

## Sustainability or Technology - What Drives Consumer Purchase Behaviour in Digital Era?

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### Abstract:

Retail industry is undergoing transformation. Many changes are happening in this industry due to change in consumer behaviour. Every retailer is trying to understand, what drives the customers to select the retailer? It is technology, sustainability or both. Retailers are trying to identify the right technology for their business, which will delight customers and at the same trying to find out how to achieve sustainability in their business. The purpose of this paper is to find answers for these questions and help the retailers to invest their money wisely and satisfy their customers and remain relevant in the business. The outcomes of the study exhibit the shifting trend among customers which help the companies to cater the altering preferences of their customers. A well-structured questionnaire was developed and collected the primary data from 368 respondents adopting Convenient sampling method through online. Questionnaire was analysed by Factor extraction principal component analysis, Exploratory Factor Analysis, Eigen values and scree plot. The relation between the independent and dependent variables was established with multiple regression analysis. Each factor effect on sustainability and Advanced digitalisation independently was tested for its significance by adopting t – test statistic. The aggregate effect of all independent variables in each equation, in multiple regression are shown by the multiple correlation coefficient ( $R^2$ ). This multiple relation is also tested by adapting the F – test statistic.

**Keywords:** Retail, Technology, Sustainability, Green SCM, Green packaging, Cyber security

### Introduction:

Human centricity is the new goal for companies as customers want to be recognized as individuals with unique needs instead of being a part of a customer target group where no or little attention is paid to a specific person. Hence, a customer chooses solutions by companies that represent their values. Such companies are seen as change-makers, which have the potential to make the world a little better (Kotler, Kartajaya, & Setiawan, 2010). Thus, new businesses are well-advised to consider the well-being of human beings instead of focusing on traditional marketing indicators like customer satisfaction or delight. Since human beings are getting in touch with services almost on a daily basis, and services are predominant in the world economy (Anderson et al., 2013), taking customers' well-being into account is essential for service providers. Regarding this, and initiated by the research stream 'transformative service research' (TSR) (Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015), well-being is becoming an increasingly desirable outcome for both private and public service providers.

The sustainability trends, including recycling and using bio-degradable forms of PET, are expected to rise over the forecast period. In some regards, it will always face sustainability issues due to the nature of its production. However, the recycling streams and development will help neutralize such sustainability issues. For instance, the Coca-Cola European partners pledged to collect 100% of the packaging and use 50% recycled plastic in plastic PET bottles in Western Europe by 2025. PepsiCo aims to use 50% of recycled plastic in its bottles across the European region by 2030, with an interim target of around 45% by 2025. Also, various large food manufacturers are under pressure from campaigners and consumers and are currently on a mission to rethink their plastic packaging and move towards a circular economy. For instance, Nestle and Mondelez recently signed the European Plastics Pact. This initiative is committed to making 100% of packaging recyclable or reusable and reducing virgin plastic usage by 2025. The overall usage of non-recyclable, non-biodegradable plastic packaging solutions is expanding, resulting in increased carbon emissions in the environment. This might be a factor that could restrain the market growth.

Technology and sustainability are the two key factors which are driving the business across sectors. According to the Flexible Packaging Association, flexible packaging is mainly used for food, which accounts for more than 60% of the total market. Since it could incorporate new solutions for various packaging issues, the flexible packaging industry is experiencing robust growth. In addition, the Indian food and grocery market is the world's sixth-largest, according to IBEF, with retail accounting for 70% of sales. The Indian food processing industry, which contributes to 32% of the country's overall food market, ranks fifth in production, consumption, and export and is one of the country's most important industries.

### **Review of Literature:**

Ziyneet Boz Virpi Korhonen and Claire Koelsch Sand (2020) through their study distinguished that Development in package design is one of the key areas of advancement in conveying sustainability in terms of packaging to customers. One ought to characterize manageable models like clean label criteria, that can be utilized to impart parts of manageability that reverberate with shoppers. For instance, agendas, for example, recyclable, made of reused content, diminished bundle volume, and so on may resound with shoppers. Nonetheless, the up-and-coming age of maintainable arrangements ought to target building positive purchaser mentality towards sustainable packaging.

Shahidul Islam, Nazlida Muhamad, Wardah Hakimah Sumardi (2021) through their research found that Even in Medical care area, the doctors need to draw in with extraordinary service research and consider the of patient's well-being and helps the policymakers to plan socially skilled, socially good, and economical medical care practices. The researchers presume that consolidating experiences from the promoting rationale and extraordinary help research writing, the current work offers a reconsidered understanding of the prosperity centered parts of a company's action as they connect with customers' mental and social qualities.

Stephan Grzeskowiak & M. Joseph Sirgy (2008) found that CWB alludes to the degree to which a specific purchaser great or administration makes an effect on the personal satisfaction of the clients.. The creators have fostered a model that places that CWB connected with a particular item is vigorously impacted by mental self view compatibility and brand-local area belongingness. Mental self view consistency is likewise estimated to impact CWB directed by brand dependability. Essentially, brand-community belongingness is conjectured to impact CWB directed by utilization.

Bieke Henskens, Katrien Verleye, Bart Larivière (2020) The family infiltration of savvy products like brilliant home gadgets is supposed to increment to almost 2 billion units overall by 2023 (Statista, 2020). In this specific circumstance, organizations foster savvy services - that is, services empowered by brilliant items - at an always quicker pace smart service systems help frameworks is the designs of smart items and specialist co-ops that convey savvy administrations and endeavoring hard to expand the adroitness of their contribution, yet possible ramifications for client prosperity are to a great extent ignored. Subsequently, this exploration viewed that as "The more intelligent, the better!" as more significant levels of keenness (1) oblige personalization perceptions that surpass intrusiveness perceptions (2) through which particularly cognitive, full of feeling and social purchaser engagement with the shrewd item is created and somewhat even emotional client commitment with the specialist organization is created, (3) which brings about superior customer engagement (i.e., more self-viability and some of the time less innovative nervousness) through the produced mental and conduct client commitment with the brilliant item, particularly for purchasers with a serious requirement for personalization.

M. Joseph Sirgy (2020) expressed that contributions to customer well being metrics from the educational sector incorporate Shopping satisfaction, Shopping Prosperity, Ownership satisfaction, Utilization Life Cycle, People group, Need satisfaction, Saw Worth Throughout everyday life, and Base up Overflow. Concerning the Shopping satisfaction metric, H. Lee Knoll and I (Meadow and Sirgy 2008) fostered the overall consumer satisfaction Composite. This file depends on shoppers' communicated fulfilment with nearby retail organizations in buying food, lodging, family activities, family decorations, apparel and embellishments, individual consideration, clinical consideration, entertainment, transportation, and schooling. The index was effectively correlated with proportions of abstract prosperity. The creators have fostered another measurement on Shopping Prosperity which includes two aspects: Positive convictions in regards

to how much shopping adds to personal satisfaction, and pessimistic convictions connected with how much shopping exercises bring about overspending time, effort, and money.

M. Joseph Sirgy, Dong-Jin Lee, and Don Rahtz (2015) states that marketing impacts CWB to a great extent since it straightforwardly influences satisfaction in the shopper life space (encounters connected with the market) and in a roundabout way in other life areas like wellbeing and security, work, family, recreation, and money, among others. The researchers have brought the reasonable model on CWB.

Rimple Manchanda (2017) states that In the present customer centric market, giving customer's joy and satisfaction of buyer's satisfaction has been perceived as the main goal. The customer prosperity is the satisfaction that comes from utilization. The paper has examines the idea from beginning until the advancements has been achieved as of late and illuminates the calculated definitions for contemporary examination in Customer well-being.

Nawel Ayadi, Corina Paraschiv & Eric Vernet (2019) This work featured the job of hazard as a pertinent vector of purchaser well being through its positive effect on ex post satisfaction. They brought out hypothetical model that makes a qualification between ex bet and ex post satisfaction. This differentiation appears to be vital to fittingly comprehend the effect of chance taking on customer prosperity.

Dong-Jin Lee and M. Joseph Sirgy (2011) In this research work the CWB is conceptualized as materialism and it is seen that, is contended to be high when realism is low, since elevated degrees of realism prompts low degrees of satisfaction. The advertisers' direction idea characterizes CWB from the vantage point of the advertiser. Certain advertisers are propelled to rehearse the sort of showcasing that improves CWB while different advertisers work on promoting for the sole reason for meeting hierarchical objectives like more significant levels of deals, benefit, and portion of the overall industry.

J. Monteiroa, F. J. G. Silvaa, S. F. Ramosa, R. D. S. G. Campilhoa, A. M. Fonseca (2019) stated that according to “The 2030 Agenda for Sustainable Development” of the United Nations, there are seventeen goals essential for the World Sustainable Development. One of these goals has direct implication for the industrial sector – ensure sustainable consumption and production patterns. In a world where globalization is more and more present, packaging emerges as a link between all points around the world, allowing transporting and commercializing products on a global level, from producers to consumers. Therefore, it is necessary to study how the packaging industry is adapting itself to the increasing demands of the markets, while complying with the global environmental requirements and sustainable goals established by international organizations. Accordingly, this paper aims to analyse precisely this industry, intending to understand how the theme of Eco-design and sustainability are faced by packaging manufacturers, and what are the key-factors associated to the success of their implementation in the companies. Characterization of the industry is also presented, defining how companies should organize and prepare themselves in order to have a diminishing environmental impact, a raw-materials sustainability policy and consider environmental aspects through the packaging's life cycle – Eco-design.

#### **Research Gap:**

Consumer behavior is dynamic in nature. Brands understood and evolved their processes according to the consumer preferences. Technology played a key role in digitalization. The present-day customers are more inclined towards digital purchases and also thinking about the negative effects of raising carbon footprint and its impact on environment, physical and mental health of human beings. Previous studies were focused on technology effect on consumer behavior and also on sustainability. But there is a clear gap in understanding the key aspects of advanced digitalization like artificial intelligence, hyper personalization, digital marketing etc. and sustainability factors like sustainable packaging, reducing carbon footprint, effective waste management, etc., effects on modern day consumer well-being. Evaluating the combination of more personalized consumption experience keeping sustainability factor in mind is the gap to be fulfilled. It unleashes the scope for enhancing consumer satisfaction and the sustainable business development.

#### **Problem Statement:**

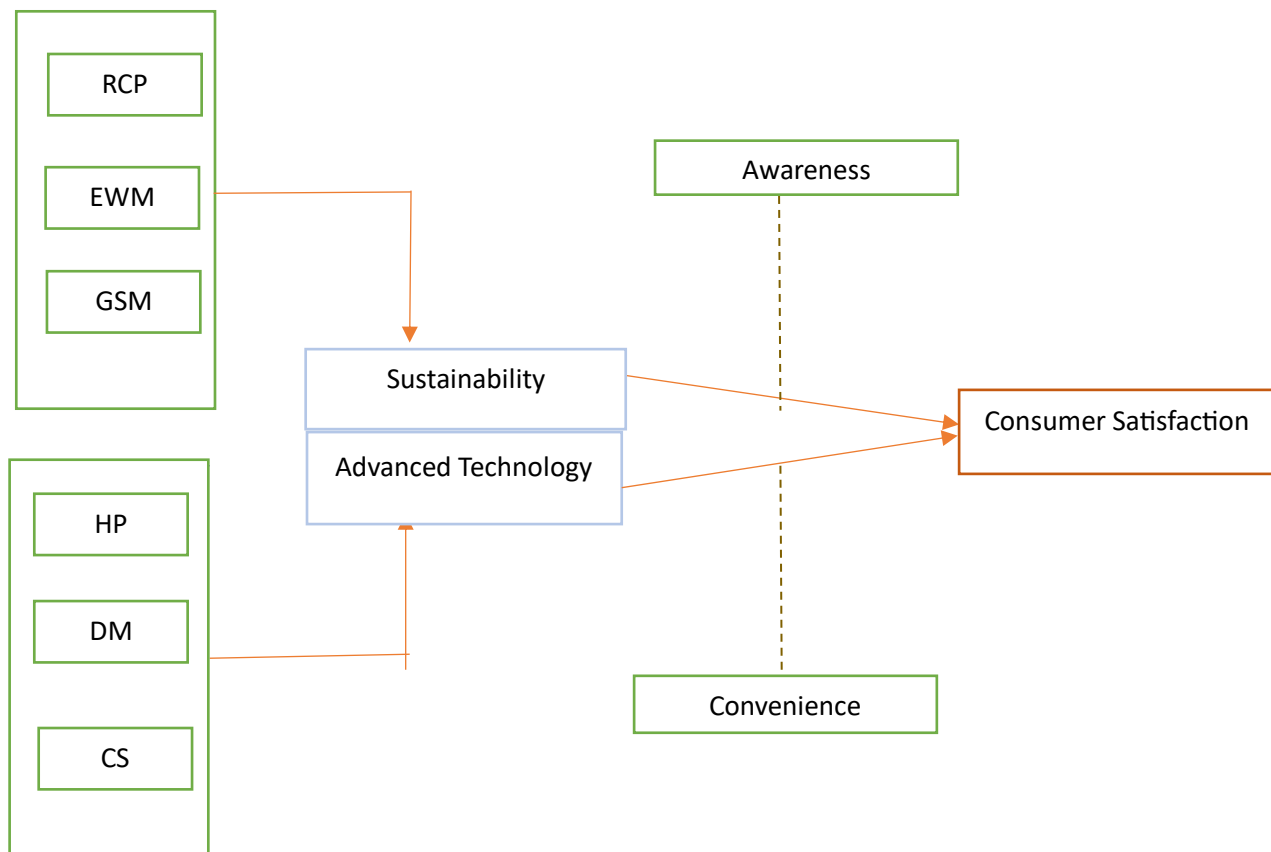
Retail industry is undergoing transformation. Many changes are happening in this industry due to change in consumer behaviour. Every retailer is trying to understand, what drives the customers to select the retailer? It is technology,

sustainability or both. Retailers are trying to identify the right technology for their business, which will delight customers and at the same trying to find out how to achieve sustainability in their business. The purpose of this paper is to find answers for these questions and help the retailers to invest their money wisely and satisfy their customers and remain relevant in the business. Therefore, it is identified two categories of factors (sustainable factors and technological factors) which are mainly influencing the consumer behaviour. Hence, it is proposed to establish the relation with sustainable factors and technological factors on consumer behaviour.

### Objective and Hypothesis:

1. To study the sustainable and technological effect on consumer behaviour in digital era.  
 $H_0$  = The consumer behaviour in digital era is not influenced by sustainability and technology.

### Proposed Model:



### Methodology:

To study the effect of sustainable and technological factors on consumer behaviour in digital era, the researcher identified three major sustainable factors and three major technological factors which are assumed to be highly influencing factors. They are

Sustainable factors: reducing carbon footprint (RCF), effective waste management (EWM) and green supply chain management (GSM)

Technological factors: hyper personalization (HP), digital marketing (DM) & cyber security (CS)

To study the effect of selected factors in both categories the researcher established the functional relation treating consumer behaviour as dependent variable and sustainable factors / technological factors are independent variables. A multiple regression equation was formed with these dependent and independent factors.

$$C B = a_0 + a_1 RCF + a_2 EWM + a_3 GSM \text{ ----- 1}$$

$$C B = b_0 + b_1 HP + b_2 DM + b_3 CS \text{ -----2}$$

C B = Consumer Behaviour in digital era

It is also proposed to establish the relationship between consumer behaviour and all selected independent factors in this study. Mathematically, the relationship between dependent and independent factors was exhibited in regression equation as below.

$$Y = c_0 + c_1 RCF + c_2 EWM + c_3 GSM + c_4 HP + c_5 DM + c_6 CS \text{ ----- 3}$$

The effect of each independent factor on consumer behaviour is tested for its significance with the help of t – test statistic in all the three equations. The observed value of ‘t’ is denoted by ‘t<sub>0</sub>’,

$$t_0 = \frac{\hat{a}_i}{S \cdot E}$$

t<sub>0</sub> = Estimated Coefficient / Standard Error

\*t follows n-2 df at 5% probability level

n = sample size = 368

t<sub>e</sub> = expected value of ‘t’

From statistical t tables, the expected value of t = 1.96. If t<sub>0</sub> is greater than or equal to t<sub>e</sub> the estimated coefficient shows significant effect on dependent variable.

R<sup>2</sup> = the multiple correlation coefficient is denoted by R<sup>2</sup> (i.e., the aggregate effect of independent variables on dependent variable. To test this aggregate effect is significant or not F – test statistic is adopted.

If observed value of F (F<sub>0</sub>) is greater than or equal to expected value of F, we say that the aggregate effect of all independent factors on dependent factor is significant at required probability level. Usually, the required probability is 5%.

#### **Data:**

The present study is totally based on primary data. The required information is collected through Pre – tested questionnaire. The information is gathered online. The researcher considered 368 samples and collected the information by convenient sampling method. The data is confined to Bangalore city only. The collected information is arranged in appropriate form which is suitable to adopted methodology.

#### **Analysis:**

In digital era the consumer behaviour is influenced by so many factors. These factors are categorised into different groups depending upon the nature of the factors. They are sustainable factors, technological factors, psychological factors, sociological factors etc., in the present study, the researcher analysed consumer behaviour in digital era through sustainable factors and technological factors. Each group of factors influence on consumer behaviour is studied independently and also the aggregate effect of all these two types of factors also studied. The suitable relationship was established with the help of regression equations 1, 2, & 3 given in methodology. The individual effect of these factors are estimated and tested for its significance on consumer behaviour by adopting t – test statistic and the aggregate effect is represented by multiple correlation coefficient (R<sup>2</sup>) and tested for its significant effect on consumer behaviour by adopting F – test statistic.

### Consumer Behaviour: Sustainable Factors

The estimated regression equation 1 is given as

$$Y = a_0 + a_1RCF + a_2EWM + a_3GSM$$

$$Y = -0.4824 + 0.5872* + 0.1826* + 0.2301* \\ (9.3745) (3.5042) (4.8388) \\ [0.028] [0.0521] [0.0475]$$

$$R^2 = 0.5463* \quad F = 146.09$$

Note: \* indicates significant at 5% probability level.

Figures in the parentheses are t – values

Figures in the brackets are corresponding standard errors

From the above estimated equation, the aggregate effect of all the selected factors, reducing carbon footprint, effective waste management and green supply chain management on consumer behaviour in digital era was observed to be 54.63%. From the value of  $R^2$ . It is tested and found to be significant effect on consumer behaviour in digital era. Observing the individual effect of these three factors, each factor established a positive and significant relationship with consumer behaviour in digital era. Every increase in each of these factors will increase the consumer behaviour. An unit increase in each factor will increase the 0.5872 units, 0.1826 units and 0.2301 units respectively. This increase in each variable is observed to be a positive and significant increase on consumer behaviour. Therefore, it is concluded that the selected three factors, reducing carbon footprint, effective waste management and green supply chain management are influencing the consumer behaviour positively and significantly. The value of the estimated intercept term is found to be negative (-0.4824). It indicates the effect of the factors which are not included in the model on consumer behaviour. Therefore, finally it is noticed that the consumers are aware of sustainability.

### Consumer Behaviour: Technological Factors

Now-a-days the consumer behaviour is also influenced by the number of technological factors. The present research work, the researcher identified three major technological factors, Hyper – personalization (HP), Digital Marketing (DM) and Cyber Security (CS). Technological factor's effect on consumer behaviour was analysed. A multiple regression equation 2, given in methodology is utilised to study the relation between consumer behaviour and selected technological factors. The estimated regression equation is

$$Y = a_0 + a_1HP + a_2DM + a_3CS$$

$$Y = 0.4532 + 0.3740* + 0.2702* + 0.2532* \\ (9.8203) (8.2905) (6.5300) \\ [0.0380] [0.0325] [0.0387]$$

$$R^2 = 0.7104* \quad F = 297.76$$

Note: \* indicates significant at 5% probability level.

Figures in the parentheses are t – values

Figures in the brackets are corresponding standard errors

In the above estimated equation, the value of the constant intercept term is positive i.e., 0.4532. It reveals the positive effect of the variables on consumer behaviour in digital era, which are not included in the model. The aggregate effect of three selected independent technological factors, HP, DM and CS on consumer behaviour is observed to be 71.04% (from

the value of  $R^2$ ). It is observed that the collective effect of three technological factors on consumer behaviour is found to be significant at 5% probability level proved by F – test statistic. It reveals that the three technological factors in the model collectively, significantly influencing the consumer behaviour in digital era. Therefore, the researcher identified the suitable technological factors which are highly influencing (71%) the consumer behaviour. It is a significant influence.

The estimated coefficient of the variable is positive and significant at 5% probability level on consumer behaviour. Since the estimated coefficient is positive. A unit increase in hyper personalization will increase the consumer behaviour in digital era by 37.4%. It is a significant increase. A positive and significant relation was observed between consumer behaviour and digital marketing because of the positive estimated value of digital marketing. This reveals that as the factor digital marketing is increasing will increase the consumer behaviour in digital era by 27%. Similar results were observed in case of the variable cyber security. The estimated coefficient of cyber security is positive and significant (0.2532). An increase in cyber security will increase the consumer behaviour positively and significantly. From the above analysis, it is concluded that the three selected technological factors effect on consumer behaviour is positive and significant independently.

The estimated multiple correlation coefficient ( $R^2$ ) is 0.7104. It reveals that the combined effect of selected technological factors on consumer behaviour in digital era is 71.04%. The collective effect of technological factors on consumer behaviour In digital era is significant at 5% probability level proved by F – test statistic. Therefore, the consumer behaviour in digital era is highly depending on technology.

### Consumer Behaviour: Sustainability & Technological Factors

Now, the researcher tried to examine both the types of factors (sustainable and technological) on consumer behaviour in digital era i.e., the relationship was established between consumer behaviour and the two categories of factors. This relation was exhibited in equation 3 given in methodology. The estimated regression equation along with the relevant statistics are shown in the equation below.

$$Y = a_0 + a_1RCF + a_2EWM + a_3GSM + a_4HP + a_5DM + a_6CS$$

$$Y = 0.3131 + 0.3204* + 0.0604 + 0.1247* + 0.2260* + 0.2149* + 0.0790*$$

$$(8.0790) (1.7093) (3.7628) (6.5412) (7.6159) (2.0642)$$

$$[0.0396] [0.0353] [0.0331] [0.0345] [0.0282] [0.0383]$$

$$R^2 = 0.7585*$$

$$F = 227.4367$$

Note: \* indicates significant at 5% probability level.

Figures in the parentheses are t – values

Figures in the brackets are corresponding standard errors

The above equation reveals the independent effect of all six factors and their significant on consumer behaviour in digital era and also reveals the aggregate effect of all six factors collectively on consumer behaviour in present era.

The estimated regression coefficient of effective waste management is positive but not significant. It is showing only 6.01% effect on consumer behaviour. Therefore, the consumer behaviour towards this factor is less. The coefficient of the factor reducing carbon footprint is positive and significant. The positive and significant effect of this factor on consumer behaviour is 32.01%. An unit increase in this sustainable factor will increase the consumer behaviour by 0.3204 units. This increase is a significant increase in consumer behaviour. The value of the green supply chain management (GSM) is 0.1247. It is observed to be a positive and significant. Therefore, the consumer behaviour in digital era is positively and significantly responded by green supply chain management. Since, the estimated coefficient is a positive coefficient (0.1247).

Observing the estimated coefficients of technological factors, hyper personalization, digital marketing, cyber security is also positive and significant respectively. Hence, it is noticed each of these technological factors establish a significant positive relation with consumer behaviour in digital era. An unit increase in each of these selected technological factors will increase the consumer behaviour by 0.226 units, 0.2149 units and 0.079 units respectively. The increase by each of these factors effect is a significant increase in consumer behaviour. Therefore, the consumer behaviour is responded positively and significantly by all technological factors. Hence, it is concluded that the technological factors effect on consumer behaviour in digital era is noticed.

The combined effect of all selected sustainable and technological factors effect in digital era is observed by the value of multiple correlation coefficient. The coefficient of multiple relation is 0.7585. Therefore, nearly 76% effect on consumer behaviour was recorded by all selected factors. It is known as the aggregate effect of all independent factors on consumer behaviour. This aggregate effect is a significant effect. Finally, it is concluded that the consumer behaviour in digital era is significantly influenced by the sustainable and technological factors.

### **Discussion:**

The consumers are positively and significantly responded to reduce the carbon footprint in digital era. The customers are possessing more awareness about environmental pollution and preferred to eco – friendly products. The collected data reveals that more than 80% of the consumers are preferred to purchase eco – friendly products while purchasing. More than 80% of the respondents expressed a positive inclination towards adding a rating on the products based on the sustainability.

It is observed from the collected data, more than 85% of the consumers preferred to purchase reusable and recyclable products with minimal packaging. About 83% of the respondents preferred to take sustainable packaging solution as a service. It helps the customers to get products at a reduced price by paying the packaging service rent but not the total cost of packaging of the product. It also helps the logistic companies to reuse the packaging material by offering rental service.

Majority of the respondents felt that more awareness about the green supply chain management of the accompanies should be highlighted in the advertising campaigns of their products and services.

The above discussion is proved through regression estimates of the relation between consumer behaviour and sustainable factors. Therefore, the consumer behaviour in digital era is significantly influenced by selected sustainable factors.

The Hyper personalization factor shows a significant effect on consumer behaviour through the estimated equation. It is noticed that more than seventy percent of the respondents preferred to share tastes and preferences and also experience high level of customer satisfaction when AR and VR are integrated in the digital platforms. Majority of the respondents preferred interactive way of learning information about the products and services with advanced graphics.

Majority of the respondents (71%) are visiting websites based on effective digital marketing and they are feeling it is a convenient way to learn about the product information. Therefore, large number of respondents are influenced by effective digital marketing for their purchases.

The cyber security of the company or a website influence the buying behaviour of the respondents in digital era.

From the third estimated equation, it is observed that all selected variables established a positive and significant influence on consumer behaviour except the factor effective waste management. This factor established only positive relation only.

### **Conclusion:**

Technology is playing a vital role in the world. The retail consumer behaviour is not exempted from this concept. The consumer behaviour is highly influenced by technological factors and sustainable factors in the present digital era. Therefore, some relationships were established and analysed accordingly. From the estimated results, it is concluded that to reduce the carbon footprint, respondents choose eco-friendly products. If the product is not eco-friendly, the consumer alters the purchase decision. The consumer is preferring a rating on the product based on sustainability. They are preferring reusable and recyclable products with minimum packaging. Consumer having belief on green supply chain



management is necessary. It influences many purchase decisions. In digital era, the consumer wants enhanced customer experience and also willing to share the tastes and preferences with the companies to get customised experience. Modern day retail customers are expressing interest towards augmented reality and virtual reality in the retail platforms. The consumers feel digital marketing is more convenient to learn about products and services. Therefore, effective digital marketing can influence many purchase decisions of the customers in digital era. Now a days the customer always thinks about the safety and security of their personal information and also prefer to visit updated websites. Therefore, security issues of the company or the website will influence the buying behaviour of the customer. Finally, it is concluded that the consumer behaviour in digital era is depending on sustainability and technology.

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