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Challenges and Opportunities of the Circular Economy in the Development of Refillable Perfume Systems: The case of the UK

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Católica Porto Business School
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Challenges and Opportunities of the Circular Economy in the Development of Refillable Perfume Systems: The case of the UK

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Abstract

The circular economy (CE) refers to a model of production and consumption that is restorative and regenerative by nature. The strategy behind the circular business model relies on extending a product's lifetime. The previous may be achieved through manufacturing of goods that are durable and simple to repair, reuse and replace its parts. In turn, the model translates into a reduction in resource consumption and waste production.

Reuse consists of keeping materials in use for longer and, it may prove crucial behaviour in tackling the current waste and plastic pollution crisis. "Plastic trash has become so ubiquitous that it has prompted efforts to draft a global treaty negotiated by the United Nations (UN)". The issue at hand warrants a solution which rethinks the packaging and the materials utilised.

In light of the pressing nature of the underlying topic detailed above, the purpose of this paper is twofold. Firstly, it explores the drivers and challenges of consumers' purchase decisions with respect to reusing empty perfume bottles; in other words, refilling perfume bottles, in the United Kingdom (UK). Secondly, it addresses the underlying motivations, attitudes and trade-off choices towards environmentally friendly purchases which, in turn, allows to ascertain the most successful refillable perfume system for the UK market.

This paper is relevant as it provides insights regarding the influence of consumers' antecedents and trade-offs in the case of refillable perfume systems. Said insights allow to precict with greater accuracy consumer behaviours purchase decision.

Primary data was collected through a mixture of quantitative and qualitative methods, an online self-completed survey (N=257) and face to face, semi-structured script, interviews (N=5), respectively.

The present research revealed that, on the one hand, consumers are willing incorporate circular economy systems, such as reuse by means of refill of empty perfume containers. Perceived benefits include cost savings, waste reduction, convenience, ease and transparency. On the other hand, perceived barriers include logistical efforts, loss of flexibility, time consuming processes and low savings. Both need to be taken into consideration when designing the refill business model, in order to put in place a robust operation that will appeal to consumers.

Key words: Circular Economy, Reuse, Refill, Sustainability, Green Attitudes and Perfume Industry.

Resumo

A economia circular (CE) refere-se a um modelo de produção e consumo que é restaurativo e regenerativo por natureza. A estratégia subjacente ao modelo de negócio circular é baseada na extensão da vida útil de um produto. Tal pode ser alcançado através da produção de bens duráveis, simples de reparar, reutilizar e substituir as suas partes. Subsequentemente, o modelo leva a uma redução nos recursos consumidos e no desperdício produzido.

Reutilizar consiste em manter os materiais em uso por mais tempo, tal pode-se revelar um comportamento crucial para lidar com a atual crise de poluição de resíduos e plásticos. "O lixo de plásticos tornou-se tão omnipresente que levou a esforços para elaborar um tratado global negociado pelas Nações Unidas (UN)". O problema em questão necessita de uma solução que repensa as embalagens e os materias utilizados.

Considerando a natureza premente do tópico subjacente detalhado acima, o objective deste artigo é duplo. Em primeiro lugar, explora os *drivers* e os desafios das decisões de compra dos consumidores no que diz respeito à reutilização de frascos de perfume vazios; por outras palavras, *refill* de frascos de perfume, no Reino Unido. Em segundo lugar, aborda as motivações subjacentes, as atitudes e as escolhas de *trade-off* de compras ecológicas que, por sua vez, permite verificar o sistema de perfume *refillable* que será mais bem sucedido no mercado do Reino Unido.

Este artigo é relevante na medida em que apresenta conhecimentos relativamente à influência dos antecedentes dos consumidores e dos *trade-offs* no caso de sistemas de perfume *refillable*. Estas percepções permitem prever com maior precisão os comportamentos dos consumidores na decisão de compra.

Os dados primários foram recolhidos através de uma mistura de métodos quantitativos e qualitativos, um *survey* online auto-realizado (N=257) e entrevistas face a face, com guião semi-estruturado (N=5), respectivamente.

O presente estudo revelou que, por um lado, os consumidores estão dispostos a incorporar sistemas de economia circular, tal como, reutilizar por meio de *refills* de recipientes de perfume vazios. Os benefícios reconhecidos pelos consumidores incluem poupança de custos, redução de desperdício, conveniência, facilidade e transparência. Por outro lado, as barreiras reconhecidas incluem esforços logísticos, perda de flexibilidade, processos demorados e poupança reduzida. Ambos devem ser levados em consideração no momento de *design* dos modelos de negócio de *refill*, com o objetivo de colocar em prática uma operação robusta que irá apelar aos consumidores.

Palavras-chave: Economia Circular, Reutilizar, *Refill*, Sustentabilidade, Atitudes Verdes, *Trade-offs* e Indústria do Perfume.

List of Abbreviations

CCT – Consumer Choice Theory

CE – Circular Economy

CEO – Chief Executive Officer

CO2 – Carbon Dioxide

DEFRA – Department for Environment, Food & Rural Affairs

EPI – Environmental Performance Index

GR – Grams

PG – Petagrams

SPSS[1] - Statistical Package for the Social Sciences

UK – United Kingdom

UN – United Nations

UNEP – United Nations Environment Programme

USD – United Stated Dollars

[1] A software platform offers advanced statistical analysis

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[3] Eco variable are variables CB2, CB3, CB4 and CB5

1 – Introduction

1.1 Talking about sustainability

We live in a world deeply scared by human actions. In less than 100 years, since the Industrial Revolution, human activities on the planet have provoked such vast environmental changes, that we witnessed the Earth's systems being pushed towards an unstable environmental state, known as the Anthropocene. (Rockström, et al., 2009). Should this continue to be the case, severe changes will occur to the world as we know it, which may prevent humanity from thriving. Climate change, biodiversity loss, deforestation, pollution, as well as waste and platic crisis are but a few of the myriad environmental challenges driven by human action. How far are we willing to push and test the limits of the Earth?

The solution is within our reach. It is up to us to profoundly shift the way we consume and produce waste. The path towards sustainability, requires a comprehensive approach, involving governments, companies and individuals. The aforementioned path must entail innovation across scientific, technological and economic systems; human behaviour is significant enough to delineate and implement said path towards change (Naam, 2013; Schill, et al., 2019).

Business must adapt and progress past linear business models, to more integrative, restorative and generative systems, such as circular economy models (Schwarz, et al., 2016; www.ellenmacarthurfoundation.org b). CE refers to a model of production and consumption that aims to keep a product in use for as long as possible and subsequently close the cycle at the end of its life, by means of recycling (Sauvé et al., 2015). Therefore, circularity-based systems depend on the ability to produce goods that are durable, simple to repair, reuse and replace its parts (Nußholz, 2017; Preston, 2012), in order to prolong a goods' usable life.

Reusing containers through refillable designed business models represents an important step towards purchasing sustainably and being greener. The previous

results in both an increase in the length of use time and a decrease of the overall waste produced (Sauvé et al., 2015). Glass, for example, is a type of material that has the potential of being employed in refill systems, as it preserves the qualities and characteristics of its content and, because there is almost no contamination, it can be reused countless times (Baldwin, 2015). Furthermore, following its reuse, glass-based products can live a new life through recycling; glass is a material that can be recycled endlessly.

1.2 Objectives

Put your costumer first (Craven, 2005). This concept of consumer prioritisation and particular focus on the consumers' point of view is central to this paper testing green consumer purchase behaviour towards Perfumes in the UK. That being said, this paper shall strive to provide insights regarding three main dimensions. The first dimension is that of consumer behaviour; it aims to understand the extent to which one's antecedents, thoughts and attitudes might influence the decision to purchase a sustainable product. The second relates to drivers of action and trade-offs; it hones in on the product attributes and characteristics, as well as on the trade-offs a consumer is willing to abdicate in order to purchase in a sustainable way. Finally, the third dimension relates to refillable perfume bottles; it looks at the refill systems currently operating and benchmarks them in an effort to ascertain the business model that might have a higher success rate in the UK market.

1.3 Relevance of topic

A sustainable purchase decision entails a set of multiple decisions and trade-off choices, in which consumers' antecedents and attitudes, as well as, motivation and receptiveness might influence said decision (Maniatis, 2016). Many authors

have attempted to develop models and theories that would explain or predict green consumer behaviours (do Paço et al., 2018; Biswas, 2017; Carrington et al., 2010). However, little is known regarding the influence of said antecedents and trade-offs in the case of refillable perfume systems.

Therefore, the importance of this paper lays on the fact that it adds knowledge regarding the challenges and opportunities, from a consumer prespective, regarding refillable perfumes. Consumers perceptions and attitudes foster and incentivize the development of said circular economy business model.

1.4 Methodology

Primary data was collected through a mixture of quantitative and qualitative methods, an online survey (N=257) and face to face interviews (N=5), respectively.

The data collection method chosen was a self-completed, internet-mediated type of access survey, using Google forms. It was distributed through web, instant messaging and social media. The survey was divided in 4 groups: (i) profile; (ii) consumer behaviour; (iii) drivers of action; and (iv) refillable perfume bottles. In the design of the survey list, category and rating type of answers were include. A Likert-style rating was chosen, aligned with previously tested questions and scales (i.e. REGRAD scale (Bailey et al., 2014) and GREEN scale (Haws et al., 2014)). Morevoer, Likert-style rating allowed a better understanding of the attitude intensity level, likelihood of action, importance given and frequency towards the topic being queried about, as well as, gathering more accurate data, due to odd number characteristic. The data was extracted from Google form to Microsoft excel and then imported and analysed using SPSS.

The data collection method chosen for the face-to-face interviews entailed a direct approach of potential respondents on a shopping area in London. A semi-

structured script was designed, which provided some guidelines and, simultaneously, flexibility and adaptability to each of the respondents.

1.5 Structure

This dissertation is structured into 5 main chapters. Chapter 2 will begin by presenting a literature review, addressing the challenges our planet is facing and have led to the emergence of circular economy business models. It will then undertake an in-depth review of consumer behaviours, driver of action and refill systems. Chapter 3 proceeds to present the research methodology adopted. Moreover, in Chapter 4, the results and data analysis are revealed. Finally, Chapter 5 presents the conclusions and discussion.

2 – Literature Review

2.1 Environmental Challenges and Circular Economy

2.1.1 Current Environmental Challenges

Climate change is one of the most urgent threats we are currently facing. One that goes beyond and deeper than pure facts and science. "The public debate around climate change is no longer about science—it is about values, culture, and ideology" (Bansal & Hoffman, 2012). The impacts of human activity on our planet are now so extensive that part of the scientific community argue that we are no longer living in a Holocene like era. Holocene is the epoch spanning approximately 11 700 years of climate stability, which allowed societies to establish, develop and thrive to become what we now know them to be. It represents the most recent interglacial interval of the Quaternary period (i.e. the geological history of the Earth.)

As previously mentioned, a part of the scientific community defends that we are, in fact, living in a new Era, known as Anthropocene. Biodiversity loss, ozone depletion, ocean acidification, deforestation, amongst countless other factors, characterize this epoch (Foster et al., 2009; Rockström, et al., 2009). In his book, Rockstrom defines ten planetary boundaries[4] that delineate the safe operating zone for humans (i.e. the author defines thresholds that must not be crossed in order to ensure that the Earth and its complex systems continue to exist as we know them). Rockstrom goes further and warns that even if a single boundary is crossed, it is sufficient to threaten and negatively impact all other boundaries and inturn, prevent humanity from thriving.

This new Anthropocene epoch, however, remains a topic that has not yet reached consensus among scientists and experts in the field. The previous

[4] The planetary boundaries are 1. Climate Change, 2. Ocean Ocidification, 3. Stratospheric ozone depletion, 4. Nitrogen cycle, 5. Phosphorus cycle, 6. Global freshwater use, 7. Change in land use, 8. Biodiversity loss, 9. Atmospheric aerosol loading and 10. Chemical pollution (Rockström et al., 2009).

divergence of opinions is brought about by the fact that many years are required to accurately ascertain whether or not we are, in fact, living in new Era; in other words, any alteration in the Earth's systems is not instantaneous.

Geology is a science that looks the distant past, and it does not immediately allows us to have the necessary information to clearly define the current geological time (Fairbridge, 2018). Furthermore, a quantitative boundary with complex metrics delineating which epoch is in fact occurring needs to be precisely defined.

Part of the scientific community defends and explains why we are not yet in a stage that scientifically can be considered as a new epoch (Gibbard & Walker, 2013), scientists have not yet gathered sufficient evidence to uphold the Anthropocene Era. The negative impacts of human activity on Earth are evident and unquestionable and there is no doubt that we are undergoing climate change, but the author defends that, neveretheless, the Holocene is still considered the current geological period, and this shall continue until a clear and global sedimentary and geochemical marker can be pinpointed.

Others argue that in reality the impacts are no longer merely measurable but extremely severe, which entails new challenges that require original and innovative solutions. "Human actions have released 555 petagrams[5] of carbon to the atmosphere since 1750, increasing atmospheric CO2 to a level not seen for at least 800.000 years", causing ocean acidification up to levels never observed before (Lewis & Maslin, 2015; Steffen, 2004). The previous illustrates the extent to which the usage of pesticides, intense harvesting, increase in the green house gas emissions and extinction of many species are amongst the additional negative impacts (Lewis & Maslin, 2015; Steffen, 2004).

[5] 1 Pg corresponds to 1 billion metric tons

2.1.2 Emergence of Circular Economy

Despite being a topic on which scientist inherently disagree, one thing remains clear in the scientific community; urgent action is needed. We must drastically change our purchasing habits, focusing on recycling but, more importantly, on reducing consumption and reusing products, shifting towards an economy that increasingly relies on circular business models (Sauvé et al., 2015; www.ellenmacarthurfoundation.org b; Geissdoerfer et al., 2016).

CE fundamentally differs from linear business models (Sauvé et al., 2015), said linear models consist on a simple system of obtaining resources from nature, manufacturing, consuming and dispose (i.e. "take-make-waste"), in which there is incomplete closed loop (Figure 1)[6].

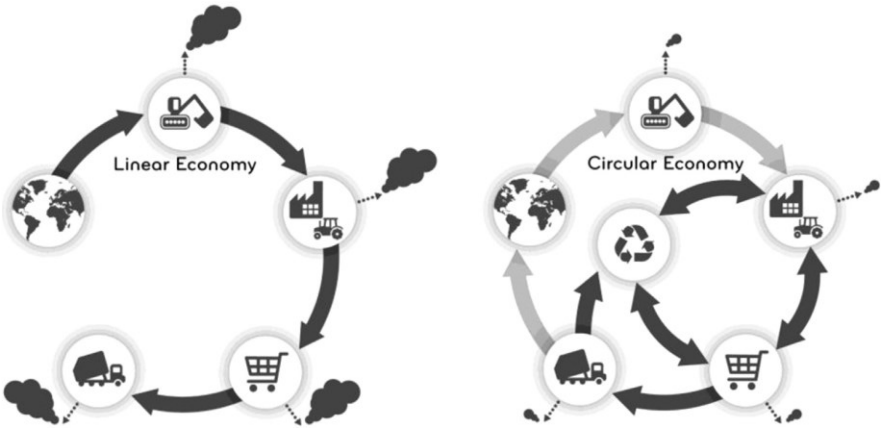


Figure 1: Linear and circular economy business models

Source: Sauvé et al., 2015

The first time the term CE was formally introduced dates back to 1990 (Pearce & Turner, 1990). In their article, the authors explain this new model, focusing primarly on the relationship between the economy and the environment. Since then, the model has evolved and others have furthered its understanding,

[6] Contrasting linear and circular economy models. Linear economy displays an incomplete loop, that does not consider the negative environmental impacts associated to production, resource consumption and waste production. CE encompasses a loop in which the product is reused, repaired, replaced parts, before closing the loop by means of recycling. (Sauvé et al., 2015)

meaning and theories. The strategy behind circular business models aims to extend a product's life time, which may be achieved through manufacturing of goods that are simple to repair, replace parts and reuse pieces to manufacture new products (Nußholz, 2017; Preston, 2012). The ultimate objective of a circular business model is to close the loop, (i.e. give a new life to the product through recycling) and minimize negative externalities. Encompassing many interactions, including, biological and technical materials, renewable energy, components, products, services and economics (Figure 2) that foster the restorative and regenerative nature of CE (www.ellenmacarthurfoundation.org b).

Other authors, define circular economy as the reduction in resources consumption (i.e. concentrating in reducing consumption in all stages of product's supply chain, thus reducing raw material usage, overall pollution levels and waste (Sauvé et al., 2015).

Both perspectives foster behaviours that endeavour to reduce the planet's carbon footprint, energy consumption and improve the overall wellbeing of all inhabitants of our planet (Mainieri et al., 1997).

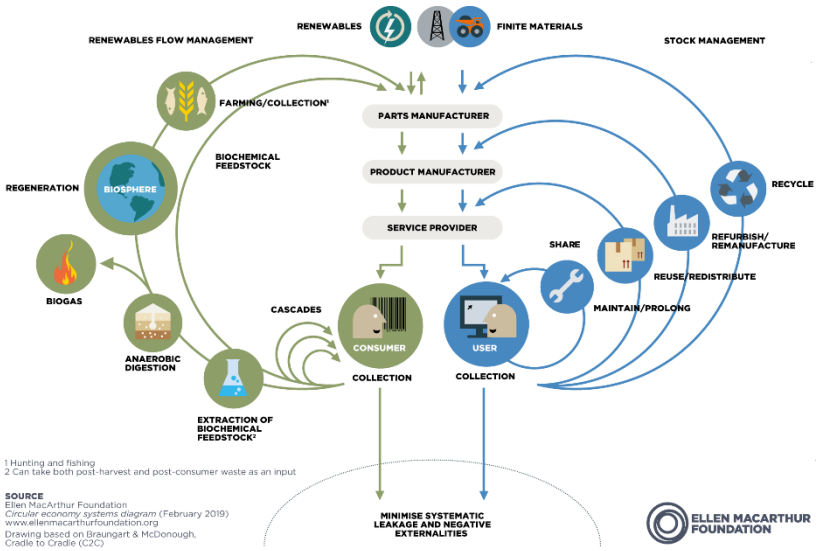


Figure 2: The Circular Economy System Diagram[7]

Source: www.ellenmacarthurfoundation.org b

[7] The diagram captures the flow of materials, nutrients, components, and products, whilst adding an element of financial value (Ellenmacarthurfoundation.org, 2019).

2.2. Beauty and Perfume Industry

2.2.1 A Snapshot

Motivated by globalization and liberalization, the cosmetics industry has recorded a sustained and constant growth in its demand by, including, but not limited to, women from every age group (Jamali et al., 2016). Said growth in demand is most marked over the last 14 years, from 2004 up until 2018 (L'oreal, 2019). As a matter of fact, in 2017, the worldwide sales of premium skincare products, premium colour cosmetics and premium fragrances, amounted to USD 120 billion, USD 66 billion and USD 49 billion, respectively (www.euromonitor.com). When compared to 2017, the categories that have registered the most accentuated growth in 2018 were colour cosmetics with a 3,6% growth, skin care that registered a 3,3% growth and fragrances representing a 2,9% increase (www.euromonitor.com).

The beauty industry is often associated with significant utilisation of single-use plastic and overpackaging; in fact, "more than 120 billion units of packaging are produced every year by the global cosmetics industry, most of which are not recyclable", (www.zerowasteweek.co.uk)[8], said millions of cardboard packages equate to an annual loss of 18 million acres of forest. Moreover, consumers tend to associate excessive packaging with premium and expensive products and, often, consumers prefer and choose products with higher convenience over environmental responsibility. There is, therefore, the urgency and obligation of shifting towards more sustainable and greener business models across the whole industry.

Notwithstanding the previous, not everything is bad news. There is, in actuality, an increase of supply in the market of sustainable products, and

[8] Zero Waste Week is an award-winning campaign, launched in 2008. Concentrates in raising awareness about the environmental impact of waste. Suitable for individuals, businesses or organisations, who aspire to reduce the amount of waste sent to landfills. (Zero Waste Week, 2019)

companies are adopting and introducing such products as a value-differentiation strategy. In addition, consumers and scholars, alike, are increasingly aware and attentive to this problematic, addressing topics spanning from cosmetics safety and social consciousness to fair trade and deforestation (Bom et al., 2019; Bhaskaran et al., 2006; Houghton, et al., 2008). In other words, they are hoving in the areas where the cosmetics industry must improve, in order to build a path towards sustainability.

"The success of a given company mostly depends on its abilities to attract consumers toward its brand" (Kotler & Keller, 2011). The same is to be expected when we examine the beauty industry with a particular focus on the perfume-related industry. Said companies operate in an arena that is overcrowded, in which competition is fierce and ruthless, and surges from every direction (Marucheck et al., 2011). Costumers in that same arena, on the other hand, are becoming increasingly demanding, with higher prospects and wishes to be fulfilled. It is worth noting that this is the same arena in which there is scarcity, misuse and overconsumption of resources and raw materials. In light of the previous, companies must uncover unique ways to connect with their costumers, find unprecedented approaches to be ahead of the competition and act as the agents of change that the world needs (Bakker et al., 2016; Chan et al., 2016). Moreover, nowadays companies are unequivocally focusing on environmental protection (Jabbour et al., 2014), and it is through this emphasis and focus placed on greener practices that companies will gain a competitive advantage (Hansmann & Claudia, 2001).

Additionally, for the companies and their businesses, being greener can, in reality, entail several improvements, namely, gains and upgrades in the overall flow of the supply chain, improvements in production times, as well as, reduction in costs, due to a better allocation of resources and a decrease in the quantity of raw materials utilized (Meise et al., 2014; Albort-Morant et al., 2016; Green et al., 2012).

It is extremely important to build a strong business case when it comes to sustainability, to ensure that both tangible (i.e. material cost savings, innovations, waste reduction) and intangible benefits (i.e. brand image improvement, increase in the brand resilience in the market, increase in clients retention and improvement in employees interest and satisfaction) are accounted for (Kreiss et al., 2016). When building a business case, one must clearly delineate how opportunities for innovation and differentiation will be created, how relations with the multiple stakeholders will improve and, most importantly, how financial performance will improve.

2.2.2 Sustainability in the Beauty and Perfume Industry

The perfume industry has undergone immense changes in recent years. Perfumes have become more of a mainstream business and are seen as a necessity in the personal care of an individual, as opposed to, a superfluous and extravagant accessory (Salem, 2018). Furthermore, the perfume industry has recently been considered the main pillar of packaging, the previous is central and inextricably linked with the overall thesis of the present paper.

As a matter of fact, glass is the material most used in fragrance containers. In 2017, in the US alone, glass represented 47% of fragrance packaging volume. It is through glass packaging that brands are able to, primarily, preserve the fragrances characteristics and, simultaneously, convey the story behind the fragrance. Many of the more prevalent and prestigious brands have a strong heritage, which they can communicate to consumers through the perfume bottle (www.euromonitor.com).

Several brands are particularly exemplary in making clear efforts to become greener and incorporate sustainability at various stages of their supply chain. In 2015, Lush launched the naked shampoo bars which, as the name suggests, do not require container. This changing in packaging represents an annual saving of

over 15 million plastic bottles. Likewise, DAME created the first ever reusable tampon applicator, which translates into a substantial annual reduction of 10 billion single-use applicators (Winter, 2019).

Guerlain is another good example. The brand commits to being eco-responsible, having greener means of transportation and purchasing and sourcing raw materials in a responsible manner. Moreover, Guerlain aims to develop products based on eco-design and the brand actively strives to find innovative ways to protect biodiversity (www.guerlain.com).

Other adopters, such as Unilever and L'oreal, have delineated and stated commitments. Both brands aim to use 100% recyclable, reusable, and compostable plastic by 2025 (Unilever, 2019; L'oreal, 2019). Other brands, such as Garnier, (which is owned by L'oreal), are focused on uncovering new ways to reduce their waste and ensure their products are being recycled (www.pg.co.uk). Garnier has pledge to introduce at least 25% recycled plastic in their hair care plastic containers, amounting to more than 500 million plastic bottles in 2018. Companies, like The Body Shop, for example, have made the commitment to ensure that, by 2020, 70% of their product packaging is free from fossil fuels (www.thebodyshop.com).

Despite all the commitments detailed above, taking into account the size of the beauty industry and all the challenges emerging from the growing competition within the beauty market, as well as, the escalating and harder-to-meet expectations of costumers, must be reiterated. The fragrances industry, for instance, relies heavily on the gentle and fragile balance of the ecosystem, (i.e. its value of dependence in the ecosystem is very high (Fisher et al., 2009). The majority of raw materials employed by said industry are sourced from nature. There is, therefore, a vigorous focus on understanding and caring for such "complex and adaptive systems" (Abel & Stepp, 2003), and one must consider and be aware of the myriad negative impacts of this industry in our Planet. Said negative impacts range include resources dilapidation, environmental hazards,

due to intense usage of chemicals, pollution throughout key steps of the supply chain, use of non-reusable containers, over packaging, and incorporation of components that make products difficult to disassemble which, in its turn, makes recycling a challenging task.

2.3 Taking Action and Being Greener – Main Dimensions

2.3.1 Companies and Government Prespective

Despite the ongoing debate, regarding which epoch we currently live in, a common and pervasive thought remains - urgent action is needed. But what does purchasing sustainably and being greener actually mean? Green behaviour is defined as the socially responsible attitude that focuses on the correct utilization of goods and services, in a manner that does not pollute nor harm the environment, thus ensuring viability and continuity of the available resources for the upcoming generations (Cambridge dictionary). Furthermore, said green behaviours are typically associated with green consumption (do Paço et al., 2018). Such behaviours need to be implemented, incentivized, rewarded and fostered pervasively and across the various stakeholders, with greater intensity and commitment than up until this point. A shift from punctual and short term efforts to consistent and normalized attitudes is both mandatory and urgent.

In order to give rise to such a shift governments, companies and individuals need to act proactively and cohesively. Recently, there has been an increasing concern when it comes to sustainability. We are beginning to see wide-ranging changes and actions, from manifestations to legislations and heavy sanctions being put in place.

Moreover, several companies are starting to include sustainable goals in their missions and core values. However, others are focused on becoming greener based on monetary consideration alone (Stoop, 2013). The UNO Global Compact,

conducted a survey and found that 93% of the participating CEO's considered that sustainability would, in a relatively short period of time, become a key success factor for the future of their company. Sustainability must, therefore, be incorporated within the core activities and processes of a successful business.

On the Government vertex there is also an increase in the involvement and relevance of this problematic. The UK Companies Act 2006 [9] states that the board of a company is obliged to take into consideration the interests of the various stakeholders, while maintaining the prosperity and success of the company as its main objective. Furthermore, it demands that directors perform in such way as to "promote the success of the company for the benefit of its members as a whole and in doing so have regard to a list different of stakeholders" (Companies Act 46/172).

Notwithstanding the actions undertaken by companies, governments and individuals, several studies reveal a different reality. Green efforts have not have the adherence one might have forecasted. In reality, there have been difficulties in elaborating a model able to accurately predict the behaviours towards sustainable purchasing habits (do Paço et al., 2018).

It is essential that both companies and governments implement actions and develop sustainable products but, likewise, consumers must be accountable for their actions.

With a particular on the consumer and their attitude towards green products and sustainable purchasing patterns, this paper shall detail and examine a survey tailored to build a comprehensive framework that will aim to reinforce and build upon pre-existing knowledge while, simultaneously, deepening the understanding of the topic.

[9] The Companies Act 2006 is the main piece of legislation which governs company law in the UK. (Companies Act 46/172)

2.3.2 Consumer Behaviour

"Purchase decision is the thought process that leads a consumer from identifying a need, generating options, and choosing a specific product and brand" (Salem, 2018). Therefore, purchase decision can be interpreted as all the decision process leading to a consumption behaviour. The previous includes selecting the brand to buy from, where and when to buy, in what size, in what condition, under which budget, amongst other considerations. Accordingly, many antecedents influence, and countless trade-offs need to occur in order to make a single purchase decision.

Therefore, when attempting to anticipate purchase behaviour we must first acknowledge a set of different antecedents and attitudes that will affect the research process, how a consumer is captivated, perceives and decides whether or not to buy a sustainable product, (i.e. the underlying indicators that might influence consumer awareness, motivation, receptiveness and attention towards sustainable products) (Maniatis, 2016).

Moreover, the factors which influence purchase decision include internal, as well as, external and marketing factors (Munyaradzi, 2013; Salem, 2018). Antecedents include, but are not limited to, concerns for the welfare of society (Sharma & Ruud, 2003), concerns for the environment and sustainability, (Ellen et al., 1991), monetary incentives, social class, culture and even the relationship with other individuals (McCarty & Shrum, 2001; Ferguson et al., 2017).

Factors such as strength of a brand, academic background, financial situation, lifestyle, character, knowledge, personal characteristics and morals, amongst others, can help ascertain the reason why an individual is more, or less, prone to support and buy greener products (Cleveland et al., 2005; Salem, 2018). Other authors include, brand reputation, culture background, demographic characteristics, financial situation, routine, information available, lifestyle and personality, to trade-offs between ethical factors (Biel et al., 2005; Şener & Hazer,

2008; Wheale & Hinton, 2007). Factors influencing the global context of the purchase, such as demographic, social, political, economic, psychological, temporal and ideological elements are also of extreme importance (Young et al., 2009).

Arminda do Paço proposed a model which studied how a set of buying behaviour precedents influences green purchasing behaviours (do Paço et al., 2018). The antecedents identified by the author are: pro-social attitude, green values and green communication. The first two precedents, in particular, assist in ascertaining why consumers have a positive or negative attitude towards green marketing and why consumers display green buying behaviours.

With regards to monetary motivations, several studies address the elements influencing green purchase habits. One of the factors that most notably weighed on the moment of choosing whether or not to buy the product was the available budget (Soman, 2001). Discounts have a great influence on purchase decisions (Liao et al., 2009). Several studies and theories, such as the consumer choice theory (CCT), focused on explaining sustainable purchasing behaviours based on economic influences. CCT explains that a consumer's choice on whether or not to engage in green purchasing behaviours is merely based on their available budget. Furthermore, in spite of having a positive attitude towards greener products, low income families, typically, purchase less sustainable products (Magnusson et al., 2001).

Other studies address how personality, habits and lifestyle influence green purchase behaviours. Flowing from the previous, two theories have been formulated, focusing on how psychological aspects and beliefs influence green consumption decisions and habits. Firstly, the theory of planned behaviour explains consumers' behavioural intentions towards purchase decisions. Secondly, the theory of reasoned action details the connection between individual beliefs, attitudes and stated behaviour intentions, and the actual purchase decision (Ajzen, 2000; Fishbein & Ajzen, 2010; Paul et al., 2016).

A survey conducted in Devon, UK, on sustainable household habits uncovered that, amongst typical green behaviours (e.g. recycling and switching off lights), green purchasing activity was the least popular, despite green consumers taking into consideration environmental factors when are purchasing products (Barr & Gilg, 2006; Young et al., 2009).

Other literature explains how organic environmental concern, culture, morals and values define whether consumers purchase in a sustainable way, even though there is evidence that consumers who are organically more concern about the environment are also the ones that tend to purchase greener products (UNEP, 2005; Eberhart & Naderer, 2017; Chan T. , 1996).

Several others have put forth theories that classify values and principles as the core explanation for consumers' purchasing green products. The theory of consumption values proposes three underlying principles that determine that consumer's choices are molded by multiple consumption values, across several dimensions (Sheth et al., 1991).

The quantity of sustainable products readily available in the market has in recent years undoubtedly increased (Bhaskaran et al., 2006). In addition, consumers are increasingly aware and recognising both the importance of purchasing in a greener way and the positive impact on the overall welfare of the environment and society in general. However, due to the fact that there are so many antecedents and trade-offs influencing whether or not to buy a sustainable product (Blake, 1999; Young et al., 2009), stated purchase intentions do not directly translate to increased conscious purchases of said sustainable products (Eberhart & Naderer, 2017). This effect is as known *value–action gap*.

The aforementioned gap is better illustrated numerically. Interestingly, even though between 46% and 67% of the consumers display positive attitudes towards the purchase of organic food, no more than 10% purchase said products (Hughner et al., 2007). Moreover, other studies uncovered that, out of the population studied, 30% expressed high concerns about environmental issues.

However, the same 30% stated that they do not act on those concerns (i.e. they do not purchase sustainably) Defra, 2016[10] (www.gov.uk).

Several authors have committed to further investigate this gap between "wanting to do" and "actually doing". In an effort to do so, they attempted to develop models and theories that would explain or predict green consumer behaviours (do Paço et al., 2018; Biswas, 2017; Carrington et al., 2010). However, because there are so many antecedents, moments and factors influencing purchase decisions, developing a single framework inclusive of all the decision elements, has proved to be an arduous and complex task.

Several reasons might explain why consumers' perceptions and ideals regarding sustainability are not often reflected in their actual behaviours; namely, consumers are not willing to fulfil the countless prerequisite trade-offs. (Ferguson et al., 2017). In light of the above, if purchasing sustainably entails incurring a cost, the vast majority of individuals are not willing to go through with said purchase (Laroche et al., 2002). Other factors such as disbelief in green claims, lack of involvement in sustainability matters, personality and education may explain the existence of this gap (Biel et al., 2005; de Pelsmacker et al., 2005; Moisander, 2007; Şener & Hazer, 2008; Wheale & Hinton, 2007). Moreover, when consumers do purchase in a superfluous (i.e. a non-environmentally friendly way), they use neutralisation techniques to justify such behaviour to themselves (Chatzidakis et al., 2007).

Furthermore, current sustainable products do not fit costumers' busy lifestyles (Hughner et al., 2007). In order to decrease this *value-action gap*, Hughner is an advocate of the ideology that sustainable products must fit seamlessly in people's lives, in a way that does not increase the level of hardship, thereby resulting in an increase in green products consumption. The previous is an important remark

[10] DEFRA – department of Environment, Food & Rural Affairs, the UK government department responsible for safeguarding the natural environment, supporting the world-leading food and farming industry, and sustaining a thriving rural economy. DEFRA'S broad remit means they play a major role in people's day-to-day life, from the food citizens eat, and the air they breathe, to the water they drink.

that helps better understand how to influence costumers towards a more sustainable purchase behaviour.

In this first stage of the long process of purchase decision, acknowledging the consumers antecedents and attitudes towards sustainability is paramount and it is the starting point to build the survey. Aiming to investigate into antecedents and attitudes, in order to further the understanding of how one's culture background, income, sustainable sensibility and awareness, organic sustainable behaviour, purchase pattern and stated versus actual behaviour, shape a sustainable buying decision.

2.3.3 Drivers of Action

The reasons underlying why consumers purchase a specific product are not obvious to ascertain (Kardes et al., 2011; Kotler & Keller, 2011). There are several drivers that influence a consumer's action towards sustainability, some more clear and direct to identify than others. The reality is, being sustainable requires considerable time and effort, which consumers' busy lifestyles seldom permit (Young et al., 2009; Ferguson et al., 2017).

This section focuses on understanding product attributes and characteristics, green communication by brands and in products, as well as the level of effort required and other aspects that influence this stage of the purchase decision.

Smell is, rather obviously, the sense that is most inextricably linked with perfumes. In fact, scent is the most influential factor in determining the purchase of a perfume. Smell tests still forms the basis of a consumer's decision to buy a particular perfume (Yoh, 2006; Jamali et al., 2016). Visual and marketing factors such as, the product itself, promotion, price, placement, package design, aesthetics, text, typography, colours, symbols, size of letters and images, all play an important role in influencing the purchase decision process (Munyaradzi, 2013; Salem, 2018).

Packaging is one of the most persuasive attributes at the moment of purchasing a perfume (Borishade et al., 2015). It is known to deeply influence the purchase decision of working women (Jamali et al., 2016). In light of the previous, consumers are willing to employ more money in luxury perfumes that have both a beautiful packaging and great design (Raza et al., 2013).

Both companies and consumers prefer glass packaging for perfume containers. Glass preserves the qualities and characteristics of its content and, because there is almost no contamination, it can be reused numerous times (Baldwin, 2015), making it a great for being used in refill systems (Chiellini, 2008). Furthermore, besides having an eco-friendly image, glass communicates quality and heritage. Therefore, glass perfume bottles serve as point of differentiation for luxury brands. In fact, the most important elements that consumers take into consideration in the moment of making an informed perfume buying decision are the brand, the packaging and the bottle design (Raza et al., 2013).

A further attribute shaping the purchasing decision process is the ingredients of the perfume and the way said ingredients are sourced. A study conducted in Spain revealed that 74% of the people interviewed agree that it is relevant to know what ingredients are used in natural products, if said ingredients are sustainable and if they are sourced through fair trade (www.mintel.com).

Green communication is another essential element that a sustainable product must bear (Ottman, 1999). It speaks directly to consumers in an unequivocal way and, mentions all relevant information in terms of the search process, overall usage experience, whilst conveying the exact benefits that consumers will obtain from the product. Moreover, green communication contributes to making the purchase decision process remarkably straightforward, allowing a costumer to perceive how sustainable the product is and the contribution and gains through its consumption.

The use of green labels is paramount as it aids consumers in concentrating their limited efforts, which leads to a decrease in the level of complexity usually

associated with sustainable consumption (Hughner et al., 2007). Furthermore, labeling acts as a quality stamp, signaling the exact green attributes of a product, allowing a more informed and conscious decision by the consumer (Dimara & Skuras, 2005). Moreover, the use of eco-labels is essential. Firstly, it helps guide a consumer through their consumption decision. Secondly, it allows consumers to have more knowledge regarding sustainable products. Therefore, eco-labels increase the likelihood and desire of turning the purchase intent into concrete action (Blake, 1999; Young et al., 2009).

Other essential factors when selecting which perfume to buy include, recommendations from reference groups and/or family members, sampling smelling test (Yoh, 2006; Blake, 1999; Young et al., 2009), monetary incentives (Hughner et al., 2007) and pure philanthropy reasons, (i.e. wanting to be an agent of change in the name of the environment and society as well as positive emotions reward) (Bagozzi et al., 1999).

Therefore, this study purposes to unveil which, out of the above-mentioned attributes (i.e., perfume attributes, packaging, fragrance, emotional reward, reference group influence, expectations and past experiences, promotion, price, eco-labels and communication, organic perfume and sustainability of the supply chain), are the main drivers of action towards a consumer sustainable purchase decision.

2.3.4 Refillable Perfume Systems

Reuse entails keeping materials in use for longer, causing a decrease of the overall waste produced (Sauvé et al., 2015). Therefore, it presents an opportunity for innovation, which requires rethinking the packaging and materials utilised (www.ellenmacarthurfoundation.org).

The system of reuse by means of refill is twofold. In other words, there are two variants to the system which converge on a common endpoint (i.e. the refill of

empty containers). Firstly, "refill at home", whereby the consumer refills the empty container at home and, secondly, "refill on the go" where the consumer refills the empty container away from home (www.ellenmacarthurfoundation.org). Together they form the basis for any refill system, which may then have other variants.

Research on consumer perceptions towards refills is scarce. In addition, the few studies conducted on refill systems have a broad scope and do not delve deep into the different types of refills (Lofthouse et al., 2009).

Refill perfume systems are rather uncommon. However, some pioneer brands have developed eco-containers and have operationalised refillable perfume business models. In light of the lack of literature to support the review regarding refill systems in the perfume industry, the strategy elected for this section is to explore and benchmark some of the few brands that are currently operating in this niche market. There is lack of information regarding the refill perfume systems, including, consumers reactions, main challenges and drivers and operationalization of the business models.

The reason why refills work well within this industry is simply, the majority of perfumes have alcohol in their formula, meaning there is fairly any bacterial contamination, and perfume containers are mostly in glass. Glass is a material that preserves the qualities and characteristics of its content, allowing successive refills without compromising the fragrance or the container. However, most perfume bottles come with a pump that either impossible or very hard do unscrew, making it very complicated or, in some cases, impossible to open and refill the perfume container.

The mass retailer brand Olay has recently, in October 2019, launched in the U.S. and U.K markets refillable packaging for a moisturizer. The product consists of refillable pods that fit the empty container, each pod has a full jar's worth of moisturize (www.olay.co.uk). The strategy regarding this product is to develop a learning process by first testing, for three months, with one product in two

different markets and by, afterwards, monitor the consumers reactions and actual purchase behaviour. If the moisturizer pods trial proves to be successful, the pods system shall be implemented across its entire operation; it is estimated that a yearly saving of more than 1 000 000 lbs of plastic will take place.

The brand Rituals is also making efforts to reduce their packaging waste impact. Rituals has created eco-friendly refill for several products within key categories, skin care, home and body care, (www.rituals.com). The refills currently correspond to more than 25% of the brands' sales and represent, when compared to the original product, a saving up to 70% on CO2, 65% on energy and 45% on water. Furthermore, the brand has replaced the unnecessary paper wrap by reusable gift boxes, and the set inlays of the boxes are made of 100% compostable paperfoam.

Other brands like Up Circle Beauty and Beigic seek ways to give a new life and make use of what would typically be considered as packaging waste (www.upcirclebeauty.com). In its turn, Verescence, the world leader in production of glass bottles for the perfumery and cosmetics industry, has developed more eco-friendly processes and offers, within its product range, eco-designed perfume bottles. For instances, the brand reduced the glass weight by 50gr (from 180gr to 130gr) which translates into a reduction of 21% of greenhouse gas emissions (www.verescence.com).

The brand Thierry Mugler offers, since 1992, refillable perfumes. The "refill on the go" process is simple, a client goes into store with empty perfume bottle and uses the fountains available to refill. In recent years, the brand developed eco-refills that allow a consumer to "refill at home". It is estimated that around 4.300 bottles are reused daily due to the refillable business model Mugler has in place (www.groupeclarins.com).

Alternatively, the refill business model developed by the brand Eden is based on an online refill service. A variant of "refill on the go", the costumer chooses, on the brand's website, the scent and the size of fragrance and mails the empty

perfume bottle to the brand, receiving the refilled container a few later at their doorstep.

The luxury brand Guerlain proporcionates a hybrid of "refill at home" and "refill on the go" system. With the first purchase of a refillable perfume bottle, each client receives a refill kit that comes with a smaller (travel size) bottle and a funnel, to avoid spillage; users can then utilize the larger container to "refill at home" the smaller bottle, for easier transportation. Once the larger container is empty, the client goes into store and an employee refills the bottle with the fragrance of choice. This process is possible as the bottles are designed in a way as to making the lid simple to remove. Furthermore, this model leads to savings, as costumers who purchase the refill benefit from a relevant price reduction, when compared to the original fragrance's price (www.guerlain.com). However, said refill service is only available in specific stores. Another interesting element incorporated by Guerlain in their refillable perfume bottles (the historic bee bottles), is a customization feature, clients can engrave a message on the bottle and select a ribbon, making the refillable bee bottles an even more special and lasting piece.

To conclude, refillable business models represent an important step towards a more sustainable and conscious purchase behaviour, by breaking the consume-and-discard cycle and, therefore, reducing waste produced.

Such shift represents a demanding and complex adaptation in terms of mindset, processes and product design. However, the reality is that hero perfume brands that already offer refillable fragrances, such as Guerlain, have recorded over the past year fantastic results from such products (internal information).

3 – Research Methodology

3.1 Introduction

The solution to the current plastic waste crisis must encompass more than just recycling. While recycling is very important, we must go above and beyond, and unlock new ways to decrease overall consumption. Buying less and reusing more is the way to go. Reusing containers through designed refillable business models, represents an important step towards a more sustainable and conscious purchasing behaviour. It shall decrease the overall waste produced, change the underlying behaviour from single to multiple-use and, most importantly, improve resource usage and increase the life span of a product.

Consumers are key to every business across every industry. They represent an extremely powerful external driver that shapes and, to certain extents, defines a company's strategy. Influencing how the company competes and places itself in the market, and even influence the products and/or services and innovations a company develops and offers. Therefore, the starting point and focus of the present study, revolves around the undoubtedly important role consumers perceptions and attitudes play in defining the products and services regarding refill perfume systems available in the market. Said perceptions and attitudes foster and incentivize the development of circular economy business models, which aim to optimize, recycle, reduce and reuse resources within the companies.

Therefore, the objective of this Thesis is to carry a bespoke independent research in an effort to understand the drivers and challenges of consumer purchase decisions towards refillable perfume business models. It shall do so by focusing on the UK perfume industry and exploring the underlying motivations, values and attitudes towards environmentally friendly purchase habits, which will allow us to predict the most successful refill business model. Moreover, it

shall further explore the trade-off choices one is most likely to make when presented with a different set of options concerning green products attributes.

3.2 Objectives and Overview

The research of the existing literature on the topic at hand, uncovered the countless consumer behaviour and drivers of action towards sustainable purchases. However, it equally uncovered a lack of scientific findings and literature focused on refill perfumes on UK market.

The methodological choice was a mixed method using both quantitative and qualitative data. Starting with the quantitative method to test theoretical hypothesis, followed by qualitative to further and complement the understanding regarding consumers' perceptions towards perfume refills. Therefore, the research design used a sequential method (Saunders et al., 2016).

The first elected research strategy was a self-completed internet-mediated survey (see the appendix for list of variables), that allowed a collection of quantitative data. The second research strategy chosen was face-to-face interviews, in order to gather quantitative data.

The reasons for adopting survey as a data collection technique, are rooted on the time efficiency and economical nature typical of said approach (Saunders et al., 2016). The survey allowed us to reach a great number of respondants with a diverse cultural background, in a short period of time while and at zero cost. The previous made this research strategy the most fit for the purpose of this dissertation.

Following the survey, the reason for conducting interviews at this stage of the research proved an essential step, that permitted collection of information regarding barriers and benefits which we may not have foreseen. Furthermore, it provides a greater outlet and opportunity for respondents to share their points

of view. However, said strategy is time consuming, not allowing collection of a high volume of responses.

A descriptive and correlational research design was selected, for the survey. Collection of quantitative data allowed an adequate comparison of the data collected for each key variable, as well as, an easier management of the data in a way as to study, test and explore statistical outcomes (Saunders et al., 2016). The research design selected for the qualitative data was diagnostic design. The collection of qualitative data permitted to gather more detailed information, opinions and perceptions in regard to refill systems.

Furthermore, when designing the survey, none of the dimensions intended to analyze required open-ended responses, and for this reason only closed questions were included. In the survey designed it is possible to identify questions built as list, rating and category (Saunders et al., 2016). Moreover, the survey was pretested with 4 people to ensure clarity in terms language and meaning. In the interviews a semi-structured script with open-ended questions was applied and the respondent's own words were recorded.

The research applied already tested scales using a 5-point Likert scale, where applicable, aligned with previously tested questions and scales (i.e. REGRAD scale (Bailey et al., 2014) and GREEN scale (Haws et al., 2014)). In specific survey questions the scale points varied from 1 "never/not interested/not important", and at the opposite end point 5 "always/very interested/extremely important".

The method selected for survey distribution, was Internet-mediated type of access. The survey was distributed through the web, instant messaging and social media, using Google Forms, and the data was collected on said platform. The chosen method is justified based on the high number of answers needed to gather in a short period of time. Additionally, internet mediated access allows to reach a wider and heterogeneous spectrum of respondents.

Initially the strategy passed by leveraging on our personal contact network, friends, family and colleagues, that live in the UK. Said network then made use

of their own contacts and circulated the survey across their families and friend, to whom the survey was sent through instant messaging. Also taking advantage of social networks, such as Facebook and Linkedin, a post explaining the aim of the research, with a link directing to the survey was created. This was part of the strategy in order to ensure the data gathered was as random as possible and representative of the target population.

In support of the interviews, the method selected for data collection was random selection, as potential respondents were addressed on the street. However, the selection process was made based on observation of those leaving or entering beauty shops in a busy shopping area in London.

Additionally, and in order to ensure integrity and objectivity before the "start" button of the survey, a small introductory paragraph informing the purpose of the research and how the information gathered was meant to be utilized, was included. All the questionnaires answered were anonymous and the answers were not shared with any external entities to ensure data protection. A similar process was adpated for the in-person interviews.

To analyse the quantitative data collected, the software chosen was SPSS, mainly because it allows to run descriptive statistics necessary for the demographic and consumer behaviour data, but also perform rather complex statistics, such as correlations and regressions. The latter was used to analyze the variables of the drivers of action and the refillable perfume bottles. Following the survey data analysis, in order to analyse the interviews data collected a manual process of each responses was necessary, due to their qualitative nature.

The data collected and used throughout the analysis was primary data. The research sample was sourced from the UK, as the aim of the study is to study the impact of refillable perfume purchase decisions of consumers on the UK market (regardless of the participants cultural background). Secondary data was used in order to outline expected outcomes of the analysis of the defined variables.

The time frame selected for the survey to be live was one month and a half and the link was made available on the 25th of November. The reason behind the chosen timeframe was dependent on the time available to write this paper and, also, on the expected necessary time to collect the minimum viable number of answers (N=250).

In what concerns the interview phase, the objective was to collect as many insightful responses as possible. The choice of not defining a minimum number of answers was, firstly, associated to the quality of information. It would only be advantageous to consider responses that were insightful (i.e. responses that added extra knowledge or points of view, in regard to the quantitative data collected thorugh the survey). Secondly, due to time-constraint and uncertainty, as this is a high time-consuming method, with results are unpredict (i.e. we could not forecast if consumers would be willing to provide answers, and if they did, if there would be relevant insights).

Therefore, the time horizon for this paper is cross-sectional, as it focuses on gaining knowledge on the specific topic of refillable perfume bottles in the period of time in which the survey and interviews were conducted.

3.3 Research Methodology & Research Methodology Adopted

In favour of gaining knowledge regarding which refillable perfume business model might have more adherence from customers, what are the trade-offs choices in this type of sustainable consumption and the antecedents that influence the consumption behaviour. The research methodology chosen was a mixed method of quantitative and qualitative data, by means of survey and interview collection techniques (Saunders et al., 2016).

In the survey designed, the purpose is to increase the comprehension regarding three main dimensions. For each dimension a research question was

composed (Table 1). Following this, variables were coupled to each research questions, which were the origin of the questions enquired.

For each question formulated an expected outcome was defined based, when possible, on secondary data previously collected. Being aware that in the moment of defining the expected results for each variable epistemological, ontological, axiological assumptions were made, as well as, generalisations based on our personal experience. Anticipating outcomes was an essential step that allowed to either include or exclude a variable as being relevant for each research question.

For the first dimension, consumer behaviour, the aim is to understand to which extent one's antecedents, thoughts and attitudes might influence the decision to purchase a certain sustainable product (i.e. understand what is the likelihood of a green purchase being made, taking into consideration all of the past experiences, external influences, former purchase habits, mindset and beliefs a consumer has towards these type of products).

In terms of the second dimension, drivers of action, the attention is employed towards the product attributes and characteristics, the emotional reward feeling one obtains, the green communication strategies that might influence more and, fundamentally, what are the trade-offs consumers are willing to abdicate in order to purchase in a sustainable way (Munyaradzi, 2013; Salem, 2018; Hughner et al., 2007; Blake, 1999; Young et al., 2009; Bagozzi et al., 1999).

Finally, the last dimension, refillable perfume bottles, concentrates into understanding consumers' predisposition to refill used perfume bottles and recognize what is the business model that might have a higher success rate in the UK market.

The interviews were designed in a semi-structured and open-ended way as to gather profile information, as well as, insights regarding perceptions towards refillable perfume bottles business models.

Dimension	*Research question*	*Variables*	*Expected outcome*
1. Consumer Behaviour	To which extent consumer's positive attitudes towards sustainability and their antecedents influence their green purchase decision?	Gender	Female respondents will demonstrate to be more environmentally aware than males
		Age group	Younger generations are more concerned about sustainability
		Cultural background	Europeans, specially from northern Europe, tend to be more environmentally aware
		Income	Families with higher income purchase more sustainable, despite positive intentions from lower income families
		Purchase frequency	N/A
		Eco research frequency	Respondents that demonstrate higher organic sustainable behaviour will be more environmentally aware
		Eco stated interest	Respondents that demonstrate higher organic sustainable behaviour will be more environmentally aware
		Active vs Non active role	Respondents that demonstrate higher organic sustainable behaviour will display a more environmentally-friendly role
		Perfume purchase frequency & budget	N/A
		Eco-product vs Eco-brand	Eco brand influence over purchase decision is still higher than eco product
2. Drivers of action	What are the trade-offs consumers are willing to forgo to purchase sustainable perfumes?	Perfume attributes	- Fragrance (scent) - Price - Brand reputation
		Eco perfume attributes	- Recyclable container - Glass-based container - Read eco-label
		Price sensibility	High price sensibility
		Effort level sensibility	High effort sensibility
		Quality sensibility	High quality sensibility
		Glass container and design influence	Low sensibility
3. Refillable Perfume Bottles	Would a consumer and in what terms be willing to reuse a perfume bottle?	Willingness to reuse same perfume bottle	50% of respondents are willing
		Willingness to send empty container to the brand	Low willingness, average < 3,5
		Willingness to refill perfume at home	Medium willingness, average 4 – 4,5
		Willingness to go into store to refill perfume	Medium willingness, average 4 – 4,5

Table 1: Framework of research

3.4 Data Collection Methods

The data collection method chosen was a self-completed, internet-mediated type of access survey, using Google forms. It was distributed through three different channels: web, instant messaging and social media. The data collected through the responses gathered were demographic, attitudes and behaviour type of data (Dillman et al., 2014). The survey was divided in 4 groups: (i) profile; (ii) consumer behaviour; (iii) drivers of action; and (iv) refillable perfume bottles.

The data collection method chosen for the face-to-face interviews entailed a direct approach of potential respondents on the street. The selection process was made based on observation of those leaving or entering beauty shops in a busy shopping area of London. Furthermore, using a semi-structured script, which allowed us to have some guidelines and, simultaneously, flexibility and adaptability to each of the respondents.

The first group (profile), the goal was to collect factual and demographic data. Later in the process, said data would allow an outline of the respondent's demographic description, the current consumption habits and, create a persona representing the consumer most likely to purchase refillable perfumes.

The second group of questions were linked to the consumer behaviour dimension, through which behavioural and attitudinal data was gathered. As previously mentioned, consumer behaviour is influenced by the antecedents. Therefore, the following explanation comprises both profile and consumer behaviour section of the survey.

The variables coupled with consumer behaviour, were organic sustainable behaviour and concerns, sustainable purchase habits, interest for sustainable topics, influence of eco-product and eco-brand and perfume purchase frequency and budget.

As there are numerous antecedents influencing a purchase decision, a selection of those that were found to be more relevant for the purpose of this

paper was made. These comprehend, gender, age group, nationality, income, residency, organic sustainable concern and behaviour.

A market research conducted by Mintel, focusing on the consumers in the UK market, uncovered an "eco gender gap". The study found that women were, by far and in and all the categories studied, more conscious and aware than man when it comes to sustainability related topics (www.mintel.com). Some of the categories queried included recycling habits, efforts to decrease the use of water and caution for turning off the heating when not at home. Furthermore, the same study also found that, women are more willing to influence others into taking on more environmentally friendly habits than man.

Some researches focused on understating the age gap influence over environmental attitudes and habits (i.e. how different generations have distinctive concerns, values, behaviours and attitudes towards environmental topics). The discoveries, even though the interrelations found were slight, indicated that older individuals were more likely to avoid environmental harm (Wiernik et al., 2013).

Other studies addressing the same gap, found that younger generations are willing to pay more in order to purchase in a greener way (www.nielsen.com).

The nationality and cultural background have been found to affect immensely the choice of buying a certain green product. Studies proved the existence of correlations between socio-demographic and environmentally friendly behaviours (Jain & Kaur, 2006).

Available budget is also known to influence to a great extent, the purchase decision (Soman, 2001) and, typically, families with lower income purchase in a less sustainable way, despite having positive attitudes towards green products (Magnusson et al., 2001).

The UK residency element is necessary to ensure the data collected is relevant for the purpose of this paper, having the aspiration to give insightful

recommendations that can be applied and adopted by companies delaing with products in the UK market.

Studies have found evidence that a person that demonstrates a higher receptiveness and awareness for the overall welfare of the world will typically have greener purchase intentions (Maniatis, 2016; Sharma & Ruud, 2003).

However, consumers stated purchase intentions often do not translate into the real purchase action (*value-action gap)* (Eberhart & Naderer, 2017; Hughner et al., 2007; Aguilar & Vlosky, 2007).

The next set of survey questions developed into ad hoc queries regarding the target industry, addressing specifically the purchase habits, the research process and overall awareness for sustainable refillable perfumes. This set of behavioural questions is necessary in order to know the budget available towards perfume purchases, as well as, the frequency of said purchase.

The third set of questions corresponds to the drivers of action, behavioural data was collected.

The objective is to explore and identify the product attributes that influence the most the decision of making sustainable purchase and what are the trade-offs consumer choose (Blake, 1999; Young et al., 2009). Additionally, investigate how the respondent researches and looks for sustainable options and the emotional reward attained from such decision (Yoh, 2006; Jamali et al., 2016).

The final section of the survey regards perfume bottles business models, which allowed attitudinal data to be collected. In order to present business insights and suggestions regarding the refillable perfume business model that has the potential of being more success, the strategy followed was to benchmark on the business models already operating.

Accordingly, the strategy employed was based on benchmarking on these already functioning business models as a genesis for these set of questions, whilst foreseeing potential drawbacks from consumers, specifically regarding their

willingness to reuse the same bottle and forgoing the "open something brand new" type of feeling.

Initially, a small paragraph, addressing the importance of the reutilization of packaging was presented. In point of fact, reuse has been incentivized by many authors and, it has been pointed out as the primary solution to reduce waste (Langley et al., 2011). In said paragraph, insights regarding the characteristics of glass were also presented. Glass preserves the qualities and characteristics of fragrances and, because there is almost no contamination, that can be reused countless times (Baldwin, 2015). Furthermore, glass is a type of material that can be recycled endlessly, making it the perfect material to be reused (Chiellini, 2008).

The perfume refill business model operates precisely on those grounds, in a manner that allows the consumer to reuse a perfume container that would, otherwise, see the end of its useful lifetime.

Initially a small pilot test was launched, in order to understand if the questions asked throughout the survey were perceptible in terms of language and meaning. The survey was pretested with 4 people, colleagues and family members. Some minor linguistic changes were made. Following the corrections, the decision to make the survey live was taken (the final framework of the survey is found on the appendix).

Throughout the survey three types of questions were adopted, these were aligned with the characteristics of each question. List, category and rating were the types of questions employed.

List type was used in questions in which there was the need to assure respondents considered all the possible answers, for example, variables P2, CB11, DA4.2 and RPB1. Other questions, such as CB4, CB6.2 and DA2, used category type, has the objective was to collect behavioural and attitudinal data. The third type of questions asked used rating type, for example on variables CB6.1, CB9, RPB2.2 and RPB 2.3, this was a 5-point Likert-style rating. Rating style allowed to perceive the attitude intensity level, likelihood of action, importance given and

frequency towards the topic being queried about. Moreover, the Likert scale choice is due to the odd number characteristic. The neutral point feature generates more accurate data, as it grants the respondents who are genuinely neutral to not be pressured into giving an incorrect answer.

4 – Results and Data Analysis

4.1 Introduction

The main purpose of this chapter is to conclude on the extent to which consumer's positive attitudes towards sustainability and their antecedents influence green consumption behaviours. Moreover, the intention is to determine what are the trade-offs consumers are willing to forgo in order to purchase sustainable perfume, in favour of being able to determine which is the most suitable perfume refill system from a consumer prespective.

The analysis of the primary data collected shall be done whilst comparing to the secondary data uncovered, to provide answers for each of the 3 main research questions. Following, a discussion of the findings and a presentation of the research limitations will be presented.

4.2 Data Collection Methodology

Having set out to study consumers behaviour and drivers of action towards refillable perfume business models in the UK, the strategy selected as research methodology consisted of designing both a survey and an interview.

Initially, data was collected by means of survey using internet mediated type of access, via Google forms. Said survey was distributed using a link directing to the online form, which was circulated through social networks and instant messages. The link was made available for one month and a half and by the end of the deadline defined, the number of collected answers reached 257, which met the threshold of 250 answers. The quantitative data collect was then extracted to Microsoft excel and, afterwards, imported and processed using SPSS.

In the first group, profile, respondents were asked to indicate their gender, age, nationality, length of residence in the United Kingdom and annual income.

In the second group, consumer behaviour, a set of questions regarding consumption habits were asked, in which respondents were expected to indicate the frequency, interest and importance given to various aspects of sustainability according to a 5-point Likert scale. In these questions the scale points varied from 1, "never/not interested/not important" and at the opposite end point 5, "always/very interested/extremely important". The questions addressing green consumption values were adapted from the already tested statements in the GREEN scale (Haws et al., 2014). The importance of this tool lays on the ability to predict one's purchase and consumptions behaviour and, additionally, said tool demonstrates that consumers who exhibit stronger green consumption values favour environmentally friendly products.

In the third group, driver of action, the aim was to uncover the key aspects that unlock more effectively a positive green perfume purchase decision. Therefore, the strategy involved testing some of the perfume attributes that influence greater the buying decision, as well as, the sustainable trade-offs one might have to choose. At first, querying about the perfume attributes that respondents search for and influence the most when making a perfume purchase decision. Followed by questions focusing on trade-off elements, such as, price sensibility, effort level sensibility, quality sensibility and container material type and design. The previous elements are, by no means, a complete list of the sustainable trade-off choices consumers face in the moment of deciding to purchase a green perfume or not. Nevertheless, these four items cover the scope and context that the present paper aspires to study.

The questions within these group, were adapted from the study conducted by Yoh, more specifically from "use and purchase behaviours of perfume" section (Yoh, 2006). Still in this part, using previously tested questions based on the REGRAD scale (Bailey et al., 2014) such as green communication tools and how consumer perceive and respond to such advertisement tools were included.

Finally, refillable perfume bottles, respondents were questioned regarding the willingness towards trying refill perfume systems and, for this segment, the questions designed were based on a benchmark analysis of the market. This decision was made as no literature proving to be relevant and applicable to the specific purpose of this paper was found.

As for the interviews, primary data was collected by means of face-to-face semi-sctuctured interview, all carried out in the space of two weeks. Due to the qualitative nature of data an extensive analysis of the content obtained was made. This was the necessary process, in order to extract findings regarding the profile of each respondent, as well as, perceived barriers and benefits of each refill business model presented.

4.3 Results

4.3.1 Demographics and Consumer Behaviour

The population of this survey is composed by 63% female, 32% male and 5% respondents who preferred not to disclose this information (Table 2).

The age dispersion for both female and male respondents, is mostly between 18 and 30 years of age, with some relevant frequency for females aged between 31 and 45 (Figure 3).

Gender

		Frequency	Percent	Valid Percent
Valid	Female	161	62.6	62.6
	Male	83	32.3	32.3
	Prefer not to say	13	5.1	5.1
	Total	257	100.0	100.0

Table 2: Gender of survey respondents

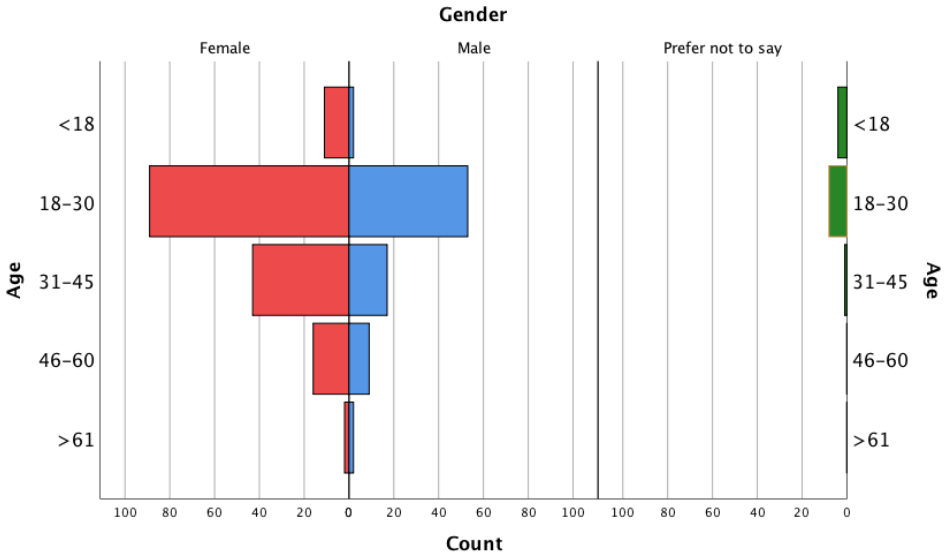


Figure 3: Age pyramid of respondents

In the framework of research (Table 1), an expected outcome defined regarding the gender was the existence of an eco gender gap. In the present research case, said behaviour is possible to be identified. Female respondents are in fact more involved and interested than man regarding sustainability. Therefore, agreeing with the thesis of existence of an eco gap between genders.

Analysing data obtained to varaibles P1, CB2, CB3, CB4 and CB5 (see the appendix for list of variables). The scale utilised varies from 1, "never/ not interested/ not important/ not active" and at the opposite end point 5, "always/ very interested/ extremely important/ extremely active". Women demonstrate a higher frequency of research (CB2), interest (CB3), and considerideration (CB4) for sustainability related topics. However, female respondents reveal that they believe they do not have an active enough role (CB5) towards being more sustaible when compared to male respondents.

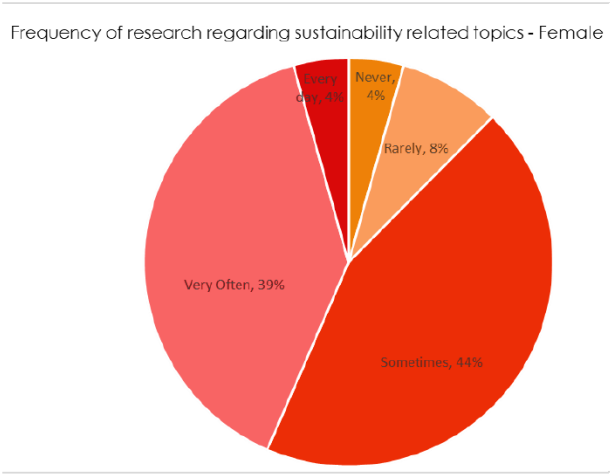
Regarding the variable frequency of research about sustainability related topics, is possible to observe that women showcase a higher constancy of research as, 43% of the female respondents reveal that they research sustainability related topics "every day" or "very often" (Figure 4), in

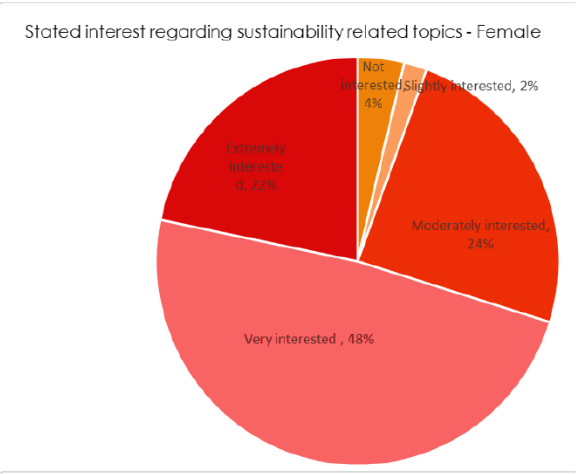
comparison to male respondents that only manifest the same behaviour on 34% (Figure 5).

In terms of the sated interested towards sustainability areas, it is possible to identify the same pattern. In this case, 70% of the women who responded to the survey state that they are "Extremely interested" or "Very interested" in such topics (Figure 4). Only 48% of male respondents revealed the same answers (Figure 5).

When queried regarding the consideration of the impact on the environment of their purchase decisions, 59% of the female respondents, reveal that they "always" or "very often" consider how impactful their purchase decision is (Figure 4). Out of the male population, only 40% provide the same answer (Figure 5).

Finally, 42% of the women believe that they already have an active role towards sustainability (Figure 4), whereas 67% of the male respondents claim that they are already active enough (Figure 5). Even though it might seem an odd result it is easily understood as an incongruity between the stated and actual sustainable habits, agreeing with the existence of a *value-action gap.*





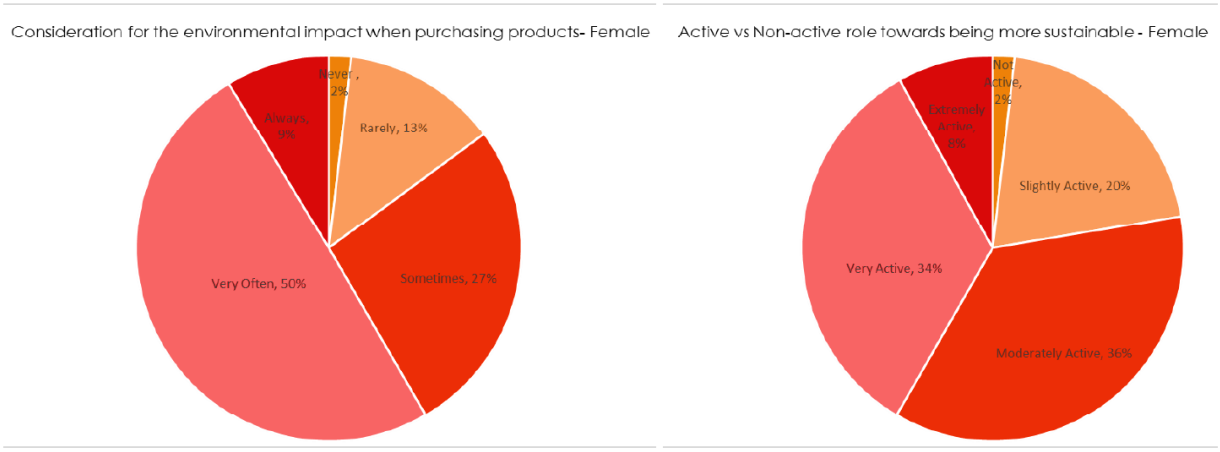


Figure 4: Females and eco variables

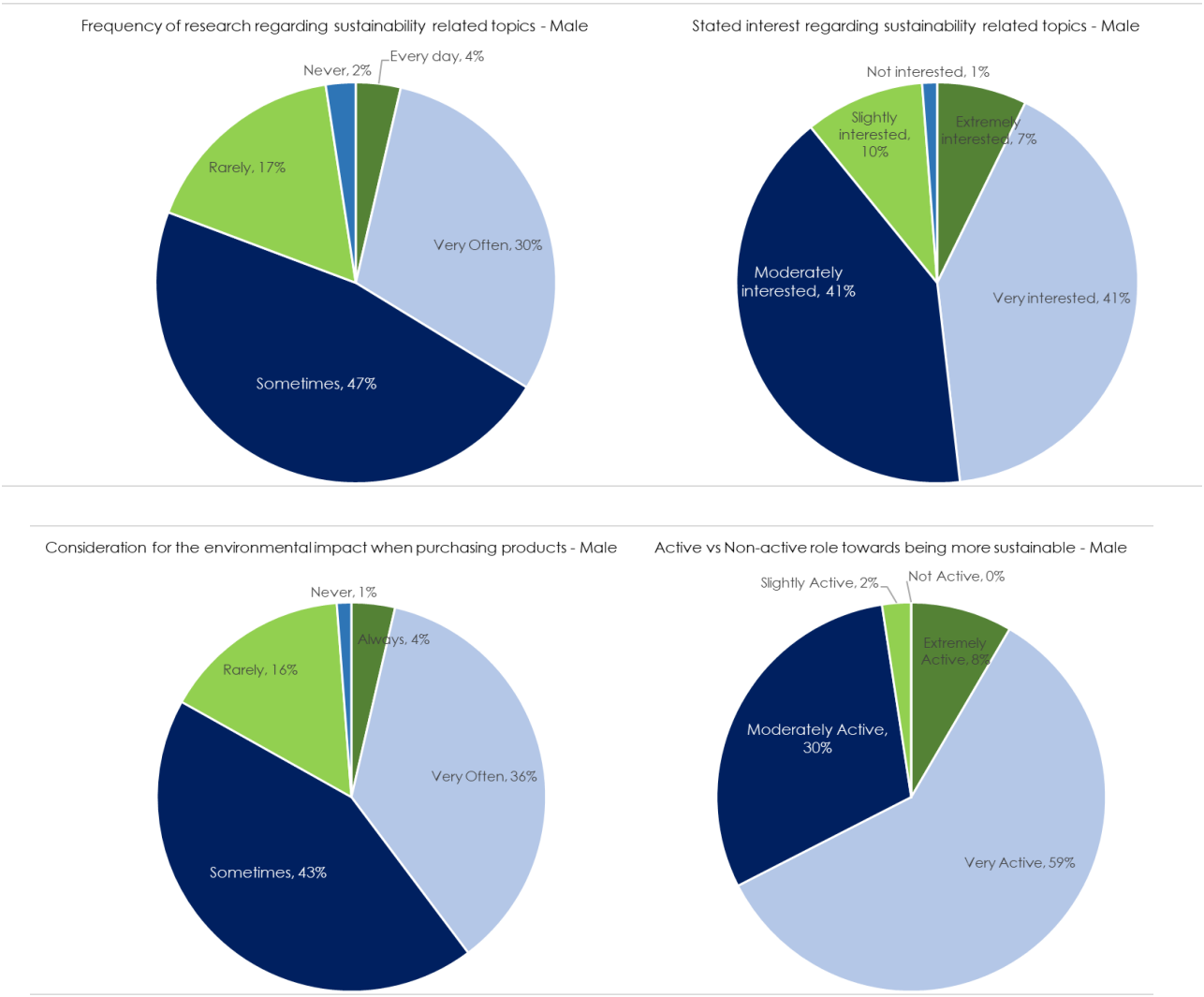


Figure 5: Males and eco variables

The expected behaviour regarding the different generations (Table 1) proved to be challenging to define. Even though, there are several studies addressing the sustainable purchase discrepancies between generation (eco-age gap), some studies present contrasting results.

Therefore, not being able to define an expected outcome solemnly based on epistemological and ontological findings, a more axiological and personal experience-based approach was adopted. In light of the previous, the expected outcome defined (Table 1), predicts finding proof of the existence of an eco-age gap, more specifically, the expectations are noticing a larger commitment and awareness towards a sustainable purchase from the younger generation, 18-30 and 31-45 years old, when compared to the older generations, 46-50 and >61 years old. On this occasion, respondents that had less than 18 years of age were not included.

Studying variable P2, CB2, CB3, CB4 and CB5. In regards to the variable "age" two clusters were defined, the first being the "younger generation", that includes respondents aged between 18 to 45 years old (Table 3), and the second being the "older generation", that corresponds to the respondents above 46 years of age (Table 4). The 5-point Likert scale used varies from 1, "never/not interested/not important/not active" and at the opposite end point 5, "always/very interested/extremely important/ extremely active".

Regarding the variable "frequency of research", the mean of 3,31, is higher in the younger generation (Table 3) when compared to the older generation 3,00 (Table 4). Similarly, the variable "stated interest in sustainability" the respondents aged between 18 and 45 years old display a higher average interest, 3,78 (Table 3), than the repondents aged above 46 years old, with an average of 3,1 (Table 4). Following he variable "consideration for the environmental impact of purchase decisions", exhibits a higher average of 3,46, in the younger generation, when compared to the average of 3,28 in the older generation group. These findings suggest that across variables CB2, CB3 and CB4 is possible to

observe the eco-generation gap, in which the younger generation demonstrated a higher concern and attention towards sustainability topics.

However, in the last variable, "active or non-active role towards being more sustainable", an interesting insight is uncovered, the older generation, even if just slightly, considers that they have an enough active role already. This finding can, as a matter of fact, reinforce the idea that there is a *value-action gap*, in which the younger generation despite researching more often, having more interest in and considering more the impact towards sustainability related topics, admit to not be active enough.

Furthermore, in the first age group (Table 4), it is possible to observe a lower standard deviation, indicating a lower variation within this group of respondents' answers.

	N	Mean	Std. Deviation	Variance
Frequency of research regarding about sustainability related topics	211	3.31	.708	.502
Stated interest in sustainability related topics	211	3.78	.799	.638
Consideration for the environmental impact when purchasing products	211	3.46	.788	.621
Active vs Non-active role towards being more sustainable	211	3.41	.831	.691
Valid N (listwise)	211			

Table 3: 18-45 years old and eco variables

	N	Mean	Std. Deviation	Variance
Frequency of research regarding about sustainability related topics	29	3.00	1.134	1.286
Stated interest in sustainability related topics	29	3.41	.946	.894
Consideration for the environmental impact when purchasing products	29	3.28	1.066	1.135
Active vs Non-active role towards being more sustainable	29	3.48	1.122	1.259
Valid N (listwise)	29			

Table 4: >45 years old and eco variables

As mentioned throughout this paper, the target population for the purpose of this study is consumers that currently live and actively purchase in the UK. In the moment of analysing the variable P3 (Table 2), it is possible to verify that the sample is representative, considering that 95% of the respondents are active consumers in the UK (i.e. consumers that purchase products either for themselves or for their household at least every 2 weeks and live in the United Kingdom) (Figure 6).

In terms of nationalities, the respondents were mainly from Great Britain (29%), Portugal (21%) and from France (14%) (Table 5). Out of this vast majority, around 50% live in the United Kingdom for at least 5 years, and 20% for more than 2 but less than 5 years.

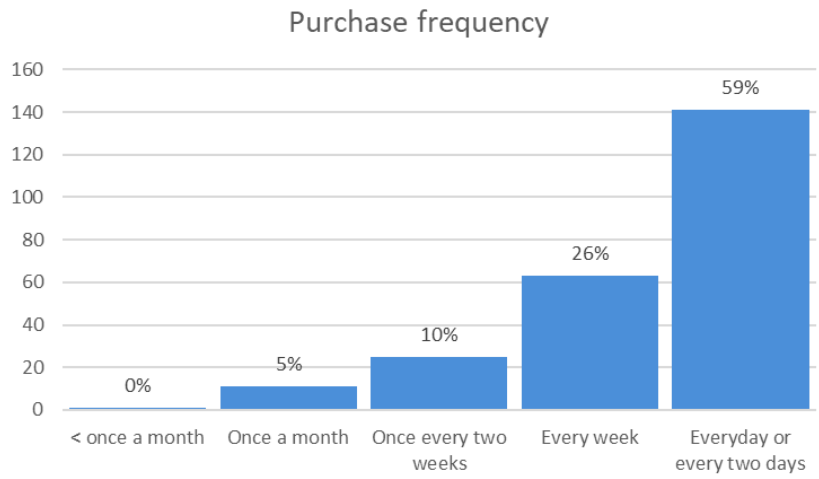


Figure 6: Purchase frequency of consumers that live in the UK

	Frequency	Percent
British	74	28.8
Portuguese	54	21.0
French	37	14.4
Other	22	8.6
Italian	16	6.2
Spanish	15	5.8
Finish	10	3.9
German	9	3.5
Belgian	8	3.1
Swiss	7	2.7
Dutch	5	1.9
Total	257	100.0

Table 5: Nationalities of respondents

The expected outcome was that Nordic European respondents, when compared to the remainder nationalities (defined as "other nationalities"), are according to the EPI (www.epi.envirocenter.yale.edu), the ones who demonstrate a higher frequency of research, interest, consideration and active role towards the environmental impact of their purchases and attitudes (i.e. accross all four variables) (Table 1).

Analysing the data from variables P3, CB2, CB3, CB4 and CB5, we understand that respondends with northern Europe origins display a higher frequency of research of green topics, higher interest for sustainability related topic and higher consideration for the environment when making purchase decisions (Table 6). However, the group "other nationalities" exhibits the aspiration to have a more active role (Table 7), when compared to "northern Europe nationalities".

The same behaviour on variable CB5 is evident, leading us to believe that respondents from Nordic countries read and research more often, have more interest and consider more their impact towards sustainability, but there is an

incongruity between the stated and actual sustainable habits, agreeing with the existence of a *value-action gap*

	N	Mean	Std. Deviation	Variance
Frequency of research regarding about sustainability related topics	33	3.64	.549	.301
Stated interest in sustainability related topics	33	4.09	.879	.773
Consideration for the environmental impact when purchasing products	33	3.76	.708	.502
Active vs Non-active role towards being more sustainable	33	3.15	.939	.883
Valid N (listwise)	33			

Table 6: Nothern Europe nationalities and eco variables

	N	Mean	Std. Deviation	Variance
Frequency of research regarding about sustainability related topics	224	3.19	.868	.754
Stated interest in sustainability related topics	224	3.66	.895	.801
Consideration for the environmental impact when purchasing products	224	3.36	.867	.752
Active vs Non-active role towards being more sustainable	224	3.47	.847	.717
Valid N (listwise)	224			

Table 7: Other nationalities and eco variables

When analysing the data collected, it is possible to recognize that out of those who have a lower income, 48% state that they consider that they are not active enough due to the higher costs of eco-friendly products (Table 8). Revealing an important finding that corroborates the antecedent that families with lower income will purchase less sustainable products than desired due to economic constraints.

	N	Higher cost of eco-friendly products	%
Higher income	177	30	17%
Lower income	73	35	48%

Table 8: Income and cost of eco-friendly products

Noticing that the finding regarding item CB5, was coherent through the anaylisis of variables P1, P2 P3 and P5, had an impact on the initial antecedent elaborated. Initially, there were expectations that the results for "active vs. non-active role" would be positively correlated to organic interest towards sustainability, but it proved to not be the case. However, it shows evidence of existence of a gap between the stated sustainable intentions and the actual consumption behaviour.

Some studies address how personality, habits and lifestyle influence green purchase behaviours (Paul et al., 2016). In his study, Paul J. Modi, explains two theories that focused in providing clarification on how the psychological and one's beliefs influence their green consumption decisions and habits. In the first theory, the theory of planned behaviour, it is explained consumer's behavioural intentions towards purchase decisions and, in the second theory, the theory of reasoned action, details the connection between individual beliefs, attitudes and stated behaviour intentions, and the actual purchase decision (Ajzen, 2000; Fishbein & Ajzen, 2010; Paul et al., 2016).

Looking at the purchase habits and organic green attitude, the conclusion that respondents are assiduous consumers can be drawn, as 77% purchase every day, every two days or every week (Table 9), and are naturally interested in sustainability-related topics, as more than 50% research every day or very often (Table 10).

Frequency of purchase of new products		
	Frequency	Percent
Every day or every two days	149	57.8
Every week	50	19.4
Once every two weeks	29	11.3
Once a month	22	8.6
Less than once a month	7	2.9
Total	257	100.0

Table 9: Frequency of purchase of new products

Frequency of research of sustainability topics		
	Frequency	Percent
Every day	15	5.7
Very Often	123	47.8
Sometimes	98	38.3
Rarely	16	6.4
Never	5	1.8
Total	257	100.0

Table 10: Frequency of research of sustainabilty topics

The interviewees were requested to select every green activity incorporated daily. Within the entire population of respondents, turning off unused lights is the preferred sustainable action, with a total of 228 respondents claiming that they engage and incorporate such activity in their everyday life, accounting for 89% of the respondents and 29% of the aggregated activities. Reusing water bottles and recycling are the second and third favourited activities, with 204 and 194 respondents executing them daily, correspondently. The least favourite activities are using renewable energy (4,8%) and, surprisingly, reusing bags (5,7%) (Table 11).

		Frequency	Percent	Valid Percent
Valid	Turn off the unused lights	228	28.9	28.9
	Use reusable water bottles	204	25.9	25.9
	Recycle	194	24.6	24.6
	Walk or bike to work/school	79	10.0	10.0
	Reuse bags	45	5.7	5.7
	Use renewable energy at your home	38	4.8	4.8
	Total	788	100.0	100.0

Table 11: Green activities incorporated daily

It is important to understand what are the barriers that prevent pro-environmental behaviours from thriving as, this insight will aid in the task of find ways to unlock solutions that foster behavioural change.

With respect to the constraints and difficulties pointed out by the respondents, 111 claim that lack of time is preventing them for engaging on eco activities, accounting for 31,6% of the aggregated constraints, followed by higher cost of eco-friendly products (19,4%) and lack of knowledge as to where they could find sustainable products (16,5%) (Table 12).

		Frequency	Percent
Valid	Lack of time	111	31.6
	Higher cost of eco-friendly products	68	19.4
	Don't know where to find sustainable products	58	16.5
	Don't know how to search for sustainable option	45	12.8
	Don't know the meaning of symbols and eco-labels	36	10.3
	Lack of interest	20	5.7
	Lack of viable options in the market	10	2.8
	Less quality	3	.9
	Total	351	100.0

Table 12: Deterrents of sustainable behaviour

Regarding the perfume purchase habits, it is possible to witness that 44% of the respondents buys perfume every 3 months, and 25% buy every 6 months

(Table 13). With an average of 20% of the yearly personal care budget being allocated towards the purchase of perfume

		Frequency	Percent
Valid	Every month	13	5.1
	Every three months	114	44.4
	Twice a year	65	25.3
	Once a year	43	16.7
	Special occasions only	22	8.6
	Total	257	100.0

Table 13: Frequency of perfume purchases

Furthermore, when searching for and purchasing sustainable products it is noticeable that brand's eco reputation yields a stronger influence towards a green purchase than the actual green product. As 68% of the respondent's state that they had purchased sustainable products in the previous month due to being aware that the brand was sustainable (Table 14), whereas only 36% of the respondents reveal that in the previous month they purchased at least one green product because they knew that the product itself was sustainable (Table 15).

	ECO BRAND	Frequency	Percent
Valid	0 products	81	31.5
	1 to 3 products	79	30.7
	4 to 7 products	38	14.8
	8 to 10 products	26	10.1
	Only green brands	33	12.8
	Total	257	100.0

Table 14: Purchase due to eco-brand

	ECO LABEL	Frequency	Percent
Valid	0 products	128	49.8
	1 to 3 products	56	21.8
	4 to 7 products	30	11.7
	8 to 10 products	7	2.7
	Only green products	36	14.0
	Total	257	100.0

Table 15: Purchase due to eco-label

4.3.2 Drivers of Action and Trade-offs

The scent is the most influencial attribute, with 98%[11] of the respondents selecting said attribute, out of the chosen five, that influence the purchase decision.

Other attributes that respondents stated as being highly influential are brand reputation (44%), price (47%), promotion (24%), quality (67%) and suggestion of friends and family (54%).

Out of the 257 respondents, 68% have never searched for sustainable perfumes, and out of the 32% that already have, the preferred three attributes are recyclable container, refillable container and glass-based container, representing 17%, 14% and 12%, respectively. Other key attributes identified are, research online before making the purchase decision, read eco-labels, recycled package, look for information in-store, ask for information directly to employees and only buy from brands that have sustainable reputation.

Nevertheless, even though consumers do acknowledge that purchasing in a greener way is good for the overall welfare of both the environment and the

[11] Percentages out of the total 257 respondents. Each choose 5 different attributes.

society, often there are too many trade-offs occurring when making the decision to buy sustainable products. This results in a discrepancy between stated purchase intentions and actual sustainable purchase (Eberhart & Naderer, 2017). With this in mind, a decision was made to investigate further into the trade-off and attributes choices a consumer must make when selecting a sustainable fragrance. The varaibles selected were DA 4.1 price sensibility, DA 4.2 effort level sensibility, DA 4.3 quality sensibility and DA 4.4 glass container and design sensibility.

In a scenario where a consumer faced a choice between perfume x with good quality, with non-recycled and non-recyclable package and perfume y with a similar quality and scent, with a recyclable and recycled container, but sold at a higher price point, 63% of the respondents claimed that their choice would depend on how high the price of perfume y was. Revealing that the respondents are in fact willing to choose the most sustainable option, but the purchase decision is contingent on price (Table 16).

The second scenario, respondents had to choose between perfume x, with good quality and single-use container, and perfume y, with the same level of quality and same price point, but less convenient as it has a refillable container which requires more effort than simply buying a new perfume. Perfume y was the choice for 50% of the respondents and, 44% stated that the choice would depend on the level of effort necessary. This finding suggest that consumers are willing to employ some effort in order to purchase in a greener way (Table 16).

The respondents were questioned which perfume they would choose if they faced the following scenario, perfume x uses synthetic ingredients which makes the scent stronger and last longer and perfume y has the same price, but the scent has less quality and lasts less because the ingredients are natural. Depends on the smell test and experimentation was selected by the vast majority, 61%. Moreover, 14% of the respondents declared that they would choose perfume x, and not even take into consideration perfume y. The conclusion suggests that in fact consumer

are not willing to forgo quality in order to purchase sustainable perfumes (Table 16).

Lastly, in order to query about the design and packaging material sensibility a situation was presented in which the respondent had a choice between perfume x, which has a plastic container and a more basic design and perfume y that has the same quality same price point, but it is stored in a glass container. The results realised are no surprise, and an astonishing 86% of the respondents chose perfume y (Table 16), corroborating the expected outcome defined (Table 1).

	Perfume X	Perfume Y	Depends
Scenario 1 - price sensibility	5%	32%	63%
Scenario 2 - effort level sensibility	6%	50%	44%
Scenario 3 - quality sensibility	14%	25%	61%
Scenario 4 - glass container and design sensibility	1%	86%	13%

Table 16: Trade-off analysis

4.3.3 Refillable Perfume Systems

In this section, the objective is to understand consumer's willingness towards the use of refillable perfume container. Subsequently, be able to define what is the business model that may have more adherence from consumers.

Respondents had access to a small explanatory text addressing the characteristics of glass and explaining what makes glass containers the perfect type of container to be reused and utilised in refillable perfume business models.

Following, respondents were questioned if with the information provided they would be willing to utilise refillable perfume bottles, and an impressive 86% of the respondents stated that they would, either like to try or have already tried

and would like to repeat (Table 17). Reinforcing the idea that in fact there is interest and curiosity in testing and utilising refillable-based systems.

		Frequency	Percent
Valid	I would like to try	112	43.6
	I have already tried and would repeat	109	42.4
	I would be somewhat willing to try	31	12.1
	I have no interest in trying	4	1.6
	I have already tried but I will not repeat	1	.4
	Total	257	100.0

Table 17: Basic willingness to try refillable perfume system

As there are no available studies regarding refillable perfume bottles, the strategy chosen entailed benchmarking on the business models already in place on the market. Reuse by means of refill, is represented in a twofold system; "refill at home" in which the consumer refills the empty container at home and, "refill on the go" in which the consumer refills the empty container away from home (www.ellenmacarthurfoundation.org). Business models may be based on one or the other system, with their own variants. The three business models under analysis on this section of the survey are RPB 2.1 based on "refill on the go" system, RPB 2.2 which is based on "refill at home" system and RPB 2.3 "refill on the go" system.

The aim is to understand which model has the potential to work better in the market (i.e. have more adherence from consumers). Following, the strategy was to ask respondents to qualify one a scale of 1 to 5, how willing they were to try each of the business models, in the scale 1 meant not willing and 5 meant extremely willing.

The first business model RPB 2.1, consists of buying a perfume and once finished, the user can send the empty container through post to the brand, and, a few days later, receive at home the perfume refilled. Even though this is a refill on the go system, the effort level is brought to the minimum, as the consumer

does not have to go to a specific store or location to have the container refilled. However, the fact that the refilled container is not made available right away can be a big impediment, as usually perfume is used daily.

The second business model RPB 2.2, involves placing an order online for the refill pod and once it has been received at home the consumer does the actual refill of the original bottle by itself, a refill at home system. In this case, the effort level is still low, but it does add an extra layer to the process that some consumers might see as a barrier. Furthermore, this model requires some level of anticipation, as a consumer need to order the refill pod before the actual fragrance rans out, otherwise there is a lag period.

The third business model RPB 2.3, entails the consumer physically going into store with the empty container and having it refilled on the spot by an employer. This business model assumes a higher level of effort from the consumer, as they are not able to have their empty container refilled from the comfort of their home. However, it unlocks a fast and timely response that the remainder business models do not fulfil, allowing the consumer to receive the refilled bottle right away and not requiring any level of anticipation.

Initially a simple descriptive analysis for each of the business models was ran and after, aiming to predict which business model is more likely to succeed based on known data regarding the basic willingness to try refillable perfume bottles, a regression analysis was completed.

Analysing the results from the descriptive statistics it is possible to observe that RBP 2.2 and RBP 2.3 appear to be two business models that the respondents are more willing to experiment, both with an extremely high mean, 4,19 and 4,21, correspondently, and with a standard deviation lower than 1, and a low standard error of the mean, which implies that the sample is an accurate representation of population (Table 18).

	N	Mean	Std. Deviation	Std. Error Mean
How willing would you be to send the empty perfume bottle to the brand?	257	3.56	1.188	.074
How willing would you be to order the refill online and receive at home?	257	4.19	.948	.059
How willing would you be to go into store and have the perfume refilled by an employee	257	4.21	.890	.055

Table 18: Willingness to try refillable perfume systems

The dependent variable defined for the regression analysis is each of the business models, and the independent variable is RPB 2 (i.e. the basic willingness to utilise refillable perfume bottles), as the willingness to experiment any of the business models proposed is dependent on the organic and on the previously revealed interest towards trying refillable perfume systems. Said regression predictive analytics will be the means to provide business recommendations and provide new insights.

Business model RPB 2.1 (Table 19), there is a positive correlation between the respondents who demonstrated a high willingness to try refillable perfume bottles and those willing to send the empty container back to the brand and receive it a few days later filled. Looking closely at the model summary below, the r-square value for the linear equation indicates that only 22,8% of the variance in the dependent value – business model RPB 2.1, can be predicted and explained by the independent variable – RPB 2, which reveals a low association strength.

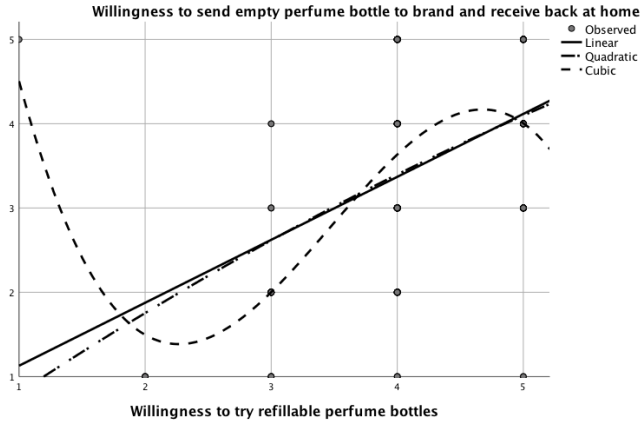
The p-value, i.e. significance value, associated with the F value obtained is very small (.000), and, when compared to the alpha level of 0,05, allows us to conclude that the independent variable (RPB 2) can be used to predict with a great level of reliability the dependent variable (RPB 2.1).

Contemplating the second part of the table, the parameter estimates, the constant represents the predicted value of the Y axis interception when the

independent variable equals 0. In the linear regression it is possible to observe that this value equals 0,382.

Finally, the bs are the values for the regression equation that allow us to make predictions of the dependent variable from the independent variable, for the linear regression the coefficient is always positive, as expected. This means that for every level of increase of willingness to try refillable perfume bottles, the willingness to send empty perfume bottles back to the brand and receive it back home will increase by 0,75.

In conclusion, it is possible to perceive that in the higher level of organic willingness to try refillable perfumes, i.e. level 5, consumers will demonstrate a level of around 4,2 of willingness to try the RPB 2.1 business model.



Dependent Variable: Willingness to send empty perfume bottle to brand and receive back at home

	Model Summary					Parameter Estimates			
Equation	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.228	75.264	1	255	.000	.382	.747		
Quadratic	.229	37.657	2	254	.000	-.217	1.067	-.041	
Cubic	.320	39.621	3	253	.000	13.419	-12.663	4.147	-.398

The independent variable is Willingness to try refillable perfume bottles

Table 19: Regression analysis variable RPB 2.1

Business model RPB 2.2 there is also a positive correlation between the respondents who demonstrated a high willingness to try refillable perfume

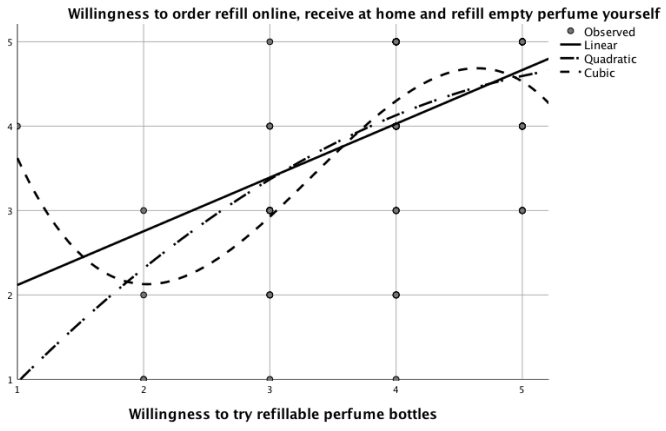
bottles and those willing to order the refill online and refill the empty container at home (Table 20). The coefficient of determination is about 0,26, which means that 26% of the variation in RPB 2.2 is explained by RPB 2. The coefficient is slightly higher when compared to the previous business model which help us make predictions with somewhat more confidence.

The significance value linked to the F value is 0,000, which is irrelevant when compared with to the alpha level of 0,05, allows us to conclude that the independent variable (RPB 2), meaning it is possible to predict with a great level of reliability the dependent variable (RPB 2.2).

Analysing the coefficient part of the table, if the willingness to experiment refillable bottles is 0, the willingness to order a refill online, receive it at home and refill the container itself would be 1,481, according to the linear regression.

Investigating the coefficient "b" for the linear regression, which allows predictions to be made regarding the dependent variable from the independent variable, the coefficient is always positive. This means that for every level of increase of willingness to try refillable perfume bottles, the willingness to order the refill online, receive at home and refill the empty container by itself will increase by 0,64.

Concluding, it is possible to observe that in the higher level of organic willingness to try refillable perfumes (i.e. level 5), consumers will demonstrate a level of approximately 4,6 of willingness to try the RPB 2.1 business model.



Dependent Variable: Willingness to order refill online, receive at home and refill empty perfume yourself

	Model Summary					Parameter Estimates			
Equation	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.260	89.547	1	255	.000	1.481	.637		
Quadratic	.276	48.513	2	254	.000	-.680	1.792	-.147	
Cubic	.350	45.435	3	253	.000	9.123	-8.079	2.863	-.286

The independent variable is Willingness to try refillable perfume bottles

Table 20: Regression analysis variable RPB 2.2

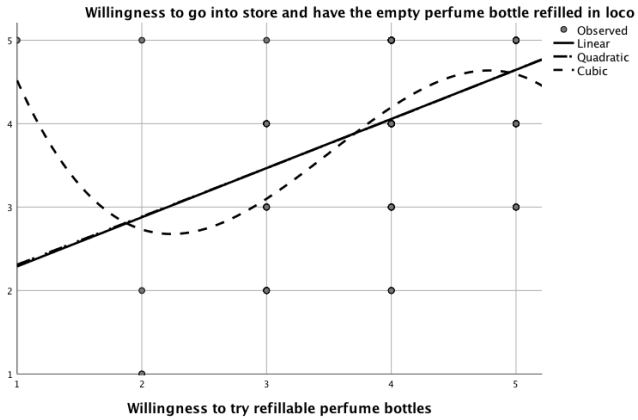
The last business model investigated on this occasion, RPB 2.3, holds a positive correlation between the respondents who demonstrated a high organic willingness to try refillable perfume bottles-based business model and, those willing to go into store and have the empty container be refilled in the moment by an employee (Table 21). The coefficient of determination is about 0,25, meaning that 25% of the variation in RPB 2.3 is explained by RPB 2. The coefficient is similar to the previous business model, and likewise, only slightly higher when compared to the RPB 2.1 business model.

Concerning this last business model, the significance value linked to the F value is 0,000, which proves again that it is irrelevant when compared to the alpha level defined of 0,05. This finding allows us to draw the conclusion that the independent variable (RPB 2), can predict with a significant level of reliability the dependent variable, RPB 2.3.

Analysing the coefficient fragment of the table, if the willingness to experiment refillable bottles is 0, the willingness to go into store and have the empty container be refilled in loco, would be 1,70, according to the linear regression. This is the highest constant of the three business models studied, which demonstrates that consumers who are less willing to try any type of refillable perfume containers are more willing to experience this business model when compared to the others.

Studying the coefficient "b" for the linear regression, that allows us to make predictions concerning the dependent variable from the independent variable, the coefficient is always positive, which means that for every level of increase of willingness to try refillable perfume bottles, the willingness to go into a physical store and have the empty container be refilled in the spot increases by 0,59.

Therefore, one can infer that in the higher level of organic willingness to try refillable perfumes, level 5, consumers will demonstrate a level of approximately 4,6 of willingness to try the RPB 2.3 business model. However, as the confidence levels proved to not be high enough, the team decided to perfome additional research; qualitative analysis was conducted.



Dependent Variable: Willingness to go into store and have the empty perfume bottle refilled in loco

	Model Summary					Parameter Estimates			
Equation	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.253	86.232	1	255	.000	1.700	.589		
Quadratic	.253	42.948	2	254	.000	1.740	.568	.003	
Cubic	.311	37.984	3	253	.000	9.885	-7.633	2.504	-.238

The independent variable is Willingness to try refillable perfume bottles

Table 21: Regression analysis variable RPB 2.3

To summarise some of the results uncovered by means of the analysis of the data collected through the survey, Table 22 was produced. Here we present the results to each variable in which an expected outcome was defined.

Dimension	*Research question*	*Variables*	*Expected outcome*	*Results*
1. Consumer Behaviour	To which extent consumer's positive attitudes towards sustainability and their antecedents influence their green purchase decision?	Gender	Female respondents demonstrate to be more environmentally aware than males	Verified
		Age group	Younger generations are more concerned about sustainability	Verified
		Cultural background	Europeans, specially from northern Europe, tend to be more environmentally aware	Verified
		Income	Families with higher income purchase more sustainable, despite positive intentions from lower income families	Verified
		Purchase frequency	N/A	N/A
		Eco research frequency	Respondents that demonstrate higher organic sustainable behaviour will be more environmentally aware	Correlated to previous variables
		Eco stated interest	Respondents that demonstrate higher organic sustainable behaviour will be more environmentally aware	Correlated to previous variables
		Active vs Non active role	Respondents that demonstrate higher organic sustainable behaviour will display a more environmentally-friendly role	Not verified – *value-action* gap
		Perfume purchase frequency & budget	N/A	N/A
		Eco-product vs Eco-brand	Eco brand influence over purchase decision is still higher than eco product	Verified
2. Drivers of action	What are the trade-offs consumers are willing to forgo to purchase sustainable perfumes?	Perfume attributes	- Fragrance (scent) - Price - Brand reputation	- Verified - Verified - Not verified
		Eco perfume attributes	- Recyclable container - Glass-based container - Read eco-label	- Verified - Verified - Not verified
		Price sensibility	High price sensibility	Not verified; depends on price gap
		Effort level sensibility	High effort sensibility	No verified; employment of some level of effort

		Quality sensibility	High quality sensibility	Verified
		Glass container and design influence	Low sensibility	Not verified – high sensibility
3. Refillable Perfume Bottles	Would a consumer and in what terms be willing to reuse a perfume bottle?	Willingness to reuse same perfume bottle	> 50% of respondents are willing	Verified (=86%)
		Willingness to send empty container to the brand	Low willingness, average < 3.5	Not verified (average = 3.56)
		Willingness to refill perfume at home	Medium willingness, average 4 – 4.5	Verified (average = 4.19)
		Willingness to go into store to refill perfume	Medium willingness, average 4 – 4.5	Verified (average = 4.21)

Table 22: Framework of research and results

4.3.4 Refillable Perfume Systems – Interviews

In order to collect more detailed information, opinions and perceptions, in regard to, refill systems, a qualitative approach was adopted. Interviews face-to-face were conducted in a two-week period, in a busy shopping are of London, UK.

Approching potential respondents proved to be a rather simple task, however, persuade them into responding the short interview was a difficult task. Nevertheless, some relevant responses were collected (Table 23). The five interviewees shared their opinions and prespectives, which proved to add knowledge to the findings presented previously.

To obtain responses, an introduction and explanation of the aim of study at hand was made. After agreeing to participate, respondents were asked about their age, citizenship and length of time living in the UK. Furthermore, the frequency of purchase of perfumes was questioned.

Afterwards, a small introduction was made regarding the characteristics of glass (i.e. explaining that it is a material that preserves the quality and characteristics of the perfume so, the container that can be reuse multiple times, as it has almost no contamination and it can be recycled endlessly).

A transcript of the interviews as well as the conclusions regarding the perceived benefits and barriers is presented on Table 23

	Date	Location	Profile	Insights	Benefit & Barriers
Inter-viewee A	14.01.2020 12h50min	Leaving Lush store, Oxford street, London	Female, 32 years old, British, lives Uk > 5 years	- *Frequency of purchase:* "I love perfumes, I buy all the time… I have one for each of my moods." - *RPB 2*: "Honeslty, it depends. I feel like it locks you to that brand and I do not like that thought." - *RPB 2.1:* "I see this process taking too much time, we all know how deliveries get delayed or parcels get lost, so I am not too sure." - *RPB 2.2:* "Not for me! I am too messy..." - *RPB 2.3:* "I know a brand with this business model, but actually the refill option is more expensive than buying a new perfume. So disappointing!"	*Perceived Barriers:* - Lack of flexibility - Logistic effort & issues - Mess - Price incentive expected
Inter-viewee B	14.01.2020 17h45min	Leaving Boots store, Oxford street, London	Female, 28 years old, Swiss, lives Uk for 3 years	- *Frequency of purchase*: "I have some fragrances, I would like to have more but the good ones are very expensive." - *RPB 2*: "Yes, I would be willing!" - *RPB 2.1*: "It seems so quick, convenient and it is cheaper, where can I buy?" - *RPB 2.2*: "Yes, this is a great and easy idea!"	*Perceived Benefits:* - Convenience - Ease - Cost savings *Perceived Barriers:* - Time consuming

				- *RPB 2.3*: "Unfortunatelly my time is too short, I am her because I work nearby. I see this being very time consuming"	- Communication
Interviewee C	15.01.2020 13h00min	Entering Lush store, Oxford street, London	Male, 31 years old, British, lives Uk > 5 years	- *Frequency of purchase:* "I have the same perfume since I can remember, so I only buy that one, but often." - *RPB 2:* "Yes!! We all need to find ways to reduce the waste we produce, either buy products with less package or reuse the containers" - *RPB 2.1:* "Hmm, I would have no guarantee that it would actually be the same container. A lot of brands pretend to be sustainable, when they are not" - *RPB 2.2:* "I really like this idea, as I am the one doing the refill it gives me the feel of doing something good for the planet!" - *RPB 2.3:* "Yes, I would be willing. It is also a transparent approach which I like!"	*Perceived Benefits:* - Reduce waste - Emotional reward feeling - Transparency *Perceived Barriers:* - Transparency - Communication
Interviewee D	17.01.2020 17h45min	On Oxford street, London	Male, 28 years old, Italian, lives UK> 5 years	- *Frequency of purchase:* "I do have some, but the majaroty have been gifts, I do not usually purchase perfumes." - *RPB 2:* "Depends. I like the idea of reusing and reducing waste produced, but I cannot afford to have another complicated thing in my life." - *RPB 2.1:* "Isn't there any risk of the fragrance being out of stock or being discountinued? No too sure... Also, I would have to go to the post office to send it and wait for I don't know how long to receiving it back" - *RPB 2.2*: "I would have to clean the bottle, wait for it to dry, it would take too much time to probably save a few pounds[12]" - *RPB 2.3:* "Too much planning envolved, I would have to know when the perfume was about to be	*Perceived Benefits:* - Reduce waste *Perceived Barriers:* - Stock issues - Extra organization - Involves effort - Time consuming - Low savings - Communication

[12] Pounds – Short way to referring to British Pounds

				done so I would go into store on that specific day."	
Inter-viewee E	17.01.2020 19h05min	Leaving Benefit store, Carnaby street, London	Female, 24 years old, French, lives in the Uk for 2 years	- *Frequency of purchase:* "Even though my addition is make-up, I love a good fragrance!" - *RPB 2:* "I know there are some make-up items that are refillable, but I had never heard that perfumes too. If I can really be assured that there is no loss in quality, then yes!" - *RPB 2.1:* "If it is delivered in a convenient way, I am all for it!" - *RPB 2.2:* "What a clever system! Seems super easy." - *RPB 2.3:* "Actually this seems so premium, and I would actually be saving money! Amazing!"	*Perceived Benefits:* - Ease - Premium feeling - Cost savings *Perceived Barriers:* - Quality - Logistic effort & issues

Table 23: Interviews framework and results

5 – Discussion and Conclusions

5.1 Introduction

This dissertation is divided into three main parts: an examination of the various antecedents influencing a consumer's sustainable purchase decisions, an analysis of the trade-offs occurring when a consumer makes a green buying decision, and a benchmark of the refillable business models and the consumer's willingness to reuse perfume bottles within said business models. The information gathered regarding these three dimensions results in this final chapter. In which a reference to the main success drivers but also highlight the challenges, from a consumer's perspective, is made. Paving the ground, to provide business suggestions, as to what companies need to consider, in order to successfully implement refill perfume business models.

5.2 Discussion and Research Objectives

5.2.1 Consumer Behaviour

The starting point, defining consumer's antecedents that influence to a greater extent a sustainable purchase decision. The antecedents addressed in the present paper are, gender, age group, nationality, income, organic sustainable concern and behaviour, as well as, active role towards sustainability, frequency and budget available for perfume purchases and influence of eco-product when compared to eco-brand. Some were studied individually, others coupled or correlated with other antecedents.

Eco-gender gap and Organic Sustainable Concern and Behaviour

Evidence of existence of an eco-gender gap was found. Similarly, to what was uncovered in a market research conducted by Mintel that found that British women are generally more concerned and aware of sustainability related topics when compared to the British man (www.mintel.com). In fact, our research found that British women, when compared to British man, are more interested and research more frequently sustainable related topics. Additionally, females also manifest a higher consideration for the environmental impact of their purchase decisions. Male respondents not only show evidence of higher disconnection from eco-related topics, but they manifest the belief that their current attitudes and actions are active enough, proving the existence of an *value-action gap* (i.e. female respondents reveal high values regarding sustainability but often it does not translate into action, as they claim their role should be more active).

Eco-age gap and Organic Sustainable Concern and Behaviour

Even though, there are several studies addressing the sustainable purchase discrepancies between generation (eco-age gap), some studies present contrasting results.

On one hand, a global study conducted by Nielsen uncovered that, younger generations are willing to pay more for sustainable products and, therefore, displaying a higher propensity to purchase in a sustainable way, attesting the existence of an eco-age gap (www.nielsen.com).

On the other hand, a different research found that older individuals are more likely to avoid environmental harm, which gives strength to the thesis of existence of an an eco-age gap, however, in this case, older generations are more involved in sustainability related causes and more likely to purchase sustainabily (Wiernik et al., 2013).

Regarding this variable, eco-gender gap, the research showed evidence that younger individuals display a higher pro-environmental behaviour and organic sustainable concern. Furthermore, like the previous variable's relationship, older individuals, believe that their current sustainable actions are enough, when, in fact, they exhibit lower concern for the environment. The previous finding provides, again, signs of a mismatch between stated intentions and actual behaviour.

Socio-demographics and Organic Sustainable Concern and Behaviour

In regard to cultural background influence on sustainable behaviours, it is possible to understand that said antecedent does impact green consumption habits and overall sustainability concerns (Jain & Kaur, 2006). In their research, Jain and Kaur, presented evidence that there is a correlation between socio-demographic and environmentally friendly behaviours.

In our research, socio-demographics proved to be an impactful antecedent, one whose relationship between the cultural background and the frequency of research, interest and respect for the environment is most marked. However, it is important to point out, that only 13% of the total population of respondents is included in the "northern Europe" group. The cultural background group that demonstrated a lower pro-environmental behaviour ("other nationalities"), is also the group that claims to have, already, an active role. This *value-action gap* is a coherent finding, also present in the relation between these variables.

Income and Organic Sustainable Concern and Behaviour

Families with lower income purchase in a less sustainable way despite having a positive attitude towards green products (Magnusson et al., 2001). Furthermore, consumer choice theory, focused in interpreting the sustainable

purchasing behaviour based on economic influences. This theory explains that consumer's choice between engaging or not in green purchasing behaviours is merely based on their available budget. In fact, a positive relation between higher income families and overall concern for the environment was established in our research. Furthermore, evidence was found that families with lower income would, most likely, purchase more sustainably, had they not have financial constraints.

Eco-product versus Eco-brand gap

The brand sustainable reputation still yields a higher influence that the actual green product. Therefore, a possible communication strategy, should emphasise the implemented environmental actions being carried out by a brand, rather than, focusing on the environmentally-friendly product attributes.

Barriers of sustainable behaviour

The first deterrant of sustainable consumption behaviour determined in our research, lack of time, is in line with the barrier previously identified by Gardner and Stern. It is a true reflection of the current and tremendously busy lifestyles we live in, in which time is short and consumers cannot spare any moment to go the extra mile in order to purchase in a sustainable way (Gardner & Stern, 2008).

As mentioned before the available budget and financial concerns are also a relevant barrier against pro-environmental behaviour (James & Card, 2012; Gadenne et al., 2011). Consequently, the higher cost associated with eco-friendly products is another important obstacle that is worth to be mindful of, as it is known to prevent sustainable behaviour from thriving.

The third issue recognized, the lack of knowledge regarding where to find sustainable products, has also been previously identified (Gardner & Stern,

2008). Not being aware as to where one can find sustainable products in addition to not having enough time can be a troubling combination, and an arduous one to overcome.

5.2.2 Drivers of Action

This section aims to investigate the trade-offs occurring when a consumer must make a green buying decision, focusing on, product attributes, reference groups, eco communication, packaging materials and design, transparency of supply chain and use of natural and organic ingredients. Along with, container material influence and price, effort level and quality sensibility analysis.

Perfume and Eco-perfume Attribute

The main attributes influencing the purchase decision process, uncovered in the analysis of primary data collected, are aligned with the expected outcomes based on finds from the analysis of secondary data. These attributes are, scent of a perfume and price. For eco-perfume are recyclable and glass-based containers.

In fact, when selecting a perfume, scent has been noted as the most influential factor influencing the purchase decision (Yoh, 2006; Jamali et al., 2016). Brand reputation and price are also highly influencial (Cleveland et al., 2005; Biel et al., 2005; Şener & Hazer, 2008; Wheale & Hinton, 2007), as well as, discounts have a great influence on the purchase decision (Liao et al., 2009). Similarly, reference groups and family members impact greatly one's consumption behaviour (Yoh, 2006; Blake, 1999; Young et al., 2009).

However, this study uncovered that quality, price and suggestion of influence groups have a higher influence over the purchase decision than, as initially predicted, brand reputation.

Moreover, in the eco-perfumes case, refillable container represents the second most influential attribute. The expectation was, eco-labels would have a higher effect that what the data suggested.

Price, Effort Level and Quality Sensibility and Container Material Influence

This set of questions aims to understand some of the trade-offs choices a consumer makes during the purchase decision process.

Willingness to pay more for sustainable products is still one of the biggest impediments for consumers to purchase in a greener way (Laroche et al., 2002). Nevertheless, in the preset study it was possible to understand that consumers are actually willing to spend more money on sustainable products, depending on how much the price increase is.

Willingness to employ more effort towards pro-environmental behaviours is still a barrier that prevents consumers from purchasing sustainably (Laroche et al., 2002). The research conducted on this paper found contrary evidence, in fact, employment of some effort is likely to occur in order to purchase sustainably.

Willingness to abdicate some quality and efficiency is still a barrier, as the scent and its quality is one of the perfume attributes known to influence the most a purchase decision (Yoh, 2006; Jamali et al., 2016). In fact, consumers reveal that they are not willing to sacrifice quality in order to buy sustainable perfumes.

Glass perfume bottles are preferred by consumers, as it communicates prestige and quality, and is more environmentally friendly (Raza et al., 2013). Our research uncovered a similar behaviour in the choice of glass container, as consumers showed eveidience of not being enthusiastic about giving up design and glass perfume bottles.

5.2.3 Refillable Perfume Systems

After understanding, from the analysis of the data collected in the survey, that there is willingness and interest in trying refillable perfume bottles (in fact, the disposition to do so surpassed our initial expectations), face-to-face interviews followed. Said interviews were conducted to better understand the perceive advantages and challenges from a consumer point of view, for each of the business models proposed.

The information collected was used to formulate a list of success factors and obstacles. Such factor should be taken into consideration by companies and governments dealing with green products. The perceived benefits should be leveraged on, in order to, operationalise refillable business models that include them, and, the obstacles, need to be kept in mind, as companies need to find ways to tackle them and minimize their effects.

Perceived Benefits

- Convenience – some respondents perceived the business models as being convenient and suitable for their busy lifestyle.
- Ease –logistics that were perceived as simple and easy to put into action.
- Cost savings – opportunity to have the same benefit whilst making cost savings.
- Reduce waste – opportunity to reduce the environmental impact by generating less waste.
- Emotional reward feeling – the good-feel emotion one obtains from having a positive impact on the planet.
- Transparency – some business models, such as RPB 2.3, are perceived as being transparent, which causes the consumer to have more confidence in the refill process.
- Premium feeling – opportunity to link the perfume refill system to a premium experience which will then generate a repeated purchase.

Perceived Barriers

- Lack of flexibility – locking the consumer to a specific brand and a specific fragrance.
- Logistic effort & issues – having to deal with logistics such as going to the post office (RBP 2.1) or having the parcel go astray, could mean extra effort which consumers' busy lifestyles might not allow. Extra effort also was associated to the process of cleaning the empty container and waiting until it was dry to proceed with the refill.
- Time consuming – extra effort often translates into time consuming, which, as it is known, can be a serious drawback. Lack of time was pointed as the main cause for consumers not carry pro-environmental behaviours.
- Messy process - the refill process needs to be simple, easy, and intuitive, and not leave room for accidents (i.e. spills) to happen.
- Price incentive expected – reusing the same perfume container communicates to the consumer's a lack of newness, this means that a price incentive is expected. When it is not the case it leads to a disappointment-type of feeling, as mentioned by one of the respondents.
- Low savings – in addition to the already expected price reduction, the savings need to be sufficient to justify engaging in refillable systems.
- Stock issues – the risk of a perfume being discontinued or out of stock, has also been pointed out in the interview stage.
- Extra organization – such system requires extra organization. Consumers must plan to go into store or order the refill online before the perfume runs out.
- Quality assurance – consumers' need to be assured that there is no quality loss during the refill process, as consumers are not willing to forgo quality to purchase sustainably.

- Communication and transparency – a vast number of respondents were not aware that some refill perfume bottles already exist in the market, therefore, lack of communication is a constrain towards refill business models. Communication must be a widely used tool, as it explains how every step of the refill process operates and informs about the positive environmental impact of refilling and. Furthermore, transparency throughout the entire supply chain is mandatory.

5.3 Conclusions

The main conclusions uncovered in the analysis of both, survey and interviews, are presented on Table 24. Such findings allowed us to deliniated the most likely costumer to engage in buying a refillable perfume bottle, as well as, the trade-offs the costumer might have to undergo, and the choice of refill system selected.

Female, with less than 45 years of age, from a northern Europe country, with high income, purchases perfumes more than once a year, is the most likely persona. The expected drivers influencing the purchase decision are, scent and brand reputation, she will be looking for recyclable and refillable container. Price, quality and packaging material will also influence her sustainable purchase choice. Said persona will be willing to employ some level of effort towards that purchase. Most probably, the purchase of the refillable perfume bottles will act by means of business model RBP 2.2.

However, it is important to be wary that said "most likely" consumer, also showed evidence of the existence of a gap between stated values and actual purchase behaviour. Therefore, even though it is possible to conclude that this is the profile of the most likely consumer in terms of stated preferences, it might be that the purchase decision will not be realized.

In order to be successful, the refill business model chosen should take into consideration the findings in this dissertation, regarding the consumer behaviour, the drivers of action and the perceived barriers and benefits of each model. Designing and operationalizing a system that is, most importantly, robust.

Dimensions	*Research Questions*	*Main Findings*
1. Consumer Behaviour	To which extent consumer's positive attitudes towards sustainability and their antecedents influence their green purchase decision?	- Representative sample – 95% are active consumers living in the UK - Evidence of existence of a more positive attitude of female respondents – eco-gender gap - Evidence of existence of a more positive attitude of younger respondents – eco-age gap - Evidence of existence of a more positive attitude of Nordic background respondents – eco-cultural background influence - Evidence of existence of a more positive attitude of higher income respondents – eco-income gap - Evidence of existence of positive attitude of lower income respondents that cannot purchase due to budget constraints - Evidence of existence of a mismatch between stated sustainable intentions and actual action – *value-action gap* - Lack of time, higher cost of eco-friendly products and lack of knowledge regarding where to find green products are major barriers towards a pro-environmental behaviour - Approx. 75% of the respondents purchase perfumes more than once a year - Eco-brand reputation has a higher influence on a purchase decision than eco-label - Brand eco-reputation still has a higher influence towards a green purchase decision than an actual sustainable product
2. Drivers of action	What are the trade-offs consumers are willing to forgo to purchase sustainable perfumes?	- The attributes that influence a perfume purchase decision are scent, brand reputation, price, promotion, quality and suggestion of family/friends and therefore the ones consumers will be less willing to forgo - Scent is the attribute that influences the most a perfume purchase decision - The sustainable perfume attributes respondents look for are recyclable container, refillable container and glass-based container which will be the attribute not willing to sacrifice - Price sensibility - sustainable purchase decision is highly dependent on the price - Effort level sensibility – consumers are willing to employ some level of effort to purchase sustainably - Quality sensibility – consumers are not willing to forgo quality in order to purchase sustainable perfumes

		- Design and packaging material sensibility – consumers prefer glass containers perfumes
3. Refillable Perfume Bottles	Would a consumer and in what terms be willing to reuse a perfume bottle?	- 86% Respondents are eager to try refillable perfume bottles or have already tried and would repeat - The business model based on ordering the refill online and refill the container at home is the most likely to succeed - Also, business model involving going into store to refill the bottle has chances of high adherence from consumers - The business model consisting on sending empty container to the brand and receiving back home is the business model most willing to face resistance from consumers

Table 24: Main findings summary

5.4 Limitations and Recommendations of Research

Often, stated purchase intentions do not translate into a more conscious purchase of such products identified as being more sustainable (Eberhart & Naderer, 2017). Having found some evidence suggesting the existence of this *value-action gap*, it is important to note that a claim cannot be made with full certainty that the avowed purchase behaviour will translate into an actual purchase. At present, we do not have the tools nor the resources to conduct a market research that would test if the stated intention converts into an acquistions or not.

Furthermore, we are aware of the lack of accessibility of the survey, as sampling is restricted to internet users. Correspondently, the interviews took place in a specific shopping area of London, limiting greatly the accessibility, that only includes shoppers in that area.

Even though there is the belief that the sample is representative of the population target, due to the small sample size, it is not possible guarantee that

the findings uncovered can be generalized to the total population, therefore, further research comprising a wider sample is advised.

Recommendations for further Research

As previously mentioned, further research, of the topics addressed in the survey, comprising a wider sample is advised, as well as, in-depth exploration of the incongruity between stated sustainable intentions and actual sustainable purchases.

It would also be helpful to capture qualitative responses throughout the country, in order to gather a broader understanding of perceived benefits and barriers associated with each refill system.

Furthermore, for future studies it can be interesting to further the understanding and gather insights regarding consumer preferences when presented with more complex trade-off choices. However, for the purpose and time available for this paper no further investigation was made.

Additional research from a business prespective, about each proposed refill business model, can be interesting, in order to understand which model would be more profitable and easier to operationalize.

6 – References

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7 – Appendix

Profile	
P1	Gender
P2	Age Gap
P3	Nationality
P4	UK residence
P5	Annual Income
Consumer Behaviour	
CB 1	How often do you buy new products for yourself or your household?
CB 2	How often do you research and/or read about sustainability related topics?
CB 3	On a scale of 1 to 5, how much would you say you are interested in sustainability related topics?
CB 4	Which sustainable changes do you incorporate daily? (select from the list)
CB 5	Do you typically consider the environmental impact when purchasing products?
CB 6.1	On a scale on 1 to 5, do you consider you should have a more active role when it comes to being more sustainable?
CB 6.2	If yes, what is preventing you from doing so?
CB 7	How much, of your monthly budget for personal care do you, approximately, spend on perfumes?
CB 8	How often do you buy perfumes or fragrances?
CB 9	When selecting a perfume do you often look at the package and search for sustainable labels?
CB 10	How many perfumes or cosmetic products have you purchase in the past 6 months because it had a green label?
CB 11	How many perfumes or cosmetic products have you purchase in the past 6 months because you are aware that the brand is sustainable?
Drivers of action - towards sustainable perfume purchase	
DA 1	When choosing a perfume what are the 5 attributes that influence the most your decision (select from the list)
DA 2	When looking for a sustainable perfume you tend to look at or chose based on (select from the list)
DA 3	After purchasing a green product do you have an "emotional reward" feeling?
DA 4	**Trade off choices - when selecting a sustainable fragrance**
DA 4.1	Price sensibility
DA 4.2	Effort level sensibility
DA 4.3	Quality sensibility - Use of organic and natural ingredients
DA 4.4	Preference for glass containers and influence of design
Refillable Perfume Bottles	
RPB 1	Basic willingness to try perfume refills
RPB 2	**Business models**
ROB 2.1	Willingness to send empty container back to the brand & savings
ROB 2.2	Willingness to refill perfume at home & savings
ROB 2.3	Willingness to go into store to refill perfume & savings

Table 25: Survey framework