

T.C
MARMARA ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İŞLETME (İNGİLİZCE) ANABİLİM DALI
ÜRETİM YÖNETİMİ VE PAZARLAMA (İNGİLİZCE) BİLİM DALI

**IN THE FASHION INDUSTRY CONSUMER PERCEPTION ON WILLINGNESS TO
PAY AND CIRCULAR ECONOMY**

Yüksek Lisans Tezi

Behiye Selin Gökkut

Tez Danışmanı: Prof. Dr. Emine Çobanoğlu

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**MODA ENDÜSTRİSİNDE ÖDEME İSTEĞİ VE DÖNGÜSEL EKONOMİYE İLİŞKİN
TÜKETİCİ ALGISI ÜZERİNE BİR ÇALIŞMA**

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Lastly, this thesis is about gaining information about circular economy and sustainability. If readers would gain a little awareness of the issues and practices, this thesis will be successful.

İstanbul, 2022

Behiye Selin Gökkut

ÖZET

MODA ENDÜSTRİSİNDE ÖDEME İSTEĞİ VE DÖNGÜSEL EKONOMİYE İLİŞKİN TÜKETİCİ ALGISI ÜZERİNE BİR ÇALIŞMA

Döngüsel ekonomi, artan farkındalık, sınırlı doğal kaynakları koruma ihtiyacı ve iklim değişikliğini durdurma ihtiyacının bir sonucu olarak hükümetler, şirketler ve akademiden önceki on yıllara göre daha fazla ilgi gördü. Araştırmacılar, belirli ürün kategorileri veya kullanımları açısından tüketicilerin döngüsel ekonomi hakkında nasıl hissettiklerine baktılar. Van ve diğerleri tarafından yapılan çalışmalara göre, döngüsel ekonominin tüketici tarafından tanınması, öncelikle kişisel özellikler, ürün ve hizmet teklifleri, bilgi ve anlayış, deneyim ve sosyal yönler, risk ve belirsizlik algıları, faydalar ve diğer psikolojik faktörlerden etkilenir. (2016) ve Vehmas ve ark. (2018). Bu çalışmanın amacı, moda endüstrisinde döngüsel ürünlerin ödeme istekliliği açısından tüketici bakış açısını anlamaktır. Analizi yapmak için çevrimiçi anket dağıtıldı. Deneyisel tasarımın iki aşaması yürütüldü ve bir tişörtün iki kez değerlendirilmesi istendi. Önce dairesel olarak üretilen t-shirt'ü tanımadıklarında ve verilen bilgiden sonra boyut soruları ile birlikte değeri tekrar sordular. 407 katılımcının sonuçları analiz için toplandı. t-testi ve küme analizi için kullanılan SPSS28. Kümeleme analizi ile cinsiyete göre 2 farklı küme oluşturulmuştur. Bu araştırmanın sonuçları, ankete katılan kadın katılımcıların, dairesel olarak üretilen bir ürün için erkek katılımcılardan daha az ödeme eğiliminde olduğunu göstermektedir. Döngüsel ekonomide müşteri tercihlerini anlamak, üreticilerin başarılı stratejiler oluşturmalarına yardımcı olabilir.

Anahtar Kelimeler: Döngüsel Ekonomi, Ödeme İstekliliği, Sürdürülebilirlik, Geri Dönüşüm, Moda Endüstrisi, Tüketici Algısı, VBN Teorisi

ABSTRACT

IN FASHION INDUSTRY CONSUMER PERCEPTION ON WILLINGNESS TO PAY AND CIRCULAR ECONOMY

The circular economy has received more attention from governments, corporations, and academia than in previous decades due to increased awareness, the need to protect finite natural resources, and the need to stop climate change. Researchers have looked at how consumers feel about the circular economy from the standpoint of specific product categories or their uses. Consumer recognition of the circular economy is primarily influenced by personal characteristics, product and service offerings, knowledge and understanding, experience and social aspects, perceptions of risks and uncertainty, benefits, and other psychological factors, according to studies by Van et al. (2016) and Vehmas et al. (2018). The aim of this study is to understand consumer perspectives in terms of willingness to pay for circular products in the fashion industry. To conduct the analysis, an online survey was distributed. Two steps of the experimental design were completed and asked to value a t-shirt twice. First when they didn't know the t-shirt was produced circularly and after the given knowledge the value was asked again along with dimension questions. Results of 407 participants were gathered for analysis. SPSS28 was used for t-test and cluster analysis. With cluster analysis, 2 different clusters formed in terms of gender. Results of this research show that women participants in the survey tend to pay less than male participants for a circularly produced product. In the circular economy, understanding customer preferences may help producers create successful strategies.

Keywords: Circular Economy, Willingness to Pay, Sustainability, Recycling, Fashion Industry, Consumer Perception, The VBN Theory

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INTRODUCTION

With increased awareness in protecting finite natural resources, and averting climate change, governments, companies, consumers and scholars have paid more attention to circular economy aspects than previous decades (Camacho-Otero et al., 2018, European Parliament, 2022). Unlikely unsustainable Linear Economy (EMF, 2013), which is the fundamental economic system that is generally used, it must be replaced with a circular design which is a Circular Economy (CE), based on closed-loops, mainly focuses on 3R (reduce, recycle and reuse) according to Patwa et al. (2021). Another important aspect is consuming services rather than objects or becoming users rather than end consumers. This would improve manufacturers' incentives to build high-quality, long-lasting items rather than short-life products that encourage consumers to buy new ones. The CE which is a new way of producing and consuming is sustainable and continuing production-consumption practices that optimize the value created by the linear produce-use-waste flow (Sauvé et. al., 2016; Sillanpää, and Ncibi, 2019).

Transforming from Linear Economy to CE has many limitations and regulations for different sectors. Companies must adopt new challenges from production to sales or business strategies. Additionally, sectors are required to revolve around these new regulations and achievements. According to Dahlbo et al. (2017), if virgin textile¹ manufacturing is rewarded, reusing or recycling for upper usage (e.g., using for another product's raw material) will lower environmental consequences compared to current application. Modifications are needed throughout the whole value chain to keep materials and products in the loop and maintain their maximal potential worth (Testa et al., 2020a). After food, housing, and mobility, textile use in Europe has the fourth-highest impact on the environment and climate change. It ranks third for increased water and land consumption, fifth for main raw material use, and fifth for greenhouse gas emissions. By 2030, there will be a 63 percent rise in apparel and footwear consumption. Negative effects on resources, water use, energy consumption, and the climate are growing at the same time as this unrelenting increase. It is more important than ever to address the manufacturing and use of textiles. Consumer options for textiles in the CE implicate selecting fabrics resistant to years, extending the usage period of materials with careful utilization, and when their life cycle is finished (Dahlbo et al., 2017).

¹ textiles made with wool yarn that hasn't been recycled

European textile industry experts have identified several innovation trends influenced by the circular economy predicted to impact the sector in the upcoming years significantly. These trends include “digitization, sustainability, source efficiency, new businesses, and new consumption models” (Radhakrishnan, 2021). According to the Ellen McArthur Foundation (2013), Americans wear clothing for just one-fourth as long as people in other countries do, and they squander \$460 billion annually by tossing away items that may still be useful. By 2050, the fashion and textile sectors may have consumed more than 26% of the global carbon budget (Durocher, 2020).

The categories of customers most likely to buy items linked to the CE are not fully understood by existing studies (Harms and Linton, 2016). This is brought about by the relative dearth of consumer-focused research complicated by a range of relevant product categories, recirculation channels, environments, and theoretical frameworks (Hazen et.al., 2012). Potoglou et. al. (2020)’s study that follows includes research on items that are widely categorized as CE products, such as refurbished, reused, recycled material, durable products, or access-based business models. For purposes of comparison, the study also consults literature on "sustainable" product labeling (Potoglou et. al., 2020).

The WTP of consumers may alter when product characteristics or quality vary. Customers are more likely to pay extra for a product if they appreciate the added features or characteristics because they think the product will be more useful to them (Testa et al., 2020a). In certain cases, a product's environmental aspect may be related to other features or attributes. For instance, past research indicates that items with less environmental effect or with advantageous environmental characteristics tend to increase customers' perceptions of the product's worth (Pretner, 2021). Since many consumers did not know what the term "circular economy" implied, even if their connections were in the proper direction, consumer attitudes, reasons, and impediments, as well as their intents to engage in CE behavior, might be diverse (Testa et al., 2021). Consumers’ opinions of advantages and drawbacks would be highly diverse and can be connected to product functionality, the food production system, and economic considerations. Besides these, there is another struggle with understanding the consumers’ price predictions and their highest and lowest range of prices (Camacho-Otero et al., 2020). To the best of our knowledge, there are no insightful studies on how consumers view the CE from their willingness to pay. The goal of the desire to pay, then, is to learn about a product's (possible)

customers' willingness to pay, including price choices and new product development (Breidert et al., 2006).

The fast-evolving, affordable fashion that leads to a rise in textile waste is the primary cause of the rising consumption in the textile industry (Palm et al., 2015). Energy use, water use, chemical use, dyes and finishes, and greenhouse gas emissions are just a few ways textile goods harm the environment (Pedersen and Gwozdz, 2014). Consumers have options regarding textiles in the context of the circular economy (CE), such as buying durable fabrics (Hill, 2018a), extending the life cycle of fabrics via diligent maintenance (WRAP 2012), mending or reusing clothing, and recycling non-reusable materials (Cao, 2022). Understanding the customer viewpoint will be the primary focus of this study because the fashion business is a very recent and complex phenomenon (Niinimäki, 2017).

Through this study, consumers' perception of the Circular Economy on behalf of willingness to pay will be examined in the fashion industry. The CE, which can be defined as a sustainable economic model aimed at efficiently using resources through waste minimization and garbage cycled back into production processes, is a crucial concern at the global level. Given the low level of consumer interest and awareness in CEs, this study aims to identify the entry points for consumer participation in CE-promoting activities. Improving our understanding of how ordinary people talk and think about circularity and circular behavior can help us determine whether and to what extent circularity is a concern for today's consumers and what role (groups of) consumers might play in the ongoing transition to a CE shortly.

This study focuses on the CE as a whole and, more particularly, fashion-related circular items to understand customer perceptions better. While a focus on consumers has increased in popularity in the realm of food technology and innovation according to Grunert et al. (2014). Concerning willingness to pay customers are influenced by factors relating to each particular consumer, the product, and the market, their previous personal norms, beliefs and values. Consumer views and purchase decisions are significantly shaped by concern about the environment (Mainieri et al., 1997; Boyer et al. 2021). In the literature on pro-environmental behavior², there are two primary streams: one emphasizes sociodemographic elements, and the other, social-psychological notions (Stern et al., 1999) which will lead consumers to act more

² All acts aimed at preventing harm to and/or protecting the environment are considered pro-environmental behavior (Steg and Vlek, 2009).

with awareness about environment. This study will focus on both streams in terms of deciding willingness to pay for a circular product. Studies from the second stream, in which we place the current study, have been more effective in predicting pro-environmental actions by using social-psychological categories like values, attitudes, and beliefs (Boldero, 1995). In terms of first stream in the research demographic qualifications will be analyze, group the participants accordingly to their demographic differences to understand their preferences better. Additionally, the effect of the knowledge and the action accordingly to Circularity and sustainability is examined through the research to understand the perspective of the consumer. Therefore, this research aims to find answers this to questions:

1. What is the price that customers are willingly to pay for things that are created circularly?
2. Which consumer characteristics will affect circular price decision?
3. Does there connection between the VBN theory and the Circular Economy products?

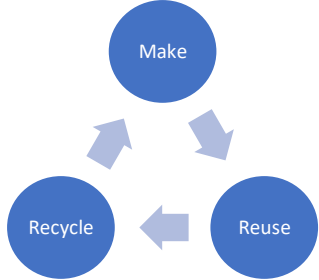
Consumers' willingness to pay attitude in general will help to define the parameters for companies to engage in CE. Through research and analysis results showed that there is a specific cluster who tend to pay more for the circular products. This cluster differ in terms of gender according to direct marketing analysis in SPSS28. With the clusters' marketers would work on segmentation to determine the best group of people to sell circular products or to find the right amount of the value of the product. This and other results of participants attitudes towards the circular product will help both scholars and marketer to understand the topic better and take further action with knowledge to target new audiences. This research is structured around 5 propositions accordingly to literature.

1 CIRCULAR ECONOMY

Issues such as sustainability, recycling, global warming, and their solutions, which have been in our lives for a long time, have become critical daily. Recently, CE has been one of the most popular topics in discussions about new, more environmentally friendly industrial paradigms and strategies. The Circular Economy (CE) attempts to drastically alter how we utilize resources by displacing existing open production/economic systems, such as those based on the linear consumption economy model, in which raw materials are taken, processed into completed goods, and then discarded after use (Urbinati et al., 2017).

To understand the CE better, knowledge of the linear economy is essential. Since the beginning of the third industrialization, linear thinking has reigned, resulting in progress and wealth in many regions of the world. Nevertheless, since the linear model forecasts unsustainable resource consumption and massive amounts of rubbish that harm the environment, it is one of the reasons for our current sustainability problems. The core of circular-economic thinking is that we must reject the linear value chain, which is founded on the idea of "take, manufacture, and dispose of," and instead construct a circular value chain, in which resources are reused several times (Stahel, 2016). As seen in Table 1, there are several differences between linear and circular economies.

Table 1 Linear vs. Circular Economy

Linear Economy	Circular Economy
 <pre> graph LR Make[Make] --> Use[Use] Use --> Dispose[Dispose] </pre>	 <pre> graph TD Make((Make)) --> Reuse((Reuse)) Reuse --> Recycle((Recycle)) Recycle --> Make </pre>
An unsustainable system is an open loop.	A sustainable, closed-loop system.
Value is added through mass manufacturing and product sales.	Value comes from the recycle and reusing the products.
The idea is to maximize the use of raw materials collected before transforming them into products, eventually disposing of unusable material.	The ideology comes from the primary 3R system that is Reduce, Reuse and, Recycle
The aim is to produce more products at a low cost.	Residues and byproducts of a manufacturing process are converted into raw materials for recirculation in a regenerative system (Silva et al., 2021).

References: Ellen MacArthur Foundation, 2013a; 2013b; 2014, Developed by the researcher.

A linear economy is one in which natural resources are transformed into waste through output. The ecosystem is harmed by this waste generation in two ways: first, by removing natural capital from the environment, and second, by decreasing the value of natural money as a result of contamination from the garbage. Unlike the Linear Economy, the current economic term for many, the CE method takes an elements-based approach. The goal is to create closed loops in which the pieces' functioning is preserved for as long as feasible by avoiding dismantling them into their fundamental ingredients after each usage. Even when such components are reduced to their essential elements, there is a concept of recovery and reuse, and they are not seen as trash (Sauve et al., 2016; Xiao et al., 2017).

Even though CE's societal history stretches back to the dawn of industrialization and the nineteenth century, a scholarly study has only begun, with most of it occurring at the applied levels. For example, Swedish economist Erik Dahmen (1950) explored the mechanics of industrial change that will undoubtedly produce transformational forces in existing production systems. This change will be comprehensive, affecting all of the industrial system's value chains at different levels, and essential sectors such as innovation, entrepreneurship, and technology development will be vital (Boulding, 1966; Desrochers, 2002; Desrochers, 2004).

CE has been referred to as a closed-loop economy in which nothing is wasted, and everything will be shared, repaired, reused, or recycled defined by Stahel and Ready-Mulvey (1976) for the first time. During the 90s, the expression of a CE was used by Pearce & Turner (1990) as a new concept of the economy for the first time against the linear economy and defined as a new economic system with the phrase “everything is an input to something else” (Pearce & Turner, 1990, p.1). After Pearce and Turner (1990), several attempts to define the circular economy have been made, influenced by various notions that show how controversial the idea is and how nebulous it is, as shown in Table 2. In 2004 WRAP (Waste and Resources Action Programme)³ defined circular economy as “CE is an alternative to a traditional linear economy (make, use, dispose of) in which we keep resources in use for as long as possible, extract the maximum value from them while in use, then recover and regenerate products and materials at the end of each service life.” According to Peters et al. (2007, p.5943), the circular idea is “to close material loops, reduce inputs, and reuse or recycle products and waste to achieve a higher quality of life through increased resource efficiency.” In 2008 Yuan et al. (p.4) defined the ideology as “is a political strategy aiming to alleviate the resource scarcity and reduce pollution, and so it is essential to find effective ways to educate or train people so that they can implement the concept into their everyday work and life.” According to Yuan et al. (2008, p.4), All resources and energy are adequately utilized, and reducing the environmental consequences of development on the ecosystem to a minimum is how an ideal Circular system should be.

In 2010 Zhu et al. (p. 1324-1331), defined the CE as “a new development concept emphasizing environmental concerns,” Through the 2010s, many definitions occurred with the increasing importance of sustainability, global climate crisis, and circular economy. In 2012, Preston (p. 20) defined a circular economy as “an approach that would transform the function of resources

³ which is a non-profit organization that works with governments, corporations, and individuals all over the globe to build a future where resources are utilized responsibly

in the economy. For example, factory waste would become a valuable input to another process – and products could be repaired, reused, or upgraded instead of thrown away”. The Ellen MacArthur Foundation has offered one of the most often used definitions that incorporates aspects from several disciplines that helped the concept of Circular Economy gain popularity. The Foundation tries to create and promote the circular economy concept while working with industry, academics, politicians, and organizations worldwide to create a new economic system that benefits both people and the environment. The Foundation defined Circular Economy as a vital or sustainable financial structure through purpose and design. The overarching goal is to "allow effective flows of materials, energy, labor, and information so that natural and social capital may be restored" (Ellen MacArthur Foundation, 2013a; 2013b; 2015a).

Like scholars, some organizations or conferences that acknowledge the importance of the circular economy tried to define the concept. For example, the House of Commons/Environmental Audit Committee (2014) described CE as “a current approach where resources are used for one purpose and discarded.” One of the recent definitions made by the European Commission in 2015. Definition provided of the idea in its Circular Economy Package Communication "Closing the Loop - An EU Action Plan for the Circular Economy as “where the value of products, materials, and resources is maintained in the economy for as long as possible, and the generation of waste minimized.” In this respect, the EU Action Plan contains several initiatives to tackle the whole product cycle, from manufacturing to consumption through resource disposal and the downstream raw resources industry.

“Circular Economy in Australia and Commercial Asset Recycling (COARA) are two organizations that try to spread circular economy to the globe. They both defined Circular Economy in 2016 in order as “CE is an alternative model that anticipates and designs for biological and technical 'nutrients' to be continuously re-used at the same quality, dramatically reducing our dependency on sourcing new materials” and “CE is driven by the desire to use the value in products we already have that might previously have been thought of as waste.”

In 2016 various scholars defined CE; for example, Sauvé et al. (2016, p.53) defined CE as the “production and consumption of goods through closed-loop material flows that internalize environmental externalities linked to virgin resource extraction and the generation of waste (including pollution)” or Ghisellini et al. (2016, p.11-32) explained CE as “The radical reshaping of all processes across the life cycle of products conducted by innovative actors has

the potential to not only achieve material or energy recovery but also to improve the entire living and economic model.”

According to Naustdalslid (2017, p.303-313) and Blomsma and Brennan (2017, p.603-614); the phrase "CE" refers to any activity that encourages people to share, lease, reuse, repair, refurbish, and recycle current resources and products for about as long as possible.

In March 2021 European Parliament declared a recent definition for CE that “is a production and consumption paradigm that encourages people to share, lease, reuse, repair, refurbish, and recycle existing resources and products for as long as feasible. The product's life cycle can be prolonged in this way”.

Table 2 Definitions of CE

Author	Definition
“The Waste and Resources Action Program (WRAP)” (2004)	“CE is an alternative to a traditional linear economy (make, use, dispose of) in which we keep resources in use for as long as possible, extract the maximum value from them while in use, then recover and regenerate products and materials at the end of each service life.”
Peters et al. (2007, p. 5943)	“The central idea is to close material loops, reduce inputs, and reuse or recycle products and waste to achieve a higher quality of life through increased resource efficiency.”
Yuan et al. (2008, p.4)	“CE is a political strategy aiming to alleviate resource scarcity and reduce pollution, so it is essential to find effective ways to educate or train people to implement the concept into their everyday work and life. In an ideal CE system, all the materials and energy are effectively utilized, and therefore the environmental impacts of development on the ecosystem are reduced to the minimum”.
Li et al. (2010, p. 4273–4281)	“CE aims at closed-loop material and energy systems in all sectors of industry to reduce the use of natural resources and the environmental impact.”
Zhu et al. (2010, p. 1324–1331)	“Due to resource scarcity and environmental degradation, a new development concept emphasizing environmental concerns called

	the CE.” “CE promotes continuous economic development without generation of significant environmental and resource challenges. It advocates those economic systems can and should operate according to the materials and energy cycling principles that sustain natural systems. CE also emphasizes the recycling of essential materials and energy and the capacity for one entity's wastes to be used as a resource by another entity through self-organization capacities.”
Hu et al. (2011, p. 221-228)	“CE focuses on resource-productivity and eco-efficiency improvement comprehensively, especially on the industrial structure optimization of new technology development and application, equipment renewal, and management renovation.”
Preston (2012, p.20)	“Circular economy is an approach that would transform the function of resources in the economy. Factory waste would become a valuable input to another process – and products could be repaired, reused, or upgraded instead of thrown away”.
Ellen MacArthur Foundation (2013a; 2013b; 2015a)	“The circular economy is “an industrial system that is restorative or regenerative by intention and design. It replaces the ‘end-of-life’ concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models”. The overall objective is to “enable effective flows of materials, energy, labor, and information so that natural and social capital can be rebuilt.”
Su et al. (2013, p. 215-227)	“CE is a sustainable development strategy aiming to improve the efficiency of materials and energy use. CE can be defined as an economy type with a closed-loop of material flows, opposite to the traditional open-ended economy.”
Jiao and Boons (2014, p.14-25)	“CE was defined as a holistic concept covering the activities of ‘reduce, reuse, and recycle’ in the process of production, circulation, and consumption.”

Nguyen et al. (2014, p.4)	“CE aims to eradicate waste not just from manufacturing processes, as lean management aspires to do, but systematically, throughout the life cycles and uses of products and their components. Indeed, tight component and product cycles of use and reuse, aided by product design, help define the concept of a circular economy and distinguish it from the linear take make dispose economy, which wastes large amounts of embedded materials, energy, and labor.”
House of Commons/Environmental Audit Committee (2014, p.5)	“CE maximizes the sustainable use and value of resources, eliminating waste and benefiting both the economy and the environment. It offers an alternative to the predominant current approach where resources are used for one purpose and then discarded.”
Birat (2015, p. 206)	“CE is a contemporary and popular concept that describes how materials and resources should be handled in the future.”
Gregson et al. (2015, p.151-176)	“CE has emerged recently as a policy goal in the context of rising resource prices and climate change. The aim is to move away from the linear economic model, summarized as ‘take make dispose of’ with raw materials in at one end and externalized wastes at the other.”
Haas et al. (2015, p. 765-777)	“CE is a simple, but convincing, strategy, which aims at reducing both inputs of virgin materials and output of wastes by closing economic and ecological loops of resource flows.”
Hepler (2015)	“A successor to the practice of old school “reduce, reuse, recycle” mantras, these examples of unconventional material re-purposing help illustrate the much-hyped circular economy d a more ambitious, and more marketing-friendly, rethinking of how product materials and packaging can be cycled back into supply chains.”
European Commission (2015a p., 614)	“Where the value of products, materials, and resources is maintained in the economy for as long as possible, and the generation of waste minimized.”

“Circular Economy in Australia,” (2016)	“CE is an alternative model that anticipates and designs for biological and technical 'nutrients' to be continuously re-used at the same quality, dramatically reducing our dependency on sourcing new materials.”
“COARA - Commercial Asset Recycling” (2016)	“CE is driven by the desire to use the value in products we already have that might previously have been thought of as waste. But a transition from the traditional linear economy where we use raw materials to make a product, use it and then discard that product once it has ceased to function, or simply becomes outdated, requires changes in product design, the manufacturing process, supply chain, consumer perception, and attitude”.
Sauvé et al. (2016, p. 53)	“Circular economy refers to the “production and consumption of goods through closed-loop material flows that internalize environmental externalities linked to virgin resource extraction and the generation of waste (including pollution).”
Ghisellini et al. (2016, p. 11-32)	“The radical reshaping of all processes across the life cycle of products conducted by innovative actors has the potential to not only achieve material or energy recovery but also to improve the entire living and economic model.”
Naustdalsslid (2017, p. 303-313)	“The term “circular economy” as mentioned in these measures is a generic term for the reducing, reusing and recycling activities conducted in the process of production, circulation, and consumption.”
Blomsma and Brennan (2017, p. 603-614)	“Circular economy is a general term covering all activities that reduce, reuse, and recycle materials in production, distribution, and consumption processes.”
European Parliament (March 2021)	“The circular economy is a production and consumption paradigm that encourages people to share, lease, reuse, repair, refurbish, and recycle existing resources and products for as long as feasible. As a result, the product's life cycle can be prolonged this way.”

References: Developed by the researcher

After examination of all scholar's definitions, it is clear that every scholar adds some extra meanings to the CE accordingly to their search areas. In addition, scholars looked from different perspectives; At the same time, some of them get on the subject from the environmental side, and others examine the business model of the CE and how businesses implement the idea.

From these perspectives, CE is an alternative economic model against linear economy systems and is a closed-loop economy that tries to turn waste into usable outputs in a sustainable way. CE is a term that approaches the whole issue and implements its necessities to all systems. In CE, what was once deemed "trash" is now repurposed as a valuable resource for developing something new. The CE's primary purpose is to reduce, reuse and recycle.

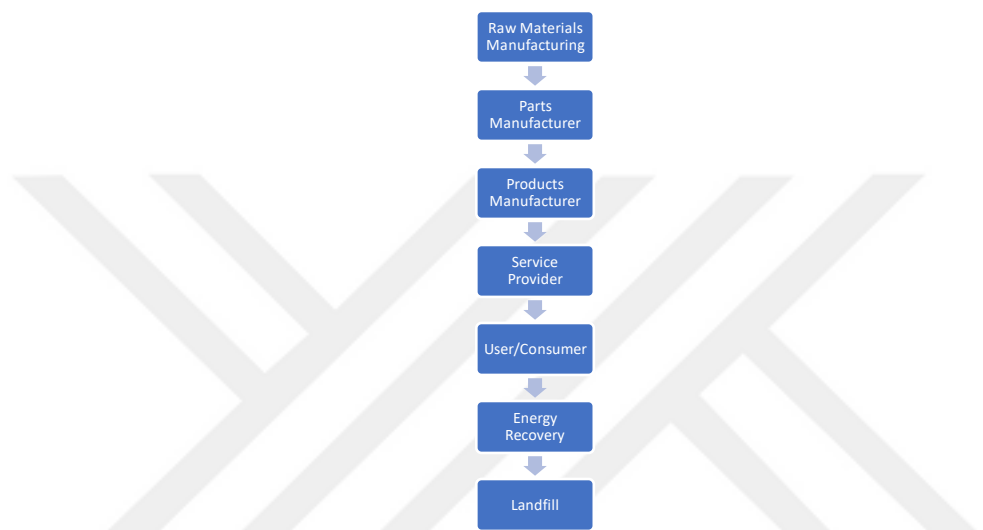
According to EMF (2015), the CE contains four principles directly related to nature itself; we just need to imply these rules for our societies to be successful.

- Waste equals Food; For example, in nature the disposes of the animals become composite for another plant. In the production process, one product's leftovers or materials can be another products' practical part like a continuing process.
- Build resilience through diversity; Resilience is about adaptability. Systems must be adaptable enough to new and complex processes like nature.
- Use energy from renewable resources; In nature, our primary energy resource is the sun. Unfortunately, production companies use energy resources that harm nature and affect all aspects of life. Therefore, companies need to start using renewable energies to maintain their existence.
- Think in systems; To maintain this ideology, companies should transform their whole culture into a CE. Additionally, societies must apply this model to their daily lives and get used to it. Finally, a CE comes with the idea of reusing the products that companies are producing or even adding some parts to the product for reuse for different purposes (Ellen McArthur Foundation, 2020).

CE, is a closed loop for all aspects of a company, from production to the distribution of the product even after the end of usage. It is a long process to ensure every procedure is smooth way. According to Ellen McArthur Foundation (2015), to ensure these processes, there are two main loops to track for different purposes. Technical nutrients side of the loop and biological

nutrients side of the loop; these two primary processes have other characteristics. Technical nutrients are like minerals, metals, etc. Biological nutrients are, biological origin, such as agricultural production goods/commodities (EMF, 2012; EMF, 2013). Although, initially, without closing the loop, it will look like in the Figure 1, the main idea behind the closed-loop is after every step product can return to the previous one, to maintain the durability and usage of the product without wasting any part of it (Bicket et. Al., 2014).

Figure 1 CE before Closed-Loop (Linear to CE)

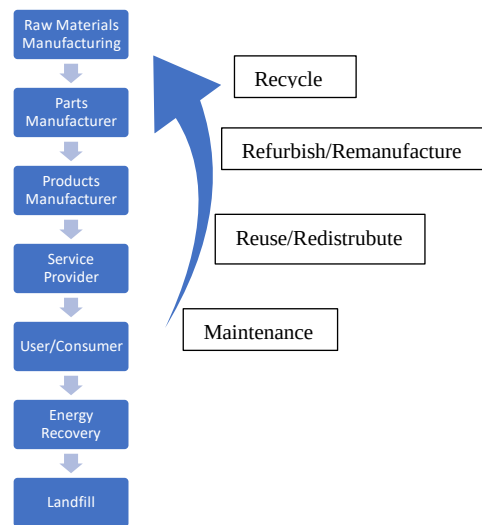


Reference: Develop by researcher

Energy recovery is about generating useable heat from non-recyclable garbage, power, or fuel while landfilling is the process of disposing trash at a location where solid waste is deposited in a controlled manner which is seen as the last part of the loop.

In Figure 2, the technical nutrients side of the loop is seen. The product must be adaptable for all processes to continue the loop.

Figure 2 Closed-Loop with Technical Nutrients



Reference: Develop by researcher

As seen in the Figure 2 there are four main parts; maintenance, reuse/redistribute, refurbish/remanufacture, recycle (Ellen MacArthur Foundation, 2012).

- Maintenance; is a process that starts from the consumer/user to end with user/consumer. After the broken part is taken from the user and fixed, it will return to the user.
- Reuse/Redistribute; is the loop that starts from the user. After products are taken from us, they will enter the service provider step again. In this step used products will be fixed or can be in a good condition then these products will be presented to the consumer who is different than the first one in two circumstances; first will be identical or similar purposes as in its original state, with minor enhancements or changes, the second usage will be for a different objective than the first, with little to no improvements.
- Refurbish/remanufacture; start from the final user and return to the product manufacturer. Refurbishment is about repairing broken or missing piece products while changing their significant parts and implementing 'aesthetic' adjustments to a product's exterior. Remanufacturing is the process of returning a worn, rejected, or traded-in product to a "like-new" state. Like-new is the crucial phrase in this definition. This symbolizes the makers' objective, claim for the product, and capacity to deliver on that promise from the producers' perspective (Gray and Charter, 2008).
- Recycle; starts from the last user to the parts manufacturer process and it starts again from the top. The parts of the used products gathered and entered the system again to be used in another product to build new ones.

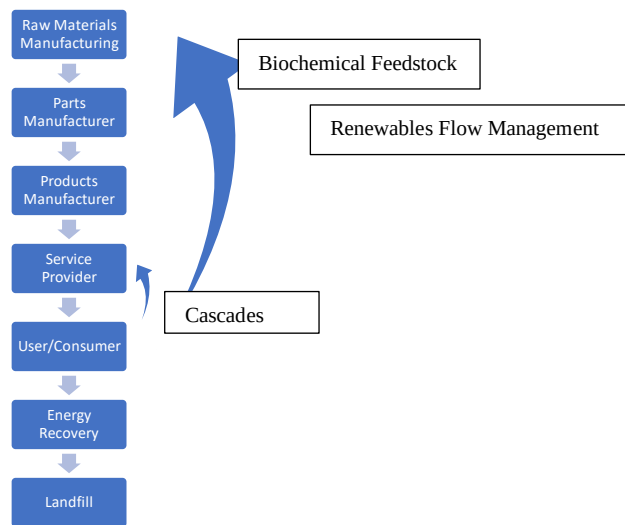
Recycling is an extensive process and needs its sections in the manufacturing factories. Gathering the parts, ensuring the functions are usable, and turning these parts into usable products or components needs place and processes. There are three main recycling types; upcycling which is enhancing the materials to higher quality, Functional recycling which is excluding energy recovery, rescuing material for the intended use or various indications and lastly, downcycling is turning materials into new ones with lower quality and features.

In Figure 3, the biological nutrients side of the loop is seen. There are three main parts of the loop; cascades, biochemical feedstock, and renewables flow management.

- Cascade; is coming from nature itself for example wood has lots of functions in there and it can be used for several purposes while obstructing chemicals, etc. Cascading use of technical materials, requires looking for new, higher-value applications for constituent materials other than raw material recycling where resources are cyclically repurposed for various applications according to their suitability. For example, in the paper industry, the usage of cascading keeps resources in circulation for a longer duration. Ascertain that the use time is established to get the greatest performance and value at each cascade level.

Biochemical Feedstock/Renewables flow management; is the biochemical usage after the end of one product. In this loop, biological nutrient products are taken from the end consumer and returned to the first stage, where the parts are manufactured. For the generation of biogas, biochemical components can be recovered from biological nutrients. The residual nutrients, in the form of compost, may be safely returned to the biosphere, rebuilding the soil and fertility and finishing the nutrient cycle. This leads to renewables flow management; the other gases or components of the products will return to the atmosphere and the original biological cycle. For example, compost can be used in farming for another purpose (Bicket et. Al., 2014).

Figure 3 CE with Biological Nutrients



Reference: Develop by researcher

The literature does not always distinguish between biological and technical components. For example, while the notion of circularity is typically associated with gathering such material flows, some studies have applied it to managing energy and water resources in a closed-loop economy. While energy management has received even less attention in this synthesis than water management, they both received some. Since most CE literature focuses on technical and biological nutrition, this is the scenario. Put another way, a product's biological and technical components are made to be disassembled and reused as part of a materials cycle (Bicket et. Al., 2014).

CE Related Terms

One of the original ideas comes from the “cradle to cradle principle” while establishing CE ideas. According to McDonough and Braungart (2002), cradle to cradle (C2C) is about product design and enhancements to produce more durable and easier refurbished/disassembled products. Furthermore, to make its remake easier, companies make their products more environmentally friendly, use raw materials accordingly to increase product life and reuse potential, and facilitate sorting and final recovery of products at the conception stage (El Hagggar, 2010).

Another term is industrial symbiosis which is about the cross-sector collaboration between players that aren't used to working together across a product's whole supply chain to optimize its life-cycle. It is sharing services (e.g., transportation) across sectors in an area, producing synergies between enterprises for economies of scale (Ellen MacArthur Foundation, 2013).

To understand CE better, some related terms should be examined. Keywords such as upcycling, downcycling, ecological footprint are important terminology for implementing CE processes. Upcycling and downcycling are two types of recycling. Upcycling is modifying or converting a product cycle into a new product life cycle of the same or more outstanding quality. On the other hand, downcycling reduces a product to its most basic components and repurposes it as a new product, generally of lesser quality than the original (Armstrong et al., 2015). The "make do and mend" strategy entails prolonging the usable life of an item or product, such as darning old wool socks or reusing or repurposing a material or product, such as converting old drapes into an article of clothing.

Zero Waste is another term to understand the elements of the CE, Palmer (2004) used the phrase "zero waste" in 1973 to describe the process of recovering resources from chemicals. However, since the late 1990s, the notion has gotten a lot of press. The idea of zero waste is being researched and used in several areas, including waste management and treatment, manufacturing, urban development, and mining. In addition, the zero-waste idea has gained support from policymakers because it promotes resource recovery and recycling that is both efficient and effective (Palmer, 2004).

Biomimicry and the CE

Biomimicry is a way of humans observing, monitoring, and learning from nature. The term biomimicry was described as "innovation inspired by nature" after the late 1990s. The main idea of biomimicry is learning from nature and applying its disciplines to various ways of human life. For example, termite colonies' behaviors inspired the natural ventilation systems and their manufacturing (Benyus, 2002).

Another biomimicry example is the CE, which imitates how organic waste from deceased organisms decomposes and produces fertilizer for the emergence of new living species. Compostable materials include food scraps, natural fibers, wood products, and biopolymers.

In contrast, inorganic materials like polymers (plastics) and electronics serve as "technical nutrients" for the development of new products (Bockholt et. Al., 2019).



2 SUSTAINABLE PERSPECTIVES

To benefit current and future generations, sustainability attempts to achieve a balanced mix of economic growth, social inclusiveness, and environmental resilience (Geissdoerfer et al., 2017). Sustainable development, particularly in its early stages, is more open-ended than the CE and is used to support a wider variety of institutional requirements and signal a broader range of risks and opportunities (Brundtland, 1987; Yuan et al., 2008).

CE is frequently viewed as a technique of attaining sustainability, but emphasizes the economic and environmental aspects. However, not all systems that include circular ideas (e.g., enterprises, value chains) are more sustainable (Geissdoerfer et al., 2016a, 2016b). Therefore, it is hard to make a standard definition or define the relationship between sustainability and CE. For instance, circularity in business models and supply chains, according to Rashid et al. (2013), is a prerequisite for sustainable manufacturing, which in turn is required for the better economic and environmental performance of industrialized and developing countries.

According to Webster (2015) and the Ellen MacArthur Foundation (2013b), sustainability and CE have a more conditional link. Furthermore, according to Bakker et al. (2014), circularity is essential for maintaining economic activity. The United Nations Environment Programme (UNEP) (2006) takes a similar stance, presenting the CE as a prerequisite for sustainably maintaining economic development, however alternate avenues for achieving this requirement are not disallowed in this case. Contrarily, Nakajima (2000) asserts that service-based systems and circularity are prerequisites but not sufficient for a sustainable system. To seek long-term sustainability, a closed-loop system needs additional factors, such as a lifestyle change.

The European Commission (2014) expresses a similar viewpoint when it claims that circular economic systems are advantageous for various sustainability aspects like resource productivity, job creation, and GDP growth. However, it does not go into detail regarding whether this is a necessary or sufficient condition or how it relates to other ideas that may promote sustainability.

Additionally underlined are the detrimental connections between circularity and sustainability. For instance, Andersen (2007) explains both the possible advantages and disadvantages of circular systems, which must be balanced to prevent the development of negative value.

Allwood (2014) expresses a similar viewpoint and lists many issues that the CE brings about, such the physical impossibility of a closed circle in combination with rising demand or matters related to the energy needed to recycle materials. This energy and its effects can be more significant for certain minerals than the actual environmental impact of getting the material from traditional sources like mining. Therefore, the CE might exacerbate greenhouse gas emissions, speeding up global warming. Therefore, a more practical approach is required, where material efficiency and other ways of decreasing inputs should be prioritized above the CE.

The CE may change production and consumption paradigms by offering novel procedures and innovative business models. Such a significant shift in business practices and the national economy would have far-reaching economic, environmental, and social repercussions. According to some scholars, the impacts are divided into three categories based on the literature review. But, on the other hand, successful CE adoption contributes to all three elements of sustainable development in a holistic manner (Korhonen et al., 2018).

- As economic impact; with the CE there will be fewer costs for raw materials and their value will be used more than once. Also, there will be less waste and emission control cost when considering the output perspective. The closed-loop system will offer new opportunities for new markets, and a unique market image will attract investors (J. Korhonen et al., 2018).
- From the social point of view; in terms of human stakeholders, human well-being, and human rights, there will be various opportunities for the worker willing to work on a new sustainable industry, a sense of connectedness in a community, cooperation and participation will increase.
- Environmental impact; there will be reduced materials and energy inputs or decreased. It will lead to a decrease in emission and environmental crises (like climate crisis). The nature itself can use the wastes within the CE.

The social pillar of sustainability is included explicitly in the three pillars of sustainability in terms of human stakeholders, human well-being, and human rights (economic, environmental, and social). In addition, the idea of sustainable development introduces the notion that development should aim to deliver some form of equity across and through the generations of people who currently populate our planet, as well as those who will do so in the future. Sustainable development is "development that meets current needs without compromising future generations' ability to meet their own needs" (WCED 1987, p. 43).

The CE mostly bypasses social issues in favor of reorganizing industrial and service systems for the benefit of the ecosystem. Alternative concepts of sustainable development do not explicitly consider the social aspects. However, ecological regeneration and survival, as well as the decrease in the consumption of finite resources, clearly benefit humanity. The CE concept's potential impact on increasing social, gender, racial, and religious equality and financial and social opportunity equality is unclear. These are important moral and ethical issues that the notion does not address.

2.1 Greenwashing

Dahl (2010) argues that in the 1980s, the practice of making exaggerated or improper claims about sustainability to gain market domination was known as "greenwashing" (Dahl, 2010). The emergence of this term coincided with growing worries about how certain businesses deftly manage their reputations in front of the general public, the financial community, and regulatory agencies while downplaying their responsibility and the scope of their claim or issue (Laufer, 2003).

Many corporations utilize "greenwashing," misleading advertising that promotes a company's aims, goods, or policies, to influence the public's opinion of those things (Kahle and Gurel-Atay, 2015). However, increasing social and environmental audits are being carried out to compensate for the absence of public monitoring and verification (Laufer, 2003; Seele & Gatti, 2017).

Greenwashing is positively correlated with consumer skepticism about brand advertisements and the perceived dangers involved with buying green products because green cosmetics enhance the possibility that consumers will make incorrect purchase decisions. On the other side, greenwashing affects a business since customers lose trust in the name and the products (Chen & Chang, 2013).

According to Geissdoerfer et. al. (2017), there are several differences between sustainability and circular economy. Since these terms are related in some perspectives, CE and its perspectives can be sustainable, but sustainability doesn't have to be circular. Sustainability aims to continue in every aspect. Besides CE aims are to include every process in a closed-loop to reuse, recycle and reduce. Through sustainability, stakeholders' interests should be aligned,

for example, since reduced waste benefits the environment, organizational revenues, and consumer costs. On the other hand, companies should benefit economically and financially, while the environment helps from fewer resource usage and pollution through CE processes (Webster, 2015).

2.2 Carbon FootPrint

The carbon footprint originated as a subset of the "ecological footprint" suggested by Wackernagel and Rees (1996). The biologically productive land and sea area required to sustain a given human population, expressed in global hectares, is referred to as the ecological footprint. According to this concept, a carbon footprint is the amount of land required to absorb all of the CO₂ produced by humanity during its lifetime. As the issue of global warming became more prominent on the global environmental agenda, the use of carbon footprint became more common on its own, albeit in a modified form (East, 2008; Pandey et al., 2011).

2.3 Sharing economy

The sharing economy, also known as "collaborative consumption," refers to sharing activities such as renting, lending, trading, bartering, and exchanging commodities, services, transit options, space, or money in structured systems or networks. Sharing platforms may transfer overcapacity and create value by encouraging customer sharing. Without excessively depleting resources, utility and consumption patterns can still be satisfied (Möhlmann, 2015, Lacy and Rutqvist, 2015).

3 PRACTICES OF CE

R-strategies are a collection of methods developed to lessen resource and material consumption in supply chains and increase the circularity of the economy. According to the literature, the 3Rs idea (reduce, reuse, and recycle) is a practical manual for carrying out the CE in practice.

The core Circular model consists of three leading practices: reduced reuse and recycling, called 3R of CE (Patwa et al., 2021). The primary purpose behind the 3R is to maximize productivity while using fewer natural resources and creating the least amount of pollution, emissions, and waste. After that, 4R, which includes, Reduce, Reuse, Recycle, and Recovery, is offered in literature to enhance the scope of the practices (Muthu, 2017).

With the latter framework, scholars have suggested R frameworks beyond the 4R framework, such as the 6Rs (Sihvonen and Ritola, 2015) or even the 9Rs (Van Buren et al., 2016; Potting et al., 2017). R-lists are similar in appearance and differ only in the number of circularity methods they propose. As seen in Table 3, there is a hierarchical list for the Rs, which means if companies go up through the list from Recover energy to the Refuse stage, it will become more circular in terms of the principles and system of the production. The idea behind the 9Rs is about making the scope more comprehensive and developing the cycle to maintain resource use while also designing and repurposing waste, pollution, and natural system regeneration (Ang et. al., 2021).

Reduce is using materials and energy in the manufacturing and consumption processes. It entails coming up with novel strategies to reduce the use of non-renewable basic materials (Yong, 2007), replacing limited resources with renewable, recyclable, or biodegradable resource inputs.

Reuse strives to fully use old items with any residual functionality, as well as pieces of used products and leftover materials from the manufacturing process. Entails prolonging the product's useful life as feasible, keeping the material out of landfills while generating new cash sources (Esposito et al., 2020; Gerholdt, 2015; Lacy and Rutqvist, 2015).

Recycling is an essential part of promoting the CE since it converts trash into new resources and serves as a link between the production and consumption sectors. Using waste to create new resources (Yong, 2007). Reducing material leakage and increasing economic value

involves recovering and recycling resource outputs to generate new goods (Esposito and Tse, 2015; Gerholdt, 2015).

Table 3 9R

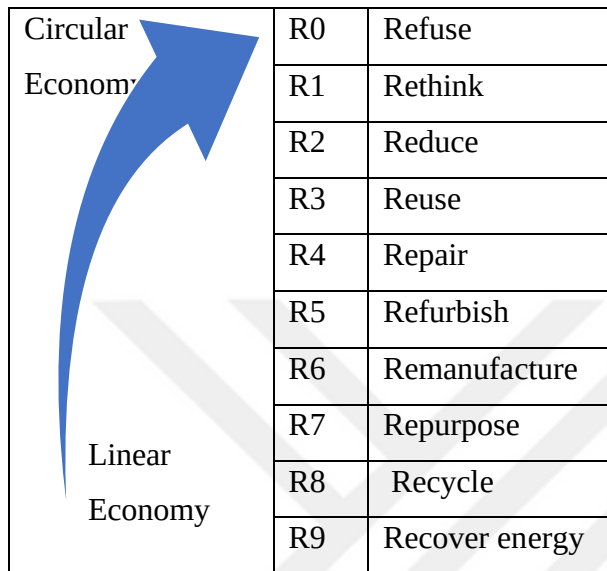
9Rs	Definitions
Refuse	Preventing the use of raw materials. During the product design stage, it is common to explore using alternative greener techniques and avoiding particular resources (Cue and Zhang, 2009).
Rethink	Think of the usage, one product can be used for more than one purpose. Therefore, multipurpose items would help reduce resource use, trash disposal, and greenhouse gas emissions (Lakatos et al., 2018).
Reduce	Reducing the use of raw materials with manufacturing planning is both wise and effective (Cue and Zhang, 2009).
Reuse	Product reuse (second-hand, sharing of products) or use of the product can be used for additional production functions (Ellen MacArthur Foundation, 2017a; Jacobsen, 2012).
Repair	Maintenance and repair.
Refurbish:	Refurbishing a product "Upgraded" means that it now has a new function to employ.
Remanufacture:	Creating new products from (parts of) old products.
Repurpose:	Product reuse for a different purpose. Instead of employing new resources, this approach aims to reuse a portion of discarded garbage for other purposes, extending its useful life (Reike et al., 2017).
Recycle:	Processing and reuse of materials (both high and low-quality products)
Recover energy:	Incineration of residual flows.

Resource: Kirchherr et al., 2017 and Potting et. al., 2017

The R strategies can be ranked in order of priority based on how circular they are, according to Potting et al. (2017). The hierarchy starts with recovering energy closer to the linear power and going up to the circular on; the highest level will be refused. In a CE, energy-recovery incineration has the lowest priority because it implies the materials are no longer accessible for use in other goods. On the other hand, higher circularity, suggests more environmental benefits. While from R0 to R2 which are (refuse, rethink, reduce) more about the innovation and how to

produce more smartly, the middle part of the hierarchy as seen in the Figure 4, from R3 to R7 is more about the increasing the lifespan of the product while recycling it. At the bottom of the hierarchy is recovery energy, which is more into recycling products without innovation or advanced usage.

Figure 4 9R Linear to Circular



Resource: Potting et. al., 2017

Waste Hierarchy proposed to manage and predict the development of sustainable resource usage. Waste hierarchy is the stepping stone via which activities are made about energy optimization standards and optimal exploitation of natural resources to minimize and regulate waste. It can be taken as many forms but the most related argument is from the most used to the least (European Commission, 2016a, Nike, 2016):

- Reduce/avoid creation of waste
- Reuse
- Recycle
- Energy recovery
- Disposal

3.1 Barriers (drivers of CE)

Although Circular has lots of impacts on society, the environment, and the economy, there are several obstacles to the legislative and implementation sides of the CE (Deloitte, 2017). In the literature, there are more than 15 barriers that are conducted. According to Van Eijk (2015), there are 21 barriers. However, while understanding the obstacles with more comprehensiveness and parsimony, some barriers combined by J. Korhonen et al. (2018) to make it more precise (Cramer, 2013; Dholakia and Turcan, 2014). For example, “circularity is not effectively integrated into innovation policies” (van Eijk, 2015, p.33) and “governmental in- incentives support the linear economy” (van Eijk, 2015, p.33) combined as regulations in one dimension. In the end, there are 4 main barriers to the CE as seen in Table 4; culture, regularity, technology, and market (industry).

For cultural aspects scholars indicate that the causes would be; the company's culture is cautious and unwilling to collaborate, and running the company with a linear system also can be lack of consumer awareness. Technological aspects would be; Inability to produce high-quality remanufactured items, Circular designs can be limited. There aren't enough large-scale demonstration projects like Data shortages etc. Market perspective shows that there can be low prices for virgin materials, with high Initial investment expenses. Standardization would be lacking and Circular business concepts have a limited amount of capital. Regulations can vary depending on the countries and the regions. There would be limited circular laws and regulations and a lack of global consensus (IMSA, 2013, p.4; Pheifer, 2017, p.12; Mont et al., 2017, p.30).

Table 4 Barriers of CE

Culture	Regulations
Lack of understanding or inclination to participate in the CE	Policies that make the switch to a CE easier are lacking.
Market	Technology
Poor CE business models' economic feasibility	Inability to deploy CE due to a lack of technology

References: Kirchherr et al. (2018)

According to Preston (2012), cultural barriers can happen because of the reluctance to participate in the supply chain of circular processes. Preston (2012) stated that also technological barriers would be resource utilization intellectual property and data exchange. Another scholar Vanner et. al. (2014) who study EU implementations said the four barriers in the studies. For cultural, consumer knowledge and interest are low, as is the community and business adoption of sharing models. From a marketing perspective, because of the low prices of raw materials, companies tend to buy resources without giving attention to circularity.

Kinnunen and Kaksonen (2019) stated that solid regulations and lack of cooperation between countries can affect the relationship between the production processes regarding resources and raw materials. Another scholar who examined the principles accordingly to the CE, Masi et al. (2018) noted the lack of focus on end-of-life design and the quality and availability of recycling to technological aspects. Also, from a regulation's part, there is lots of encouragement from the government for the linear economy. At the same time, Bio-waste is challenging to sort, and recycling rules are insufficient for high-quality recycling. With that company are depending on a linear path. According to Nußholz et al. (2019) waste-consumption is taking more time than other processes in terms of regulations.

Ranta (2018) who look for a cultural view, showed some limitation customers prefer their new items, measurement of the official recycling system is challenging due to informal recycling. The trade-off between sustainability and performance is different and hard to identify.

Additionally, Ritzen and Sandstrom (2017), indicate some cultural barriers for example; Cultural Aversion to danger, Sustainability as a concept, Inertia in the adoption of innovative CE business models, separate from operations is the effort on sustainability and Customers have a low priority. Also, from economic/marketing perspective; economic is not lucrative; there are several unquantifiable advantages

Kirchherr et al. (2018) explored the complex causal interrelationships of CE drivers and the potential of barriers. "Circular business investment" is a forerunner to consumer awareness, implying that circular firms must be developed before customers want circular products.

Government incentives spur interest in circular forms, proving that policies are a significant motivator for capital investment in circular enterprises. Then, for government policy to be effective, one must become knowledgeable about the CE, with CE research assisting in the

government's interest in the concept. The outcomes of prior techniques would have shown that consumer awareness would have been the most crucial incentive. The marketing of circular products would be the main objective of action plans. Action plans should prioritize "CE knowledge," according to interconnections, since this will boost the other drivers through a cascade effect (Gue, 2020).

Addition to these barriers, from the textile sector perspective there are several limits to the industry to evolve more circular system. For example, clothing manufacturers are attempting to cut costs to make their products more affordable to consumers. Price reductions enable quicker manufacturing, developing many lines and collections each season. This process not only degrades the quality of clothing but also produces a lot of garbage and considerably reduces pollution. It's challenging for fashion producers to adapt their system due to economic and market restrictions.

Conducive rules and governance, product design, modern business models that emphasize value creation for many stakeholders rather than short-term benefits, and the incorporation of extended-producer responsibility principles are crucial components of the CE. Even if the CE views the concept of "waste" as obsolete, our existing policies are still primarily concerned with trash management. The goods are made to minimize waste, and trash from one operation is used as an input for another. Strategies that permit circular flows are developed due to the interaction between waste management and product development policies. CE has drawn the attention of businesses, governments, designers, and customers during the past ten years. Examples of nations with official policies pushing this idea include China and Europe (Gue, 2020).

3.2 Consumer Perception on CE

The CE is one of the most talked-about issues in public discussions about new, more sustainable industrial paradigms and approaches. The CE has been heralded as a game-changer for economic success and environmental sustainability. The CE, or systems based on the linear consumption economy model, where raw materials are collected, processed into final goods, and then become trash after consumption, intends to replace present open production/economic systems and reexamine both the supply and demand sides (Urbinati et al., 2017; Repo et al., 2018).

By drastically altering production and consumption processes, a CE (CE) seeks to decouple the creation of value from waste generation and resource usage. Circular business models, methods for creating circular value propositions, and the benefits of such models are all being investigated in what appears to be the bulk of CE research. However, there seems to have been less focus on the CE's effects on consumption and consumers (Hobson, 2016; Kirchherr et.al., 2017). According to Hobson et al., the circular economy might substantially change people's daily lives. Yet, there appears to be little comprehension of such changes in the scientific community. Consumers should also adapt to the circular system to help to ensure its continuity since it is a closed system. This concept arose from a desire to broaden and rethink the standard build-use-dispose management approach (Lahti et al., 2018).

Given that the circular economy does result in significant consumption changes, contemporary circular economy evaluations do not give complete analyses of these concerns. Consumers must find new CE-based business models appealing for them to succeed. Consumers have a strong desire to spend sustainably provided they have easy access to resources and tools that allow them to make better consumption decisions through consumer marketplaces and to adopt circular economy into daily day lives of the consumer, should be aware of the connections between consumer habits, temporalities, and life events are required. (Repo et. al. 2018; Lammi et al., 2011).

Circular goods are generally identified by one of two key characteristics. They are either made from recycled materials (helping to close the production loop), or they have a longer life cycle as they're more durable or could be resale as used. The EU Commission (2015)'s recent endorsement of the Circular Economy paradigm (COM, 2015, p.614) emphasizes the importance of consumers in achieving Circular Economy goals and increasing markets for "circular" products. However, despite the crucial role that customers play in the advancement of "circular" products, little is known about consumers' willingness to pay (WTP) for them (Pretner et al. 2021).

People's connections to material goods predate the postwar era of wealth (Trentmann, 2009), and they are enacted in the media and other public discourses. Consumer behaviors, habits, and routines, identified as a critical focus for generating long-term market impact, do not necessarily correspond to their favorable attitudes about environmental concerns. Material integration, adaptation, and abandonment are especially prevalent during essential life transitions (e.g.,

moving, getting married, having a kid, getting divorced, dying, etc.) (Aalto & Varjonen, 2014). Furthermore, these lifestyle events cause inconsistency in one's habits and material possessions (Yli-kauhaluoma et al., 2013; Shove et al., 2012).

To evolve and develop towards a circular economy innovation, socio-institutional and socio-cultural transformation would be required. Technology, product design, and revenue models are all examples of areas where innovation may occur. As part of the socio-institutional transition, written and unwritten norms, practices, and beliefs are being reviewed.

Researchers have examined customer perceptions and attitudes toward the circular economy from the perspective of particular product categories or their applications. According to studies by Van Weelden et al. (2016) and Vehmas et al. (2018), consumer recognition of the circular economy is primarily influenced by personal characteristics, product and service offerings, knowledge and understanding, experience and social aspects, perceptions of risks and uncertainty, benefits, and other psychological factors (beliefs, norms). Research reveals that participants were more familiar with the reuse and return of old products than with circular fashion, which is still not frequently employed among the Finnish population (Korsunova, 2021). Additionally, circular clothing was thought to be practically new, and there seems to be a favorable attitude toward circular clothes. The three main factors concerning circular clothing were often "quality, style, and comfort". Due to the expectation that circular clothing would be of the highest quality, most costly, most trendy, luxury enterprises may end up setting the standard for sustainability (Joy et al., 2012, Camacho-Oter, 2018).

More often than men, women favor or indicate their plan to buy things connected to the CE (Harms and Linton, 2016) in various research. Respondents are divided into six categories by Mugge et al. (2017) based on their opinions toward smartphone refurbishing. While the majority of clusters have a gender balance that is similar to the wider respondent pool, one of the three "pro-refurbishment" clusters has disproportionately more female respondents than male respondents, and one of the three "anti-refurbishment" clusters has the opposite pattern.

Customers who are more ecologically conscious likely to buy recycled items, according to Bei and Simpson (1995) and Grasso et al. (2000), among other characteristics that influence consumer acceptability (e.g., recycled clothes). Lin and Huang (2012) discover that if customers know that buying items made of recycled materials would help the environment, they are prepared to pay more for them. According to Bei and Simpson (1995), customers' purchasing

decisions are influenced by the price and quality of recycled items. When consumers know that remanufacturing methods result in lower resource, energy consumption, and other environmental advantages, they are more likely to adopt remanufactured items (Michaud and Llerena, 2011, Wang and Kuah, 2018). However, according to Hazen et al. (2012), many customers lack sufficient awareness about remanufacturing processes and procedures and frequently believe that remanufactured items are of poorer quality than new products, which lowers their desire to make a purchase. In addition, Gaur et al. (2015) contend that a consumer's acceptance of remanufactured items depends on how satisfied they were with their prior usage (Gaur et al., 2015). According to Herjanto et al. (2016), buyers' motivation to buy more is influenced by their prior experiences with buying recycled goods.

Camacho-Oter (2018) states that the meaning of consuming is shifting; consumption is becoming more anonymous since people will no longer be able to associate themselves with things because they will be shared rather than owned and with deeper kinds of involvement, such as food sharing and participation or engagement in manufacturing, will make consumers more linked with the product. Diversity of values, goods & services should no longer emphasize performance but symbolic values like simplicity, well-being, or an identity. Whereas material consumption was formerly considered a symbol of wealth, circular solutions are now seen as defiance against conventional consumption. how people perceive uncertainty is another factor that should be considered with the factors of trust, risk, product control, and relationships. The customer is likely to make significant changes in the Circular Economy by that Consumption. is expected to alter in terms of what consumerism and the products mean to consumers (Spangenberg et al., 2019). According to Kirchherr et. al. (2018)'s study, the main obstacles to the transition to a circular economy are a lack of customer participation and awareness.

4 CIRCULAR INDUSTRIES and FASHION INDUSTRY

CE is used in a wide range of industries, from the production of electrical equipment, furniture, and textiles to construction and waste management. According to Mhatre et. Al (2021) research, there are 5 sectors the most published work on CE includes ‘waste management’ followed by ‘electrical and electronic equipment’, ‘construction industry’, ‘rubber and plastics’, and ‘agriculture, forestry, and fishing.

It is difficult to build demand for used or repaired items in a consumption-based economy. Use of nonrenewable resources, prioritization of new product sales, failure to collaborate, and failure to develop or adapt are all characteristics of linear business activity (Batista et. al., 2019).

The European Union generates over 2.5 billion tons of waste annually. It proactively suggests minimizing waste to promote a switch to a better framework known as the circular economy. As part of the European Green Deal and in response to a new industrial strategy (such as a right to repair) proposed by the European Commission, the circular economy implementation plan was unveiled in March 2020. It offers recommendations for more environmentally friendly product design, waste reduction, and consumer empowerment. A resolution on the new circular economy action plan, which calls for a completely circular economy by 2050 and stronger recycling regulations as well as enforceable material usage and consumption objectives by 2030, was approved by the European Parliament in February 2021.

In practice, this entails minimizing waste to the bare minimum. When a product has served its purpose no longer, its components are recycled as much as feasible. These might be put to good use repeatedly, increasing their worth. The circular economy is based on the concept that companies and society are responsible for preserving society's environmental and ecological ideas and reacting to a broader range of stakeholders than their immediate shareholders.

Fashion Industry

The urge of customers to alter their style is fueled by the apparel industry's availability of more styles at lower prices in shorter time frames (Cao et al., 2014). Fast fashion is a profitable and widely used business strategy where fashion shops produce inexpensive, disposable items at

considerably reduced prices and have numerous seasons rather than the conventional two collections each year (Birtwistle and Moore, 2007). As a result, disposing of textiles is becoming more problematic, and the proportion of textiles in solid trash is rising (Bianchi and Birtwistle, 2012; Dahlbo et al., 2017).

The fashion firms continue to operate using a linear model of extracting, generating, and disposing of resources, largely driving fast fashion, thanks to the consumption developed by the fashion sector, which supports mass manufacturing at high volume and low prices. Since the business uses more than 98 million tons of nonrenewable resources annually, including oil to make synthetic fibers, fertilizers for cotton plantations, and chemical compounds for dyeing and finishing fibers and garments, it is to blame for some of the most severe environmental effects. Global output of textile fibers, textile consumption, and textile waste generation are all rising (Dahlbo et al., 2017).

On the opposite side, people are becoming increasingly interested in recycling and living a greener lifestyle, and organic products and sustainable businesses are growing in popularity. The fashion industry seeks to differentiate its products through eco-fashions in order to get a competitive edge. Although there is a need for eco-friendly clothing and customers are growing more aware of it, it still doesn't sell well (D'Souza et al., 2015). There is discussion of ethical fashion in addition to eco-fashion. With alternatives made under morally sound circumstances, new fashion firms are entering the market in an effort to attract interest from regular fashion customers. Sustainable business methods in the place of origin, the use of organic materials, and acceptable working standards and circumstances for employees are all components of ethical fashion (Joergens, 2006). Consumers have a favorable attitude toward ethical consumerism, but making ethical purchases is more difficult, claims Niinimäki (2010). Consumer decision-making is influenced by social orientation, beliefs, and ideology, with social motivators being more notable than personal ones (Niinimäki, 2010). (Freestone and McGoldrick, 2007). Particularly in the fast fashion industry, ethics and sustainability in fashion are a mysterious phenomenon that seems to contradict one another (Rutter et al., 2017).

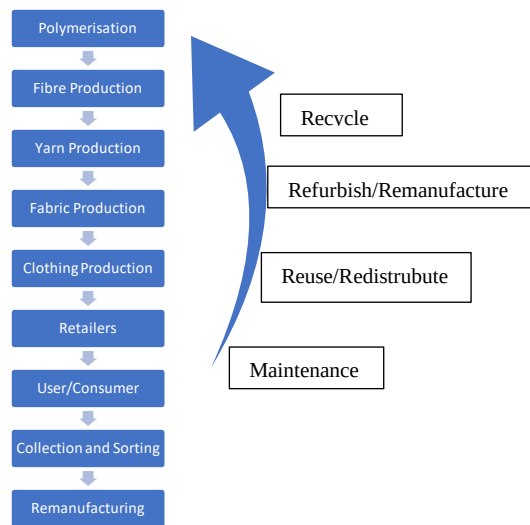
There are several approaches to reducing the disparity between fashion and sustainability. According to Cao et al. (2014), consumers who could use the same clothing differently would maintain and use adaptable clothes for a long time and purchase fewer new ones. In addition to fast fashion, the so-called slow fashion movement has grown in popularity and social consciousness, changing customers' priorities from quantity to quality. Slow fashion

emphasizes recognizing and appreciating the product that will produce meaningful user experiences, along with slow manufacturing cycles, fair wages, consumption, and prolonging the lifespan of garments. It encourages consumers to purchase high-quality goods less frequently so that they might consider the garment to be an investment (Jung and Jin, 2014; Clark, 2008). Consumers can lower their consumption by using common sense, buying fewer items, and making them last. Only a small portion of the garments we possess last the recommended 100 to 200 years, according to researchers. Increasing the lifespan of consumer-owned clothes significantly reduces the environmental effect of the apparel industry. The lifespan of clothing may be increased by getting it mended or retailed to refresh the style. It's possible that you could mend your own clothes (Hill, 2018c). Otherwise, be aware of the adjustments, fixes, and styling services that tailors provide (WRAP 2012). There is also a large amount of pre-consumption created during apparel and textile transactions, whether online or in traditional locations, such as faulty or broken items or unsold merchandise. Also, there is a significant amount of post-consumption in the form of undesired garments or textiles that customers no longer want after acquiring them, which might be worn, torn, obsolete, or out of trend.

Fashion Industry and CE

The fashion industry's collection and sorting mechanism may provide things primarily for secondhand retail clothes stores, with remanufacturing as a backup, according to a Figure 5 that illustrates circularity and production in a cyclical method. Chemical separation and/or remanufacturing of textile materials at multiple material levels, from monomers to textiles, is referred to as remanufacturing (EMF, 2017; Rouch, 2021).

Figure 5 Alternatives for CE loop in Textiles



References: modified from EMF 2017: p. 95; Rouch, 2021.

In the ideal situation, clothing is first worn once more. Therefore, as clothing reaches the end of its useful life, the circular textile business provides a choice of recycling options. As materials are cycled further up the value chain, they become more flexible, but as a trade-off, the inherent value is lost (Dodd and Caldas, 2017; Rouch, 2021). Four areas of action might begin the process of extracting that value: aligning garment design with recycling processes, pursuing technological innovation to improve the economics and quality of recycling, increasing demand for recycled materials, and implementing clothing collection at scale and the whole value chain should be appropriately coordinated for these tasks. (Hill, 2018a; Rouch, 2021).

5 WILLINGNESS TO PAY AND CE

Many companies still set prices without fully considering how (possible) customers and rivals would respond to different price proposals. These companies risk missing out on important opportunities to boost the products' profitability because they lack adequate knowledge of their customer's willingness to pay (WTP) for their goods. As a result, they fail to pursue a pricing strategy suitably tailored to their marketing environment. Numerous real-world studies have demonstrated that even little pricing adjustments and consumer behavior may significantly affect sales and profitability (Marn et al., 2003). Academics have put out some estimates to grasp customer willingness to pay fully. The process of introducing a new product to the market is seen from another angle.

Estimating the product's worth, which represents the greatest price a customer would pay for the goods, is challenging, especially when the product is unknown (Breidert et al. 2006). However, it will hint at how lucrative the product may be instead of only utilizing markup pricing or "intuitive" pricing without considering WTP. The use of surveying techniques and the utilization of actual or simulated price-response data allow for the differentiation of methods. Looking more closely at response data, market observations, or data produced by experiments might be utilized. Field experiments and laboratory experiments are other divisions of experiments.

According to Breidert (2006)'s article, there are two major approaches to determining someone's willingness to pay (WTP) (Louviere et al., 2000). According to Brown et al. (1996), it is cognitively easier for a responder to determine whether a certain price for a product is acceptable than it is to give a price explicitly. A respondent may be asked to utilize preference rating, preference order, or to select their most wanted alternative when given competing product selections and prices. Instead of being directly asked for their WTP, buyers are allegedly given product profiles with systematically shifting prices and asked if they would still purchase the item.

Using the discrete choice analysis method under the stated preference measurements is more relevant since its indirect survey information that consumers give, and without directing their assumptions, ask the consumers. Respondents pick between distinct product profiles in discrete choice analysis to understand the indirect choices of the consumers better (Ben-Akiva and Lerman, 1985; McFadden, 1980, 1986). The utility structure is calculated using an option set

that is usually the same for all respondents. Every option has a set of characteristics that may be completely articulated. Respondents are given several options to pick from and must indicate which one they prefer (DeSarbo et al., 1995; Haaijer et al., 2001).

Since the fashion items created through a circular economy affect how customers perceive them, to understand their perspectives better, surveys will be one of the greatest ways to assess it. Asking people subtly is the obvious approach to predict how consumers would respond to changing costs. The discrete choice analysis will be the primary method used to assess the outcomes of the willingness to pay among the models included in the indirect survey. Much empirical work in discrete choice modeling has been conducted in relatively straightforward decision scenarios. Taste homogeneity is assumed among a well-defined population, and a single decision-maker normally chooses one option from a limited, well-defined group. On the other hand, the choice model application domain expansion calls for a divergence from this simple, well-defined arena (Ben-Akiva et al., 1997).

For example, one of the recent types of research about consumers' willingness to pay for circular products (Pretner et al., 2021) aims to determine the conditions that lead to customers paying more for circular economy items. In research, scholars investigate consumers' willingness to pay (WTP) for circular products in an experimental setting that considers three conditions: WTP when consumers are informed about the circular product's diminished environmental impacts; WTP when the source of environmental information is third-party verified. Pretner et al. (2021) used one experiment group and one control group to verify their research.

Another research that examines the effects of a fictitious CE ecolabel on survey participants' willingness to pay for consumer electronics (Boyer et al. 2021) used experimental design to avoid the hypothetical bias present in stated preference research, and revealed preference studies that either depend on current market data or experimental purchases are regarded as the "gold standard" in WTP investigations (Loomis, 2011).

According to Ellis et al. (2012) research about circular textiles WTP, participants were questioned about who pays for their clothing purchases, whether they buy clothing alone or with others, and their preferred channels. WTP for clothing made of organic cotton. They were also asked how frequently they purchase fair trade products, organic foods, organic garments, organic clothing, and organic home textiles (Grunert et. al., 2014). Auctions and other

experimental economics methods have taken the role of stated answer strategies for eliciting WTP because of the compelling theoretical qualities of the experimental processes (Lusk and Hudson, 2004). Accordingly, to literature proposition suggested.

P1: Consumers are willingly to pay more when they know that product is produced circularly.

Since experimental design can reduce the bias of the WTP, is alternatively measured using stated preference surveys in this research (Ward et al. 2011, Zhou et al. 2018). With the latter techniques, preferences and WTP are typically studied in consumer and market research by discrete selections between offers made from preset contributions (Carson et al. 1994).



6 The VBN Theory

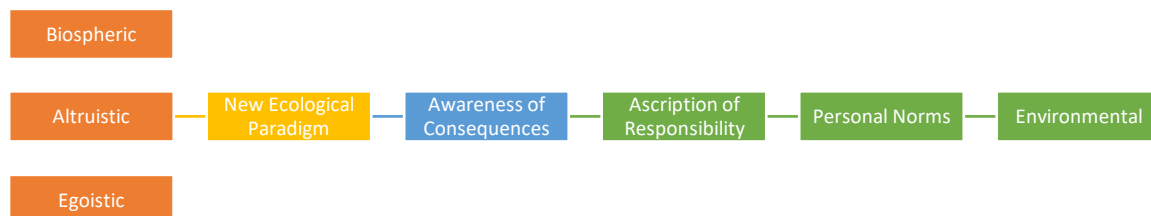
Consumers' decision-making processes can be hampered by a lack of or ambiguous environmental information, resulting in fewer purchasing items with environmental benefits. Consumers that care about the environment will be unable to choose the most environmentally friendly goods if they are not given any information about the product's environmental features. On the other hand, environmental information can persuade customers to choose items with better environmental qualities and fewer negative consequences. This is because supplying customers with environmental information improves their knowledge and views of the effectiveness of their purchase decision (Stern et al., 1999; Pickett-Baker and Ozaki, 2008; Testa et al., 2018). Furthermore, providing environmental information encourages customers to realize a product's environmental benefits. It also improves customers' perceptions of items with better environmental features, particularly when the benefits are quantifiable (Borin et al., 2011). Consumers typically get a warm sensation of "doing the right thing" and contributing to a societal problem when they buy these things. As a result, providing customers with knowledge about a product's environmental attributes helps them feel sure about their contribution, which is consistent with their values and beliefs (Stern et al. 1999). Also, when the recycled elements come from an article of second-hand clothing, you can have items manufactured from recycled materials. As a result, consumers of used circular products are more likely to suffer cognitive dissonance, which lowers their perceived quality value. Dissonance is a mental condition in which competing, and even incompatible, concepts coexist (Festinger, 1957).

Without a fundamental shift in consumer behavior regarding green purchases, adaption to new business models, and acceptance of product up-grading that includes repair and remanufacturing, the move to a circular economy will be impossible (Planing, 2015).

A few studies have examined how ready customers are to spend a higher price on sustainable garments, focusing on factors including fair trade, fair labor, production consequences on the environment, and health and safety. These investigations date back to the 1970s. Researchers discovered that typical sustainable clothes buyers are young, female, well-educated city inhabitants who are married and have at least one kid at home (Arbuthnot, 1977; Weigel, 1977; Laroche et al., 2001). Consumers that consider the environment while making purchase decisions are more concerned with product credentials, according to a more recent study by Gilg et al. (2005), with other considerations such as price being less of a concern. Furthermore,

these customers feel that environmental issues are serious and that it is critical to act environmentally conscientiously.

According to McGougall (1993), a nation's green revolution cannot be advanced without the participation of its customers. The data showing that private family consumption is responsible for 30–40% of environmental deterioration lends credence to this idea. More crucially, profit-driven businesses are likely to be highly encouraged to incorporate the notion of green marketing in their operations if consumers demonstrate a high degree of ecological consciousness and channel it toward equivalent eco-friendly or green purchases (Chan, 2001). Moral standards, both normative and descriptive, are a powerful motivator for environmental actions and policy (Davis et al., 2018). Environmental initiatives can profit more from trying to appeal to people's 'positive self-concept' than their 'economic self-interest,' because people mostly value environmental quality and accept the responsibility to take care of it (Bolderdijk et al., 2012). Pro-environmental standards are favorably associated with altruistic ideals. Information may shape beliefs and norms, hence the willingness to undertake a specific action (Stern, 2000).



References: Stern, 1999,2000; Bronfman et. al., 2015

The VBN-Theory combines Value Theory (Schwartz, 1994), the New Ecological Paradigm (NEP) (Dunlap and van Liere, 1978), and Norm Activation Theory to explain ecologically meaningful behavior (Schwartz, 1977). The formation of attitudes and how they affect behavior can be explained by the VBN-Theory (Stern et al., 1995). However, the VBN-Theory alone merely explains people's overall propensity to behave in favor of the environment. In order to fully comprehend consumer behavior, it is vital to take into account the environment in which a person acts (Stern, 2000).

- Value Theory

According to Schwartz's (1992) perspective, the first set of values in Table 5 represent three fundamental conditions for human life: the requirement for individuals as biological beings, social agreement, and collective survival and well-being. By identifying ten fundamental personal values, Schwartz and colleagues provided empirical support for their claims (Schwartz, 1992; Schwartz and Boehnke, 2004). In the initial suggestion of the values, they are described as security, comfort, power, success, traditionalism, universalism, kindness, hedonism, and stimulation. After extensive research and contributions from different domains, values might change depending on the circumstance and research objective.

Table 5 Values proposed by Schwartz (1992).

Primary motivational type	Value
Self-Direction	Freedom, Creativity, Independent, Choosing own goals, curious, Self-respect
Stimulation	An exciting life A varied life Daring
Hedonism	Pleasure Enjoying life
Achievement	Ambitious Influential Capable Successful Intelligent Self-respect
Power	Social power Wealth Authority Preserving my public image Social recognition
Security	National security Reciprocation of favors Family security Sense of belonging social order Healthy Clean
Conformity	Obedient Secondary motivational type Self-discipline Politeness Honoring of parents and elders
Tradition	Respect for tradition Devout Accepting my portion in life Humble Moderate
Spirituality	A spiritual life Meaning in life Inner harmony Detachment
Benevolence	Helpful Responsible Forgiving Honest Loyal Mature Love True friendship
Universalism	Equality Unity with nature Wisdom A world of beauty social justice Broad-minded Protecting the environment A world at peace

References: Schwarts, 1992

Accordingly, Stern (2000) contends that attitudes, which include values, beliefs, and standards, are causally related to actions that have an impact on the environment. The VBN theory is a theoretical framework that is based on this idea and useful for understanding how pro-environmental beliefs affect behavior (Dietz et al., 1998; Stern, 2000). To be more precise for this research Jansson et. al. (2011)'s list of values which is interpreted from Schwartz (1992) used., Schwartz's universal values scale was condensed into a brief form to evaluate the values in the VBN theory (Schwartz, 1992; Stern et al., 1998). Twelve items were utilized in all, four

of which showed egoistic values (power, money, social influence, and influence), four of which reflected altruistic values (social justice, equality, a world at peace, and helpfulness), and four of which reflected biospheric values (preventing pollution, protecting the environment, respecting the earth, and unity with nature).

- New Ecological Paradigm

Dunlap and Van Liere (1978) contended that environmentalism posed a fundamental challenge to our assumptions about nature and how people fit into it in the middle of the 1970s. Pirages and Ehrlich's (1974) analysis of the anti-environmental thrust of our society's prevailing social paradigm gave them the impression that environmentalists were advocating reforms that went beyond the development of environmental protection measures (Dunlap, 2008). They focused on the ideas that people have the ability to upset the natural order, that human civilization can only advance so far, and that humans have the authority to rule the rest of nature when they created the New Environmental Paradigm (NEP). The late 1970s and early 1980s saw a surge of writing that more clearly outlined the differences between the dominant social paradigm and the emerging environmental paradigm. However, although covering a wide range of values and beliefs, their sophisticated assessment techniques were difficult to use. Since that time, the NEP Scale has supplanted it as the far more often used method for evaluating an environmental or, as it now seems to be more correctly called, "ecological" worldview (Edgell & Nowell, 1989).

The NEP Scale has been extensively utilized over the past 20 years, despite being employed in various ways to gauge attitudes, beliefs, values, and worldviews related to the environment. It has been applied most frequently to samples of the general population. Still, it has also been applied to samples of certain industries, such as farmers and members of interest groups (Albrecht et. al., 1982).

- Norm Activation Theory

The process by which public opinion is created and how citizens strive to influence governmental policy on environmental and other concerns has received much attention from social scientists. They have gained knowledge of the socioeconomic and demographic causes of support for and involvement in the environmental movement (Liere and Dunlap, 1980; Morrison & Dunlap, 1986); the route taken by scientific information to reach the media before

arousing public concern (Kates, 1978); the ways that the framing of political issues can influence public opinion (Gamson & Modigliani, 1985); and the circumstances under which interest groups can influence public opinion. (Crenson, 1971; Melnick, 1984).

The value-belief-norms (VBN) theory is perhaps the most widely used moral framework in the study of pro-environmental conduct (Bronfman et al., 2015; Janmaimool and Denpaiboon, 2016). It offers a social-psychological framework for investigating normative variables that promote sustainable attitudes and behaviors, linking personality traits, ideas about human-environment linkages, and a sense of moral duty to pro-environmental conduct (Stern et al., 1999). According to the notion, people are more inclined to engage in pro-environmental conduct when they prioritize communal well-being over personal gain. According to Bronfman et al. (2015, p.14136), the VBN model for environmental behavior shown in the Figure 5 is predicated on the idea that people become pro-environmentalists if they feel a moral duty to defend themselves, other people in society, or the ecosystem as a whole. The study shows by combining the Norm-Activation Model with the New Ecological Paradigm put out by Dunlap and Van Liere (1978), For the purpose of evaluating people's pro-environmental behavior, Stern (2000) created the VBN model. According to the theory, an individual's own values might influence how they form broad environmental views (NEP). Due to these beliefs, the individual takes some accountability for their activities and is conscious of the possible harm that those acts may do to the environment. The induction of a sense of moral obligation (personal norms) to protect the environment would lead to this cognitive process. As a result, the model's last variable stimulates pro-environmental behavior. Stern (1999) categorizes environmental values as belonging to one of three categories: biospheric, social/altruistic, or egoistic.

According to the Schwartz et al. (1986) hypothesis, a person would believe that the party at fault has a moral duty to take action to prevent human suffering if they are aware of substantial negative interpersonal consequences (AC) of actions that are attributed to specific actors (AR). For instance, the necessary conditions are met for the activation of normative pressure for a cleanup when a person can smell the fumes coming from the grounds of a nearby chemical plant (AR) and is aware of the detrimental effects on health, tourism, esthetic values, property values, and so forth (AC). Depending on who is deemed accountable for acting, this normative pressure may be applied to the chemical firm or government authorities.

The idea of the VBN theory is a match with the WTP, accordingly to López-Mosquera and Sánchez (2012)'s research which examines the WTP in the VBN theory, shows that consumer's

willingness to pay is determined by their good attitudes, strong inclinations toward biospheric and philanthropic values, and strong pro-environmental and normative views. Accordingly in this research the aim is understanding consumers' perspectives in terms of their behaviors, The VBN theory is used.

Accordingly, to the literature review the following propositions are proposed:

P2: Demographic characteristics is the determinant of the consumers' willingness to pay of a circular product.
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P3: Consumers tend to act with their existing values when they try to decide circular product willingness to pay.

P4: Consumers tend to act with their existing beliefs when they try to decide circular product willingness to pay.
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P5: Consumers tend to act with their existing norms when they try to decide circular product willingness to pay.
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7 RESEARCH METHODOLOGY

7.1 Problem Definition

Circular Economy is a new yet, developing topic for scholars and industry. Since the global warming, excess usage of resources, pandemic and other occasions that affect our consumption happened, consumers started shifting to other more environmentally friendly alternatives. In this terms, Circular Economy is a way to produce products in closed-loops to reduce, recycle and reuse. Consumers started to use and try circular products to find alternatives to the regular liner economy produced product. The consumer's choice would vary according to their beliefs, norms and values. This study examined consumer perspective of circular products through behavioral approaches. The main problem on the company's perspective is, not knowing what is affecting consumers behavior about "how much they will pay willingly to the product that company offer to them?" and in the perspective of the consumer is they act accordingly to their past experiences which lead their values, beliefs and norms that shaped.

Objectives of the research

The research aims to comprehensively understand consumer views, knowledge, attitudes, and behavior about the Circular Products and how much they are willing to pay for that specific product. The aim is understanding consumers' willingness to pay of a circular product. To understand their preferences, two ways are important in this research, one is their attitude which comes from participant values, beliefs and norms (The VBN theory), other aspect is whether they preferences differ accordingly their demographic qualities. After understanding these aspects' main objective is dividing consumers into segments to evaluate their preferences.

7.2 Research Design

The manipulation of one or more independent variables and the control of unrelated factors using techniques like assigning individuals randomly to experimental conditions are the two main ways that experiments vary from other research approaches. By changing one or more independent variables and taking into consideration the relevant controls, the researcher can draw conclusions about the observable effects on one or more dependent variables. They can understand the cause-and-effect connections in marketing phenomena thanks to this method.

To measure WTP stated preference surveys could be used, which can reduce hypothetical bias using experimental methods such as contingent valuation (Ward et al. 2011), conjoint analysis, and discrete choice experiments (Grunert et. al., 2014). The latter methods are commonly used in consumer and market research to study preferences and WTP by making discrete choices between offers built from predefined attributes (Carson et al. 1994).

Consumers make three basic types of choices at the micro level. The first and most common method is to choose the most preferred option from a set of discrete alternatives. The second question is how many will be purchased if a purchase decision is made. The third consideration is how long to wait between purchases or how long to engage in an activity. A first type of choice lends itself well to statistical models for discrete choice data analysis (Ben-Akiva and Lerman, 1985); the second extends itself to statistical models for count data analysis, and the third incorporates itself to statistical models for length data analysis (Cameron and Trevedi, 1986). Since the research is about getting knowledge about statistically how consumers react to the price of the circular product. Therefore, discrete choice analysis will be the main methodology for the experiment.

A matrix is a common visual representation of an experimental design, which is an approach for experimentation. The columns or variables with two or more fixed values or levels are the factors in an experimental design. A design's rows stand in for the treatment combinations, also known as runs. In consumer product research, the rows or runs correspond to product profiles, and the variables to the qualities of fictitious goods or services. In conjoint research, the goods are represented by the rows of the design, and the rating or ranking of the items is the dependent variable or response. In discrete-choice research, the rows of the design correspond to different product options. A choice set is a block that contains several choices; this is what makes up a choice design.

In a conjoint research, the design's rows represent the products, and the rating or ranking of the products serves as the dependent variable or response. The rows of the design correspond to different product options in discrete-choice research. Each block of several choices that makes up the choice design is referred to as a choice set. Choice is the dependent variable or answer. Experiments conducted in the field have more external validity in complicated decision-making processes like consumption; but, in exploratory investigations where Participants' thorough comprehension of the elicitation method is essential to effectively measuring individual WTP.

In an experiment, the researcher tinkers with the amounts of the independent variables while monitoring the effects on the dependent variable, all the while accounting for the influence of other factors that could offer alternative interpretations. Determining independent variables is the central element of experimental designs, distinguishing it from other research types.

Through this study, it was important to understand consumers' perspective while controlling their knowledge about circular economy and its products to understand the willingness to pay on circular products.

Although other clustering approaches have been put out to address the market segmentation issue, each has its own benefits and drawbacks (Punj & Steward, 1983). The issue persists despite the recent use of computational intelligence techniques, such as artificial neural networks, in the clustering field. The two-stage clustering approach is a novel clustering technique formed as a result. The key justification for this integration is that the number of clusters needed by the K-means approach may be provided by Ward's minimal variance method.

Both an exploratory and a descriptive dimension are present in this research. A literature search has been done about the exploratory research model to define the variables to be utilized in the descriptive analysis and compare the study's findings to other studies published in the literature. After a literature search, a questionnaire was created as the study's descriptive component. Since there are various methodologies to measure WTP, this study conducted discrete choice analysis.

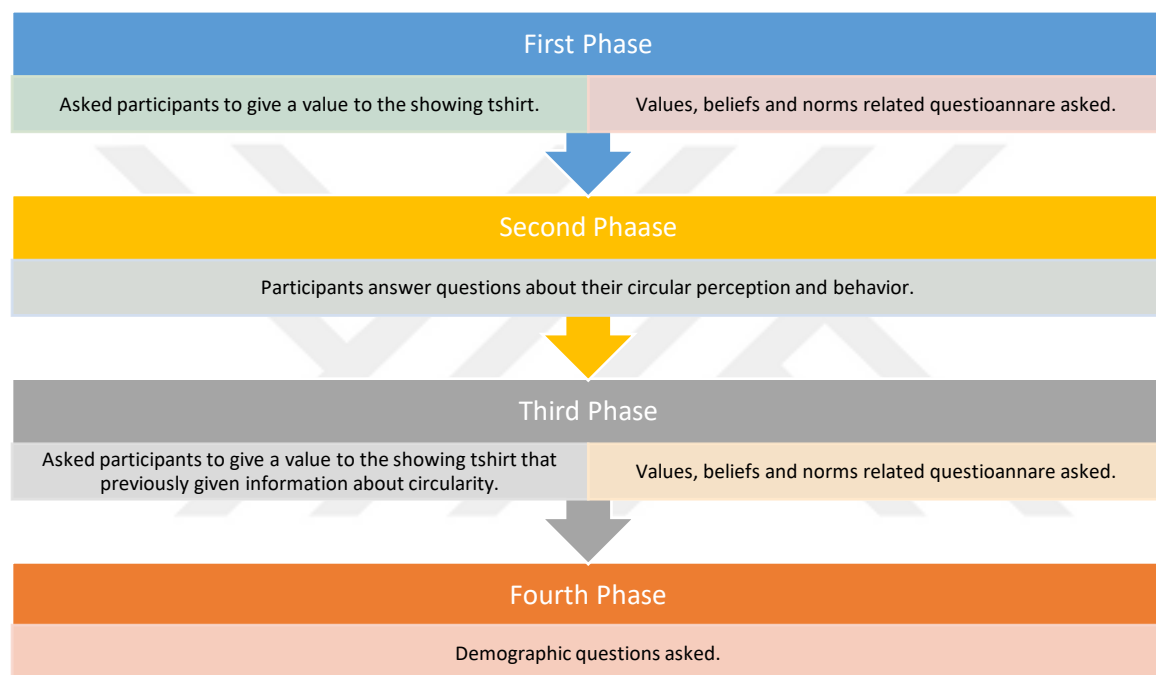
7.3 Data collection

Both primary and secondary sources have been utilized to gather data. For the exploratory literature search, secondary data were collected online and through sources including books, magazines, journal databases, theses, and the libraries for primary data collection. A convenience sample of 10 respondents was used in pilot research after a thorough literature review was used to design the questionnaire, and improvements were made. Online questionnaires were distributed. The main tool for gathering data for the study was a structured, 5 and 7 Likert scale questionnaire distributed from 14.06.2022 to 03.07.2022 around 3 weeks in two groups—the first group of respondents collected from university students are 242. Second group of respondents came from the industry. There were %100 response rate for the first group since all the data gathered from face to face through online survey. Second groups'

response rate was %55. The second group consist of 300 participants which 165 of them responded clearly. Generally, for the survey there were %81,55. This pilot research assisted in rewriting the questionnaire's phrasing to reduce ambiguity and misinterpretation.

The final form of the questionnaire was distributed through an online survey, and 411 were collected back. However, 407 responses were included in the analysis since 4 were unsuitable for analysis due to too many missing answers and incompleteness.

Figure 6 Phases of the question



In the indirect survey as shown in the Figure 6, participants asked several questions about their attitudes towards circular approaches and knowledge about the circular economy. Firstly, through the questionnaire, regular t-shirt showed to the participants and asked them to give value for the t-shirt (How much will you willing to pay for this t-shirt?). After asking for the price, participants answered several questions regarding VBN theory to measure their attitudes towards circular economy. Second part of the questionnaire consist of knowledge about the circular product, same t-shirt showed to the participants and this time information about the t-shirt was given. Finally, after asking the value of the t-shirt, VBN theory questions asked again to measure difference of the attitude. In the end, demographic questions asked.

7.4 Sampling

The "snowball" sampling method is a survey-based data collection method frequently used in sociology, psychology, or management studies (Dragan, 2013). When the population cannot be precisely defined or described, the sample characteristics are unusual, the study is on behaviors, perceptions, or customs, it is a suitable research method; when describing "typical" cases that cannot be generalized to an entire population; or when researching extreme sports (Parker et.al., 2019). To reach potentially inaccessible populations, such as those who may be few in number, geographically dispersed, unrecorded or inconspicuous, stigmatized and desiring anonymity, particularly sensitive and vulnerable, and requiring a certain level of trust to become a willing participant, snowball sampling technique is used in the study (Dragan, 2013). However, it should be mentioned that snowball sampling is used to access the commonplace, ordinary, and mainstream. When participants are chosen based on their unique traits or membership, purposive sampling and, to a lesser extent, quota sampling are frequently coupled with snowball sampling. In addition, a probability sample is impractical since the researcher frequently does not know the characteristics of the target population (Dragan, 2013). As opposed to estimating the characteristics of the general population, this type of sampling is distinctive in that it is used to estimate the characteristics of a network of "hidden" populations (rare, difficult to identify) (Etikan et al., 2016).

Regarding the latter case, this study concentrates on small samples and are meant to explore a real-world occurrence rather than draw statistical conclusions about the whole population (Yin, 2003), non-probability sample technique, snowball is used. For the population Comrey and Lee (1992) assessed the appropriateness of sample size in research using the following criteria: 50 - very poor, 100 - bad, 200 - fair, 300 - good, 500 - very good, 1000 or more outstanding.

The following formula can be used to calculate the sample size for a basic random sample (Kish, 1965; Kalton, 1983).:

$$n = \left(\frac{z}{m} \right)^2 p(1 - p)$$

With %95 confidence error (Z), .5 margin error (m) and population (60M people, between the age 18- 80), will be 385 people for the population. We targeted to reach at least 400 participants and with the population of Istanbul to reach %95 confidence error according to Gill et. al. (2010).

7.5 Questionnaire and Items

In the questionnaire there are 36 items asked to the participant listed in appendix 1 to understand their behaviors. Items are included 3 categories accordingly to The VBN theory, which are values, personal norms and beliefs. Since we conducted items through previous literature, values measured with 7-likert (1-I reject this as a guiding principle in my life, 2- I am inclined to reject this as a guiding principle in my life, 3- I neither reject nor accept this as a guiding principle in my life, 4- I am inclined to accept this as a guiding principle in my life, 5- I accept this as important as a guiding principle in my life, 6- I accept this as very important as a guiding principle in my life, 7- I accept this as of the greatest importance as a guiding in my life.) (Schwartz, 1992; Jansson et al., 2011). And the rest of the items conducted with 5-Likert value conduction, (1: Strongly Disagree, 2: Disagree, 3: Neither Agree, nor Disagree, 4: Agree, 5: Strongly Agree) (Jansson et al., 2011).

The questionnaire prepared English then translated to the Turkish to reach out to target Turkish participants in the appendix 2. And analysis made accordingly to the English literature. Beginning of the survey a basic t-shirt showed to the participants to understand their perspective accordingly. Since a black t-shirt is one of the most accessible and known fashion element (Sijtsema et. Al., 2016), we asked for the value of t-shirt in terms of TL. After answering other questions, same t-shirt showed to the participants but with additional information about circular economy, and products. And told them this t-shirt is produced circular. Also, these questions asked twice to understand their knowledge about circular products.

Once before giving the information about the product and after the given information. In the second time, before giving the circular information several questions asked to gather information about the participants knowledge;

- Have you ever heard of products with circular economy?
- Have you purchased products produced with circular economy before?
- Do you recycle?
- If you recycle, which of the following do you recycle?

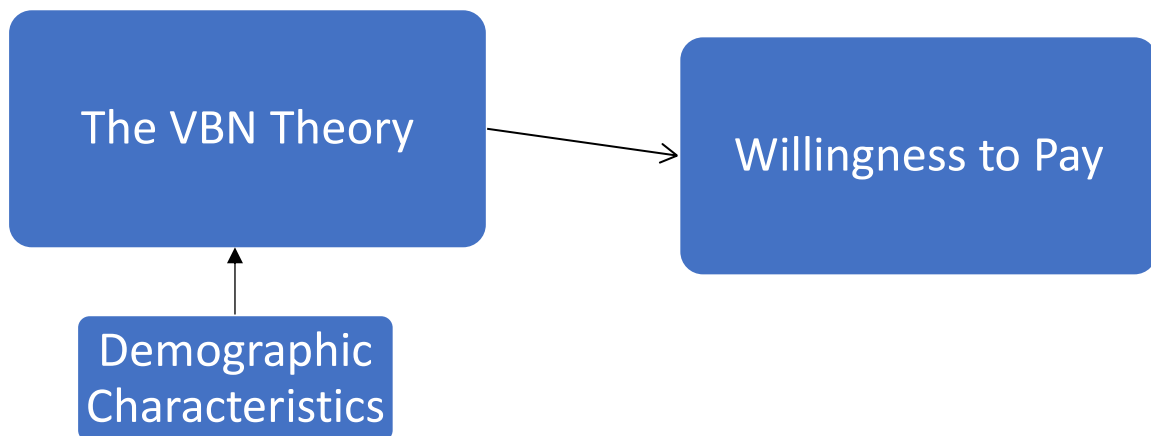
Figure 7 Basic T-shirt



Research Model

For this study research model developed from literature review accordingly to the VBN theory by Schwarts (1992) as seen in the Figure 8.

Figure 8 Research Model



To understand and examine the selected participants better in experimental research design, 2 different groups proceeded. As seen in the Table 6, participants answered given questions two times accordingly to the information. The given research model examines two times whether participants know the product is circular or not.

Table 6 Research Design

	T1	T2
Circular Product Information Given	Values, Beliefs and Norms	Values, Beliefs and Norms

*t1: value of the product before information

*t2: value of the product after information

In terms of the Table 6, the main idea is profiling the participants accordingly to their preferences and maximum value they can offer when they know the product is circular. If they know that product produced by CE, are they willingly to pay more, furtherly will their beliefs and norms change accordingly to this information?

7.6 Data analysis

Advanced data analysis tools of SPSS28, a statistical program for social sciences, were used to deliver the questionnaire. The sample was first described using descriptive analysis. Then, frequencies were utilized for nominal variables, and interval variables, descriptive. In addition to component analysis, statistical analysis methods including Paired-Sample T-test, Independent-sample T-test, cluster analysis (for direct marketing) have been utilized.

8 RESEARCH FINDINGS

As mentioned before, several statistical analyses conducted to understand consumers' perspective on CE better. In the following section research findings are showed. The study's research findings will be laid out in Tables and with explanations in this section.

8.1 Normality Test

According to Shapiro and Milk (1965), normality distribution measured by sample's mean and variance to see the distribution of the sample clearly. Skewness and kurtosis are the two elements of the normal distribution. The condition of the data's mode, median, and mean relative to one another (skewed distribution) is connected to skewness (Tabachnick & Fidell, 2007). How far the data deviate from the mean or how near they are to the mean are connected to the kurtosis. In other words, it has to do with the data's standard deviation (Field, 2013; Tabachnick et. al., 2007). As seen the Table 7, the significant values are smaller than $<.005$. So the distrubition of the sample is normal.

Table 7 Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnov ^a	Shapiro-Wilk				
	Statistic	df	Sig.	Statistic	df	Sig.
Values	.114	407	<.001	.878	407	<.001
Norms	.120	407	<.001	.907	407	<.001
Beliefs	.127	407	<.001	.887	407	<.001
Values1	.152	407	<.001	.847	407	<.001
Norms1	.168	407	<.001	.856	407	<.001
Beliefs1	.161	407	<.001	.859	407	<.001
a. Lilliefors Significance Correction						

8.2 Descriptive Statistics

In this section of the research consist of demographic characteristics and question that identify the participants preferences; gender, education, age and working condition.

Table 8 Gender

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Female	198	48.6	48.6	48.6
Male	209	51.4	51.4	100.0
Total	407	100.0	100.0	

From 407 participants, 209 (48.6%) of them are male and the rest 198 (51.4%) participants are female as seen in the Table 8. 94 (23.1%) participants were obtained high school degree while 237 (58.2%) of the participants have bachelors and the rest 76 (18.7%) of them has the graduate degree. Which shows that participants of the survey have at least basic level of the education and most of them has higher education as seen in Table 9.

Table 9 Education

What is the most recent education degree you graduated from?				
	Frequency	Percent	Valid Percent	Cumulative Percent
High School	94	23,1	23,1	23,1
Bachelors	237	58.2	58.2	81.3
Graduate	76	18,7	18,7	100.0
Total	407	100.0	100.0	

According to Table 10, age range of 20-30 has the highest rate of %49.4, following 31-40 (%31,6), 41-50 (13.3%), and 51+ (5.7%).

Table 10 Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30,	201	49.4	49.4	49.4
	31-40	129	31.6	31.6	81.1
	41-50	54	13.3	13.3	94.3
	51+	23	5.7	5.7	100.0
	Total	407	100.0	100.0	

Since we are asking to the participants what are their perception about the price of the circular product, we also asked for their monthly income. This study conducted before changes in the minimum wage, because of that the results may differ in terms of the range. Accordingly, to Table 11 and 12, the income is accumulated around 4251-72450 TL which is little higher than minimum income and Participants are mostly full-time worker with 302 (74.2%) participants.

Table 11 Income

What is your monthly individual income?				
	Frequency	Percent	Valid Percent	Cumulative Percent
0-4250	56	13,8	13,8	13,8
4251-7250	133	32,7	32,7	46,4
7251-10250	112	27,5	27,5	74,0
10251-13250	43	10,6	10,6	84,5
13251+	63	15,5	15,5	100,0
Total	407	100,0	100,0	

Table 12 Working Condition

Working Condition				
	Frequency	Percent	Valid Percent	Cumulative Percent
Parttime	11	2,7	2,7	2,7
Fulltime	302	74,2	74,2	76,9
Student	38	9,3	9,3	86,2
Not Working	33	8,1	8,1	94,3
Working Student	23	5,7	5,7	100,0
Total	407	100,0	100,0	

According to research sample, participants are mostly male (51.4%), Bachelors graduates (58.2%), Full time workers (74.2%) with 4251-7250 (32.7%) income range.

In this research, participants were questioned on whether they live with family or not. In the results which seen in the Table 13, 354 (87%) of the participants are living with their families. The reason behind question was to understand their spending habits and the budget for their choices.

Table 13 Living condition

Do you live with your family?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	354	87.0	87.0	87.0
No	45	11,1	11,1	98.0
With roommate	8	2.0	2.0	100.0
Total	407	100.0	100.0	

Participants were asked that “Have you ever heard of products produced with a circular economy?”, while %58.5 were aware of the circular products, %41.5 of them wasn’t aware of the circular product before the research. As seen in Table 14, %58.2 of the participants haven’t buy any circular products yet, and %41.8 of them bought circular products before.

Table 14 Circularity Knowledge

Have you ever heard of products produced with a circular economy?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	238	58.5	58.5	58.5
No	169	41.5	41.5	100.0
Total	407	100.0	100.0	

Table 15 Participation of circularity

Have you purchased products produced with a circular economy before?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	170	41.8	41.8	41.8
No	237	58.2	58.2	100.0
Total	407	100.0	100.0	

Another question was about recycling. Recycle part is one of the basics of the circularity. In terms of close loop, circular production, products should recycle. With this question, we want to understand that either they aware or not, are people recycle. Indirectly they are making contribution to the circularity. In the Table 16, participants tend to recycle with the percentage

of. %93.6 with the highest rate of Plastics %20,8. In order plastics, cardboard/paper, battery waste, clothes/shoes, glass waste, electronic waste, and organic waste selected. Participants can choose more than one choice.

Table 16 Do you Recycle?

Do you Recycle?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	381	93.6	93.6	93.6
No	26	6,4	6,4	100.0
Total	407	100.0	100.0	

Table 17 Recycling Preferences

Recycling Frequencies				
	Responses			
	N	Percent	Percent of Cases	
Plastic	338	20,80%	83,70%	
Cardboard/Paper	321	19,80%	79,50%	
Clothes/shoes	248	15,30%	61,40%	
Waste battery	283	17,40%	70,00%	
Organic Waste	96	5,90%	23,80%	
Electronic Waste	126	7,80%	31,20%	
Glass Waste	213	13,10%	52,70%	
Total	1625	100,00%	402,20%	
a. Dichotomy group tabulated at value 1.				

Difference between means of the prices is around 15-20tl, participants tend to pay 91.25 tl for a t-shirt that they know it is regular one, and they are tend to pay around 106.93 to a t-shirt that are know that it is produced circular.

Table 18 Price vs. Circular Price

N	Price (Before Circular)	Price (After Circular)
Valid	407	407
Missing	0	0
Mean	91.250	106.931
Median	69.000	90.000
Std. Deviation	863.529	948.958
Range	1090.0	1090.0
Minimum	10.0	10.0
Maximum	1100.0	1100.0

As seen in the Figure 9, for noncircular product participants are most likely to pay 50 Tl, and for circular product they are tend to pay around 100 Tl (Figure 10).

Figure 9 Price (noncircular)

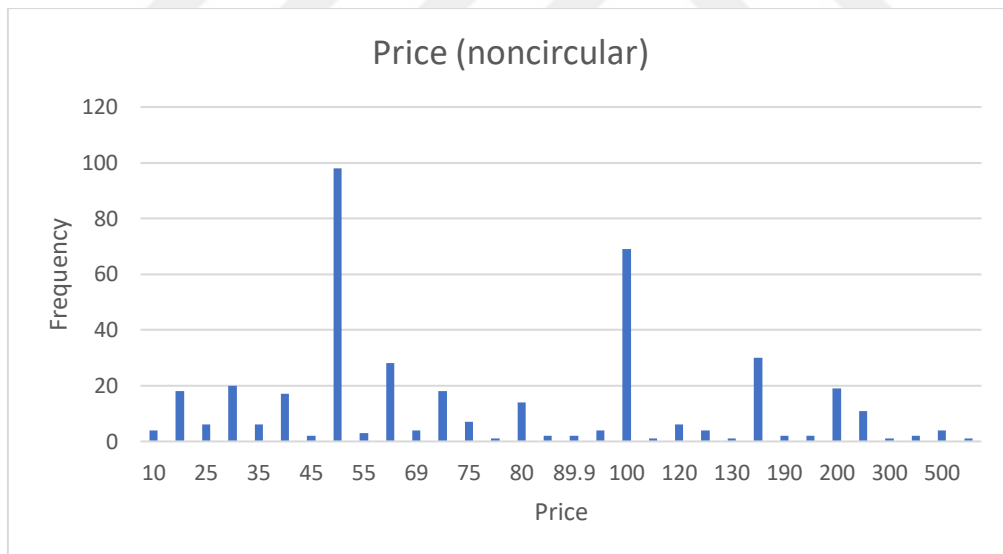
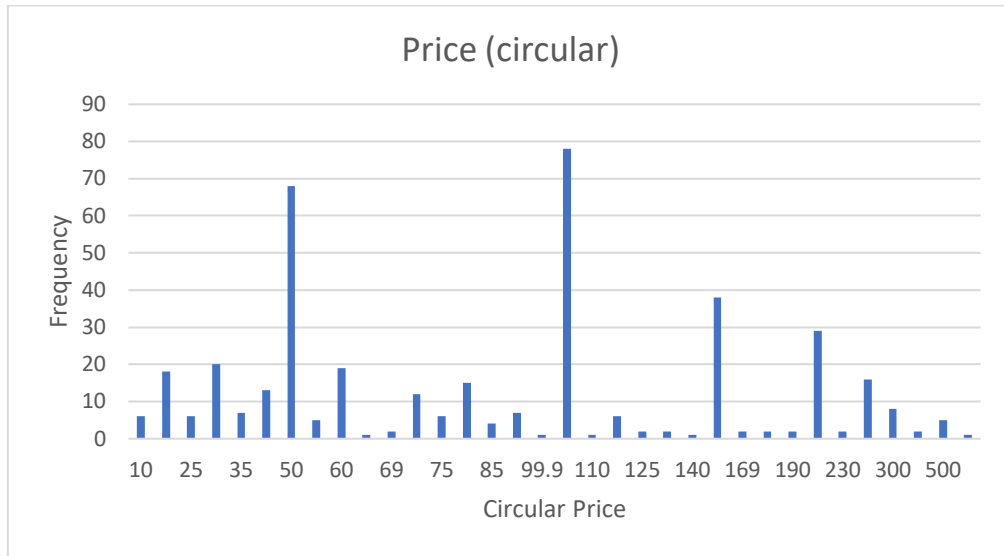


Figure 10 Price (circular)



As seen in the Table 19 and Figure 11, price change is not a significant value. 57.7% of the participants didn't change the price after they know it is circular. 32.2% of the participants paid more to the circular product and %10.1 of the participants paid less for the circular product.

Figure 11 Price change in graph

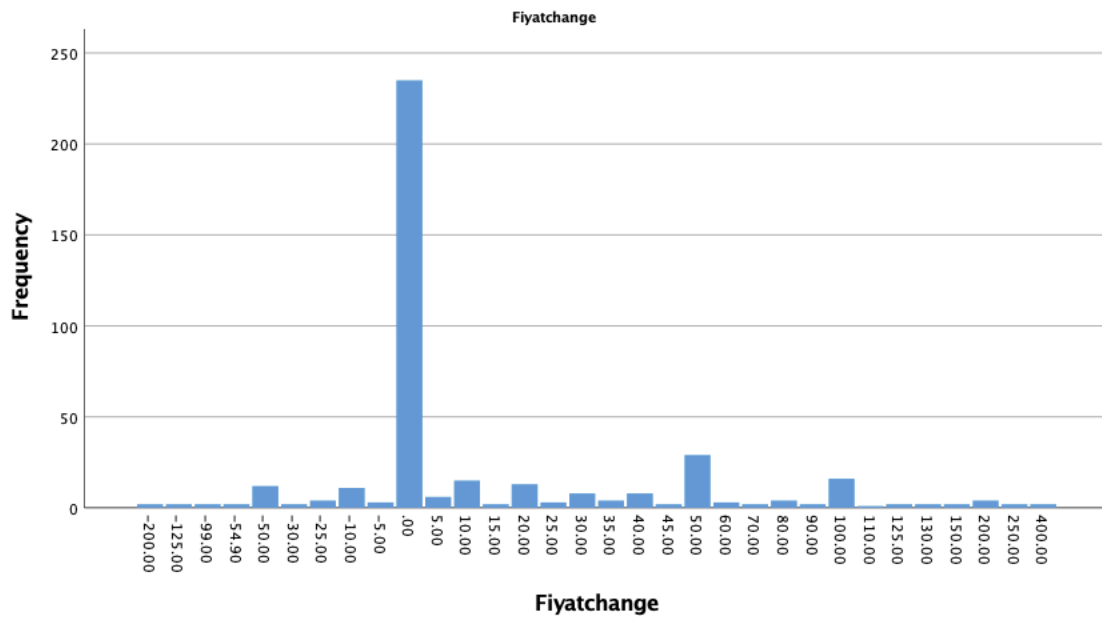


Table 19 Change of Price

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non difference	235	57.7	57.7	57.7
	Positive	131	32.2	32.2	89.9
	Negative	41	10.1	10.1	100.0
	Total	407	100.0	100.0	

Table 19 shows that difference between the price (T2-T1). While %57.7 of the participants didn't change the price. %32.2 of the participants positively change the price and %10.1 of the participants change the price negatively (they lowered their first price).

8.3 Exploratory Factor Analysis

The factor analysis consists of The VBN theory dimensions to describe variation among linked variables that may be seen in terms of a smaller set of elements (Malhotra and Birks; 2007). In the analysis, dimensions analyzed twice because of in the survey these items asked twice (one before the information and after the information). order to determine if the data set is suitable for factor analysis, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and the Bartlett Test of Sphericity are primarily considered in this section for each variable. KMO (Kaiser-Meyer-Olkin) and Bartlett test of sphericity tests of the study suggest the convenience of the items in the study, and exploratory factor analysis is used in the next section to establish interrelationships between items with fewer components. Factor analysis results show good scores. a KMO test result of more than 0.5. For factor analysis to be appropriate, (Field, 2000) and Bartlett's test of sphericity must be significant (p.05) (Tabachnick and Fidell,2007). Through first factor analysis, some of the elements of values stayed below the .50, and the loadings of some of the components stayed into another dimension.

According to Cronbach' Alpha score (.969) and KMO results (.95), for this dimension (values), it is a reliable scale to measure.

Table 20 KMO and Reliability results of Values before circular price

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,95
Bartlett's Test of Sphericity	Approx. Chi-Square	9369,355
df		136
Sig.		0
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.969	.971	17

As seen in the Table 21, Biospheric-altruistic Values' 6th element has a different loading than other items. After taking that item of the chart and adding to the other dimension accordingly, as seen in the Table 22, final loadings and items conducted.

Table 21 Values (loadings)

Dimensions	Rotated Component Matrix ^a			
		Component		
		1	2	3
Biospheric-altruistic Values	BV2	.892	.280	.215
	BV4	.882	.277	.215
	BV10	.867	.310	.258
	BV8	.866	.307	.269
	BV9	.836	.333	.245
	BV3	.834	.342	.218
	BV1	.822	.299	.290
	BV5	.818	.363	.203
	BV6	.786	.396	.255
Egoistic Values	EV2	.315	.825	.320
	EV1	.302	.798	.366
	EV3	.374	.722	.239
	EV4	.477	.707	.344
	BV7*	.387	.630	.186
Openness to Change	OC2		.232	.832
	OC3	.292	.261	.799
	OC1	.358	.390	.687
	OC4	.489	.269	.653

Table 22 Values (Before Circular Information)

Dimensions	Rotated Component Matrix ^a			
		Component		
		1	2	3
Biospheric-altruistic Values	BV2	.892	.280	.215
	BV4	.882	.277	.215
	BV10	.867	.310	.258
	BV8	.866	.307	.269
	BV9	.836	.333	.245
	BV3	.834	.342	.218
	BV1	.822	.299	.290
	BV5	.818	.363	.203
	BV6	.786	.396	.255
Egoistic and Social Values	EV2	.315	.825	.320
	EV1	.302	.798	.366
	EV3	.374	.722	.239
	EV4	.477	.707	.344
	BV7*	.387	.630	.186
Openness to Change	OC2		.232	.832
	OC3	.292	.261	.799
	OC1	.358	.390	.687
	OC4	.489	.269	.653

According to Cronbach' Alpha score (.978) and KMO results (.951), for this dimension (values after circular information), it is a reliable scale to measure.

Table 23KMO and Reliability results of Values after circular price

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.951
Bartlett's Test of Sphericity	Approx. Chi-Square	10.734.276
df		120
Sig.		.000
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.978	.979	16

Second part of the survey consist of same items, while participants know the product is circular. As seen in the Table 24, Biospheric-altruistic Values' 7th element and Openness to Change's 4th element has a different loading than other items. After taking that item of the chart, as seen in the Table, final loadings and items conducted.

Table 24 Values (after circular information (loadings))

Dimensions	Rotated Component Matrix			
		Component		
		1	2	3
Biospheric-altruistic Values	BV4	.889	.284	.271
	BV2	.887	.283	.288
	BV3	.849	.293	.281
	BV8	.841	.365	.291
	BV10	.820	.387	.292
	BV9	.815	.346	.320
	BV5	.812	.365	.274
	BV6	.784	.420	.321
	BV1	.759	.313	.369
	OC4	.646	.321	.567
Egoistic Values Egoistic Value	EV1	.288	.817	.400
	EV2	.335	.805	.376
	EV3	.394	.805	
	BV7	.390	.679	
	EV4	.517	.582	.476
Openness to Change	OC3	.409	.284	.786
	OC2	.255	.449	.737
	OC1	.465	.389	.724

After taking that item of the chart, as seen in the Table 25, final loadings and items conducted.

Table 25 The Last Value Items

Dimensions	Rotated Component Matrix			
		Component		
		1	2	3
Harmony with nature	BV4	.889	.284	.271
	BV2	.887	.283	.288
	BV3	.849	.293	.281
	BV8	.841	.365	.291
	BV10	.820	.387	.292
	BV9	.815	.346	.320
	BV5	.812	.365	.274
	BV6	.784	.420	.321
	BV1	.759	.313	.369
	OC4	.646	.321	.567
Egoistic and Social Values	EV1	.288	.817	.400
	EV2	.335	.805	.376
	EV3	.394	.805	
	BV7	.390	.679	
	EV4	.517	.582	.476
Perception of Life	OC3	.409	.284	.786
	OC2	.255	.449	.737
	OC1	.465	.389	.724

Beliefs dimension has significant value that consist of every items correctly (Table 27 and 29). Also, for reliability results (.917) and KMO (.902) has significantly high values which shows that elements of the dimension are reliable and measurable.

Table 26 KMO and Reliability results of Beliefs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.902
Bartlett's Test of Sphericity	Approx. Chi-Square	3.777.542
df		45
Sig.		.000
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.917	.922	10

Table 27 Beliefs (Before Circular Information)

Dimension	Rotated Component Matrix ^a		
		Component	
		1	2
Awareness of consequences	AC4	.923	.179
	AC3	.921	.208
	AC5	.909	.120
	AC1	.856	.251
	AC2	.629	.381
	AC6	.621	.383
Ascription of responsibility	AR2	.196	.916
	AR4	.233	.889
	AR3	.190	.877
	AR1	.304	.840

The KMO and Bartlett's test results are .925, and reliability results are .948. That shows that second part of the survey is also reliable.

Table 28 KMO and Reliability results of Beliefs (after circular)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.925
Bartlett's Test of Sphericity	Approx. Chi-Square	5.110.742
df		45
		0
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.948	.952	10

Table 29 Beliefs (After Circular Information)

Dimension	Rotated Component Matrix ^a		
		Component	
		1	2
Awareness of consequences	AC4	.915	.263
	AC3	.915	
	AC5	.910	
	AC1	.869	.288
	AC2	.776	.387
	AC6	.702	.499
Ascription of responsibility	AR2	.260	.928
	AR4	.315	.903
	AR3	.282	.895
	AR1	.334	.877

Also, for reliability results (.910) and KMO (.897) has significantly high values which shows that elements of the dimensions are reliable and measurable.

Table 30 KMO and Reliability results of Norms

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.897
Bartlett's Test of Sphericity	Approx. Chi-Square	2.279.179
df		28
Sig.		.000
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.919	.922	8

The KMO and Bartlett's test results are .929, and reliability results are .957. That shows that second part of the survey is also reliable

Table 31 KMO and Reliability results of Norms (after circular)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.929	.929
Bartlett's Test of Sphericity	Approx. Chi-Square	3.508.329
df		28
Sig.		.000
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.957	.959	8

Norms dimension has significant value that consist of every items correctly (Table 32 and 33).

Table 32 Norms (Before Circular Information)

	Component Matrix^a	
		Component
		1
Personal Norms	PN7	.868
	PN6	.859
	PN8	.841
	PN4	.817
	PN5	.795
	PN3	.764
	PN1	.749
	PN2	.740

Table 33 Norms (After Circular Information)

	Component Matrix^a	
		Component
		1
Personal Norms	PN7	.933
	PN6	.918
	PN5	.899
	PN4	.884
	PN8	.873
	PN3	.862
	PN1	.846
	PN2	.838

For factor results, all dimensions are reliable and measurable. In terms of values, accordingly to Schwartz (2000), it may defer by the preferences of the sample. Through the first research about the values (Braithwaite and Law, 1985), values were accumulated into one dimension, after grouping them accordingly to personal preferences (Schwartz, 1992), it had several subdimensions by topics. In this research 3 of them used and placed after loadings correctly.

After the results of the analysis items that are used for t-test and clusters were listed in the Table 34.

Table 34 Items listed after analysis

Values	Harmony with nature	Unity with nature
		A world at peace
		Equality
		Social justice
		Helpful
		A world of beauty
		Protecting the environment
		Respecting the earth
		Preventing pollution
		Influential
	Egoistic and Social Values	Authority
		Social Power
		Wealth
		Sense of belonging
	Perception of Life	An Exciting Life
		A varied Life
		Curious
Personal Norms		People like me should do everything possible to decrease their use of fossil fuels such as oil/petrol/diesel.
		I would be a better person if I drove using electricity or any other biofuel such as ethanol/bio-gas.
		I feel guilty when wasting fossil fuels such as oil/petrol/diesel.
		I feel that it is important to think about the environment in my everyday behavior.
		I feel it is important to travel as little as possible by car using oil/petrol/diesel.

Beliefs		I feel a moral obligation to use electricity or any other biofuel such as ethanol/bio-gas instead of fossil fuels such as oil/petrol/diesel.
		I feel a moral obligation to conserve oil/petrol/diesel no matter what other people do.
		If I were to replace my car today, I would feel a moral obligation to replace it for a car fueled by electricity or any other biofuel such as ethanol/bio-gas.
	Awareness of consequences	Awareness of consequences
		Driving a car fueled by electricity or any other biofuel such as ethanol/bio-gas decreases the greenhouse effect.
		Global warming is a problem for society.
		The continued increase in the use of fossil fuels such as oil/petrol/diesel is a problem.
		The quality of the environment will improve if we decrease the use of fossil fuels such as oil/petrol/diesel.
		The depletion of fossil fuels such as oil/petrol/diesel is a problem.
	Ascription of responsibility	I feel partly responsible for the increase in the use of fossil fuels such as oil/petrol/diesel.
		I am partly responsible for the fossil oil problems in society today.
		Not only the government and the industry are responsible for the increase in the use of fossil fuel such as oil/petrol/ diesel, I am too.
		I feel partly responsible for global warming.

8.4 T-tests (Paired and Independent Sample)

With t-tests (paired and independent sample), research is trying to measure, whether there is a significant difference between the responses of any group, between two independent groups, or significantly different for a variable under study into different conditions (impulses) according to a studied variable.

To compare the results, paired t-test conducted. The main idea of the analysis to understand the relationship between circular price and the items of the The VBN theory. With the paired t-test, comparison of the two different elements conducted. Firstly, the prices (before and after circular knowledge) and then the The VBN theory differences measured.

Table 35 Paired Samples Statistics

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Price	91.250	407	863.529	42.804
	Circular Price	106.931	407	948.958	47.038
Pair 2	Values	52.802	407	110.318	.05468
	Values1	57.270	407	123.994	.06146
Pair 3	Norms	39.638	407	.88200	.04372
	Norms1	40.934	407	.94257	.04672
Pair 4	Beliefs	40.636	407	.82019	.04066
	Beliefs1	41.059	407	.90266	.04474

*Values1, Norms1, and Beliefs1 represent the results after the circular knowledge.

To compare the dimension before and after the circular knowledge, significance value should be lower than $<.005$ (Coskun et. al., 2017) which shows that there is a correlation between these groups as seen in Table 31. Additionally, shown in Table 36, if the significance values are $<.005$ (Coskun et. al., 2017), it means there is a significant different between these two groups. In the Table we see that there is a significant difference between prices, values and norms. But beliefs are not different accordingly to the knowledge of circularity.

Table 36 Paired Samples Correlations

Paired Samples Correlations					
		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	Price & Circular Price	407	.834	<.001	<.001
Pair 2	Values & Values1	407	.769	<.001	<.001
Pair 3	Norms & Norms1	407	.838	<.001	<.001
Pair 4	Beliefs & Beliefs1	407	.855	<.001	<.001

*Values1, Norms1, and Beliefs1 represent the results after the circular knowledge.

Table 37 Paired Samples Test

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Price-Circular Price	-156.811	528.137	26.179	-208.274	-105.348	-5.990	406	<.001	<.001
Pair 2	Values - Values1	-.44676	.80642	.03997	-.52534	-.36819	-11.177	406	<.001	<.001
Pair 3	Norms - Norms1	-.12961	.52245	.02590	-.18052	-.07870	-5.005	406	<.001	<.001
Pair 4	Beliefs - Beliefs1	-.04226	.46992	.02329	-.08805	.00353	-1.814	406	.035	.070

*Values1, Norms1, and Beliefs1 represent the results after the circular knowledge.

To understand the results differ accordingly to knowledge of circular products or not, all items and the prices entered the independent sample t-test. Accordingly, Coskun et. al. (2017), if the significance value is lower than .05, there is a significant difference. As seen in the Figure 12, “equal variance assumed” part is significantly different except the norms after circular knowledge. This means that knowledge of the circularity has no impact on the norms of the participants.

Figure 12 Independent T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Values1	Equal variances assumed	18.743	<.001	3.724	405	<.001	<.001	.45733	.12280	.21593	.69873
	Equal variances not assumed			3.495	274.171	<.001	<.001	.45733	.13085	.19974	.71493
Norms1	Equal variances assumed	4.736	.030	2.911	405	.002	.004	.27350	.09395	.08880	.45820
	Equal variances not assumed			2.794	304.821	.003	.006	.27350	.09789	.08088	.46612
Beliefs1	Equal variances assumed	14.072	<.001	4.385	405	<.001	<.001	.38954	.08883	.21492	.56416
	Equal variances not assumed			4.127	277.928	<.001	<.001	.38954	.09438	.20375	.57533
Price	Equal variances assumed	9.502	.002	3.703	405	<.001	<.001	316.773	85.535	148.625	484.922
	Equal variances not assumed			4.076	377.893	<.001	<.001	316.773	77.717	163.961	469.586
Circular Price	Equal variances assumed	11.336	<.001	3.837	405	<.001	<.001	360.274	93.884	175.713	544.836
	Equal variances not assumed			4.131	399.643	<.001	<.001	360.274	87.211	188.824	531.725

Another issue is about prices and willingness to buy the circular product. As seen in the Figure 13, there is no significant difference between the circular or normal price in terms of previous action of buying. For this comparison, “Have you ever bought circular product?” question used and for the results, there is no significant impact on prices.

Figure 13 Have you ever bought circular product? T-test

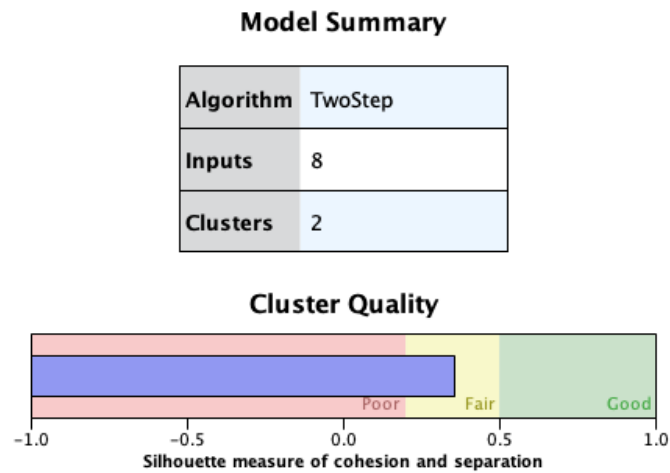
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Price	Equal variances assumed	2.403	.122	.210	405	.417	.834	18.236	86.893	-152.583	189.054
	Equal variances not assumed			.229	384.204	.410	.819	18.236	79.662	-138.391	174.863
Circular Price	Equal variances assumed	.476	.490	.944	405	.173	.346	90.081	95.390	-97.440	277.603
	Equal variances not assumed			.988	403.855	.162	.324	90.081	91.194	-89.192	269.355

8.5 Cluster Analysis

Second element of the research model were demographic qualities of the participants. To understand and make a comment about future actions, cluster analysis conducted through SPSS28. For cluster analysis, direct marketing method used. What are the various consumer groups? A market researcher may perform a survey encompassing client demands, opinions, demographics, and behavior to provide an answer to this question. In the results, with cluster analysis, homogeneous groups of clients with comparable requirements and attitudes found. It is a two-step cluster analysis and use for hierarchical clusters (Vrieze, 2012; Kent et. al., 2014). As seen in the Figure 14, 15 inputs included when doing the analysis which divided into two clusters.

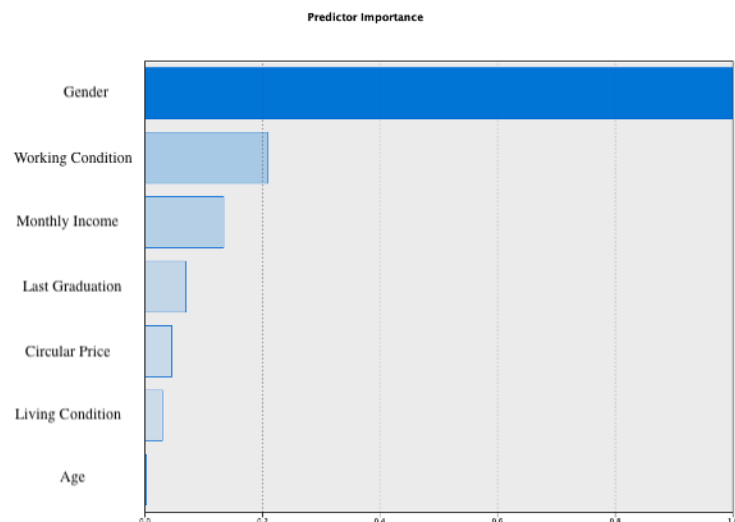


Figure 14 Cluster Model Summary



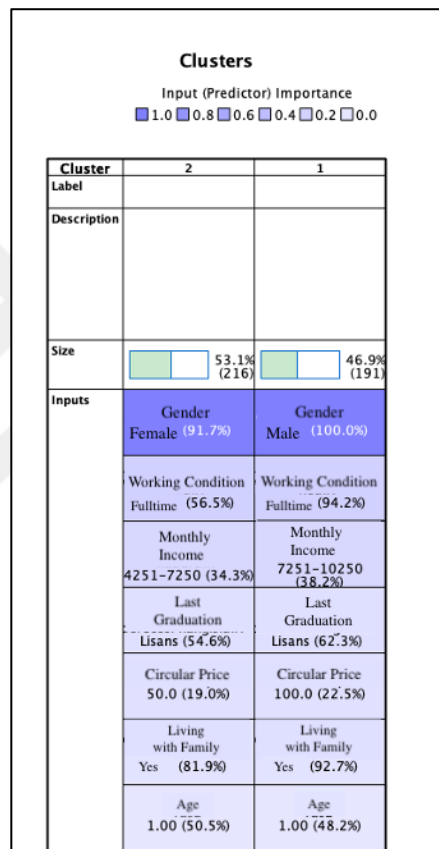
Inside the clusters the importance rate is in order of, gender, working condition, monthly income, education, price, living condition and age. We put martial status into cluster, but it didn't have an effect on the importance rate and in the cluster.

Figure 15 Cluster Importance Order



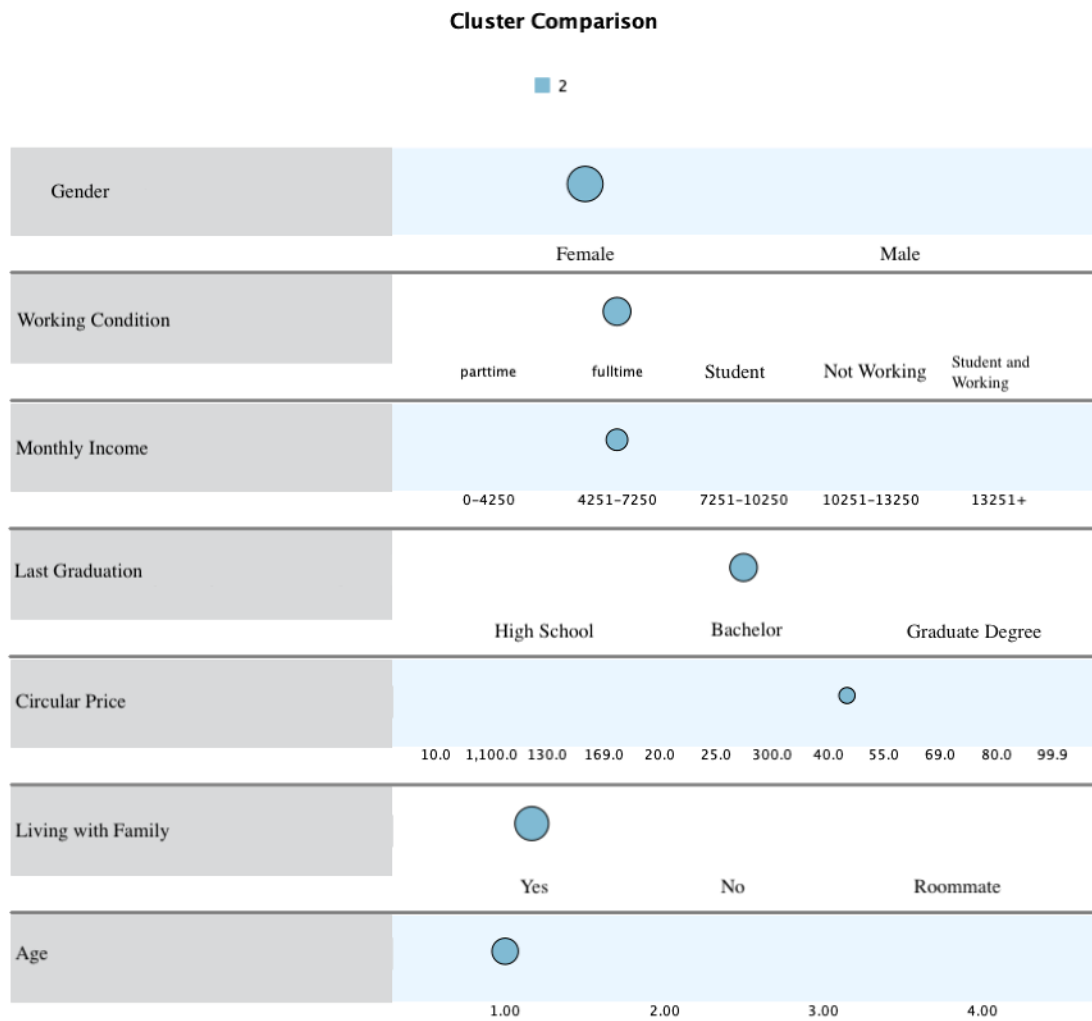
In the Figure 15, we can see the clusters qualifications, accordingly to input importance, gender has the highest importance when it comes to dividing the clusters. It defers accordingly to gender, and females tend to pay more when the product is circular, and male tend to pay less than women when the product is circular.

Figure 16 Clusters



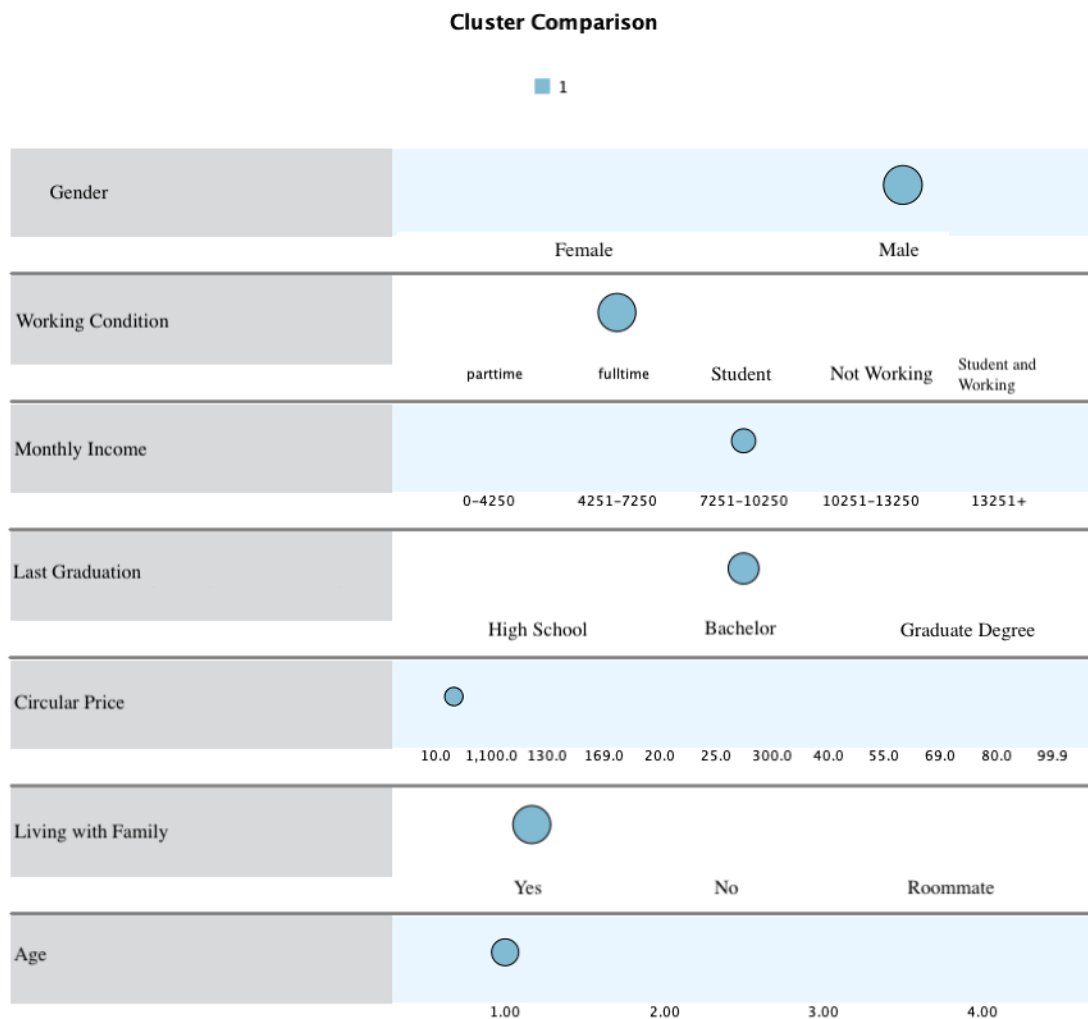
According to cluster Female (2), Figure 17, the specialties of the cluster female are; woman tend to work full-time, has an income between 4251-7250, has a bachelor degree are tend to pay around 50 TL for a circular product.

Figure 17 Cluster Female



For the cluster male (1), as seen in the Figure 18, Male tend to work full-time who gain around 7251-10250 and has a bachelor degree, are willingly to pay around 100 TL.

Figure 18 Cluster Male



Generally, for the results participants are tend to pay for circular product since its price has 5th importance place among the items. It differs when it comes to gender differences. Research shows that whether they earn more than the women in the research, men are willingly to pay less for the circular product.

9 DISCUSSION

A knowledge community concerned in reducing waste production and resource exploitation on Earth is represented by the circular economy (CE). Although the exact definitions of the CE and "circularity" are still up for discussion, research on the CE is increasingly focused on resource life extension techniques that help shift society away from unsustainable resource-intensive production and consumption (Blomsma and Brennan, 2017; Korhonen, 2018). Even though consumer-centered research is still not very common in the literature on the circular economy, it is a crucial component of a larger social change. Producers can forsake outdated and ecologically unsustainable linear business methods with more assurance that a potentially hazardous innovation will be rewarded if they have a detailed grasp of the market for items manufactured from recycled material (Boyer et. al., 2021). The public's perceptions of and attitudes toward the sharing economy, waste sorting, and green purchasing in Tianjin are the main topics of Liu et al. (2009)'s research. Consumer attitudes about trash separation, recycling, and energy and water conservation are examined by Guo et al. (2017). In eight Asian nations, Wang and Kuah's (2018) research focuses on how consumers perceive and accept remanufactured consumer items. Furthermore, research has examined elements influencing customers' reactions to remanufactured items in the context of eBay and come to the conclusion that how consumers see remanufactured items in comparison to its used and new counterparts depends on the product's nature in subtle (Neto et al., 2015). Since there are several researches about consumer perspective of different Circular Economy aspects, this study also focused on Circular Economy in terms of consumers' willingness to pay. To understand this, we looked for their attitude about the circular products (a fashion product). There are two main streams in the literature on pro-environmental behavior: one focuses on sociodemographic factors, and the other on social-psychological conceptions (Dietz, Stern, & Guagnano, 1998). This study investigated if and which customer types exhibit preferences for circular product. There developed two pertinent consumer groupings.

Firstly, in the results we see that male participants are more than female participants. There are 209 male who participated in the survey which is quite interesting as the results. As seen in the literature women are tend to have an interest on circular concepts (Mugge et. al., 2017).

For the recycling part which as important as circular production because circular product starting with collecting recycled products (EMF, 2018). %93.6 of the participants said yes to the recycle, they mostly recycle plastics and cardboards. This situation had a relationship

between the government regulations, according to ISTAÇ (Istanbul Environmental Management Industry and Trade) in Istanbul, an average of 18,000 tons of household waste⁴ is generated daily which lots of them are plastics and glass waste. Similarly, to our research shows that participants are tend to recycle their plastics the most.

In the results we can see that %58.5 of the participants have heard the circular product, but unfortunately, they did not buy any of the products. %58.2 of the participants said no to the purchase question. For the P1, research shows that participants are willingly pay more when they know the product produced circularly. Also, according to Pretner et al., 2021, when they put the participants in 3 conditions (whether they know the product or not), participants are willingly to pay more when they know that product is circular. Another study (research with Finnish participants) shows that concept of using recycled textile waste to create new clothing is quite popular with consumers. Consumers in Finland are more likely to donate their used clothing than toss it in the trash, and they would be open to returning their textile waste to a different collecting location like they do with their paper, metal, and glass waste (Vehmas et. al., 2017). In the research, when we divide participants into 3 categories; no change, positive change and negative change of the price, we will see that most of the participants didn't change the price of the product whether they know or not it is circular.

Environmental knowledge develops in two ways, according to D'Souza, Taghian, and Lamb (2006); first, customers must be taught to comprehend how a product affects the environment; and second, consumers must be aware that the product was made in an ecologically responsible manner. In our research we asked participants that "Have you ever heard of circular product?". With this question the aim was, building a link between their knowledge and how much they are willingly to pay to a circular product. Similar to the results, in this research participants, in the beginning didn't know that the product was circular, were willingly to pay around 91.3 TL, when they informed about the circularity of the same product, they tend to pay around 106.9 TL. Since it is a basic t-shirt that showed to the consumers, the price range can be understandable. The participants had a knowledge after we give them the information about the product, shows us they are willingly to pay more for the circular products even it is a basic t-shirt. They tend to pay more is %32.2 which is higher than the participants who gave less than first value. We can say that in general, the price is increased from 91.3 to 106.6 TL but if we

⁴ household waste; paper, battery, bags, food, metal, clothes, furniture, electronics, bottles, oil, water, etc.

look at every selection of the participants, we can come to a conclusion of they are not willingly to pay more, they tend to pay same for the product.

We can see that after factor analysis original loadings of the dimensions are changed for the values of the VBN Theory. The values are likely to change accordingly to the samples' characteristics and backgrounds. According to Jansson et. al. (2011), there are 3 categories of values Biospheric-alturistic, egoistic, and openness to change. Beginning of the research these 3 categories used for identifying the participants values. Since Jansson's et. al. (2011) research conducted in Sweden; the loadings can change accordingly to country's perception. We need to examine this situation in 2 parts, which are before the knowledge of circular economy and after the knowledge of circular economy.

- Before the knowledge of circular economy, participants tend to think one of the Biospheric-alturistic value as egoistic value which is "sense of belonging". This will lead us to change the dimension name in to "Egoistic and Social Values". After the values like, authority, social power, wealth and influential; participants tend to look for sense of belonging. Like, Maslow's Hierarchy of needs (Maslow, 1943). There are basic needs and on the top of the pyramid there is esteem-needs and belongingness.
- After circular knowledge, the values changed again. This time two of the dimensions changed the items accordingly to it loadings. For Biospheric-alturistic values sense of belonging again went to the egoistic values -which name is egoistic and social values for the research- and openness to change lost one of the items which is "enjoying life". As seen in the Table 38, Biospheric-alturistic values turn to the harmony with nature because of the items related with the nature and sustainability mostly since the belonging went to the egoistic and social values. Additionally, "Influential" value of the openness to change went to Biospheric-alturistic values which give a general understanding of the participants. It shows that participants are likely to think that if they are having the values to related with nature and environmental concerns, they also have the value of influentially. Lastly, we changed "openness to change" into "perception of life", the items are about the perception of the participants' more.

Table 38 Values after change

Values	Harmony with nature	Unity with nature
		A world at peace
		Equality
		Social justice
		Helpful
		A world of beauty
		Protecting the environment
		Respecting the earth
		Preventing pollution
		Influential
	Egoistic and Social Values	Authority
		Social Power
		Wealth
		Sense of belonging
	Perception of Life	An Exciting Life
		A varied Life
		Curious

When customers purchase these items, they frequently feel good about "doing the right thing" and making a positive impact on a social issue. Customers feel more confident about their contribution when they are informed about a product's environmental features since it is in line with their values and beliefs (Stern et al. 1999). Additionally, as we see through the research the beliefs and norms didn't change by their dimensions. This will show that participants are tend to give importance to ecological ideas. One of the questions about belief was "Not only the government and the industry are responsible for the increase in the use of fossil fuel such as oil/petrol/ diesel, I am too.". This question asked to understand their point of view to understand general problems of the environmental. Participants can see that there is a problem and they should take an action. In contrast with the dimensions, we can see that its unlikely to take an action without outside forces accordingly to the consumers. They have a knowledge about circular economy but they are not willingly to buy a circular procut.

Table 39 Propositions

P1: Consumers are willingly to pay more when they know that product is produced circularly.
P2: Demographic characteristics is the determinant of the consumers' willingness to pay of a circular product.
P3: Consumers tend to act with their existing values when they try to decide circular product willingness to pay.
P4: Consumers tend to act with their existing beliefs when they try to decide circular product willingness to pay.
P5: Consumers tend to act with their existing norms when they try to decide circular product willingness to pay.

After cluster analysis which help to understand direct marketing segmentation through analysis, it showed that gender has positive impact on circular price. According to cluster analysis, inside the clusters there are importance placement, which started with gender to marital status. This cluster analysis conducted through direct marketing method, with the accumulated choices.

Cluster Male (1)

In the cluster male, male participants are more than woman, they tend to work full-time mostly. Also, their monthly income accumulated between 7251-10250 tl. For the Circular Price they tend to pay 100 Tl. In this cluster they are living with their family and age between 25-35 and married.

Cluster Female (2)

For the cluster female, women participants are more than men. They work full-time and they earn between 4251-7250 mostly. They tend to have a bachelor degree. In this cluster women are willingly to pay 50 Tl for a circular product which is higher than men in the first cluster. Also, they have the same indicator of age and marital status.

Both clusters have lots of common features but it shows that with the importance placement, both clusters are willingly to pay a price. The price itself has not the highest importance when we compared with the other components like, income or working condition. We can say that if

participants are likely to work fulltime and earn decent amount of money, they will pay for the circular products. According to literature, more often than men, women favor or indicate their plan to buy things connected to the CE (Harns and Linton, 2016; Atlason et. al., 2017) in various research. Respondents are divided into six categories by Mugge et al. (2017) based on their opinions toward smartphone refurbishing. While the majority of clusters had a gender balance similar to the overall respondent pool, one of three "pro- refurbishment" groups has an unusually high proportion of female respondents, while one of the other two clusters has a very low proportion of female respondents. Since it is a clustering, direct assumptions will be wrong, thus grouping the participants will be the solutions. In the clustering there 8 inputs of demographics which are gender, working condition, monthly income, education, living condition, age and price. For the order of importance gender has the highest importance when clustering the participants while age has the lowest importance. Price of the product they are willingly to pay is the 5th place of importance. These results shows that participants are willingly to pay that price when they are working full-time, has a bachelor's degree and between the same age range. The differences come with income level and gender. It shows that female who earn between 4251-7250 are tend to pay less than men who earn between 7251-10250. Men are paying around 100 TL for a circular product while women are willingly to pay around 50 TL for the same product. This shows that gender can differ when it comes to willingness to pay. Also, this result would help to marketer to understand and target future consumer who are willingly to sell circular products.

According to Atlason et. al. (2017), respondents with some higher education show the most interest in end-of-life design, whereas respondents with extensive higher education show the greatest interest in disposal techniques. In the results of our research is shows that in the clusters education has second important role of choosing circularity. According to Hirschl et al. (2003), respondents with greater education are more interested in shared-access solutions which is not correlated with our results, since the clusters has the same education level.

Consumers' willingness to pay is driven by their positive attitudes, high propensities toward biospheric and charitable values, and strong pro-environmental and normative views, according to López-Mosquera and Sánchez's (2012) research, which explores the WTP in the VBN theory. Customers feel more confident about their contribution when they are informed about a product's environmental features since it is in line with their values and beliefs (Stern et al., 1999). Lack of or unclear environmental information can affect consumers' decision-

making processes, which can lead to less purchases of products that have positive environmental effects. If consumers are not provided with knowledge regarding a product's environmental attributes, they will not be able to select the products that are the most ecologically friendly.

According to results of the research knowledge of the circularity has no impact on the norms of the participants. To understand the impact of the circularity, through the design there were two steps of questions and idea for the participants. Since it is two step questionnaires, in the analysis paired t-test is used. Results of the analysis shows that there are no significant differences between first and second set of same questions' responses in terms of beliefs. People's beliefs are not changing accordingly to the circular knowledge that is given. Then, we analyzed independent t-test, to understand this with previous knowledge of circularity, we asked to the participants "Have you ever heard of circularity?" after they gave value second time to the product. In this time, analysis showed that circularity knowledge has positive impact on beliefs and values but there is no significant impact on norms of the participants when we compare with previous knowledge. Additionally, there is evidence that consumers' preferences for circular products differ by nation and culture, which both have a significant impact on how people perceive the value of a product.

Another question of the survey was about "Have you ever bought circular product?", results shows that it is not important for circularity purchases. Participants are not caring their previous purchases when it comes the give a value to the new product in terms of T1.

10 CONCLUSION AND FURTHER RESEARCH

The scarcity of natural resources and the effects of climate change are issues that concern consumers and businesses. It is acknowledged that action must be taken. For the textile sector, novel technology solutions for a more sustainable and closed-loop system have been created, and new circular and sustainable brands are entering the market. The closed-loop system, in which used clothing is recycled into new fibers, is a relatively recent development and a new market potential. This study investigated if and which customer types exhibit preferences for circularly preferred fashion products (t-shirt). During the research analysis two clusters occurred in terms of gender preferences. In the research the main aim was get a knowledge about participants preferences in terms of willingness to pay of one specific circular product. Two step experimental analysis conducted to understand consumers' preferences before and after their knowledge of circularity. Willingness to pay measured while asking participants to define their given value of circular and there was a difference between two steps. Same participants are willingly to pay more when they know that product produced circularly. The second aim was got knowledge about the demographics and the VBN theory (which is related to the consumers attitude about pro-environmental actions). These findings demonstrate that individuals who are in the same age range, have a bachelor's degree, and work full-time are willing to pay that price. The gender and economic inequalities are present. It demonstrates that women with incomes between 4251 tl and 7250 tl likely to pay less than males with incomes

between 7251 tl and 10250 tl. For marketing purposes, industry would give an importance for male consumers who are willingly to pay more than women.

Only around 20% of the world's textile waste is gathered for recycling or reuse. In contrast, the other 80% is burned or dumped in landfills, increasing the carbon footprint and wasting energy and raw materials. Due to the negative effects that garbage has on landfills, such as methane emissions and groundwater pollution, specific laws is needed for effective trash disposal. By emphasizing durable products, using and recycling resources, and properly disposing of objects at the end of their useful lives, the fashion industry can also encourage sustainability. Procedures for material recycling or upcycling are growing in popularity as consumers' awareness for environmental issues grows. On the other hand, our research shows that whether they have known the product is produced circular, they have never bought one of it. In general, we can say that consumer is not willingly to take an action, they are aware of the problems of the environment and they have a knowledge about it but without outside effects, they do not tend to take an action about it.

For further research, scholars would work on perceived quality dimension of the products with exploratory and descriptive approaches. There are some other researches which look for quality of the product, or packaging or something else which in the end related with the 4P (product, place, promotion, price) of the product. Since this study generally focus on product and price further researches can focus on other elements of the marketing mix.

Even while consumer-centered research is still very rare in the literature on the circular economy, it is a crucial component of a larger social change. Producers can forsake outdated and ecologically unsustainable linear business methods with more assurance that a potentially hazardous innovation will be rewarded if they have a detailed grasp of the market for items manufactured from recycled material. Han et al. (2017) identified key components for CE fashion as being, for instance, brief and concise, visually appealing messages given across a range of media. A sustainable fashion matrix was developed by Henninger et al. (2016) to assist businesses in identifying their top goals in sustainable fashion, effectively communicating those priorities to stakeholders, and improving their public image. This matrix lists many sustainable fashion characteristics, such as innovation, ethically sourced materials, local manufacturing, environmental standards, minimal transportation, etc., to be prioritized by the firm. Governments should take an action to encourage the consumers' (the public). For example, there is a project that called Zero Waste, which is related with SDG (social development goals)

11 from UN (United Nations). In order to control our waste within the framework of sustainable development principles, and to leave a clean, developed Turkey and a livable world to future generations, the zero-waste principle should be targeted and waste management should be ensured with an integrated approach. This approach come with the circular ideas to unite all participants of the process of the production. According to UN, zero-waste should come with, utilizing community composting to use organic waste, Projects that collect and value waste, like Plastic Bank, libraries of resources, like Libraries of Things, nearby recycling facilities , Repair businesses like Repair Cafés, Local and seasonal products have both fixed and mobile markets, Education and inexpensive access to reusable menstrual hygiene items including the cup, cloth pads, and menstrual panties, Campaigns to raise public awareness about waste reduction, reuse, and prevention in the community, such the European Week for Waste Prevention (UN, 2016). These elements can include government, consumer and industry to act as circular to reduce the waste and turn that into reusable sources (Venturini, 2022).

In marketing perspective, this study shows that consumer has a knowledge about the circular products but lack of taking action. There should be some pushing strategies among the marketers. The idea of circular economy includes all aspects of the production. When a company produces circular products, that means they will use reusable raw materials and they will use their used products to transform these products to the raw materials again. In the beginning it will cost to build up this closed-loop system but at the end of the day companies will not have to buy new raw materials. Also, they can sell their product as labelled green/sustainable products. Through this process, the main importance is about telling the story of the product right to the consumers. Marketers should build up good communication to attract consumer and convince them this product will benefit their needs without a green washing the product. Also, still in Turkey, circular fashion products can be called as niche product categories. To gain more awareness, marketers would give information about the process of the production or the materials in detail for consumer of all segments. They should think about the wording, the label, packaging and communication tools to reach those consumers. When a marketer does that with success, the company will be one of the first starters of this production.

Through this research, the idea of circular economy and circular products are suggested, the main aim was to understand consumer point of view for the products to enhance the industry and government's actions. For further researches to make another step, scholars would work on life style, personality, or the product characters of the circular products to understand deeply the consumer perception and the process of their behaviors.

11 LIMITATIONS

First, it is likely that the relatively small sample sizes for each of the four tests prevent further understanding of the demographic traits of customers who like circular items (i.e., sex, age, income). To confirm how items branded "circular" would fare in the market, more trials with bigger responder groups are required because some of the clusters discovered in the study are tiny. Second, the relevance of this study in other circumstances is unknown because it only included respondents from one nation (Turkey, Istanbul). Previous research suggests that there are differences across nations and cultures, particularly given that customers in the Turkey have been shown to indicate a stronger preference for goods made with sustainable sourcing for some goods (Potoglou, 2020).

Another limitation is about the sampling technique, since snowball technique used for the gathering. It is a non-probabilistic technique; non-probability sampling has the significant drawback of making it difficult for the researcher to determine if the population is adequately represented. It's possible that the researcher won't be able to Figure out the intervals and the error margin. This is why probability sampling is the initial method used by most researchers. Because it is impossible to gauge the limits of the population that is relevant to your research, you can also have a hazy idea of your sample size.

The theory that is used for the research just focusing on values, beliefs and norms. Consumers tend to affect more elements when it comes to selecting a product and paying for it. For further research, scholars would include other elements such as brand image, quality, production process, promotion etc. It is a broad topic to understand consumer behavior. In this study, researcher just looking for the one element of the consumers' behavior and attitude.

In the study, there weren't defined price range or minimum/ maximum value. To understand consumer perception about the product truly, price was asked as an open-ended question. For further researches, scholars would define precise price to compare industry levels. Additionally, during research, one piece of t-shirt showed to the participants, this can be changed or expand.

In the research wording when we asked for circular product can expand, for example, when we asked for the t-shirt's value for the second time, we gave an information about circularity with terms of circular economy. Scholar would give another definitions and look for change of the wording and participants responses.



REFERENCES

Aalto, K., Varjonen, J. (2014), Differences In The Rhythms Of Daily Life Between Young Childless Couples And New Parents. *Family Science*, 5:1, 11-19.

Allwood, J.M., (2014). Squaring The Circular Economy: The Role Of Recycling Within A Hierarchy Of Material Management Strategies. Worrell, E., Reuter, M. (Eds.), *Handbook Of Recycling: State-Of-The-Art For Practitioners, Analysts, And Scientists*, Pp. 445-477.

Andersen, M.S., (2007). An Introductory Note On The Environmental Economics Of The Circular Economy. *Sustain. Sci.* 2, 133-140.

Ang, K. L., Saw, E. T., He, W., Dong, X., & Ramakrishna, S. (2021). Sustainability Framework For Pharmaceutical Manufacturing (PM): A Review Of Research Landscape And Implementation Barriers For Circular Economy Transition. *Journal Of Cleaner Production*, 280, 124264.

Armstrong, C., Niinimäki, K., Kujala, S., Karell, E., & Lang, C. (2015). Sustainable Product-Service Systems For Clothing: Exploring Consumer Perceptions Of Consumption Alternatives In Finland. *Journal Of Cleaner Production*, 97: 30–39. DOI: [10.1016/J.Jclepro.2014.01.046](https://doi.org/10.1016/j.jclepro.2014.01.046).

Arbuthnot, J (1977). “The Roles Of Attitudinal And Personality Variables In The Prediction Of Environmental Behavior And Knowledge,” *Environment And Behavior*, 9:217-232.

Albrecht, D., Bultena, G., Hoiberg, E., & Nowak, P. (1982). Measuring Environmental Concern: The New Environmental Paradigm Scale. *The Journal Of Environmental Education*, 13(3), 39-43.

Birat, J. P. (2015). Life-Cycle Assessment, Resource Efficiency And Recycling. *Metallurgical Research & Technology*, 112(2), 206

Bakker, C.A., Den Hollander, M.C., Van Hinte, E., Zijlstra, Y., (2014). Products That Last - Product Design For Circular Business Models. TU Delft Library, Delft.

Ben-Akiva M., Lerman S.R. (1985) *Discrete Choice Analysis: Theory And Application To Travel Demand*. – Cambridge, MA: The MIT Press.

Ben-Akiva, M., McFadden, D., Abe, M., Böckenholt, U., Bolduc, D., Gopinath, D., ... & Steinberg, D. (1997). Modeling Methods For Discrete Choice Analysis. *Marketing Letters*, 8(3), 273-286.

Bei, L. T., & Simpson, E. M. (1995). The Determinants Of Consumers' Purchase Decisions For Recycled Products: An Application Of Acquisition-Transaction Utility Theory. *ACR North American Advances*.

Borin, N., Cerf, D. C., & Krishnan, R. (2011). Consumer Effects Of Environmental Impact In Product Labeling. *Journal Of Consumer Marketing*.

Benyus, J. (2002). *Biomimicry: Invention Inspired By Nature*. Nueva York: Harpercollins Publishers.

Bicket, M., Guilcher, S., Hestin, M., Hudson, C., Razzini, P., Tan, A., ... & Watkins, E. (2014). Scoping Study To Identify Potential Circular Economy Actions, Priority Sectors, Material Flows And Value Chains

Blomsma, F., Brennan, G., (2017). The Emergence Of Circular Economy: A New Framing Around Prolonging Resource Productivity. *J. Ind. Ecol.* 21 (3), 603–614. Available At: [Http://Doi.Wiley.Com/10.1111/Jiec.12603](http://doi.wiley.com/10.1111/jiec.12603).

Bockholt, M. T., Kristensen, J. H., Wæhrens, B. V., & Evans, S. (2019, December). Learning From The Nature: Enabling The Transition Towards Circular Economy Through Biomimicry. In *2019 IEEE International Conference On Industrial Engineering And Engineering Management (IEEM)* (Pp. 870-875). IEEE.

Boldero, J. (1995). The Prediction Of Household Recycling Of Newspapers: The Role Of Attitudes, Intentions, And Situational Factors 1. *Journal Of Applied Social Psychology*, 25(5), 440-462.

Boyer, R. H., Hunka, A. D., & Whalen, K. A. (2021). Consumer Demand For Circular Products: Identifying Customer Segments In The Circular Economy. *Sustainability*, 13(22), 12348.

Boulding, K.E., (1966). *The Economics Of The Coming Spaceship Earth*. Jarrett, H. (Ed.), Environmental Quality Issues In A Growing Economy. Johns Hopkins University Press, Baltimore, MD.

Bolderdijk, J. W., Lehman, P. K., & Geller, E. S. (2012). Promoting Pro-Environmental Behavior With Rewards And Penalties. In *Environmental Psychology: An Introduction* (Pp. 233-242). Wiley.

Breidert, C., Hahsler, M., & Reutterer, T. (2006). A Review Of Methods For Measuring Willingness-To-Pay. *Innovative Marketing*, 2(4).

Brown T.C., Champ P.A., Bishop R.C., Mccollum D.W. (1996). Which Response Format Reveals The Truth About Donations To A Public Good // *Land Economics*,– N^o 72(2). – Pp. 152-166.

Braithwaite, V. A., & Law, H. G. (1985). Structure Of Human Values: Testing The Adequacy Of The Rokeach Value Survey. *Journal Of Personality And Social Psychology*, 49(1), 250.

Bronfman, N. C., Cisternas, P. C., López-Vázquez, E., De La Maza, C., & Oyanedel, J. C. (2015). Understanding Attitudes And Pro-Environmental Behaviors In A Chilean Community. *Sustainability*, 7(10), 14133-14152.

Brundtland, G.H., 1987. Our Common Future: Report Of The World Commission On Environment And Development. *Med. Confl. Surviv.* 4 (1), 300. [Http://Dx.Doi.Org/ 10.1080/07488008808408783](http://dx.doi.org/10.1080/07488008808408783).

Batista, L., Gong, Y., Pereira, S., Jia, F., & Bittar, A. (2019). Circular Supply Chains In Emerging Economies—A Comparative Study Of Packaging Recovery Ecosystems In China And Brazil. *International Journal Of Production Research*, 57(23), 7248-7268.

Birtwistle, G., & Moore, C. M. (2007). Fashion Clothing—Where Does It All End Up?. *International Journal Of Retail & Distribution Management*.

Bianchi, C., & Birtwistle, G. (2012). Consumer Clothing Disposal Behaviour: A Comparative Study. *International Journal Of Consumer Studies*, 36(3), 335-341.

Cao, H., Chang, R., Kallal, J., Manalo, G., Mccord, J., Shaw, J., & Starner, H. (2014). Adaptable Apparel: A Sustainable Design Solution For Excess Apparel Consumption Problem. *Journal Of Fashion Marketing And Management*.

Cao, H., Cobb, K., Yatvitskiy, M., Wolfe, M., & Shen, H. (2022). Textile And Product Development From End-Of-Use Cotton Apparel: A Study To Reclaim Value From Waste. *Sustainability*, 14(14), 8553.

Camacho-Otero, J., Boks, C., & Pettersen, I. (2018). Consumption In The Circular Economy: A Literature Review. *Sustainability*, 10(8), 2758. MDPI AG. Retrieved From [Http://Dx.Doi.Org/10.3390/Su10082758](http://dx.doi.org/10.3390/Su10082758)

Camacho-Otero, J., Tunn, V. S., Chamberlin, L., & Boks, C. (2020). Consumers In The Circular Economy. In *Handbook Of The Circular Economy*. Edward Elgar Publishing.

Clark, H. (2008). SLOW+ FASHION—An Oxymoron—Or A Promise For The Future...?. *Fashion Theory*, 12(4), 427-446.

Comrey, A. L., & Lee, H. B. (1992). Interpretation And Application Of Factor Analytic Results. *Comrey AL, Lee HB. A First Course In Factor Analysis*, 2, 1992.

Chalmers University Of Technology (2017) Fashion Industry Gains New Tools To Reduce Its Environmental Load, 14 March 2017, Sciencedaily, Viewed 20 January 2021, [Www.Sciencedaily.Com/Releases/2017/03/170314092800.Htm](http://www.Sciencedaily.Com/Releases/2017/03/170314092800.Htm).

Carson, R. T., Wilks, L., & Imber, D. (1994). Valuing The Preservation Of Australia's Kakadu Conservation Zone. *Oxford Economic Papers*, 727-749.

Chan, R. Y. (2001). Determinants Of Chinese Consumers' Green Purchase Behavior. *Psychology & Marketing*, 18(4), 389-413.

Chen, Y. S., & Chang, C. H. (2013). Greenwash And Green Trust: The Mediation Effects Of Green Consumer Confusion And Green Perceived Risk. *Journal Of Business Ethics*, 114(3), 489-500.

Chen, K., Li, B., Shen, H., Jin, J., & Tse, D. (2015). Reduce The Complexity Of List Decoding Of Polar Codes By Tree-Pruning. *IEEE Communications Letters*, 20(2), 204-207.

Coskun, Recai & Altunışık, Remzi & Yildirim, Engin. (2017). Sosyal Bilimlerde ARAŞTIRMA YÖNTEMLERİ: SPSS Uygulamalı.

Cramer, K.M., (2013). Six Criteria Of A Viable Theory: Putting Reversal Theory To The Test. *J. Motiv. Emot. Pers.* 1 (1), 9–16.

Cue, B. W., & Zhang, J. (2009). Green Process Chemistry In The Pharmaceutical Industry. *Green Chemistry Letters And Reviews*, 2(4), 193-211.

Crenson, M. A. (1971). *The Un-Politics Of Air Pollution: A Study Of Non-Decision Making In The Cities*. Baltimore: Johns Hopkins University Press.

Cameron, A. C., & Trivedi, P. K. (1986). Econometric Models Based On Count Data. Comparisons And Applications Of Some Estimators And Tests. *Journal Of Applied Econometrics*, 1(1), 29-53.

Dahlbo, H., Aalto, K., Eskelinen, H., & Salmenperä, H. (2017). Increasing Textile Circulation—Consequences And Requirements. *Sustainable Production And Consumption*, 9, 44-57.

Dahl, R. (2010). Green Washing: Do You Know What You're Buying?.

Dahmén, E. (1950). 1970. Entrepreneurial Activity And The Development Of Swedish Industry, 1919-1939,(Swedish Original Published 1950; English Translation By Axel Leijonhufvud).

Desarbo W.S., V. Ramaswamy, S.H. Cohen (1995). Market Segmentation With Choice-Based Con-Joint Analysis // Marketing Letters,– N^o 6(2). – Pp. 137-147.

Desrochers, P., 2002. Regional Development And Inter-Industry Recycling Linkages: Some Historical Perspectives. *Enterpren. Reg. Dev.* 14 (1), 49e65.

Desrochers, P., 2004. Industrial Symbiosis: The Case For Market Coordination. *J. Clean. Prod.* 12 (8), 1099e1110.

Deloitte, (2017). Central Europe Impact Report. <https://www2.deloitte.com/content/dam/Deloitte/Ce/Documents/About-Deloitte/Ce-Impact-Report-2017.pdf>

Dholakia, N., Turcan, R., (2014). Towards A Meta-Theory Of Economic Bubbles: Socio- Political And Cultural Perspectives. Palgrave Macmillan, London, United Kingdom.

Dodd, N. And Caldas, M.G., (2017) Revision Of The EU Green Public Procurement Criteria For Textile Products And Services, Viewed 22 January 2021, http://ec.europa.eu/environment/gpp/pdf/criteria/textiles_gpp_technical_report.pdf.

D'Souza, C., Gilmore, A. J., Hartmann, P., Apaolaza Ibanez, V., & Sullivan-Mort, G. (2015). Male Eco-Fashion: A Market Reality. *International Journal Of Consumer Studies*, 39(1), 35-42.

Dragan, I. M., & Isaic-Maniu, A. (2013). Snowball Sampling Completion. *Journal Of Studies In Social Sciences*, 5(2).

Dunlap, R. E. (2008). The New Environmental Paradigm Scale: From Marginality To Worldwide Use. *The Journal Of Environmental Education*, 40(1), 3-18.

Durocher, Y. (2020). Circular Economy And The Textile Industry, <https://www.forbes.com/sites/forbesagencycouncil/2020/12/01/circular-economy-and-the-textile-industry/?sh=284239457a90>.

- Davis, G., O'callaghan, F., & Knox, K. (2009). Sustainable Attitudes And Behaviours Amongst A Sample Of Non-Academic Staff: A Case Study From An Information Services Department, Griffith University, Brisbane. *International Journal Of Sustainability In Higher Education*, 10(2), 136-151.
- Davis, N. F., Mcgrath, S., Quinlan, M., Jack, G., Lawrentschuk, N., & Bolton, D. M. (2018). Carbon Footprint In Flexible Ureteroscopy: A Comparative Study On The Environmental Impact Of Reusable And Single-Use Ureteroscopes. *Journal Of Endourology*, 32(3), 214-217.
- Dunlap, R. E., & Van Liere, K. D. (1978). The “New Environmental Paradigm”. *The Journal Of Environmental Education*, 9(4), 10-19.
- Dietz, T., Stern, P. C., & Guagnano, G. A. (1998). Social Structural And Social Psychological Bases Of Environmental Concern. *Environment And Behavior*, 30(4), 450-471.
- Edgell, M. C., & Nowell, D. E. (1989). The New Environmental Paradigm Scale: Wildlife And Environmental Beliefs In British Columbia. *Society & Natural Resources*, 2(1), 285-296.
- Ellen Macarthur Foundation, World Economic Forum, And Mckinsey & Company (2016) The New Plastics Economy: Rethinking The Future Of Plastics.
- Ellen Macarthur Foundation (2017) A New Textiles Economy: Redesigning Fashion's Future, USA.
- Ellen Macarthur Foundation (2020) MUD Jeans Pioneering A Lease Model For Organic Cotton Jeans, Viewed 27 January 2021, <https://www.ellenmacarthurfoundation.org/case-studies/pioneering-a-lease-model-for-organic-cotton-jeans>.
- Ellen Macarthur Foundation, (2013). Towards The Circular Economy. EU Commission, 2014. Towards A Circular Economy: A Zero Waste Programme For Europe. Brussels.
- Ellen Macarthur Foundation, 2013a. Circular Economy Overview. Available At. <https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept>.
- Ellen Macarthur Foundation, 2013b. Towards The Circular Economy. *J. Ind. Ecol.* 1 (1), 4–8.
- Ellen Macarthur Foundation, 2014. Towards The Circular Economy: Accelerating The Scale-Up Across Global Supply Chains. Available At. http://www3.weforum.org/docs/WEF_ENV_Towardscirculareconomy_Report_2014.Pdf.

Ellen Mcarthur Foundation, SUN, Mc Kinsey Center For Business And Environment (2015): Growth Within: A Circular Economy Vision For A Competitive Europe, https://www.ellenmacarthurfoundation.org/assets/downloads/publications/ellenmacarthurfoundation_growth-within_july15.pdf

East, A. J. (2008, September). What Is A Carbon Footprint? An Overview Of Definitions And Methodologies. In *Vegetable Industry Carbon Footprint Scoping Study—Discussion Papers And Workshop, 26 September 2008*. Sydney: Horticulture Australia Limited.

Ellen Macarthur Foundation, (2012) Towards The Circular Economy: Economic And Business Rationale For An Accelerated Transition. Available At. <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/ellen-macarthur-foundation-towards-the-circular-economy-vol.1.pdf>.

European Commission. (2020). First Circular Economy Action Plan. Retrieved From https://ec.europa.eu/environment/circulareconomy/first_circular_economy_action_plan.html#:~:text=In%202015%2C%20the%20European%20Commission,Growth%20and%20generate%20new%20jobs.

European Commission, 2014. Towards A Circular Economy: A Zero Waste Programme For Europe, Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. European Commission, Brussels.

European Commission, 2015. Closing The Loop - An EU Action Plan For The Circular Economy, Com(2015) 614 Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. European Commission, Brussels.

Ellen Macarthur Foundation, (2017). Priority Research Agenda. Available At. https://www.ellenmacarthurfoundation.org/assets/downloads/higher-education/emf_priority-research-agenda-copy.pdf.

European Commission, 2008. Directive 2008/98/EC Of The European Parliament And The Council Of 19 November 2008 On Waste And Repealing Certain Directives. Available At. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0098&from=EN>.

European Commission (2014), “Communication On The Review Of The List Of Critical Raw Materials For The EU And The Implementation Of The Raw Materials Initiative”, Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions, COM(2014) 297 Final.

European Commission (2015a), “Closing The Loop - An EU Action Plan For The Circular Economy”, Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions, COM(2015) 614 Final.

European Commission (2015b), “Commission Staff Working Document: Additional Analysis To Complement The Impact Assessment SWD (2014) 208 Supporting The Review Of EU Waste Management Targets”.

European Parliament (2022), EU Responses To Climate Change, <https://www.europarl.europa.eu/news/en/headlines/society/20180703STO07129/eu-responses-to-climate-change>. Updated: 17-06-2022

El Haggag, S. (2010). *Sustainable Industrial Design And Waste Management: Cradle-To-Cradle For Sustainable Development*. Academic Press.

European Commission (2016a), “Commission Work Programme 2017 - Delivering A Europe That Protects, Empowers And Defends”, Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions, COM(2016) 710 Final.

European Commission (2016b), “EU Energy In Figures - Statistical Pocketbook 2016”. European Commission (2017a), “Roadmap - Strategy On Plastics In A Circular Economy”.

European Parliament, 2021, European Parliamentary Research Center, [://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html](https://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html)

Esposito, B., Sessa, M. R., Sica, D., & Malandrino, O. (2020). Towards Circular Economy In The Agri-Food Sector. A Systematic Literature Review. *Sustainability*, 12(18), 7401.

Etikan, I., Alkassim, R., & Abubakar, S. (2016). Comparison Of Snowball Sampling And Sequential Sampling Technique. *Biometrics And Biostatistics International Journal*, 3(1), 55.

Ellis, J. L., McCracken, V. A., & Skuza, N. (2012). Insights Into Willingness To Pay For Organic Cotton Apparel. *Journal Of Fashion Marketing And Management: An International Journal*.

- Festinger, L. (1957). *A Theory Of Cognitive Dissonance* (Vol. 2). Stanford University Press.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. Sage.
- Field A. (2000) *Discovering Statistics Using SPSS For Windows*. Sage, London.
- Gerholdt, R., & Ge, M. (2015). Australia Offers Lackluster 2030 Climate Target.
- Gamson, W., And Modigliani, A. (1985). *The Changing Culture Of Affirmative Action*. Unpublished Manuscript, Department Of Sociology, Boston College.
- Gilg, A., Barr, S., & Ford, N. (2005). Green Consumption Or Sustainable Lifestyles? Identifying The Sustainable Consumer. *Futures*, 37(6), 481-504.
- Gaur, J., Amini, M., Banerjee, P., & Gupta, R. (2015). Drivers Of Consumer Purchase Intentions For Remanufactured Products: A Study Of Indian Consumers Relocated To The USA. *Qualitative Market Research: An International Journal*.
- GILL, J., JOHNSON, P. & CLARK, M. 2010. *Research Methods For Managers*, SAGE Publications.
- Gue, I. H. V., Promentilla, M. A. B., Tan, R. R., & Ubando, A. T. (2020). Sector Perception Of Circular Economy Driver Interrelationships. *Journal Of Cleaner Production*, 276, 123204.
- Ghisellini, P., Cialani, C., Ulgiati, S., 2016. A Review On Circular Economy: The Expected Transition To A Balanced Interplay Of Environmental And Economic Systems. *J. Clean. Prod.* 114, 11–32. Available At: [Http://Www.Sciencedirect.Com/Science/Article/Pii/ S0959652615012287](http://www.sciencedirect.com/science/article/pii/S0959652615012287).
- Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The Circular Economy—A New Sustainability Paradigm?. *Journal Of Cleaner Production*, 143, 757-768.
- Geissdoerfer, M., Bocken, N.M.P., Hultink, E.J., (2016a). Design Thinking To Enhance The Sustainable Business Modelling Process. *J. Clean. Prod.* 135, 1218e1232.
- Geissdoerfer, M., Savaget, P., Evans, S., 2016b. The Cambridge Business Model Innovation Process. In: 14th Global Conference On Sustainable Manufacturing, GCSM, 3e5 October 2016 (Stellenbosch, South Africa).

Gray, C., & Charter, M. (2008). Remanufacturing And Product Design. *International Journal Of Product Development*, 6(3-4), 375-392.

Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability Labels On Food Products: Consumer Motivation, Understanding And Use. *Food Policy*, 44, 177-189.

Gregson, N., Crang, M., Fuller, S., & Holmes, H. (2015). Interrogating The Circular Economy: The Moral Economy Of Resource Recovery In The EU. *Economy And Society*, 44(2), 218-243.

Grasso, M. M., Mcenally, M., Widdows, R., & Herr, D. G. (2000). Consumer Behavior Toward Recycled Textile Products. *Journal Of The Textile Institute*, 91(2), 94-106.

Haaijer R., Kamakura W.A., Wedel M. (2001). The 'No-Choice' Alternative In Conjoint Choice Experiments // *International Journal Of Market Research*, – N^o 43(1). – Pp. 93-106.

Harms, R., & Linton, J. D. (2016). Willingness To Pay For Eco-Certified Refurbished Products: The Effects Of Environmental Attitudes And Knowledge. *Journal Of Industrial Ecology*, 20(4), 893-904.

Hazen, B. T., Overstreet, R. E., Jones-Farmer, L. A., & Field, H. S. (2012). The Role Of Ambiguity Tolerance In Consumer Perception Of Remanufactured Products. *International Journal Of Production Economics*, 135(2), 781-790.

Haas, W., Krausmann, F., Wiedenhofer, D., & Heinz, M. (2015). How Circular Is The Global Economy?: An Assessment Of Material Flows, Waste Production, And Recycling In The European Union And The World In 2005. *Journal Of Industrial Ecology*, 19(5), 765-777.

Hepler, L. (2015). Defining The Circular Economy. *The Sustainability Executives Guide To Business Value Creation*. Greenbiz.

Herjanto, H., Scheller-Sampson, J., & Erickson, E. (2016). The Increasing Phenomenon Of Second-Hand Clothes Purchase: Insights From The Literature. *Jurnal Manajemen Dan Kewirausahaan (Journal Of Management And Entrepreneurship)*, 18(1), 1-15.

Hill, M. (2018a) How To Buy Less, Choose Well And Make It Last, Viewed 20 January 2021, <https://Goodonyou.Eco/How-To-Buy-Less-Choose-Well-And-Make-It-Last/>.

Hill, M. (2018b) What Is Slow Fashion? Viewed 20 January 2021, <https://Goodonyou.Eco/What-Is-Slow-Fashion/>.

Hill, M. (2018c) Why We Should Wear Clothes Until They're Worn Out, Viewed 20 January 2021, <https://Goodonyou.Eco/Why-We-Should-Wear-Clothes-Until-Theyre-Worn-Out/>.

Hirschl, B.; Konrad, W.; Scholl, G. New Concepts In Product Use For Sustainable Consumption. *J. Clean. Prod.* 2003, 11, 873–881. [Crossref]

Hu, J., Xiao, Z., Zhou, R., Deng, W., Wang, M., & Ma, S. (2011). Ecological Utilization Of Leather Tannery Waste With Circular Economy Model. *Journal Of Cleaner Production*, 19(2-3), 221-228

House Of Commons Environmental Audit Committee. (2014). Growing A Circular Economy: Ending The Throwaway Society. *Authority Of The House Of Commons: London, UK*, P.5.

Hobson, K. (2016). Closing The Loop Or Squaring The Circle? Locating Generative Spaces For The Circular Economy. *Progress In Human Geography*, 40(1), 88-104.

IMSA, 2013. Unleashing The Power Of The Circular Economy. Available At: http://Mvonderland.Nl/System/Files/Media/Unleashing_The_Power_Of_The_Circular_Economy-Circle_Economy.Pdf.

Jacobsen, P. L., & Rutter, H. (2012). *Cycling Safety* (Vol. 2007, Pp. 141-156). Cambridge, MA: MIT Press.

Joergens, C. (2006). Ethical Fashion: Myth Or Future Trend?. *Journal Of Fashion Marketing And Management: An International Journal*.

Jakobsen, T. G., & Mehmetoglu, M. (2022). Applied Statistics Using Stata: A Guide For The Social Sciences. *Applied Statistics Using Stata*, 1-100.

Jansson, J., Marell, A., & Nordlund, A. (2011). Exploring Consumer Adoption Of A High Involvement Eco-Innovation Using Value-Belief-Norm Theory. *Journal Of Consumer Behaviour*, 10(1), 51-60.

Jassim, A. K. (2017). Recycling Of Polyethylene Waste To Produce Plastic Cement. *Procedia Manufacturing*, 8, 635-642.

Janmaimool, P., & Denpaiboon, C. (2016). Evaluating Determinants Of Rural Villagers' Engagement In Conservation And Waste Management Behaviors Based On Integrated Conceptual Framework Of Pro-Environmental Behavior. *Life Sciences, Society And Policy*, 12(1), 1-20.

Joy, A., Sherry Jr, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast Fashion, Sustainability, And The Ethical Appeal Of Luxury Brands. *Fashion Theory*, 16(3), 273-295.

Jiao, W., & Boons, F. (2014). Toward A Research Agenda For Policy Intervention And Facilitation To Enhance Industrial Symbiosis Based On A Comprehensive Literature Review. *Journal Of Cleaner Production*, 67, 14-25.

Jung, S., & Jin, B. (2014). A Theoretical Investigation Of Slow Fashion: Sustainable Future Of The Apparel Industry. *International Journal Of Consumer Studies*, 38(5), 510-519.

Kates, R. W., (1978). *Risk Assessment Of Environmental Hazard*. New York: Wiley.

Kahle, L. R., Gurel-Atay, E. (2015). Introduction To The Psychology Of Communicating Sustainability. In *Communicating Sustainability For The Green Economy* (Pp. 13-32). Routledge.

Kent, P., Jensen, R. K., & Kongsted, A. (2014). A Comparison Of Three Clustering Methods For Finding Subgroups In MRI, SMS Or Clinical Data: SPSS Twostep Cluster Analysis, Latent Gold And SNOB. *BMC Medical Research Methodology*, 14(1), 1-14.

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing The Circular Economy: An Analysis Of 114 Definitions. *Resources, Conservation And Recycling*, 127, 221-232.

Kirchherr, J., (2018). Strategies Of Successful Anti-Dam Movements: Evidence From Myanmar And Thailand. *Soc. Nat. Resour.* 31 (2), 166–182.

Kinnunen, P. H. M., & Kaksonen, A. H. (2019). Towards Circular Economy In Mining: Opportunities And Bottlenecks For Tailings Valorization. *Journal Of Cleaner Production*, 228, 153-160.

Kuhar, R., Švab, A., (2008): Researching Hard-To-Reach Social Groups: The Example Of Gay And Lesbian Population In Slovenia. *Social Research - Journal For General Social Issues*, 3, Page 529 - 552.

Kalton, G. (1983). *Introduction To Survey Sampling*. Thousand Oaks, CA: Sage Publications.

Kish, L. (1965, 1995). *Survey Sampling*. New York: John Wiley & Sons.

Korsunova, A., Horn, S., & Vainio, A. (2021). Understanding Circular Economy In Everyday Life: Perceptions Of Young Adults In The Finnish Context. *Sustainable Production And Consumption*, 26, 759-769.

Korhonen J., Nuur C., Feldmann A., Birkie S.E. (2018). Circular Economy As An Essentially Contested Concept. *Journal Of Cleaner Production* (Vol 175), 544-552. <https://doi.org/10.1016/j.jclepro.2017.12.111>.

Laroche, M., J. Bergeron And G. Barbaro-Forleo (2001). "Targeting Consumers Who Are Willing To Pay More For Environmental Friendly Products," *Journal Of Consumer Marketing*, 18(6):503-520.

Loomis, J. (2011). What's To Know About Hypothetical Bias In Stated Preference Valuation Studies?. *Journal Of Economic Surveys*, 25(2), 363-370.

Lacy, P., & Rutqvist, J. (2015). *Waste To Wealth: The Circular Economy Advantage* (Pp. 3-18). London: Palgrave Macmillan

Laufer, W. S. (2003). Social Accountability And Corporate Greenwashing. *Journal Of Business Ethics*, 43(3), 253-261.

Lahti, T., Wincent, J., & Parida, V. (2018). A Definition And Theoretical Review Of The Circular Economy, Value Creation, And Sustainable Business Models: Where Are We Now And Where Should Research Move In The Future?. *Sustainability*, 10(8), 2799.

Lammi, M, P. Repo And P Timonen (2011), *Consumerism And Citizenship In The Context Of Climate Change*. In Mikko Rask, Richard Worthington, Minna Lammi (Eds.) *Citizen Participation In Global Environmental Governance*. London, Earthscan, Taylor & Francis Group.

Lacy, P., & Rutqvist, J. (2015). *Waste To Wealth: The Circular Economy Advantage* (Pp. 3-18). London: Palgrave Macmillan.

Lakatos, E. S., Cioca, L. I., Dan, V., Ciomos, A. O., Crisan, O. A., & Barsan, G. (2018). Studies And Investigation About The Attitude Towards Sustainable Production, Consumption And Waste Generation In Line With Circular Economy In Romania. *Sustainability*, 10(3), 865.

Li, H., Bao, W., Xiu, C., Zhang, Y., & Xu, H. (2010). Energy Conservation And Circular Economy In China's Process Industries. *Energy*, 35(11), 4273-4281.

Lin, P. C., & Huang, Y. H. (2012). The Influence Factors On Choice Behavior Regarding Green Products Based On The Theory Of Consumption Values. *Journal Of Cleaner Production*, 22(1), 11-1

López-Mosquera, N., & Sánchez, M. (2012). *Theory Of Planned Behavior And The Value-Belief-Norm Theory Explaining Willingness To Pay For A Suburban Park*. *Journal Of Environmental Management*, 113, 251–262. Doi:10.1016/J.Jenvman.2012.08.029

Louviere, J. J., Hensher, D. A., & Swait, J. D. (2000). *Stated Choice Methods: Analysis And Applications*. Cambridge University Press.

Lusk, J. L., & Hudson, D. (2004). Willingness-To-Pay Estimates And Their Relevance To Agribusiness Decision Making. *Applied Economic Perspectives And Policy*, 26(2), 152-169

Liere, K. D. V., & Dunlap, R. E. (1980). The Social Bases Of Environmental Concern: A Review Of Hypotheses, Explanations And Empirical Evidence. *Public Opinion Quarterly*, 44(2), 181-197.

Marn M.V., Roegner E.V., Zawada (2003), C.C. Pricing New Products // The Mckinsey Quaterly,– N^o 3.

Mhatre, P., Panchal, R., Singh, A., & Bibyan, S. (2021). A Systematic Literature Review On The Circular Economy Initiatives In The European Union. *Sustainable Production And Consumption*, 26, 187-202.

Morrison, D. E., & Dunlap, R. E. (1986). Environmentalism And Elitism: A Conceptual And Empirical Analysis. *Environmental Management*, 10(5), 581-589.

Mainieri, T., Barnett, E. G., Valdero, T. R., Unipan, J. B., & Oskamp, S. (1997). Green Buying: The Influence Of Environmental Concern On Consumer Behavior. *The Journal Of Social Psychology*, 137(2), 189-204.

Masi, F., Rizzo, A., & Regelsberger, M. (2018). The Role Of Constructed Wetlands In A New Circular Economy, Resource Oriented, And Ecosystem Services Paradigm. *Journal Of Environmental Management*, 216, 275-284.

Möhlmann, M. (2015). Collaborative Consumption: Determinants Of Satisfaction And The Likelihood Of Using A Sharing Economy Option Again. *Journal Of Consumer Behaviour*, 14(3), 193-207.

Mcdougall, Gordon H. G. 1993, The Green Movement In Canada: Implications For Marketing Strategy, *Journal Of International Consumer Marketing*, Vol. 5, No. 3, Pp. 69-87.

Moore, D. And McCabe, G. (1999). Introduction To The Practice Of Statistics (3rd Edition). New York: W.H. Freeman And Company.

Mcdonough, W., & Braungart, M. (2002). Design For The Triple Top Line: New Tools For Sustainable Commerce. *Corporate Environmental Strategy*, 9(3), 251-258.

Mont, O., Et Al., (2017). Business Model Innovation For A Circular Economy Drivers And Barriers For The Swedish Industry – The Voice Of REES Companies. Available At: [Http://Lup.Lub.Lu.Se/Search/Ws/Files/33914256/MISTRA_REES_Drivers_And_Barriers_Lund](http://Lup.Lub.Lu.Se/Search/Ws/Files/33914256/MISTRA_REES_Drivers_And_Barriers_Lund)

Mcfadden D. (1980). Econometric Models For Probabilistic Choice Among Products // The Journal Of Business,– N^o 53(3). – Pp. 13-29.

Mcfadden D. (1986). The Choice Theory Approach To Market Research // Marketing Science,– N^o 5(4). – Pp. 275-297.

MALHOTRA, N. K. & BIRKS, D. F. 2006. Marketing Research: An Applied Approach, Harlow, FT/Prentice Hall.

Malhotra, N., & Birks, D. (2007). Instructor's Manual. Möhlmann, M., 2015. Collaborative Consumption – Determinants Of Satisfaction And The Likelihood Of Using A Sharing Economy Option Again. *Journal Of Consumer Behaviour*. 14 (3), 193-207.

Mugge, R.; Jockin, B.; Bocken, N (2017). How To Sell Refurbished Smartphones? An Investigation Of Different Customer Groups And Appropriate Incentives. *J. Clean. Prod.*, 147, 284–296. [Crossref]

Melnick, R. S. (1984, Spring). Pollution Deadlines And The Coalition For Failure. *The Public Interest*, 123–134.

Muthu, S. S. (Ed.). (2017). *Sustainability In The Textile Industry*. Singapore: Springer.

Michaud, C., & Llerena, D. (2011). Green Consumer Behaviour: An Experimental Analysis Of Willingness To Pay For Remanufactured Products. *Business Strategy And The Environment*, 20(6), 408-420.

Nakajima, N., (2000). A Vision Of Industrial Ecology: State-Of-The-Art Practices For A Circular And Service-Based Economy. *Bull. Sci. Technol. Soc.* 20, 54-69.

Naustdalslid, J., (2017). Circular Economy In China E The Environmental Dimension Of The Harmonious Society. *Int. J. Sustain. Dev. World Ecol.* 21 (4), 303e313.

Nußholz, J. L., Rasmussen, F. N., & Milios, L. (2019). Circular Building Materials: Carbon Saving Potential And The Role Of Business Model Innovation And Public Policy. *Resources, Conservation And Recycling*, 141, 308-316.

Nguyen, H., Stuchtey, M., & Zils, M. (2014). Remaking The Industrial Economy.

Niinimäki, K. (2017). Fashion In A Circular Economy. In *Sustainability In Fashion* (Pp. 151-169). Palgrave Macmillan, Cham.

Niinimäki, K. (2010). Eco-Clothing, Consumer Identity And Ideology. *Sustainable Development*, 18(3), 150-162.

Nike Inc. (2015). *FY14/15 Sustainable Business Report* [Online]. Accessed August 2022 At [Http://S3.Amazonaws.Com/Nikeinc/Assets/56356/NIKE_FY14-15_Sustainable_Business_Report.Pdf](http://S3.Amazonaws.Com/Nikeinc/Assets/56356/NIKE_FY14-15_Sustainable_Business_Report.Pdf)

Palm, D., Elander, M., Watson, D., Kiørboe, N., Salmenperä, H., Dahlbo, H., ... & Nystad, Ø. (2015). *A Nordic Textile Strategy: Part II: A Proposal For Increased Collection, Sorting, Reuse And Recycling Of Textiles*. Nordic Council Of Ministers.

Palmer, P. (2004). *Getting To Zero Waste*. Purple Sky Press.

Patwa, N., Sivarajah, U., Seetharaman, A., Sarkar, S., Maiti, K., & Hingorani, K. (2021). Towards A Circular Economy: An Emerging Economies Context. *Journal Of Business Research*, 122, 725-735.

Pandey, D., Agrawal, M., & Pandey, J. S. (2011). Carbon Footprint: Current Methods Of Estimation. *Environmental Monitoring And Assessment*, 178(1), 135-160.

Parker, C., Scott, S., & Geddes, A. (2019). Snowball Sampling. *SAGE Research Methods Foundations*.

Planing, P. (2015). Business Model Innovation In A Circular Economy Reasons For Non-Acceptance Of Circular Business Models. *Open Journal Of Business Model Innovation*, 1(11), 1-11

Pedersen, E. R. G., & Gwozdz, W. (2014). From Resistance To Opportunity-Seeking: Strategic Responses To Institutional Pressures For Corporate Social Responsibility In The Nordic Fashion Industry. *Journal Of Business Ethics*, 119(2), 245-264.

Pearce, D. W., Turner, R. K., & Turner, R. K. (1990). *Economics Of Natural Resources And The Environment*. Johns Hopkins University Press.

Peters, G.P., Weber, C.L., Guan, D., Hubacek, K., (2007). China's Growing CO(2) Emissions - A Race Between Increasing Consumption And Efficiency Gains. *Environ. Sci. Technol.* 41, 5939e5944. <https://doi.org/10.1021/es070108f>.

Potting, J., Hekkert, M. P., Worrell, E., & Hanemaaijer, A. (2017). Circular Economy: Measuring Innovation In The Product Chain. *Planbureau Voor De Leefomgeving*, (2544).

Pirages, D. C., & Ehrlich, P. R. (1974). *Ark II; Social Response To Environmental Imperatives [By] Dennis C. Pirages [And] Paul R. Ehrlich.-.*

Pheifer, A.G., (2017). Barriers And Enablers To Circular Business Models. Available At: <https://www.circulairondernemen.nl/uploads/4f4995c266e00bee8fdb8fb34fbc5c15.pdf>.

Preston, F., (2012). A Global Redesign? Shaping The Circular Economy. Available At: <http://www.ecoconnect.org.uk/download/shapingthecirculareconomy.pdf>, P.20.

Pretner, G., Darnall, N., Testa, F., & Iraldo, F. (2021). Are Consumers Willing To Pay For Circular Products? The Role Of Recycled And Second-Hand Attributes, Messaging, And Third-Party Certification. *Resources, Conservation And Recycling*, 175, 105888.

Potoglou, D., Whitmarsh, L., Whittle, C., Tsouros, I., Haggard, P., & Persson, T. (2020). To What Extent Do People Value Sustainable-Resourced Materials? A Choice Experiment With Cars And Mobile Phones Across Six Countries. *Journal Of Cleaner Production*, 246, 118957.

Pickett-Baker, J., & Ozaki, R. (2008). Pro-Environmental Products: Marketing Influence On Consumer Purchase Decision. *Journal Of Consumer Marketing*, 25(5), 281-293.

Punj, G., & Stewart, D. (1983). Cluster Analysis In Marketing Research: Review And Suggestions For Application. *Journal Of Marketing Research*, 20(2), 134-148.

- Ranta, V., Aarikka-Stenroos, L., & Mäkinen, S. J. (2018). Creating Value In The Circular Economy: A Structured Multiple-Case Analysis Of Business Models. *Journal Of Cleaner Production*, 201, 988-1000.
- Rashid, A., Asif, F.M.A., Krajnik, P., Nicolescu, C.M., (2013). Resource Conservative Manufacturing: An Essential Change In Business And Technology Paradigm For Sustainable Manufacturing. *J. Clean. Prod.* 57, 166e177.
- Radhakrishnan, S. (2021). Circular Economy In Textiles And Fashion. In *Circular Economy* (Pp. 163-202). Springer, Singapore.
- Repo, P., Anttonen, M., Mykkänen, J., & Lammi, M. (2018). Lack Of Congruence Between European Citizen Perspectives And Policies On Circular Economy. *European Journal Of Sustainable Development*, 7(1), 249-249.
- Ritzén, S., & Sandström, G. Ö. (2017). Barriers To The Circular Economy–Integration Of Perspectives And Domains. *Procedia Cirp*, 64, 7-12.
- Rutter, C., Armstrong, K., & Blazquez Cano, M. (2017). The Epiphanic Sustainable Fast Fashion Epoch. In *Sustainability In Fashion* (Pp. 11-30). Palgrave Macmillan, Cham.
- Rouch, Duncan. (2021). Fashion And Clothing Textiles: How To Reduce The Environmental And Social Impacts.
- Sauvé, S., Bernard, S., & Sloan, P. (2016). Environmental Sciences, Sustainable Development And Circular Economy: Alternative Concepts For Trans-Disciplinary Research. *Environmental Development*, 17, 48-56.
- Seele, P., & Gatti, L. (2017). Greenwashing Revisited: In Search Of A Typology And Accusation-Based Definition Incorporating Legitimacy Strategies. *Business Strategy And The Environment*, 26(2), 239-252.
- Shove, E. Pantzar, M. & Watson, M. (2012), The Dynamics Of Social Practice. Everyday Life And How It Changes.
- Sihvonen, S., & Ritola, T. (2015). Conceptualizing Rex For Aggregating End-Of-Life Strategies In Product Development. *Procedia Cirp*, 29, 639-644.

Sillanpää, M., & Ncibi, C. (2019). *The Circular Economy: Case Studies About The Transition From The Linear Economy*. Academic Press.

Spangenberg, J. H., & Lorek, S. (2019). Sufficiency And Consumer Behaviour: From Theory To Policy. *Energy Policy*, 129, 1070-1079.

Stahel, W. R. (2016). The Circular Economy. *Nature*, 531(7595), 435-438.

Stahel, W.R. And Reday, G. 1(976). The Potential For Substituting Manpower For Energy, Report To The Commission Of The European Communities, Brussels.

Stern, P.C.; Dietz, T.; Abel, T.D.; Guagnano, G.A.; Kalof, L (1999). A Value-Belief-Norm Theory Of Support For Social Movements: The Case Of Environmentalism. *Hum. Ecol. Rev.* 1999, 6, 81–98.

Sijtsema, S. J., Onwezen, M. C., Reinders, M. J., Dagevos, H., Partanen, A., & Meeusen, M. (2016). Consumer Perception Of Bio-Based Products—An Exploratory Study In 5 European Countries. *NJAS-Wageningen Journal Of Life Sciences*, 77, 61-69.

Su, B., Heshmati, A., Geng, Y., & Yu, X. (2013). A Review Of The Circular Economy In China: Moving From Rhetoric To Implementation. *Journal Of Cleaner Production*, 42, 215-227.

Stern, P.C. (2000). Toward A Coherent Theory Of Environmentally Significant Behavior. *J. Soc. Issues*, 56, 407–424.

Stern, P. C., Kalof, L., Dietz, T., & Guagnano, G. A. (1995). Values, Beliefs, And Proenvironmental Action: Attitude Formation Toward Emergent Attitude Objects 1. *Journal Of Applied Social Psychology*, 25(18), 1611-1636.

Schwartz, S. H. (1992). Universals In The Content And Structure Of Values: Theory And Empirical Tests In 20 Countries. In M. Zanna (Ed.), *Advances In Experimental Social Psychology* (Vol. 25, Pp. 1-65). New York: Academic Press. [Http://Dx.Doi.Org/10.1016/S0065-2601\(08\)60281-6](http://Dx.Doi.Org/10.1016/S0065-2601(08)60281-6)

Schwartz, S. H., & Bardi, A. (1997). Influences Of Adaptation To Communist Rule On Value Priorities In Eastern Europe. *Political Psychology*, 18, 385-410. [Http://Dx.Doi.Org/10.1111/0162-895X.00062](http://Dx.Doi.Org/10.1111/0162-895X.00062).

Schwartz, S. H., & Boehnke, K. (2004). Evaluating The Structure Of Human Values With Confirmatory Factor Analysis. *Journal Of Research In Personality*, 38, 230-255. [Http://Dx.Doi.Org/10.1016/S0092-6566\(03\)00069-2](http://Dx.Doi.Org/10.1016/S0092-6566(03)00069-2).

Schwartz, S. H. (1977). Normative Influences On Altruism. In *Advances In Experimental Social Psychology* (Vol. 10, Pp. 221-279). Academic Press.

Schwartz, T. (1986). The Logic Of Collective Choice. In *The Logic Of Collective Choice*. Columbia University Press.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using Multivariate Statistics* (Vol. 5, Pp. 481-498). Boston, MA: Pearson.

Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental Designs Using ANOVA* (Vol. 724). Belmont, CA: Thomson/Brooks/Cole.

Trentmann, F., (2009), “Materiality In The Future Of History: Things, Practices, And Politics”, *Journal Of British Studies*, 48 (2), Pp. 283-307. ISSN 0021-9371

Testa, F., Russo, M. V., Cornwell, T. B., Mcdonald, A., & Reich, B. (2018). Social Sustainability As Buying Local: Effects Of Soft Policy, Meso-Level Actors, And Social Influences On Purchase Intentions. *Journal Of Public Policy & Marketing*, 37(1), 152-16.

Testa, F., Iovino, R., & Iraldo, F. (2020a). The Circular Economy And Consumer Behaviour: The Mediating Role Of Information Seeking In Buying Circular Packaging. *Business Strategy And The Environment*, 29(8), 3435-3448.

Testa, F., Di Iorio, V., Cerri, J., & Pretner, G. (2021). Five Shades Of Plastic In Food: Which Potentially Circular Packaging Solutions Are Italian Consumers More Sensitive To. *Resources, Conservation And Recycling*, 173, 105726.

Urbinati, A., Chiaroni, D., & Chiesa, V. (2017). Towards A New Taxonomy Of Circular Economy Business Models. *Journal Of Cleaner Production*, 168, 487-498.

UNEP, 2006. Circular Economy. An Alternative Model For Economic Development. United Nations Environment Programme, Paris.

Ward, D. O., Clark, C. D., Jensen, K. L., & Yen, S. T. (2011). Consumer Willingness To Pay For Appliances Produced By Green Power Partners. *Energy Economics*, 33(6), 1095-1102.

WRAP (2012) Valuing Our Clothes, Viewed 14 January 14, 2021, www.wrap.org.uk/sites/files/wrap/Voc%20FINAL%20online%202012%2007%2011.Pdf

WRAP (2004), Recycle Now, Viewed 20 August, 2022, <https://Wrap.Org.Uk/Taking-Action/Citizen-Behaviour-Change/Recycle-Now>.

WRAP (2014a) Clothing Longevity Protocol, Viewed 25 January 2021, [Http://Www.Wrap.Org.Uk/Sites/Files/Wrap/Clothing%20Longevity%20Protocol_0.Pdf](http://Www.Wrap.Org.Uk/Sites/Files/Wrap/Clothing%20Longevity%20Protocol_0.Pdf).

WRAP (2014b) How To Use The Clothing Longevity Protocol, Viewed 25 January 2021, [Http://Www.Wrap.Org.Uk/Sites/Files/Wrap/How%20to%20use%20the%20Clothing%20Longevity%20Protocol_0.Pdf](http://Www.Wrap.Org.Uk/Sites/Files/Wrap/How%20to%20use%20the%20Clothing%20Longevity%20Protocol_0.Pdf).

WRAP (2017a) Sustainable Clothing: A Practical Guide To Enhancing Clothing Quality And Durability, Viewed 25 January 2021, [Http://Www.Wrap.Org.Uk/Sites/Files/Wrap/Sustainable%20Clothing%20Guide%202017.Pdf](http://Www.Wrap.Org.Uk/Sites/Files/Wrap/Sustainable%20Clothing%20Guide%202017.Pdf).

WRAP (2017b) Technologies For Sorting End Of Life Textiles, Viewed 27 January 2021, [Https://Www.Researchgate.Net/Profile/Sara_Han3/Publication/293487871_Technologies_For_Sorting_End_Of_Life_Textiles/Links/56b8f02c08ae9d9ac67dbd15/Technologies-For-Sorting-End-Of-Life-Textiles.Pdf](https://Www.Researchgate.Net/Profile/Sara_Han3/Publication/293487871_Technologies_For_Sorting_End_Of_Life_Textiles/Links/56b8f02c08ae9d9ac67dbd15/Technologies-For-Sorting-End-Of-Life-Textiles.Pdf).

Wang, P., & Kuah, A. T. (2018). Green Marketing Cradle-To-Cradle: Remanufactured Products In Asian Markets. *Thunderbird International Business Review*, 60(5), 783-795.

Wackernagel, M., Rees, W.E., 1996. Our Ecological Foot- Print: Reducing Human Impact On The Earth. Gabriola Press New Society Publishing, B.C.

WCED, (1987). Our Common Future. World Commission On Environment And Development. Oxford University Press, Oxford.

Webster, K., (2015). The Circular Economy: A Wealth Of Flows. Ellen Macarthur Foundation, Isle Of Wight.

Weigel, R. (1977). "Ideological And Demographic Correlates Of Proecology Behavior," *The Journal Of Social Psychology*, 103: 39-47.

Xiao, Y., Norris, C. B., Lenzen, M., Norris, G., & Murray, J. (2017). How Social Footprints Of Nations Can Assist In Achieving The Sustainable Development Goals. *Ecological Economics*, 135, 55-65.

Yuan, Z., Bi, J., Moriguchi, Y., Yuan, 2006. The Circular Economy: A New Development Strategy In China. *J. Ind. Ecol.* 10, 4e8. <https://doi.org/10.1162/108819806775545321>.

Yuan, Z., Jiang, W., Liu, B., Bi, J., (2008). Where Will China Go? A Viewpoint Based On Analyzing The Challenges Of Resource Supply And Pollution. *Environ. Prog.* 27, 503-514. <https://doi.org/10.1002/ep.10300>.

Yuan, Z., Bi, J., Moriguchi, Y., 2008. The Circular Economy: A New Development Strategy In China. *J. Ind. Ecol.* 10, P. 4-8.

Yong, R. (2007). The Circular Economy In China. *Journal Of Material Cycles And Waste Management*, 9(2), 121-129.

Yli-Kauhaluoma, S., Pantzar, M. & Toyoki, S. (2013), *Sustainable Practices: Social Theory And Climate Change*. Shove, E. & Spu.

YIN, R. K. 2003. Case Study Research, Design And Methods, Newbury Park, CA, SAGE.

Vanner, R., Et Al., (2014). Scoping Study To Identify Potential Circular Economy Actions, Priority Sectors, Material Flows And Value Chains. Available At: <http://www.eesc.europa.eu/resources/docs/scoping-study.pdf>.

Van Weelden, E.; Mugge, R.; Bakker, C (2016). Paving The Way Towards Circular Consumption: Exploring Consumer Acceptance Of Refurbished Mobile Phones In The Dutch Market. *J. Clean. Prod.*, 113, 743–754. [Crossref]

Van Buren, N., Demmers, M., Van Der Heijden, R., & Witlox, F. (2016). Towards A Circular Economy: The Role Of Dutch Logistics Industries And Governments. *Sustainability*, 8(7), 647.

Van Dijk KC, Lesschen JP, Oenema O (2016) Phosphorus Flows And Balances Of The European Union Member States. *Sci Total Environ* 542:1078–1093

Van Eijk, F. (2015). Barriers & Drivers Towards A Circular Economy. Literature Review. *Acceleratio: Naarden, The Netherlands*, 1-138.

Vehmas, K., Raudaskoski, A., Heikkilä, P., Harlin, A., & Mensonen, A. (2018). Consumer Attitudes And Communication In Circular Fashion. *Journal Of Fashion Marketing And Management: An International Journal*.

Vrieze, S. I. (2012). Model Selection And Psychological Theory: A Discussion Of The Differences Between The Akaike Information Criterion (AIC) And The Bayesian Information Criterion (BIC). *Psychological Methods*, 17(2), 228.

Zhou, Y., Chen, H., Xu, S., & Wu, L. (2018). How Cognitive Bias And Information Disclosure Affect The Willingness Of Urban Residents To Pay For Green Power?. *Journal Of Cleaner Production*, 189, 552-562.

Zhu, Q., Geng, Y., Sarkis, J., Lai, K.-H., (2015). Barriers To Promoting Eco-Industrial Parks Development In China: Perspectives From Senior Officials At National Industrial Parks. *J. Ind. Ecol.* 19, 457e467. <https://doi.org/10.1111/jiec.12176>.

Zhu, Q., Geng, Y., & Lai, K. H. (2010). Circular Economy Practices Among Chinese Manufacturers Varying In Environmental-Oriented Supply Chain Cooperation And The Performance Implications. *Journal Of Environmental Management*, 91(6), 1324-1331.



APPENDIX

Appendix A Items

The theory-based items from literature for questionnaire.

Values	Biospheric-altruistic Values	Unity with nature	schwartzs ,1992; V. A. BRAITHWAITE AND H. G. LAW 1985
		A world at peace	
		Equality	
		Social justice	
		Helpful	
		A world of beauty	
		Sense of belonging	
		Protecting the environment	
		Respecting the earth	
		Preventing pollution	
	Egoistic Values	Authority	
		Social Power	
		Wealth	
		Influential	
	Openness to Change	An Exciting Life	
		A varied Life	
		Curious	
		Enjoying Life	
Personal Norms		People like me should do everything possible to decrease their use of fossil fuels such as oil/petrol/diesel.	J. Jansson et al. (2011)
		I would be a better person if I drove using electricity or any other biofuel such as ethanol/bio-gas.	
		I feel guilty when wasting fossil fuels such as oil/petrol/diesel.	
		I feel that it is important to think about the environment in my everyday behavior.	
		I feel it is important to travel as little as possible by car using oil/petrol/diesel.	
		I feel a moral obligation to use electricity or any other biofuel such as ethanol/bio-gas instead of fossil fuels such as oil/petrol/diesel.	
		I feel a moral obligation to conserve oil/petrol/diesel no matter what other people do.	
		If I were to replace my car today I would feel a moral obligation to replace it for a car fuelled by electricity or any other biofuel such as ethanol/bio-gas.	
Beliefs	Awareness of consequences	Awareness of consequences	J. Jansson et al. (2011)

		Driving a car fuelled by electricity or any other biofuel such as ethanol/bio-gas decreases the greenhouse effect.	
		Global warming is a problem for society.	
		The continued increase in the use of fossil fuels such as oil/ petrol/diesel is a problem.	
		The quality of the environment will improve if we decrease the use of fossil fuels such as oil/petrol/diesel.	
		The depletion of fossil fuels such as oil/petrol/diesel is a problem.	
	Ascription of responsibility	I feel partly responsible for the increase in the use of fossil fuels such as oil/petrol/diesel.	
		I am partly responsible for the fossil oil problems in society today.	
		Not only the government and the industry are responsible for the increase in the use of fossil fuel such as oil/petrol/ diesel, I am too.	
		I feel partly responsible for global warming.	

Appendix 2 Questionnaire (Turkish)

Yüksek Lisans Anketi

Sayın Katılımcı,

Bu çalışma Marmara Üniversitesi Pazarlama Bölümü Yüksek Lisans tezinde kullanılmak üzere moda endüstrisinde tüketici davranışlarının satın alma niyetine etkisini anlamaya yönelik hazırlanmıştır. Soruların hiçbirinin "doğru cevabı" yoktur. Yanıtlarınız, kimlik bilginizi kayıtlı altına alınmaksızın, yalnızca bilimsel çalışma amacıyla kullanılacaktır. Soruçların geçerliliği, soruları ve yanıtları dikkatlice okuyup size en uygun yanıtı vermenizle bağlıdır.

Anketi yanıtlamak üzere zaman ayırdığınız ve katkı sağladığınız için teşekkür ederiz.

Prof. Dr. Emine Çobanoğlu
Yüksek Lisans Öğrencisi Behiye Selin Gökçüt

* Gerekli

1. Aşağıda gösterilen ürüne vereceğiniz en yüksek bedeli TL cinsinden yazınız. *



2. Aşağıda birey ile dünya ilişkisini tanımlayan değerler yer almaktadır. Lütfen bu ifadelerin her birini hayatınızda ne derece yol gösterici bir değer olduğuna göre derecelendiriniz (1: Bu değer hayatımda yol gösterici bir ilke olarak red ediyorum, 2: Bu değer hayatımda yol gösterici bir ilke olarak reddetme eğilimindeyim, 3: Bu değer hayatımda yol gösterici bir ilke olarak ne red ediyorum ne de kabul ediyorum, 4: Bu değer hayatımda yol gösterici bir ilke olarak kabul etme eğilimindeyim, 5: Bu değer hayatımda yol gösterici bir ilke olarak önemli kabul ediyorum, 6: Bu değer hayatımda yol gösterici bir ilke olarak çok önemli kabul ediyorum, 7: Bu değer hayatımda bir yol gösterici olarak en büyük öneme sahip kabul ediyorum.)

Her satırda yalnızca bir çeki işaretleyin.

	1. Bu değer hayatımda yol gösterici bir ilke olarak red ediyorum.	2. Bu değer hayatımda yol gösterici bir ilke olarak red etme eğilimindeyim.	3. Bu değer hayatımda yol gösterici bir ilke olarak ne reddediyorum ne de kabul ediyorum.	4. Bu değer hayatımda yol gösterici bir ilke olarak kabul etme eğilimindeyim.	5. Bu değer hayatımda yol gösterici bir ilke olarak önemli kabul ediyorum.	6. Bu değer hayatımda yol gösterici bir ilke olarak çok önemli kabul ediyorum.	7. Bu değer hayatımda bir yol gösterici olarak en büyük öneme sahip kabul ediyorum.
Doğa ile birlik	☐	☐	☐	☐	☐	☐	☐
Barış içinde bir dünya	☐	☐	☐	☐	☐	☐	☐
Eğitlik	☐	☐	☐	☐	☐	☐	☐
Sosyal adalet	☐	☐	☐	☐	☐	☐	☐
Yardıma sever	☐	☐	☐	☐	☐	☐	☐
Dünyanın güzelliği	☐	☐	☐	☐	☐	☐	☐
Azlık hissi (Başkaları tarafından kabul edilme, ait olduğumuzu hissetme)	☐	☐	☐	☐	☐	☐	☐
Çevreyi korumak	☐	☐	☐	☐	☐	☐	☐
Dünyeye saygı duymak	☐	☐	☐	☐	☐	☐	☐
Kıtlığı önleme	☐	☐	☐	☐	☐	☐	☐
Yetki	☐	☐	☐	☐	☐	☐	☐
Sosyal Güç	☐	☐	☐	☐	☐	☐	☐
Varlık (parasız)	☐	☐	☐	☐	☐	☐	☐
Etkili olmak	☐	☐	☐	☐	☐	☐	☐
Hayatın verici bir hayat	☐	☐	☐	☐	☐	☐	☐
Değişken Bir Hayat	☐	☐	☐	☐	☐	☐	☐
Meraki	☐	☐	☐	☐	☐	☐	☐
Hayatın tadını çıkarmak	☐	☐	☐	☐	☐	☐	☐

3. Lütfen aşağıda verilen sorulara 1-5 arasında (1 Kesinlikle Katılmıyorum, 2 Katılmıyorum, 3 Ne Katılmıyorum Ne katılmıyorum, 4 Katılıyorum, 5 Kesinlikle Katılıyorum) puan veriniz. *

Her satırda yalnızca bir çeki işaretleyin.

	1 Kesinlikle Katılmıyorum	2 Katılmıyorum	3 Ne Katılmıyorum Ne katılmıyorum	4 Katılıyorum	5 Kesinlikle Katılıyorum
Benim gibi insanlar çevreye zararlı maddelerin kullanımını azaltmak için ellerinden gelen her şeyi yapmaktadırlar.	☐	☐	☐	☐	☐
Elektrik veya etanol/biyogaz gibi başka bir biyoyakıt kullanarak arabaya kullanırsanız daha iyi bir insan olurdum.	☐	☐	☐	☐	☐
Petrol/benzin/dizel gibi fosil yakıtları tercih ettiğimde kendimi suçlu hissediyorum.	☐	☐	☐	☐	☐
Kişisel olarak, günlük davranışlarımda çevre hakkında düşüncelerimin önemi olduğunu hissediyorum.	☐	☐	☐	☐	☐
Petrol/benzin/dizel kullanarak arabaya ile mümkün olabildikçe az seyreklettiğim önemli olduğunu hissediyorum.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılmaması konusunda ahlaki bir zorunluluk hissediyorum.	☐	☐	☐	☐	☐
Başkaları ne yaparsa yapmasın sürdürülebilir ürünler kullanmak için ahlaki bir zorunluluk hissediyorum.	☐	☐	☐	☐	☐
Bugün arabamı değiştirecek olsaydım, onu elektrikle veya etanol/biyogaz gibi herhangi bir biyoyakıtla çalışan bir arabaya ile değiştirmeye konusunda ahlaki bir zorunluluk hissedirdim.	☐	☐	☐	☐	☐
Çevre sorunlarının sonuçlarını farkında olduğumu düşünüyorum.	☐	☐	☐	☐	☐
Yakıtı elektrikle veya etanol/biyogaz gibi başka herhangi bir biyoyakıtla çalışan bir arabaya kullanmak sera etkisini azaltır.	☐	☐	☐	☐	☐
Küresel ısınma toplum için bir sorundur.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılmaması için etik bir sorundur.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılmaması için etik bir sorundur.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılmaması için etik bir sorundur.	☐	☐	☐	☐	☐
Fosil yakıtların tükenmesi bir sorundur.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılmaması artımsandan kısmen sorumlu hissediyorum.	☐	☐	☐	☐	☐
Bugün toplumdaki fosil yakıt sorunlarından kısmen ben sorumluuyum.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılmaması artımsandan sadece hükümet ve sanayi sorumlu değil, ben de sorumluuyum.	☐	☐	☐	☐	☐
Küresel ısınmadan kısmen sorumlu hissediyorum.	☐	☐	☐	☐	☐

Bu bölümde aşağıda resmi verilen ürüne ait açıklamaya göre soruları tekrar yanıtlıyoruz.

4. Döngüsel ekonomi ile üretilen ürünleri hiç duydunuz mu? *

Yalnızca bir çeki işaretleyin.

☐ Evet
☐ Hayır

5. Daha önce döngüsel ekonomi ile üretilen ürün satın aldınız mı? *

Yalnızca bir çeki işaretleyin.

☐ Evet
☐ Hayır

6. Geri dönüşüm yapıyor musunuz? *

Yalnızca bir çeki işaretleyin.

☐ Evet
☐ Hayır

7. Geri dönüşüm yapıyorsanız, aşağıdakilerden hangilerini geri dönüştürüyorsunuz? *

Uygun olanların tümünü işaretleyin.

- ☐ Plastik
☐ Karton/Kağıt
☐ Çiğir/eyak kabuğu
☐ Atık pil
☐ Cam atık
☐ Elektronik atık
☐ Organik atık
☐ Diğer:

8. Aşağıda gösterilen ürün döngüsel ekonomi ile üretimiştir. Döngüsel ekonomi (kileri ile üretilebilir ürünler (aşağıdaki tabiri de dahil olmak üzere), geri dönüştürülmüş malzemelerden üretilir, üretim sürecindeki çevreye zararları en aza indirmeye çalışır. Döngüsel ürünlerin tasarım ve üretim aşamalarında çok daha fazla zaman harcansın, çevreye zararları en aza indirgenmesi amaçlanmaktadır ve bu da ürünün kullanımı döneminde harcanan zaman ve maliyeti azaltmaktadır. Bu nedenle ürün, ömrü boyunca daha verimli, uygun maliyetli ve çevre dostudur. Aşağıda neymi verilen ürün için verdiğiniz en yüksek değeri parayı ti cinsinden yazınız.



9. Aşağıda birer ile dünya ilişkisini tanımlayan değerler yer almaktadır. Lütfen bu ifadelerin her birini hayatınızda ne derece yol gösterici bir değer olduğuna göre derecelendiriniz (1: Bu değer hayatımda yol gösterici bir ilke olarak kabul ediyorum, 2: Bu değer hayatımda yol gösterici bir ilke olarak reddetme eğilimindeyim, 3: Bu değer hayatımda yol gösterici bir ilke olarak kabul ediyorum ne de kabul ediyorum, 4: Bu değer hayatımda yol gösterici bir ilke olarak kabul etme eğilimindeyim, 5: Bu değer hayatımda yol gösterici bir ilke olarak önemli kabul ediyorum, 6: Bu değer hayatımda yol gösterici bir ilke olarak çok önemli kabul ediyorum, 7: Bu değer hayatımda bir yol gösterici olarak en büyük öneme sahip kabul ediyorum.)

Her satırda yalnızca bir kutu işaretleyin.

	1. Bu değer hayatımda yol gösterici bir ilke olarak kabul ediyorum.	2. Bu değer hayatımda yol gösterici bir ilke olarak kabul etme eğilimindeyim.	3. Bu değer hayatımda yol gösterici bir ilke olarak kabul etme eğilimindeyim.	4. Bu değer hayatımda yol gösterici bir ilke olarak kabul etme eğilimindeyim.	5. Bu değer hayatımda yol gösterici bir ilke olarak önemli kabul ediyorum.	6. Bu değer hayatımda yol gösterici bir ilke olarak çok önemli kabul ediyorum.	7. Bu değer hayatımda bir yol gösterici olarak en büyük öneme sahip kabul ediyorum.
Doğa ile birlik	☐	☐	☐	☐	☐	☐	☐
Rang içinde bir dünya	☐	☐	☐	☐	☐	☐	☐
Eğitlik	☐	☐	☐	☐	☐	☐	☐
Sosyal adalet	☐	☐	☐	☐	☐	☐	☐
Yardımcı	☐	☐	☐	☐	☐	☐	☐
Dünyanın güzelliği	☐	☐	☐	☐	☐	☐	☐
Ahlak hissi (Beklenen tanımları kabul etme: ahlaki değerleri hissetmek)	☐	☐	☐	☐	☐	☐	☐
Çevreyi korumak	☐	☐	☐	☐	☐	☐	☐
Dünyaya saygı duymak	☐	☐	☐	☐	☐	☐	☐
Kırsal yaşam	☐	☐	☐	☐	☐	☐	☐
Yetki sahibi olmak	☐	☐	☐	☐	☐	☐	☐
Sosyal Güç	☐	☐	☐	☐	☐	☐	☐
Varlık (parasız)	☐	☐	☐	☐	☐	☐	☐
Etkili olmak	☐	☐	☐	☐	☐	☐	☐
Hayatın verici bir hayat	☐	☐	☐	☐	☐	☐	☐
Doğal bir hayat	☐	☐	☐	☐	☐	☐	☐
Meraklı olmak	☐	☐	☐	☐	☐	☐	☐
Hayatın tadını çıkarmak	☐	☐	☐	☐	☐	☐	☐

Çevreye zararlı maddelerin kullanılması azaltılarak çevrenin kirliliği azalır.	☐	☐	☐	☐	☐
Fosil yakıtların tüketimi bir sorundur.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılması azaltılarak çevrenin kirliliği azalır.	☐	☐	☐	☐	☐
Bugün toplumdaki fosil yakıt sorunlarından kısmen ben sorumluyum.	☐	☐	☐	☐	☐
Çevreye zararlı maddelerin kullanılması azaltılarak çevrenin kirliliği azalır.	☐	☐	☐	☐	☐
Küresel ısınmadan kısmen sorumlu hissediyorum.	☐	☐	☐	☐	☐

Adınız Soyadınız

11. Cinsiyetiniz Nedir? *

Yalnızca bir kutu işaretleyin.

- ☐ Kadın
☐ Erkek

12. Medeni Durum *

Yalnızca bir kutu işaretleyin.

- ☐ Bekar
☐ Evli

13. En son mezun olduğunuz eğitim derecesi hangisidir? *

Yalnızca bir kutu işaretleyin.

- ☐ İlkokul
☐ Ortaokul
☐ Lise
☐ Lisans
☐ Lisansüstü

13. En son mezun olduğunuz eğitim derecesi hangisidir? *

Yalnızca bir piki işaretleyin.

- ☐ İlkokul
☐ Ortaokul
☐ Lise
☐ Lisans
☐ Lisansüstü

14. Aylık bireysel geliniz ne kadardır? *

Yalnızca bir piki işaretleyin.

- ☐ 0-4250
☐ 4251-7250
☐ 7251-10250
☐ 10251-13250
☐ 13251+

15. Çalışma durumunuz nedir? *

Yalnızca bir piki işaretleyin.

- ☐ Part-time çalışıyorum
☐ Full-time çalışıyorum
☐ Öğrenciyim
☐ Çalışmıyorum
☐ Öğrenciyim ve çalışıyorum

16. Ailenizle birlikte mi yaşıyorsunuz? *

Yalnızca bir piki işaretleyin.

- ☐ Evet
☐ Hayır, tek yaşıyorum.
☐ Ev arkadaşla ile yaşıyorum.

17. Yaşınız nedir?

Appendix 3 Questionnaire (English)

Graduate Survey

Dear Participant,

This study was prepared to understand the effect of consumer behavior on purchase intention in the fashion industry to be used in Marmara University Marketing Department Master's thesis. None of the questions have a "correct answer." Your answers will be used for scientific study purposes only, without registration of identity information. The results validity depends on carefully reading the questions and answers and giving you the most appropriate answer.

Thank you for taking the time and contribution to answer the survey.

Prof. Dr. Emine Cobanoğlu
Graduate Student Behiye Selin Gökküt

* Gerekli

1. Please write down the highest price you will pay for the product shown below in TL. *



2. Below are the values that define the relationship between the individual and the world. Please rate each of these statements according to how much of a guiding value it is in your life (1: I reject this value as a guiding principle in my life, 2: I tend to reject this value as a guiding principle in my life, 3: This value is a guiding principle in my life. I neither reject nor accept it as a principle, 4: I tend to accept this value as a guiding principle in my life, 5: I consider this value important as a guiding principle in my life, 6: This value is very important as a guiding principle in my life I agree, 7: I accept that this value has the greatest importance as a guide in my life.) *

Her satırda yalnızca bir şıkki işaretleyin.

	1. I reject this value as a guiding principle in my life.	2. I tend to reject this value as a guiding principle in my life.	3. I neither reject nor accept this value as a guiding principle in my life.	4. I tend to accept this value as a guiding principle in my life.	5. I consider this value important as a guiding principle in my life.	6. I consider this value very important as a guiding principle in my life.	7. I accept that this value has the greatest importance as a guide in my life.
Unity with nature	☐	☐	☐	☐	☐	☐	☐
A world at peace	☐	☐	☐	☐	☐	☐	☐
Equality	☐	☐	☐	☐	☐	☐	☐
Social justice	☐	☐	☐	☐	☐	☐	☐
Helpful	☐	☐	☐	☐	☐	☐	☐
A world of beauty	☐	☐	☐	☐	☐	☐	☐
Sense of belonging	☐	☐	☐	☐	☐	☐	☐
Protecting the environment	☐	☐	☐	☐	☐	☐	☐
Respecting the earth	☐	☐	☐	☐	☐	☐	☐
Preventing pollution	☐	☐	☐	☐	☐	☐	☐
Authority	☐	☐	☐	☐	☐	☐	☐
Social Power	☐	☐	☐	☐	☐	☐	☐
Wealth	☐	☐	☐	☐	☐	☐	☐
Influential	☐	☐	☐	☐	☐	☐	☐
An Exciting Life	☐	☐	☐	☐	☐	☐	☐
A varied Life	☐	☐	☐	☐	☐	☐	☐
Curious	☐	☐	☐	☐	☐	☐	☐
Enjoying Life	☐	☐	☐	☐	☐	☐	☐

3. Please rate the following questions on a scale of 1-5 (1: Strongly Disagree, 2: Disagree, 3: Neither Agree, nor Disagree, 4: Agree, 5: Strongly Agree). *

Her satırda yalnızca bir şıkki işaretleyin.

	1: Strongly Disagree	2: Disagree	3: Neither Agree, nor Disagree	4: Agree	5: Strongly Agree
People like me should do everything they can to reduce the use of fossil fuels such as oil/petroleum/diesel.	☐	☐	☐	☐	☐
I would be a better person if I drove using electricity or another biofuel like ethanol/biogas.	☐	☐	☐	☐	☐
I feel guilty when I waste fossil fuels like oil/gasoline/diesel.	☐	☐	☐	☐	☐
Personally, I feel it is important to think about the environment in my daily behavior.	☐	☐	☐	☐	☐
I feel it is important to travel as little as possible by car using petrol/gasoline/diesel.	☐	☐	☐	☐	☐
I feel a moral obligation to use electricity or any biofuel like ethanol/biogas instead of fossil fuels like oil/petroleum/diesel.	☐	☐	☐	☐	☐
I feel a moral obligation to save oil/gasoline/diesel no matter what others do.	☐	☐	☐	☐	☐

If I were to replace my car today, I would feel a moral obligation to replace it with a car powered by electricity or any biofuel such as ethanol/biogas.	☐	☐	☐	☐	☐
Awareness of consequences	☐	☐	☐	☐	☐
Driving a car whose fuel is powered by electricity or any other biofuel such as ethanol/biogas reduces the greenhouse effect.	☐	☐	☐	☐	☐
Global warming is a problem for society.	☐	☐	☐	☐	☐
The continued increase in the use of fossil fuels such as oil/gasoline/diesel is a problem.	☐	☐	☐	☐	☐
If we reduce the use of fossil fuels such as oil/petroleum/diesel, the quality of the environment will increase.	☐	☐	☐	☐	☐
Depletion of fossil fuels such as oil/gasoline/diesel is a problem.	☐	☐	☐	☐	☐
I feel partially responsible for the increased use of fossil fuels such as oil/petroleum/diesel.	☐	☐	☐	☐	☐
I am partially responsible for the fossil oil problems in society today.	☐	☐	☐	☐	☐
Not only the government and industry are responsible for the increase in the use of fossil fuels such as oil/petroleum/diesel, but I am also responsible.	☐	☐	☐	☐	☐
I feel I partially responsible for global warming.	☐	☐	☐	☐	☐

8. The product shown below is produced in a circular economy. The products (including the t-shirt below) produced with circular economy principles are produced from recycled materials, and the environmental damage during the production process is tried to be minimized. It is aimed to spend much more time in the design and production stages of cyclic products and to minimize the damage to the environment, which reduces the time and cost spent at the end of the product's useful life. Therefore, the product is more efficient, cost-effective, and environmentally friendly throughout its life. Write down the highest value you will give for the product pictured below in TL. *



9. Below are the values that define the relationship between the individual and the world. Please rate each of these statements according to how much of a guiding value it is in your life (1: I reject this value as a guiding principle in my life, 2: I tend to reject this value as a guiding principle in my life, 3: This value is a guiding principle in my life. I neither reject nor accept it as a principle, 4: I tend to accept this value as a guiding principle in my life, 5: I consider this value important as a guiding principle in my life, 6: This value is very important as a guiding principle in my life I agree, 7: I accept that this value has the greatest importance as a guide in my life.) *

Her satırda yalnızca bir şıkki işaretleyin.

	1. I reject this value as a guiding principle in my life.	2. I tend to reject this value as a guiding principle in my life.	3. I neither reject nor accept this value as a guiding principle in my life.	4. I tend to accept this value as a guiding principle in my life.	5. I consider this value important as a guiding principle in my life.	6. I consider this value very important as a guiding principle in my life.	7. I accept that this value has the greatest importance as a guide in my life.
Unity with nature	☐	☐	☐	☐	☐	☐	☐
A world at peace	☐	☐	☐	☐	☐	☐	☐
Equality	☐	☐	☐	☐	☐	☐	☐
Social justice	☐	☐	☐	☐	☐	☐	☐
Helpful	☐	☐	☐	☐	☐	☐	☐
A world of beauty	☐	☐	☐	☐	☐	☐	☐
Sense of belonging	☐	☐	☐	☐	☐	☐	☐
Protecting the environment	☐	☐	☐	☐	☐	☐	☐
Respecting the earth	☐	☐	☐	☐	☐	☐	☐
Preventing pollution	☐	☐	☐	☐	☐	☐	☐
Authority	☐	☐	☐	☐	☐	☐	☐
Social Power	☐	☐	☐	☐	☐	☐	☐
Wealth	☐	☐	☐	☐	☐	☐	☐
Influential	☐	☐	☐	☐	☐	☐	☐
An Exciting Life	☐	☐	☐	☐	☐	☐	☐
A varied Life	☐	☐	☐	☐	☐	☐	☐
Curious	☐	☐	☐	☐	☐	☐	☐
Enjoying Life	☐	☐	☐	☐	☐	☐	☐

10. Please rate the following questions on a scale of 1-5 (1: Strongly Disagree, 2: Disagree, 3: Neither Agree, nor Disagree, 4: Agree, 5: Strongly Agree). *

Her satırda yalnızca bir şıkki işaretleyin.

	1: Strongly Disagree	2: Disagree	3: Neither Agree, nor Disagree	4: Agree	5: Strongly Agree
People like me should do everything they can to reduce the use of fossil fuels such as oil/petroleum/diesel.	☐	☐	☐	☐	☐
I would be a better person if I drove using electricity or another biofuel like ethanol/biogas.	☐	☐	☐	☐	☐
I feel guilty when I waste fossil fuels like oil/gasoline/diesel.	☐	☐	☐	☐	☐
Personally, I feel it is important to think about the environment in my daily behavior.	☐	☐	☐	☐	☐
I feel it is important to travel as little as possible by car using petrol/gasoline/diesel.	☐	☐	☐	☐	☐
I feel a moral obligation to use electricity or any biofuel like ethanol/biogas instead of fossil fuels like oil/petroleum/diesel.	☐	☐	☐	☐	☐
I feel a moral obligation to save oil/gasoline/diesel no matter what others do.	☐	☐	☐	☐	☐

If I were to replace my car today, I would feel a moral obligation to replace it with a car powered by electricity or any biofuel such as ethanol/biogas.	☐	☐	☐	☐	☐
Awareness of consequences	☐	☐	☐	☐	☐
Driving a car whose fuel is powered by electricity or any other biofuel such as ethanol/biogas reduces the greenhouse effect.	☐	☐	☐	☐	☐
Global warming is a problem for society.	☐	☐	☐	☐	☐
The continued increase in the use of fossil fuels such as oil/gasoline/diesel is a problem.	☐	☐	☐	☐	☐
If we reduce the use of fossil fuels such as oil/petroleum/diesel, the quality of the environment will increase.	☐	☐	☐	☐	☐
Depletion of fossil fuels such as oil/gasoline/diesel is a problem.	☐	☐	☐	☐	☐
I feel partially responsible for the increased use of fossil fuels such as oil/petroleum/diesel.	☐	☐	☐	☐	☐
I am partially responsible for the fossil oil problems in society today.	☐	☐	☐	☐	☐
Not only the government and industry are responsible for the increase in the use of fossil fuels such as oil/petroleum/diesel, but I am also responsible.	☐	☐	☐	☐	☐
I feel I partially responsible for global warming.	☐	☐	☐	☐	☐

11. What is your gender? *

Yalnızca bir şıkı işaretleyin.

- ☐ Female
☐ Male

12. Marital status *

Yalnızca bir şıkı işaretleyin.

- ☐ Single
☐ Married

13. What is the most recent education degree you graduated from? *

Yalnızca bir şıkı işaretleyin.

- ☐ Primary school
☐ Middle School
☐ High School
☐ Bachelor
☐ Graduate

14. What is your monthly individual income? *

Yalnızca bir şıkı işaretleyin.

- ☐ 0-4250
☐ 4251-7250
☐ 7251-10250
☐ 10251-13250
☐ 13251+

15. What is your working status? *

Yalnızca bir şıkı işaretleyin.

- ☐ Part-time
☐ Full-time
☐ Student
☐ Working Student

16. Do you live with your family? *

Yalnızca bir şıkı işaretleyin.

- ☐ Yes
☐ No, I live alone
☐ I live with my roommate

17. What is your age?
