

**An Analysis of UK Retailers' Initiatives towards Circular Economy  
Transition and Policy Driven Directions**

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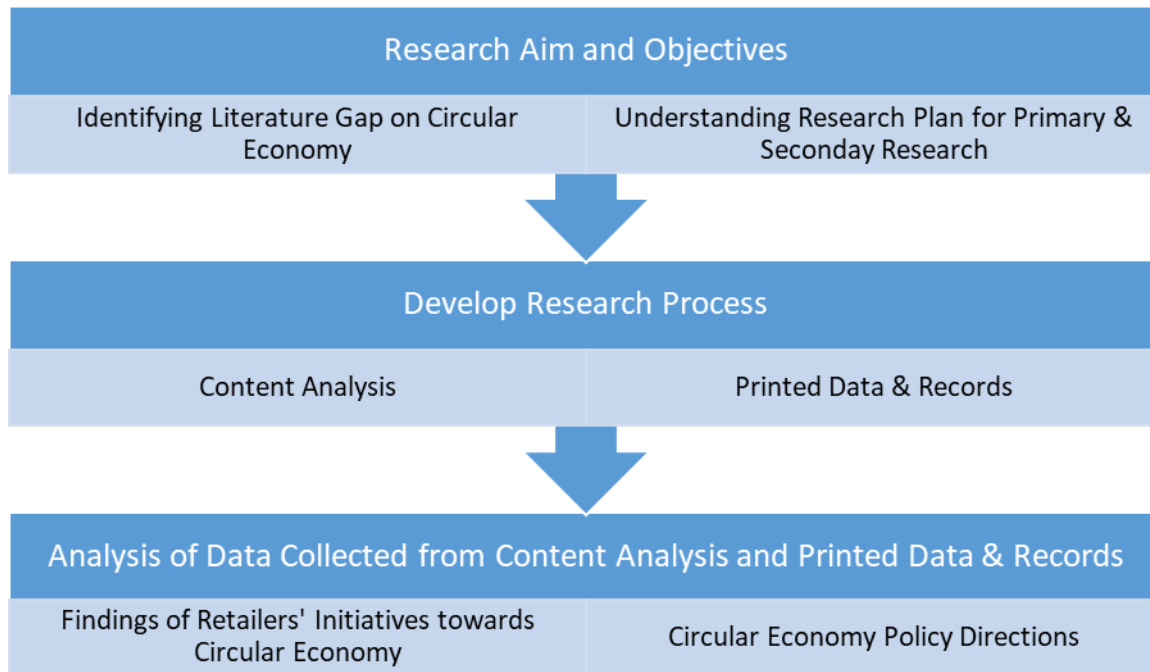
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## Abstract

Circular economy is a widely discussed topic in the field of industrial renovation and environmentally responsive economies. The current economic and industrial model which is termed as the produce-use-dispose model is a linear model in which the resource is lost forever after utilization. In addition to economic impact, disposal of the waste products creates an immense pressure on the environment. For this reason, scholars are trying to find an effective solution to this problem by ensuring the re-use of the resources that are used. The concept of the circular economy ensures the re-cycling and re-use of the resources and closes the resource looping. The circular economy challenges the produce-use-dispose concept and focuses on the ~~re-useutilization~~ of resources. In ~~athe~~ world of ~~scarceity-of~~ resources, ~~the policies to recycling~~ and ~~re-useutilization-of-the~~ resources ~~polieies~~ increase ~~the~~ opportunities for economic growth ~~and opportunities. However,~~ ~~S~~scholars are increasingly researching the concept of a circular economy ~~on how~~ to improve ~~their~~ efficiencies and improve industrial ecology. ~~However,~~ ~~T~~his study ~~considersenecompasses~~ these ideas and ~~identifiesfinds-out~~ the opportunities and barriers of the circular economy transition. To achieve the goals of the study, the researchers reviewed 10 UK leading retailers and after the analysis, ~~it~~ has found that environmental awareness, stakeholders<sup>2</sup> pressure and government rules and regulations have driven ~~the~~ retailers to embrace the circular business model in their operations.

## Graphical abstract

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**Keywords:** Sustainability; Circular economy; Content analysis; Industrial ecology; Cycling and utilization

## 1. Introduction

The global economic transformation has brought about a revolution that is driving economic excellence not only in the UK context but also all over the world. ~~The Business organizations~~ are facing a range of challenges ~~from diversified sources~~ such as global competition, raising awareness regarding environmental issues, global business warfare etc. ~~In the context of On the contrary,~~ limited resources ~~which creates vulnerability are also causing a vulnerable situation for business organizations~~. For this reason, ~~the~~ companies operating a business in various sectors have to rethink and design their business model ~~to be that is~~ responsive to these challenges. In this context, the concept of the circular economy can support the economic players to face the challenges and ensure economic growth (Lambert et al. 2001; [Jaeger and Upadhyay, 2020](#)). ~~Therefore, The~~ concept of the circular economy is quite clear ~~that~~ ~~lookings~~ beyond the typical produce-use-waste concept and shift to the recycle model (Terziovski and Samson 2009; [Upadhyay et al., 2018](#)). ~~That is why; It~~ ensures economic growth and provides a solution to resource crunch by facilitating re-using and re-consumption that is imperative for economic excellence (Ghisellini et al. 2016; [Liang et al., 2018](#)). At the same time, the circular economy

also ensures socio-economic and environmental excellence by ensuring the re-consumption of resources and reducing the decomposition of waste products in the environment (Andrews 2015).

~~Circular economy minimizes the utilization of intact resources by reducing loops of resources and reconnects them with range nodes (Lieder and Rashid 2016). However, T~~he focus of the circular economy is to establish a recycle-production-use industry so that the waste products can be transformed into usable products (Urbinati et al. 2017).

The retail sector can be classified by including those business organisations such as supermarkets, market stalls, door to door sells etc. that supply goods to the customers. The retail industry and retail products are contributing a lot significantly to the UK economy. ~~However, I~~n 2017, the retail sector ~~has~~ recorded annual sales of £395 billion and the recorded number of business was 319,000 (British Retail Consortium 2018). The adoption of circular business model is very important for the retail industry because the circular economy exercises have been considered in a very positive way by the customers (Mirvis 2008). ~~The P~~revious research has shown the progressive impact of circularity actions on customer satisfaction and stressed that customers are likely to be more contented by goods and services that are prepared in an ecologically and socially reliable approach (Loureiro et al. 2012). ~~Therefore that is why; the~~ retailing companies are paying a lot of more attention to the safe environment. For example, Sainsbury has taken decisions to collect their agro products from ~~the~~ local suppliers and farmers that will reduce the travel distance of the companies. Correspondingly, regulatory control and compliances also drive the retail industry to implement CE successfully. For example, ~~as~~ in 2009, the government of UK set a target of reducing carbon emission by 34% and this compelled the retail sectors to embrace circular economy. ~~In addition, with~~ ~~However, due to the above reasons, as well as~~ increasing pressure from stakeholders ~~have pushed the~~ retail companies have had to embrace the circular economy concept (Sarkis et al. 2011)

Although the circular economy creates environmental sustainability and constructs a bridge between resources and its consumption to reduce the waste products and their disposition, ~~but~~ very few empirical studies have been found to explore the role of enablers and barriers in the UK circular economy. Therefore, this study intends to bridge fill up the gap by identifying the impact of circular economy in the retail sector in UK perspectives along with their barriers and enablers. To achieve this goal, ~~the remainder of the paper has been divided into the following part. S~~ection 2 of the paper focuses on is the literature review ~~part-~~ it discusses the concept of

the circular economy, previous circular economy review, the barriers and enablers of circular economy, and section 3 describes the methodology ~~part it describes the method that has been adopted for this research~~ and the circular economy initiatives of 10 UK retailers. Section 4 is the discussion part and section 5 is the final part of the research that includes conclusion, managerial implications and limitation of the research.

## 2. Literature review

### 2.1 The concept of the circular economy

~~Many scholars have worked on the concept of a circular economy and gave a review on it that supports the future researchers to research it (Mathews and Tan 2011). This~~ concept of the circular economy ~~was introduced~~ ~~came into appearance~~ for the first time in 1989 by R. Kerry Turner and David W Pearce, two renowned British environmental economists. This type of economy follows some principles such as designing ~~out of~~ surplus. The end of life concept could be replaced by the circular economy through the eradication of the use of toxic substances, usage of renewable energy and renovation (Andrews 2015). The current economic and industrial model which is termed as the production-use-dispose model is a linear model in which the resources ~~is~~ lost forever after utilization of the utilities (Freund et al. 2018). That is why; it is the absolute waste of the resource as well as money. On the other hand, in addition to economic impact, it creates immense pressure on the environment while disposing of the waste products. For this reason, scholars are trying to find out an effective resolution to this problem by ensuring the utilization of the resources ~~previously that are~~ used. The concept of the circular economy ensures the cycling and utilization of the resources and closes the resource loop~~ing~~ (Kim and Min 2015). Similarly, the circular economy is an economic concept that focuses on the produce-use-dispose concept and focuses on the utilization of resources used and in the world of scarcity of resources, ~~the policies that encourage~~ recycling and utilization of the resources ~~policies~~ increase the opportunities of economic growth and opportunities (Pattanaro and Gente 2017).

### 2.2 Previous circular economy reviews

Scholars are increasingly conducting research on the concept of a circular economy and how to improve its efficiencies and improve industrial ecology (Geissdoerfer et al 2017). For instance, Ghisellini et al. (2016) and Kumar et al. (2018) conducted review research on the circular

economy of China. ~~Therefore, he and~~ made an effective comparison on the circular economy between China, Japan, UK and other large economic states. ~~focusing on the He, however, tried to find out the~~ effectiveness and impact of the circular economy in these countries. He also found out the similarities and dissimilarities of the impact in micro as well as the macro-level of the economy. These reviews ~~have encompassed~~ the ~~detail~~sed ~~discussions~~ of the origination of the concept of Circular Economy and its development over time. However, according to Ghisellini et al. (2016), the attractiveness, effectiveness as well as successful implementations of the concept of the circular economy depend on the engagement of the stakeholders from all levels of ~~the~~ society including ~~the~~ investors and the government. At the same time, Lieder and Rashid (2016), researched the circular economy and provided a comprehensive and resourceful review on the concept. ~~However, This~~ review covers the concept of resource scarcity, limitation of resource loop, environmental impact, the impact on national as well as socio-economic situation etc. ~~However, He worked on around~~ identified evidence from 136 articles published on the concept from 1956 to 2015. ~~For this reason, it was~~ Aa comprehensive and resourceful work on this issue. However, according to Lieder and Rashid (2016), the most significant aspects of the successful implementation of the circular economy is its stakeholder's engagement and collaborative workings. Moreover, ~~they~~e found a prominent impact of the circular economy in the uplifting socio-economic condition of the country.

### **2.3. Circular economy barriers and drivers**

A circular economy is an imperative tool and model that transforms the current consumption model. However, there are~~is~~ a range of barriers and drivers that ~~are existed~~ in the way of successful implementation of the model. The barriers and drivers are described in the following sections-

#### **2.3.1 Barriers of the circular economy**

The circular economy faces a range of challenges in operations. From a macro standpoint, rules and regulations may inadvertently hamper CBM conversion (Lambert et al. 2001). The government tax strategies and charges of recycled commodities often become adverse for the customers. Sometimes it happens that the prices of recycled products become much higher than the new products. Additionally, the demand-supply situation of the reused and new products is not perfectly shaped (Huang et al. 2015; Webster 2013). ~~For this reason, T~~the demand for

recycled products is still lower compared to new products. Organizational and cultural barriers (Bechtel et al. 2013) also act as a hindrance on the way to the transformation process. The financial and economic considerations also work as barriers to transition to a circular economy (Tukker 2004; Ghisellini et al. 2016) because the companies have to invest huge capital in the transition process and equipment. Comparably, the technological barrier also needs to be considered because a range of sophisticated technology is required to ~~effectmploy in~~ the CE transition (Ghisellini et al. 2016; Liu and Bai 2014). Technological inadaptability, technological obsolesces, the emergence of new technologies can also act as a barrier. Huge investment in technology is required to implement a successful CE transition. Further, the inadequacy of dexterity in the recycling process, problems with recycling data handling process, difficulties in handling and determining product life cycle are also potential barriers to circular economy transition process). ~~It has marked that t~~The determining and defining of the revenue model for the CE products and companies is difficult and ~~tougher some which are~~is another barrier to consider. In addition to this Sepa.uk.org (2019), suggested that there is also a range of marketing barriers such as the intention and attitude of the customer, lack of reverse logistic supports, ~~and~~ category of products and related restriction. ~~On the other hand, The~~ lack of collaboration from all layers of society and sponsors is another significant consideration and barriers to successful transition to CE. The barriers to a successful transition to CE are summarized in the table 1.

**Table 1:** Summary of barriers to a circular economy

Challenges of CE	Description	References
Technological barriers	A range of sophisticated technology is required to employ in the CE transition. Technological inadaptability, technological obsolesces, the emergence of new technologies acts as a barrier. Huge investment in technology is required in order to implement a successful CE transition.	Ghisellini et al. 2016; Liu and Bai 2014
Inadequate Supporting Regulation	There is a lack of significant supporting legislation that can promote the CE and ensure sustainable development of this concept. Further, the government tax policies and prices of the	Tukker & Tischner 2006

	recycled commodities often become adverse for the customers.	
Organisational barriers	Organisations often fear to accept the recycle products compared to new products due to uncertain market condition and potential customers. In addition, huge capital is required to employ for the transition to a CE.	Bechtel et al. 2013
Cultural barriers	Culture often doesn't permit to use recycle product. Fear of quality and attitude of the customer is a potential barrier.	Bechtel et al. 2013
Financial and economic barriers	A huge amount of in-front capital investment is required for the CE transition. The calculation of return on investment and revenue model is difficult.	Tukker 2004; Ghisellini et al. 2016
Customer Type Restrictions	Consumers are not aware of the origination of the products and desire to have ownership of the products. In addition, they don't show care to the products while leasing them.	Tukker 2004
Product Category Restrictions	It is a potential barrier, there is a deficiency in resources which support the designing of the recycling process and prepare the products as a user. Categories should be designed according to the need of the customers otherwise; the market will not grasp them	Huang <i>et al.</i> 2015; Webster 2013
Fashion Vulnerability	Customers always desire to have fashionable products and that's why it is significant to design fashionable products. But it becomes difficult to ensure fissionability in the products due to the	Bocken et al. 2016; Moreno et al. 2016; Tucker 2004



	limitation of the life cycle and the nature of the products that are being recycled	
Return Flow barriers	Exchange of materials is limited by capacity of reverse logistics. Return flow challenges are barriers to CBM adoption.	Adenso-Diaz <i>et al.</i> 2012
Lack of channel control	There are inefficiencies and inequalities in the control channels that are potential barriers. On the other hand, there is an immense conflict of interest among stakeholders and competitors.	Planning 2015; Lewandowski 2016
Confidentiality and Trust among partners	The information confidentiality is a great barrier on the way of a successful transition in the CE Competitors. There is a lack of trust among the stakeholders in the CE environment.	Freund et al. 2018; Pattanaro and Gente 2017; De los Rios et al. 2016.

### 2.3.1 Drivers of circular economy

Along with the barriers, there are some drivers of the circular economy that enhances the effectiveness of the economy and support ~~the~~ entrepreneurs ~~in order~~ to take the risk. From the empirical analysis and research work, it has found that there is increasing pressure on resources which can lead to resource scarcity. That may be the greatest driver of CE transition according to Alhola et al. (2018). That is because CE ensures reuse of the resources and thus the problem of scarcity of resources can be resolved. The recycle and utilization process prevents waste products from being a disposition and thus the environment is saved from the harmful effect which is another driver of CE transition (Freund et al. 2018). Further, the recycling and utilization process enhances the opportunities for starting a new business. Thus, CE creates entrepreneurial opportunities for entrepreneurs (Pattanaro and Gente 2017). Besides, it creates an environment of mutual understanding and collaboration among the stakeholders in the business (Sarkis et al. 2011). However, ~~it is~~ the greatest drivers of the CE: ~~is c~~Consumer pressure (Mirvis 2008): ~~Along with and~~ regulatory control and compliances (Rizos, et al. 2016) ~~which also~~ drive the CE to be implemented successfully. ~~However, T~~the drivers that are discussed above are providing opportunities to the CE to be implemented successfully.

### 3. Methodology

~~The~~ Content analysis methodology has been used in this research to find out the impact of the circular economy from UK perspectives. That is because it is required to make a bridge between quantitative and qualitative research methods (Markoff et al. 1975). Several qualitative data should be transformed into quantitative data to find the effect of CE transudation in the retail sector. Therefore, it is significant to make a content analysis of 10 retail companies that are operated in the UK. Because content analysis uses replicable as well as reliable inferences through interpreting ~~ands-well-as~~ coding textual material (Markoff et al. 1975) ~~and~~ it can also act as a supportive tool to analyze the socio-cognitive factors which may be impracticable through the pure quantitative or pure quantitative research methodology (Krippendorff 1980). The circular economy initiatives of 10 UK retail companies have been discussed in the following sections (table 2) by using the content analysis methodology.

#### 3.1. Circular economy initiatives of 10 UK retail companies:

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**Table 2:** Circular economy initiatives of 10 Retail companies in the UK

<b>Company Name</b>	<b>Targets and strategies to achieve circularity</b>	<b>Barriers in achieving circularity</b>	<b>Enablers in achieving circularity</b>	<b>Achievements</b>
M&S	<p>- to ensure zero waste disposition targets by 2025.</p> <p>-The company has taken steps to reduce their food waste by 20% in 2017 from 2012. On the other hand, the company has decided to donate food to charities.</p> <p>- to transform its packaging products from polymer groups so that all of them can be recycled.</p> <p>- The company's products will be 100% safe for the environment and will be recyclable by 2025.</p> <p>-to turn into an</p>	<p>- the company have a legal and moral obligation to ensure the substance of the product precisely that replicates the brand integrity entitlements and Product compositional titles</p> <p>-The recent Brexit issue is another barrier in order to obtain the circularity as it will reduce the opportunities of entering the free market in Europe. Thus, it might weaken the purchasing power of pounds that may significantly impact on the business. Moreover, it will also increase the chance of a job lay off from the M&amp;S</p>	<p>- The M&amp;S company has taken the ethical and environmental sustainability plan which is termed as Plan A. That will be ensured by identifying recyclable resources and using technology to recycle them for reuse.</p> <p>-The company continuously focusing on how to develop newer and innovative products. That will support the company in order to draw maximum customer attractions.</p> <p>- The company has planned in to create a</p>	<p>In 2017/18, the company's UK operations efficiently recycled 100% of the waste generated in their stores, offices and warehouses (2008/09: 41%) and their total waste was down by 30%, to 81,000 tonnes (116,000 tonnes in 2008/07).</p> <p>As of April 2018, grounded on the volume of items sold globally, 83% of M&amp;S merchandises have at least one Plan A feature (in 2017, 79%). This incorporates 84% of M&amp;S Food products (in 2017, 81%) and 75% of M&amp;S Clothing &amp; Home products</p>

	environmental and ethical organization by 2030 completely.	outlets in various regions in the UK.	partnership with other stakeholders and ensure a collaborative work environment.	(in 2017,68%).
Tesco	<ul style="list-style-type: none"> <li>- to decrease the emissions of carbon around 60% by 2025 and completely (100%) by 2030.</li> <li>- to meet 60% of its electricity required from renewable energy and turn into as a fully renewable energy-oriented firm by 2030.</li> <li>- The packaging goods will be totally reusable by 2025.</li> </ul>	<p>The company encountered controversies which made few disputes like: - the horse meat Scandal.</p> <ul style="list-style-type: none"> <li>- The possibilities of imitation of the products and services can lead to a decrease in competitive advantage.</li> <li>- The company is facing immense competition which is the biggest challenge for the company in order to achieve the objectives.</li> </ul>	<ul style="list-style-type: none"> <li>-Tesco brand is an established brand in the market. Moreover, the company has innovative and competitive operating as well as marketing strategies.</li> <li>- Advanced packaging technologies adopted by the Tesco supporting the company to obtain a specific position in the market.</li> </ul>	<p>83% of all Tesco brand packaging meeting 'widely recycled' criteria in UK in 2018.</p> <p>2000 tonnes of solid to recycle products removed from the Tesco Brand packing in UK.</p>

Sainsbury	<p>-to reduce its carbon emissions by 14% each year and until 2017, And to achieve 30% carbon reduction by 2020 (in 2018 it attained 24% reduction of carbon)</p> <p>- to donate its unsold foods to the poverty-driven people. In 2018, it donated 73% of unsold foods and they set a target to achieve 100% by 2020.</p> <p>-Sainsbury has planned to cutback its packaging products disposition around 50% by 2020.</p>	<p>-Immense competition in the retail sector is the biggest barriers in achieving the objectives.</p> <p>- Government tax policies and recent Brexit issues can hinder on the ways of achieving the target.</p> <p>- Lack of innovative product line and market demand-supply inequalities is another barrier to the target.</p>	<p>- It has strong Brand proposition and an excellent management team.</p> <p>-Sainsbury has outstanding labelling and marketing across the UK through print media and online platform.</p> <p>-The company has an innovative product line and marketing strategies. And it also has a good stock of own-label" goods which is around 20%.</p>	<p>The company has reached 14% of decline in carbon emissions in 2017/18 (2016/17: 8 per cent).</p> <p>In 2017/18 Sainsbury offered 1,866 tonnes of food from their stores to charity, parallel to over 4.1 million meals.</p> <p>In regards to sustainable packaging, the company has achieved 35 per cent (2016/17: 33 per cent).</p>
Dixons Carphones	<p>- to decrease the consumption of energy by 30% within the year 2020. Further, it has a target to reduce CO2 emissions by</p>	<p>- The company has failed to meet the high level of competition in the market.</p> <p>-Recent Brexit issue could be another barrier to achieve</p>	<p>-the company is implementing an innovative model to ensure dynamic competition in the market.</p>	<p>Dixons Carphone is the largest recycler of waste electrical in UK Retail, recycling 69% of waste electrical amassed by all</p>

	<p>35% within 2020.</p> <p>- Dixons Carphones has a target to ensure recycling of its 100% waste products by 2020.</p>	<p>the target</p>	<p>- Collaboration and partnership with other stakeholders are supporting the company.</p>	<p>stores in 2017/18.</p> <p>At Group level, total energy consumption has shrunken by 9.1%, electricity consumption has declined by 8% and natural gas by 17.8%.</p> <p>In 2017/18, the company's UK action produced a total of 15,610 tonnes of waste. 85% was diverted for reusing (5% growth in 2016) and 2% to energy recuperation.</p>
Next	<p>- to reduce its carbon emissions by 30% within the year of 2020.</p> <p>-to bring 95% of waste products under the recycling process within the year of 2020.</p> <p>-Next has a fundamental commitment to ensure environmental safety and</p>	<p>-NEXT has a lower than average investment in the technology compared to other competitors competing in the industry.</p> <p>-The company has lower expertise in forecasting sales and production. So, the company is facing a loss of potential opportunities</p>	<p>-The greatest strengths of the company is its large product portfolio.</p> <p>- the company has a dispersed distribution network around the country.</p> <p>- Next Plc has strong and effective customer relationship management</p>	<p>NEXT carbon footprint declined by -31% in 2018 and -12% from the previous year.</p> <p>Electricity consumption dropped by -20% since 2007 and -4% from previous year.</p> <p>Next also started ordering of 100% renewable energy from April 2017.</p>

	resource security such as air, water, timber, cotton etc.		to ensure customer satisfaction.	
Morrison's	<p>-to reduce its carbon emissions by 30% within the year of 2020.</p> <p>- to reduce water consumption by 20% within 2020.</p> <p>-to bring all of its plastic packaging products under recycling by 2025.</p>	<p>- The competitors of Morrison's have a greater advantage compared to the company. That is decreasing the operational margin and market share is decreasing.</p> <p>-the company is facing a de-reputation problem due to the past case of farmers right that is affecting the brand image negatively.</p>	<p>-the company has a large and scattered distribution network.</p> <p>-it has a good product portfolio and brand image</p> <p>- Morison's has a huge online presence and social media engagement that is increasing its operating margin and net income steadily.</p>	<p>Attained 34% decline in functioning carbon emissions (2005 baseline).</p> <p>3.4 million (1.1 million or 796.89 tonnes in 2017/18) foodstuffs given through stores unsold food programme since 2016; 59.5 tonnes reallocated to Fare Share through manufacturing sites in 2017/18; 1,599 tonnes reallocated to Community Shop/Company Shop in manufacturing and logistics in 2017/18.</p>
Aldi	<p>-to decrease its food waste by around 50% by the year 2030.</p> <p>- to decrease packaging</p>	<p>-Smaller market share compared to competitors is the largest barrier for achieving the target.</p>	<p>-The greatest strengths of Aldi are its quality products and customer services.</p>	<p>-In 2015, Aldi became only the second superstore in the UK to attain the global energy management accreditation</p>

	<p>waste and bring them under the recycling process by 50% within the year 2030.</p> <p>- it will reduce 50% carbon emissions by the year 2030 according to plan.</p>	<p>- It fails to provide a convenient and complete shopping experience to the customers.</p> <p>-Its performance is strictly hampering by government tax policies and regulations.</p>	<p>- Lower operating cost is increasing the operating margin of the company.</p>	<p>ISO 50001, in acknowledgement of the accomplishment of their energy efficiency system.</p> <p>-Aldi also curtailed their carbon footprint by 53% since 2012.</p>
Debenhams	<p>-to reduce its carbon emission by 10% by the year 2020 against the baseline of 2008.</p> <p>-The company will hire CSR ambassador from the year of 2019 who will interact with customers regarding environmental sustainability activities of Debenhams</p>	<p>-immense competition and threats from existing competitors act as a hindrance to capture the large market share</p> <p>-The company has narrow customer segmentation and little global presence.</p>	<p>- Robust multi-brand retail stores with outstanding customer services</p> <p>- The company has effectiveness in merger and acquisitions of enterprises.</p>	<p>-97% of the waste produced abstracted away from landfills.</p> <p>-Achieved Green Apple Awards 2016 for the Built Environment</p> <p>-47% reduction in carbon emission in 2018</p>
Sports Direct	<p>-to reduce its carbon emissions by 30% within the year of 2020.</p>	<p>-The company has a higher erosion rate compared to other competitors in the</p>	<p>-the company is successful in merger and acquisition of projects.</p>	<p>The company recycled 6,278 units of electrical equipment (2017: 5,548 units).</p>



	<p>- Sports Direct has a fundamental commitment to ensure environmental safety and resource security such as air water, timber, cotton etc.</p>	<p>industry. -The company has a lower investment in R&amp;D projects.</p>	<p>-The company has a strong brand reputation and a larger product portfolio.</p>	<p>Respectively it also reprocessed 120 tonnes of waste paper (2017: 607 tonnes) and 2,931 tonnes of cardboard (2017: 12,203 tonnes). Further, it also reused 360 tonnes of metal (2017: 384 tonnes).</p>
Halfords	<p>-The company has planned to operate by complying environmental legislation and maintain an environmentally sustainable environment.  - to decrease the consumption of energy by 30% by the year 2020. -to reduce CO2 emissions by 35% within the year 2020.</p>	<p>-The company has a lower than average investment in R &amp; D projects.  - The organizational structure is limiting the performance of the company which is the greatest barrier in its success.</p>	<p>The automation process in the Halfords PLC is bringing efficiency in the operations of the company.  - Halfords has a strong and effective supply chain management and a strong brand portfolio.</p>	<p>94% of auto centres surplus diverted from landfill (2017: 91%) 226,260 Batteries reconditioned by Retail and Autocentres (2017: 274,000)  96% merchandising surplus diverted from landfill (2017: 94%)</p>

#### 4. Discussion of findings

~~From~~ ~~T~~he analysis shows, ~~it has found~~ that UK retailers such as M&S, Debenhams, Tesco, Sainsbury etc. are competing ~~to among them to~~ deliver an eco-friendlier business image to their stakeholders. And in response to going ahead ~~with~~ the circular economy concept, retailers are taking a range of actions. For example, M&S, one of the largest retailers in the UK has taken steps to reduce their food waste by 20% in 2017 from 2012 and they also set goals to attain 100% sustainability in all their operations by 2030 (M&S annual report, 2018). Additionally, the company is considering ensuring recycling opportunities of all of its plastic and polymer packaging ingredients so that it can save the companies packaging cost as well as ~~saves~~ the land from plastic (M&S press releases 2019). ~~That is because~~ ~~P~~lastic products are non-disposable for hundreds of years and ~~that~~ reduce the fertility of the land. Conversely, Tesco, another retailing giant in the UK retail sector has planned to use 65% of its electricity from renewable energy by 2025 and 100% within 2030 (Tesco annual report 2018). As a result, the burning of fossil fuels for generating electricity will be reduced and hence it will create a control on carbon emissions. Nevertheless, it will save the energy cost of the company at a great number and the company is planning to use ~~used~~ products and solar energy to produce electricity. Further, Tesco is ~~also~~ working and continuing research to ensure 100% recyclability of all of its packaging products (Tesco news releases 2019). Moreover, Sainsbury, another retailing giant in the UK has planned to reduce its carbon emission by around 24% by 2025 and 30% by 2030 (Sainsbury annual report, 2018). In addition, the company has planned to donate unsold foods to ~~the~~ poverty-stricken regions and as part of this; around 73% of its stores have food partnership programs. Furthermore, the company has planned to ensure 100% recyclability of its packaging products by 2020. On the contrary, sports direct is lagging behind ~~than~~ ~~the~~ other retailers in terms of achieving circularity in their business operations. The company has a higher erosion rate compared to other competitors in the industry. Subsequently, the company need to focus on this issue, otherwise they might lose their brand reputations ~~s~~ and market share because consumers are now more environmentally conscious than they have ever been before. Hence, from the analysis, it is also evident that the different companies have different time scales for the application of classified circularity agendas in different parts of their functions. Finally, the importance of the circular economy in the UK retail sector is imperative and it is driving the socio-economic condition of the UK.

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## 5. Conclusions, managerial implications, limitations and future research

In this study, we have reviewed the different aspects of CBM in ~~the~~ 10 UK retail industries. From the analysis, it has been found that environmental awareness and pressure from the stakeholders of different levels such as investors, government, social media etc. have driven the UK retailers to transform their business operations from linear to circular business model. Furthermore, the retail sectors are focusing on circular business model by reducing waste disposition, using renewable energy, and lessening emissions of CO<sub>2</sub> in the atmosphere. And different companies have different deadlines~~time~~ set to achieve their goals. Therefore, it can be said that the transition to a circular economy from the conventional Produce-use-waste model is beneficial for the socio-economic condition of the country.

From the UK perspective, it has a huge impact on the national GDP and for this reason, researchers, as well as the government, are~~is~~ providing special insights to this industry. Moreover, it has a huge impact on environmental sustainability and safety. That is why the retailing~~ing~~ companies that are operating in the UK have mammoth plans to transform into CE from a conventional model and reduce waste products decomposition and bring them under the recycling process. Nevertheless, government tax policies and recent Brexit issues, stiff competition in the market, lack of appropriate technology and financial support could be some menacing~~hinders on the ways of~~ significant barriers to achieving the target. On the contrary, the consumer pressure and regulatory control and compliances and collaboration and partnership with other stakeholders would be some driving forces to implement CE successfully.

~~However, this~~ The analysis has some limitations~~too~~. Like: -- it only focuses on the 10 UK retailers and their circular economy initiatives~~;~~ including more sample sizes might be helpful to develop a comprehensive view regarding the issue. Secondly, this research only considered the secondary data such as~~like~~ company annual reports, documents, press releases etc. but incorporating both primary and secondary data would be useful to get a more holistic view about the companies' operations. Thirdly, it only focuses on the UK retail sector but in future, the researchers can extend their focus on other sectors like- producers and suppliers of textile, electrical and electronic products. Future research can also look at the impact of circular economy on a global perspective.

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The outcome of this study is intended to support managers in designing eco-friendly production processes and environmental sustainability through adopting appropriate circular economy strategies.

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