more generally:

How do you select which new product ideas to prioritise?

What are the long term objectives for Crown as a firm?

How does competition from manufacturers of different packaging substrates affect innovation with Crown?

How has the product development process changed during your time at Crown?

Understanding consumer needs:

How do you attempt to understand the needs of consumers? Through what methods and why these?

How do you decide which consumers to involve in this process? What criteria used for selection?

At what stage of the NPD process do you see consumer inputs as being most valuable and why?

Perceptions of older consumers:

How do you think population ageing will affect your firm?

How important are older consumers to Crown?

How do you think ageing affects consumer-packaging interactions?

How do you feel older consumers needs differ to younger consumers?

Appendix 2: Extended Summary of Embedded Cases

Table 0.1 Extended Summary of Embedded Cases

Embedded Case	Project A: <i>'Pantene 2 Minute Deep Repair Masque'</i>	Project B: <i>'Ariel Excel Liquid Gel'</i>	Project C: <i>'Max Factor Clump Defy'</i>	Project D: <i>'Truly Irresistible Conserves'</i>	Project E: <i>'Easy-Lift End'</i>	Project F: <i>'Orbit Closure'</i>
Firm	P&G	P&G	P&G	The Co-operative	Crown Holdings	Crown Holdings
Project type Focus	Re-stage development: New closure to improve openability.	Product and packaging development: New laundry formulation and advanced packaging development. Positioned as a premium, 'sustainable' product.	Packaging development: New packaging to facilitate improved 'anti-clumping' application.	Packaging development: Label development for own-label conserves range.	Packaging development: 'Carrot project' for easy-open food can end.	Packaging development: 'Carrot project' for easy-open jar closure.
Result Success/failure and update.	Success: Product still available; replacement re-stage in development to address issues with the packaging.	Success: Product launched; subsequently imitated by a number of own-label manufacturers.	Success: Product launched; subsequently imitated by a number of competitors.	Success: Product launched.	Success: Product launched and adopted by several customers, including Nestle.	Success: Product launched and adopted by several European branded conserve manufacturers.
Senior aptitude Activities and cognitive frames	Activities: None. Consumers aged 60 and above have never been involved in development projects in the hair and beauty category.	Activities: None. Product perceived as offering benefits to 'mass markets', therefore no particular attention towards older consumers was deemed necessary	Activities: None. Consumers aged 60 and above have never been involved in development projects in the hair and beauty category. Older consumers were also not the target demographic for the brand.	Activities: None. No attention afforded to the senior due to the belief that older consumers represent an insignificant part of the firm's market share.	Activities: Engagement with residents of a nursing home during concept development and concept testing.	Activities: Engagement with residents of a nursing home during concept development and concept testing.

	<p>Cognitive frames: Positive perceptions of the senior market as a prospective target for the product category.</p> <p>Older consumers regarded as demonstrating unique needs compared with younger consumers. Limited recognition shown, however, of the heterogeneity of the senior market.</p> <p>Ability to pursue older consumers constrained by negative cognitive frames of corporate management towards the senior market.</p>	<p>Cognitive frames: Positive perceptions of the senior market as a prospective target for the product category.</p> <p>Older consumers regarded as demonstrating unique needs compared with younger consumers. Ideas for new service developments for sub-segments of older consumers demonstrate understanding of the heterogeneity of the senior market.</p> <p>Ability to pursue older consumers constrained by negative cognitive frames of corporate management towards the senior market.</p>	<p>Cognitive frames: Positive perceptions of the senior market as a prospective target for the product category.</p> <p>Older consumers regarded as demonstrating unique needs compared with younger consumers. Limited recognition shown, however, of the heterogeneity of the senior market.</p> <p>Ability to pursue older consumers constrained by negative cognitive frames of corporate management towards the senior market.</p>	<p>Cognitive frames: Negative perceptions of the senior market. Concerns were raised that products which could be perceived as offering value to older people may alienate 'mass markets'.</p> <p>Limited recognition of the heterogeneity of the senior market. Older people viewed through the lens of physiological decline.</p>	<p>Cognitive frames: Positive perceptions of the senior market as a prospective target for many of the firm's customers.</p> <p>Limited understanding of the heterogeneity of the senior market demonstrated by the small number of ideas for new product opportunities with which to target older consumers.</p>	<p>Cognitive frames: Positive perceptions of the senior market as a prospective target for many of the firm's customers.</p> <p>Limited understanding of the heterogeneity of the senior market demonstrated by the small number of ideas for new product opportunities with which to target older consumers.</p>
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<p>Dimensions of ageing considered Focus</p>	<p>Biological: Changes to individuals' strength and dexterity were considered. It was assumed that older people would experience changes in these respects and would, therefore, benefit from the new closure.</p> <p>Psychological: Limited attention afforded to the implications of frustrating packaging experiences on individuals' self-concepts</p> <p>While constrained in terms of efforts towards targeting older consumers during this project, other insights demonstrated recognition within the team of the multiple dimensions of ageing.</p>	<p>Biological: Changes to individuals' strength and dexterity were considered regarding openability and product transportation.</p> <p>Psychological: Limited attention was afforded to the potential implications of encountering difficulties with packaging.</p> <p>While constrained in terms of efforts towards targeting older consumers during this project, other insights demonstrated recognition within the team of the multiple dimensions of ageing.</p>	<p>Biological: Changes to individuals' strength and dexterity were considered regarding openability. However, as the product was targeted towards a younger audience, little attention was afforded to any dimensions of ageing.</p> <p>Despite this other insights demonstrated recognition within the team of the multiple dimensions of ageing.</p>	<p>Biological: Limited attention was afforded to the legibility of font sizes for older people with reduced sight. No attempts were made to better accommodate these needs or any other ageing-related considerations.</p>	<p>Biological: This project focused on developing a new can-end to better meet the physiological needs of consumers with limited strength and dexterity. As such, the effects of biological ageing were considered in this respect.</p> <p>Psychological: Limited attention was afforded to the implications of negative packaging experiences on individuals' self-concepts.</p>	<p>Biological: Project focused on developing a new jar-closure to better meet the physiological needs of consumers with limited strength and dexterity.</p> <p>Psychological: Limited attention was afforded to the implications of negative packaging experiences on individuals' self-concepts. However, consideration given to the impact on psychological ageing of including 'easy-open' labelling.</p>
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<p>Packaging capacity Level of capacity and facilitators/inhibitors</p>	<p>Moderate: Good variety of packaging expertise within the project team. However, the nature of a re-stage project and the focus only on improving openability restricted the exploitation of this expertise.</p>	<p>High: The broad 'blue-sky' brief afforded the team the opportunity to utilise the variety of technical packaging and formulation expertise in conjunction with the skills of marketers in positioning the product. Presence of a packaging champion combined with the firm's positive perceptions of packaging development contributed to the packaging capacity within the team.</p>	<p>High: As the case featured no product (formulation) development, the project was reliant upon the expertise of the packaging team to deliver the new consumer benefits. This aim was achieved through the variety of packaging design expertise within the team, the presence of a packaging champion, and due to the firm's positive perceptions of packaging development. Freedom with shelf-space/merchandising also allowed the team to pursue more advanced packaging change.</p>	<p>Limited: Dominant buyers driving packaging development towards cost-based decision-making inhibited the contributions of packaging scientists within the team. Lack of packaging champion. The firm's position with packaging suppliers compared with larger rivals constrained development options.</p>	<p>High: A variety of technical packaging expertise within the team. The nature of the 'carrot' project afforded greater freedom than the majority of projects. Packaging champion driving the project. Limited senior aptitude, however, limited exploration to improving openability.</p>	<p>High: A variety of technical packaging expertise within the team. The nature of the 'carrot' project afforded greater development free than the majority of projects. Packaging champion driving the project. Limited senior aptitude, however, limited exploration to improving openability. Building upon existing closure also limited the scope of the project.</p>
<p>Packaging Functions considered Focus</p>	<p>Openability: The focus of the project was on improving openability. By failing to properly consider the implications of the new packaging for the protection and containment of the product, issues arose.</p>	<p>Protection, containment, communication, openability, and re-usability: As the packaging was entirely new and broke from the dominant design, consideration of all packaging functions was required. The pack also featured a number of user conveniences to enhance product usage.</p>	<p>Openability and communication: The focus of the project was on improving the product quality and communicating that improvement through new packaging shape language. This inadvertently offered improved openability.</p>	<p>Communication: The limited packaging capacity within the team meant that only label development could be pursued.</p>	<p>Openability and protection: Impetus of project came from the 'well-recognised' issue of difficulties opening food cans. The team also had to ensure that the new end offered sufficient protection to the core product in addition being easy to open.</p>	<p>Openability, communication and protection. The team's initial Focus was on openability. Limited attention was also afforded to communication regarding whether to include 'easy-open' labels. The team also had to ensure the new closure offered sufficient security in addition being easy to open.</p>

<p>Stages of packaging journey considered Focus</p>	<p>Opening and dispensing: Initially, the focus of the project was on opening. However, issues arising from this limited focus meant that consideration of interactions during product usage (dispensing) was required.</p>	<p>POS, transporting product home, opening, and dispensing product for use: Particular attention afforded at these stages of the packaging journey gave rise to a number of unique features of the packaging which have since been included in other new products.</p>	<p>POS, opening, and dispensing: Particular consideration was given to interactions at POS in terms of the packaging communicating the new product benefits. Attention to was also afforded to the dispensing and application of the product.</p>	<p>POS: Label development for the new product focused on attracting consumers attention on shelf and ensuring the product was identifiable as part of the premium range.</p>	<p>Opening: Difficulties opening food cans were viewed as critical contributors towards negative packaging experiences. As such, attention was almost entirely dedicating to the stage of product opening.</p>	<p>POS, opening and re-opening: Difficulties opening jar closures were viewed as critical contributors towards negative packaging experiences, hence the focus on product opening. Interactions at POS were also considered regarding the inclusion of 'easy-open' labels.</p>
<p>Level of and method for consumer involvement Details</p>	<p>Market research during concept development: Impetus for the re-stage project came from customer insight gathered in interviews. Concept testing was conducted with P&G employees, thus failing to capture consumption contexts.</p>	<p>Market research during idea generation, concept development and concept testing: Focus groups provided ideas for the positioning of the new product. Additional focus groups also provided opportunities for consumer evaluation of new product and packaging concepts and of subsequent prototypes.</p>	<p>Market research during concept development and concept testing: Impetus for the re-stage project came from customer insight gathered from focus groups. Prototype testing was conducted with consumers to ensure the new packaging delivered the desired product benefits.</p>	<p>Consumer taste tests: Tests were conducted assuring the new recipe met the standards of the premium range. Consumers were described as rarely ever contributing to packaging development.</p>	<p>Market research during concept development and concept testing: Focus groups within nursing homes provided initial feedback on the new packaging concepts. Subsequent focus groups in the same nursing home provided the opportunity to test prototype ends.</p>	<p>Market research during concept development and concept testing: Focus groups within nursing homes provided initial feedback on the new packaging concepts. Subsequent focus groups in the same nursing home provided the opportunity to test prototype closures.</p>

Appendix 3: Ethics

Re: Ethics application ref E233 : Nicholas Ford

Inbox x



Sharman Rogers <sharman.rogers@port.ac.uk>

2 Jul

to me, Paul

Dear Nick

Ethics Committee has approved your Ethics Review application ref E233.

Best wishes

Sharman

Ethical Review Checklist – Staff and Doctoral Students

This checklist should be completed by the researcher (PhD students to have DoS check) and sent to Sharman Rogers who will coordinate Ethics Committee scrutiny.

No primary data collection can be undertaken before the supervisor and/or Ethics Committee has given approval.

If, following review of this checklist, amendments to the proposals are agreed to be necessary, the researcher must provide Sharman with an amended version for scrutiny.

1. What are the objectives of the research project?

This study focuses on the incorporation of user needs into the new product development process in the packaging industry. The objectives of the research are to explore the new product development processes at Crown Packaging and to develop a conceptual framework for incorporating the needs of particular users.

2. Does the research involve NHS patients, resources or staff? ~~YES~~/ NO (please circle).

If YES, it is likely that full ethical review must be obtained from the NHS process before the research can start.

3. Do you intend to collect primary data from human subjects or data that are identifiable with individuals? (This includes, for example, questionnaires and interviews.) YES / NO (please circle)

If you do not intend to collect such primary data then please go to question 14.

If you do intend to collect such primary data then please respond to ALL the questions 4 through 13. If you feel a question does not apply then please respond with n/a (for not applicable).

4. What is the purpose of the primary data in the dissertation / research project?

The purpose of the research is to develop an understanding of new product development processes within the packaging industry and methods for incorporating user needs into these processes. Therefore, primary data in the form of interviews with managers at Crown Packaging is required to gain an understanding of these processes.

5. What is/are the survey population(s)?

Access has been granted to managers within Crown Holdings, including the Director of new product and process development, Director of open innovation, a Marketing analyst, an Innovation manager, and a technical manager.

6. How big is the sample for each of the survey populations and how was this sample arrived at?

Due to the exploratory nature of the research only a small number of respondents will be involved in the research. Snowball sampling may be used when other appropriate respondents are identified within the firm, however the overall number of interviewees will also be limited due to the constraints of interviewing with a workplace.

7. How will respondents be selected and recruited?

Crown Packaging was selected for the research as they are a leading packaging company, producing a wide-range of products for different food and drink categories. The firm was contacted directly via email regarding the research and arrangements for interviews were formally agreed at their headquarters.

8. What steps are proposed to ensure that the requirements of informed consent will be met for those taking part in the research? If an Information Sheet for participants is to be used, please attach it to this form. If not, please explain how you will be able to demonstrate that informed consent has been gained from participants.

The attached information sheet will be provided to all research participants and the informed consent sheet (also attached) will be signed before commencing with any interviews.

9. How will data be collected from each of the sample groups?

Face-to-face interviews.

10. How will data be stored and what will happen to the data at the end of the research?

Interviews will be recorded using a digital recorder. Notes will also be taken by the researcher during the interview for future assessment. Interviews will then be transcribed for analysis and theory testing. Data will be stored securely on a password-protected University computer for 5 years after completion of the research.

11. How will confidentiality be assured for respondents?

Considerable efforts will be made to maintain confidentiality of data collected. Identities of respondents will be kept confidential through the use of coding in transcripts, the thesis, and any future publications. The interviews will be conducted only by the researcher and data will be used for research purposes only.

12. What steps are proposed to safeguard the anonymity of the respondents?

Respondents will not be named in any transcripts, the thesis, or any future publications and will instead be coded to safeguard the anonymity of respondents.

13. Are there any risks (physical or other, including reputational) to respondents that may result from taking part in this research? ~~YES~~/ NO (please circle).

If YES, please specify and state what measures are proposed to deal with these risks.

14. Are there any risks (physical or other, including reputational) to the researcher or to the University that may result from conducting this research? ~~YES~~/ NO (please circle).

If YES, please specify and state what measures are proposed to manage these risks.²

15. Will any data be obtained from a company or other organisation. YES / ~~NO~~ (please circle) For example, information provided by an employer or its employees.

If NO, then please go to question 18.

16. What steps are proposed to ensure that the requirements of informed consent will be met for that organisation? How will confidentiality be assured for the organisation?

An introductory email was sent to senior management at Crown Packaging providing information about the research background, the researcher, the objectives of the research, and the ethical considerations regarding the research (including anonymity, confidentiality, privacy, and the provision of informed consent). This email was designed to allow managers at the firm to make an informed decision as whether to participate in the research. Informed consent will be sought on an individual level and signed for before commencing with any interviews.

² Risk evaluation should take account of the broad liberty of expression provided by the principle of academic freedom. The university's conduct with respect to academic freedom is set out in section 9.2 of the Articles of Government and its commitment to academic freedom is in section 1.2 of the Strategic Plan 2004-2008.

17. Does the organisation have its own ethics procedure relating to the research you intend to carry out? ~~YES~~ / NO (please circle).

If YES, the University will require written evidence from the organisation that they have approved the research.

18. Will the proposed research involve any of the following (please put a √ next to 'yes' or 'no'; consult your supervisor if you are unsure):



•	Vulnerable groups (e.g. children) ?	YES		NO	√
•	Particularly sensitive topics ?	YES		NO	√
•	Access to respondents via 'gatekeepers' ?	YES	√	NO	
•	Use of deception ?	YES		NO	√
•	Access to confidential personal data ?	YES		NO	√
•	Psychological stress, anxiety etc ?	YES		NO	√
•	Intrusive interventions ?	YES		NO	√

19. Are there any other ethical issues that may arise from the proposed research?

No.

Details of applicant

The member of staff undertaking the research should sign and date the application, and submit it directly to the Ethics Committee. However, where the researcher is a supervised PhD candidate, the signature of the Director of Studies is also required prior to this form being submitted.

	Name	Signature
Researcher	Nicholas Ford	
Director of Studies	Paul Trott	
Date	14/02/13	14/02/13

Approval by Ethics Committee

I/We grant Ethical Approval

FREC
Date

AMENDMENTS



If you need to make changes please ensure you have permission before the primary data collection. If there are major changes, fill in a new form if that will make it easier for everyone. If there are minor changes then fill in the amendments (next page) and get them signed before the primary data collection begins.

CHANGES TO ETHICS PERMISSION

VERSION: 1

Please describe the nature of the change and impact on ethics:

The study will also feature data collection with consumers regarding their opinions on and experiences with packaging. This data collection will not involve any of the items/situations highlighted in section 18. Informed consent will be gained from all participants before commencing with data collection and following the distribution of an information sheet detailing the aims of the research and offering participants assurance of confidentiality. Data will be stored and presented anonymously, with each participant being assigned a random pseudonym. Data will be stored in the same way as is described in section 10 and will be collected using face-to-face interviews. Due to the exploratory nature of the study the sample size will be relatively small. No access to gatekeepers will be required, participants will not be put at any risk, and the university's reputation will also not be at risk.

Please print the name of:			I/We grant Ethical Approval
Researcher	Nicholas Ford	FREC	Prof. Paul Trott
Signed:		(Signed)	

Date	10/08/13	Date	10/08/13

(please cut and paste the next section, together with the heading at the top of this page, as many times as required)

VERSION: _____

Please describe the nature of the change and impact on ethics:

FORM UPR16

Research Ethics Review Checklist



Please include this completed form as an appendix to your thesis (see the Postgraduate Research Student Handbook for more information)

Postgraduate Research Student (PGRS) Information		Student ID:	326800
Candidate Name:	Nicholas Andrew Ford		
Department:	Strategy, Enterprise and Innovation (PBS)	First Supervisor:	Professor Paul Trott
Start Date: (or progression date for Prof Doc students)	30/09/2011		
Study Mode and Route:	Part-time <input checked="" type="checkbox"/>	MPhil <input type="checkbox"/>	Integrated <input type="checkbox"/>
	Full-time <input type="checkbox"/>	MD <input type="checkbox"/>	Doctorate (NewRoute) <input type="checkbox"/>
		PhD <input checked="" type="checkbox"/>	Prof Doc (PD) <input type="checkbox"/>
Title of Thesis:	Packaging Development in an Ageing Society: A Case Study Approach in the United Kingdom Fast-Moving Consumer Goods Industry		
Thesis Word Count: (excluding ancillary data)	78,578		


If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRIO Finished Research Checklist:

(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: <http://www.ukrio.org/what-we-do/code-of-practice-for-research/>)

a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	YES/NO*
b) Have all contributions to knowledge been acknowledged?	YES/NO*
c) Have you complied with all agreements relating to intellectual property, publication and authorship?	YES/NO*
d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	YES/NO*
e) Does your research comply with all legal, ethical, and contractual requirements?	YES/NO*

Candidate Statement:	
I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)	
Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):	E233
Signed: (Student) 	Date: 13/05/15
If you have <i>not</i> submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain why this is so:	
Signed: (Student)	Date: