Teenagers' Intention on Sustainable Development- A Food Delivery App – Based Analysis

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Abstract

Digitization in the food supply chain to address concerns such as food waste being the indirect goal triggered towards zero hunger by having food for all. To achieve environmental sustainability and utility development, food supply chain procedures must be digitalized. As a result, the study examined sustainable issues that need to be addressed and identified the role of technology in the food supply chain network to reduce food waste. The study is addressing the role of technology in the food supply chain network from the production to the consumption phase. This study is identifying the inclination of teenagers towards environmental sustainability which will give a roadmap for online food applications in India as India is a youth-oriented country with 1.2 billion in number. The study is based on quantitative analysis of the data collected from teenagers (13-19 years) through questionnaires and analysis with the software SPSS 22 and Minitab. The study is having correlation design to investigate the relationship between technology and environmental sustainability in the supply chain network of online food service providers to reduce food waste.

1. Introduction

The use of digitization in the food supply chain to address concerns such as food waste being the indirect goal triggered towards zero hunger by having food for all. This is the second sustainable development goal of the United Nations (Mondejar *et al.*, 2021). To achieve environmental sustainability and utility development, food supply chain procedures must be digitalized. This has significant advantages in terms of better information availability, logistical technique optimization, real-time data collecting, more effective inventory management, and more transparency. Transparency is developed at every level of the food supply chain as a result of digitalization. Consumers are a lot more tolerant of flaws and far more concerned about the environment (Kumar *et al.*, 2021). Zero food loss has always been a failure, with an annual loss of 1.3 billion tonnes (Ishangulyyev *et al.,* 2019). According to BCG, annual food loss and waste would approach 2.1 billion tonnes by 2030, with a total worth of $ 1.5 trillion. Due to market inefficiencies and supply chain difficulties, the food supply chain has come to a standstill. Food waste and loss are becoming more prevalent. A crucial necessity for creating a network to transmit information across the supply chain network is an information system. Automation at the logistics and Just in Time supply chain levels has the potential to minimise food waste while increasing quality (de Andres Gonzalez *et al.*, 2021). It will improve food quality while reducing food waste. It will allow material to be conveyed just before it has to be processed and channelled to end consumers. The food business needs innovation and technology to change this sad trend. Food waste occurs at all phases of the value chain, although it is most noticeable during the manufacturing and consumption stages (de los Mozos *et al.*, 2020). When integrated with artificial intelligence, digitalization

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can quantify loss and waste at both the production and consumption levels. Artificial Intelligence (AI) and Machine Learning (ML) systems at the production level may monitor and optimise irrigation, detect soil conditions, follow crop growth, assess and harvest harvests, and even anticipate future circumstances. At the consumer level, effective food sorting and identification of abnormalities, as well as adherence to several food compliances, are required. This method forecasts future trends and correlations among a variety of factors. Overproduction and standing inventory may be controlled or eliminated with the use of an integrated business planning system (Sankaran *et al*., 2019). To avoid overproduction, it may use complex algorithms to precisely predict demand. The data shared across the integrated systems is accessible to all stakeholders in the food supply, enabling further chain optimization and proper food management. Blockchain is a technology that can assure the industry's partner network's confidence (Lemieux, 2016). This strategy is helpful to the food environment. As one of the primary environmental problems that can be noticed as a result of the spectacular growth of online food delivery is the enormous volume of plastic rubbish created (Liu, *et al*., 2020).

To remove food waste from the supply chain, the youth of every nation need to be targeted to make the future without waste. The youth specifically teenagers are technologically savvy, value convenience, and are well-informed, and they increasingly play an important part in family purchases. Teens' cognitive processes impact the family, which is analysing and adjusting their patterns. To encourage sustainability, teenagers are increasingly opting for green solutions (Dabija *et al*., 2019). They are aware of the three R's, which highlight the need of reducing, reusing, and recycle to maintain long-term sustainability. Sustainable food consumption and disposal should be practised (Azzurra *et al*., 2019). Teenagers developed and accepted ecological conscience, as well as a long-term commitment to the three R's (Patwa, 2021). This group is exhibiting an interest in technology and environmental challenges, as well as advancing knowledge and awareness among other generations and society as a whole.

At the implementation stage, the technologies and their interactions in the food supply chain will solve numerous significant challenges and alleviate bottlenecks in the present supply chain. As a result, the study examined sustainable issues that need to be addressed and identified the role of technology in the food supply chain network to reduce food waste to achieve the sustainable development goal of zero hunger by 2030 as a total of 135 million people are malnourished.

Regarding the problem stated above, the study analysed the following:

- Teenagers' inclination towards the sustainability issues at the consumption level in context to ordering from the online food application.

- Technology's role and importance in the food supply chain network from the production to the consumption phase.

- Competitive advantage developed by the online food ordering players during a pandemic.

This study was focused on reducing food waste and indirectly connecting it with an initiative to achieve Zero Hunger, a Sustainable development goal of the United Nation to be achieved by 2030. All the literature that was stated in the above sections was focused either on digitalization, food loss and waste, or either various technologies to reduce food loss and waste. But all the concepts are interrelated, that's the focus of the study.

In particular Indian youth specifically teenagers' were been targeted who were not considered concerning it previously. As the teenagers' of India are technology savvy and impart their learning to other generations to develop the skill of doing online shopping to save time and have convenience. The Pandemic had a great impact on consumer buying behaviour but in India, teenagers' consciousness towards health and safety gained a priority. The study analysed the online food application from the view of teenagers.

This study developed a network showing the interconnection of the technologies to reduce food waste to achieve zero hunger and the data to support the network collected from the teenagers' of India to know the need and future of online food applications. Industry 4.0 in the food supply chain network will be achieved with the integration of technologies and its relationship with environmental sustainability as stated in Figure 1.

Hypothesis

H_0: Teens do not incline the environmental sustainability in the context of India
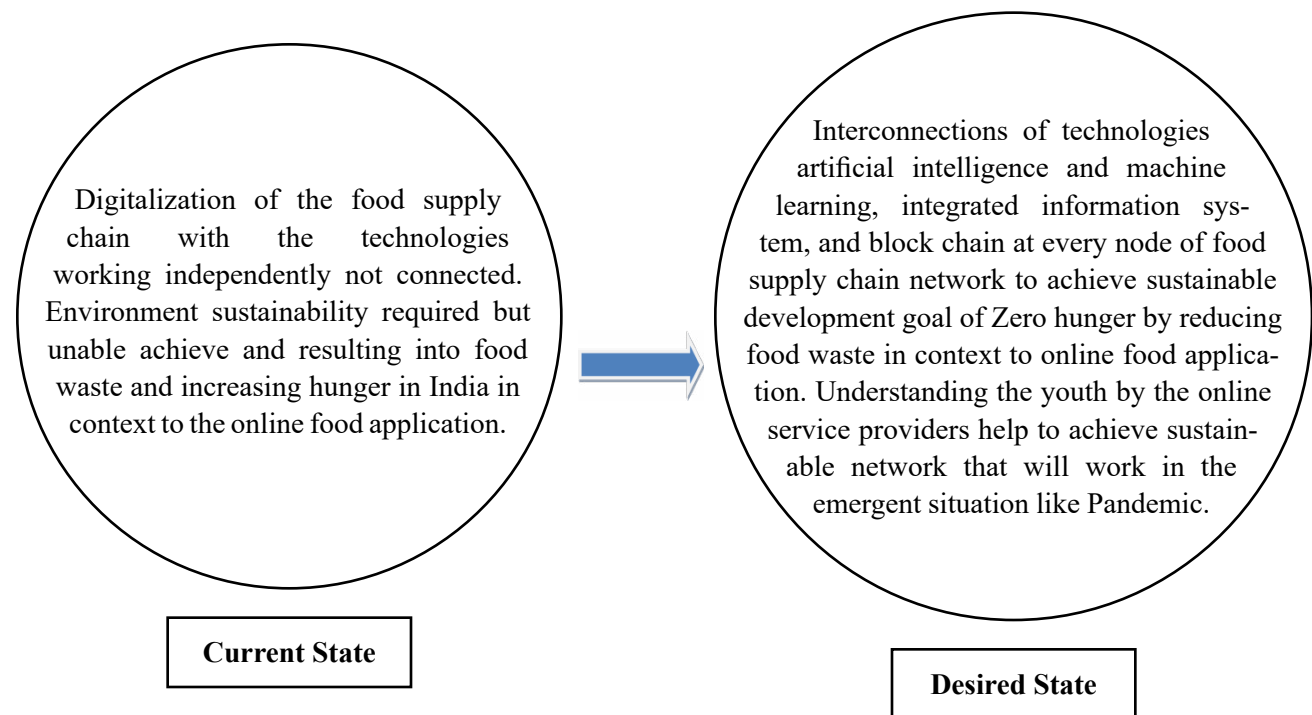
H_A: Teens incline the environmental sustainability in the context of India

2. Literature Review

This section of the study involves the review of the literature of the last seven years that is from 2015 to 2022 related to Technology involvement in the food supply chain in the context of online food applications, Consumer behaviour towards online food applications, and sustainability issues related to the food supply chain. The review to know the impact of a pandemic on consumer behaviour regarding online food applications was done in the last two years from 2020 to 2022 as this situation occurred in 2019.

Food waste at the downstream or end of the supply chain is always given greater attention, particularly the discarding of food fit for human consumption. Food waste and loss cost the developed world around $680 billion and the developing world approximately $ 310 billion (Ananno *et al*., 2021). Across Asia, 20-40% of food is lost or wasted as a result of supply chain issues such as poor road quality, hot weather, a lack of refrigeration, and faulty packaging (Joardder *et al*., 2021). As the market transitioned from monopolistic to oligopolistic, producers and procedures enticed consumers to join the supply chain (Amankwah-Amoah *et al*., 2021). Half of the food produced is lost or discarded before reaching customers resulting in hunger (Girotto *et al*., 2015). Reducing food waste can

Digitalization of the food supply chain with the technologies working independently not connected. Environment sustainability required but unable achieve and resulting into food waste and increasing hunger in India in context to the online food application.

Current State

Interconnections of technologies artificial intelligence and machine learning, integrated information system, and block chain at every node of food supply chain network to achieve sustainable development goal of Zero hunger by reducing food waste in context to online food application. Understanding the youth by the online service providers help to achieve sustainable network that will work in the emergent situation like Pandemic.

Desired State

Source: Mathur & Mathur, 2023

Figure 1. Research Gap- framework identifying the desired state required to achieve the Sustainable Development Goal (SDG) of Zero Hunger by reducing food waste.

aid in the achievement of the other SDGs by increasing food availability, increasing farmer incomes, relieving strain on land and water resources, and cutting Greenhouse Gas (GHG) emissions. Food waste had caused losses not just in the economic sector, but also in the environment and society (Teigiserova *et al*., 2020).

Digitalization and new information technologies that were rapidly developing with industry 4.0 and their applications to the supply chain led to significant improvement in traceability systems (Subramanian *et al*., 2020). Nowadays there is an intersection of mobile technology and typical eating behaviour (Xu *et al*., 2018). As the supply chain network is customer driven. The firms needed to transform digitally and conclude that digital transformation occurs in response to changes in digital technologies, increasing digital competition and resulting in digital customer behaviour (Verhoef *et al*., 2021). Technology was the potential tool to offer high cost and efficiency improvements for food providers as well as customer ecstasy at the other end (Thamaraiselvan *et al*., 2019). The cost of technology will be lower with its benefits in context to usage. Technology subsequently influences customer satisfaction/loyalty; employee well-being, firm profitability, and the ecosystem in which the firm's marketing activities were conducted (Grewal *et al*., 2020). Blocked chain technology to be built up in the network a robust and sustainable global supply chain management to handle any situation that arises in the future like a pandemic (Tasnim, 2020). The technologies like Artificial Intelligence and Machine Learning, Integrated Information Systems, and Blockchains were designed to emulate human-like responses (Perez-Vega *et al*., 2021). As there is a positive relationship exists between website quality and website trust and also between service quality and customer satisfaction (Zulkarnain *et al*., 2015). Even, it was identified that trust and convenience would have a great impact on the decision to buy online or not. Trust was been considered the most relevant factor affecting the customer's buying behaviour towards online shopping when it came to the younger generation (Bashir *et al*., 2015). Factors like convenience, control, technology anxiety and eased information significantly affect consumer satisfaction,

which in-tern significantly affects consumer intentions, while convenience also significantly affected consumer intentions (Chetan Panse *et al*., 2019).

The future of online food ordering systems seems to have been very bright as there was a continuous increase in urbanization. Also, India had the largest population in the age group of 18-36 years which was also regarded as a vibrant and dynamic population that had the potential of earning and spend more. This would influence the habit of the use of online food-ordering apps (Hamid *et al*., 2020). The perceived benefit and psychological factors (such as security, privacy, and trust) had a direct and significant relationship with online buying behaviour; on the contrary, perceived risks had an inverse and negative relationship with online buying behaviour (Chusminah *et al*., 2020). The perceived risks are not getting the food on time or payment being made but it is not updated on the account. The risk of misuse of information or the network of information is been barracked. Hence, customer satisfaction will be affected. Even if it will result in food waste.

Now, these food applications working strategically to change the customers' perception of ordering online and the level of satisfaction achieved while using it (Tribhuvan, 2020). The negative emotions had a positive relationship with food waste behaviour (Russell *et al*., 2017). It was a consumption that represents one of the most expensive phases in the food chain (De Meo *et al*, 2018). Long-term strategies were stated to keep the food supply chain robust, stable and sustainable during unfavourable circumstances and crises (Wunderlich, 2021).

During the time of the pandemic, customers prefer food quality which played a vital role in satisfaction and indirectly influenced loyalty (Dsouza, 2020). The online food application got a boost during the pandemic. But to sustain the market for a long, there is a need to understand the young consumers who need a healthy and sustainable product for consumption (Suhartanto *et al*., 2022). Even during the pandemic supply chain was made flexible, grounded in real options theory that demonstrates how firms can increase shareholder value by maintaining flexibility

across supply chains (Chenarides, 2021). Individuals who positively approached their experiences during Covid-19 demonstrated increased pro-sustainable and pro-environmental self-identity, resulting in sustainable consumption and a shift to online shopping. Individuals having overpowering negative experiences demonstrated heightened Fear of Missing Out (FOMO), loss aversion, and rumination (Gupta *et al*., 2022). Consumers experienced digital trustworthiness as the major drawback during online transactions (Rishi, 2021). The FDA developers and food service managers could use this data to improve their services. Policies must be established to increase consumer retention during the delivery service (Zanetta *et al*., 2021).

3. Method

3.1 Sampling Unit

The sampling unit consisted of teenagers between the ages of 13 and 19. Data was gathered in schools from students in the ninth through twelfth grades, as well as first-year students in college and university undergraduate programmes because they fell within the age range under consideration.

3.2 Size of the Sample

A group of youngsters aged 13 to 19 years old was recruited from schools and colleges to evaluate the psychological impact of an online food delivery application. The sample size is 401, and it covers Indian high school and college students.

3.3 Research Design

This study used correlation design to investigate the relationship between technology and environmental sustainability in the supply chain network of online food service providers to reduce food waste to achieve a competitive advantage and contributor towards the sustainable development goal of zero hunger. Reference to the pandemic is also illustrated concerning the protocols following the online food service providers to develop a competitive edge. The direction of the correlation can be either positive or negative.
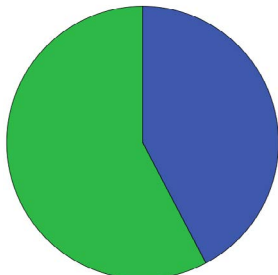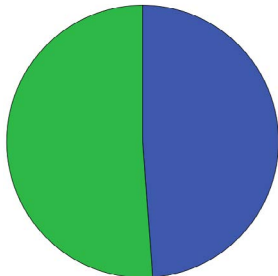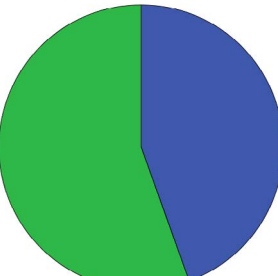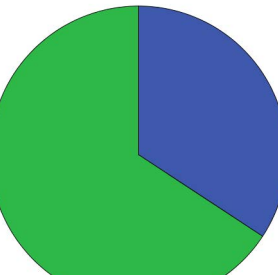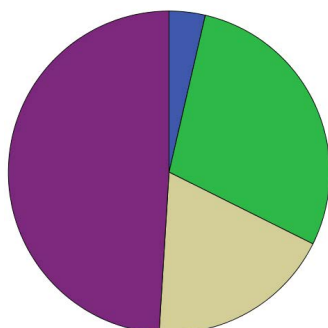
3.4 Data Collection and Analysis

The study involves a framework designed involving the technology-embedded network to reduce food waste. The framework involves the connectivity among the nodes built based on a literature review. Along with that, the study involves Teenagers' inclination towards sustainability which puts a push towards the online food application to opt for technology-embedded systems to reduce food waste, for the data was collected through a questionnaire circulated among the teens of India had age between 13-19 years including school and college. The data were analysed with the help of SPSS 22.0 and Minitab.

4. Results

4.1 Demographic Profile of the Respondents

Table 1. Demographic profile of the respondents to identify the teenager's intention for sustainable development

Factors	Respondents
Age (13–19) years 13-14 14-15 15-16 16-17 17-18 18-19 ⟶ Major proportion of the respondents belong to this group	

Gender Female Male ⟶ Proportion is higher than the female segment	**Gender** ▪ Female ▪ Male
Studying in School ⎫ College ⎬ Proportion is the same to draw justifiable conclusions	**StudyingIn** ▪ School ▪ College
Mode of shopping enjoy the most Online- Indian teenagers showing their interest and liking towards purchasing goods online. (Physical buying from the market) Dominates	**ModeofShoppingEnjoy** ▪ Online ▪ Physical buying goods from the market
Mode of shopping enjoy for food Online ⟶ Proportion is less but the percentage has scope. Physical buying goods from the market ⟶ Indian Teens shows the more inclination towards it.	**ModeofShoppingEnjoyforFood** ▪ Online ▪ Physical buying goods from the market
Buying Food Online Daily ⟶ Lowest Weekly ⎫ Medium Fortnightly ⎬ Proportion Monthly ⟶ High proportion	**BuyingFoodOfte2nline** ▪ Daily ▪ Weekly ▪ Fortnightly ▪ Monthly

4.2 Technology Emendation in the Indian Food Supply Chain in Context to Online Food Applications
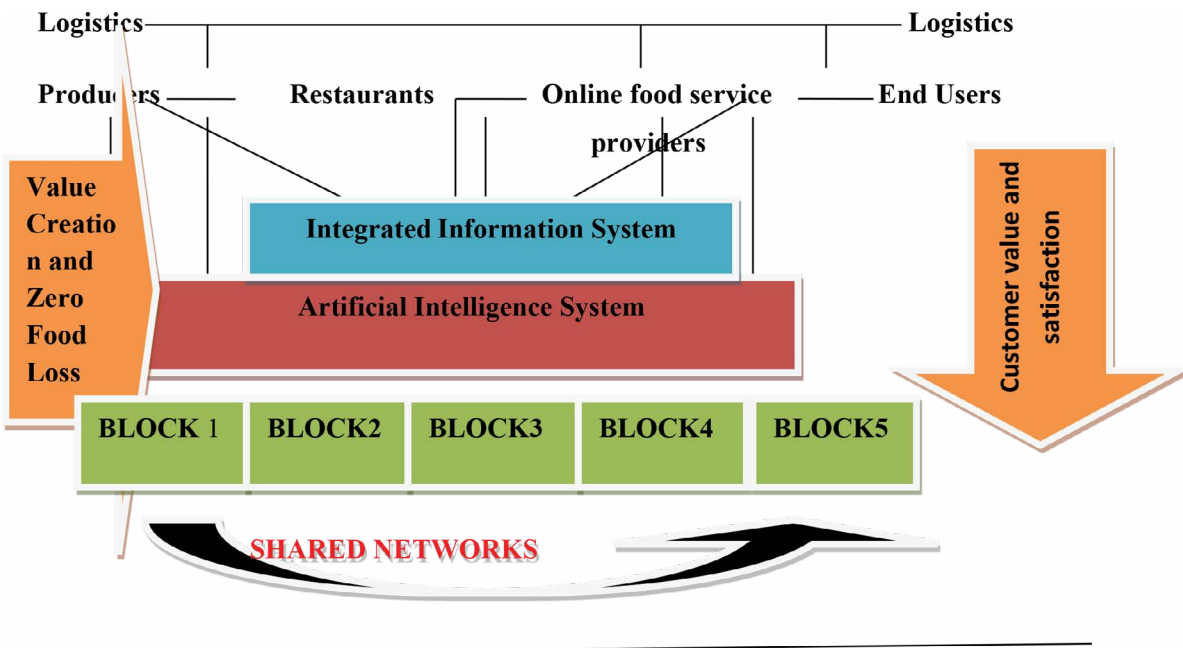
The adoption of Technology in the Indian food supply chain is contingent on technological feasibility in terms of evaluating economic sustainability and supplying necessary inputs (Figure 2). The degree of technological sophistication relates to an organization's current technology use and the state of technical know-how accessible. Data quality and integrity are two further components that might aid in overcoming the supply chain's present weaknesses. This digitally based operating process encourages effective communication and collaboration among supply chain participants. The system will boost network efficiency and effectiveness. In contrast, a typical food traceability supply chain system has a high running cost (Wang *et al.*, 2021). Customers have grown to expect high quality and traceability in an economy that is getting more competitive, diversified, and complex. The cost of building software throughout the network is a fixed cost that will be reduced as innovations increase food supply chain transparency. Customers are getting too concerned about food components and nutritional value. Organic foods are nutritious, but they must meet stringent certification requirements. This problem may be solved by implementing suitable certification platforms using Integrated Information Systems, Artificial Intelligence, and Block Chain Technologies (Cao *et al.*, 2019). The bank will spend money and resources on developing operations to give visibility to the food supply chain. Identifying technology enablers, according to the report, will help supply chain specialists to focus on and prioritise critical parts of technology when beginning technology adoption. This will improve the resilience, integration, transparency, and robustness of the food supply chain.

Cost reduction in the form of reducing food loss and waste, bringing economies of scale and labour cost is reduced
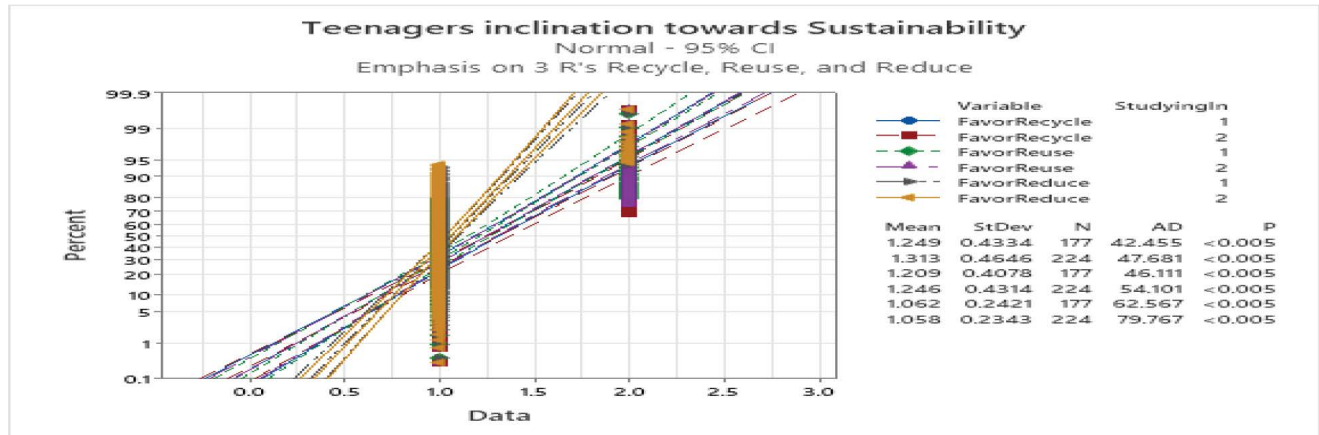
4.3 Teens' Inclination towards Sustainability

The above graph (Figure 3) is stating that the value standard deviation was less than the mean as the values centred on the mean value. The p-value was less than 0.005 which means that the null hypothesis was rejected and the alternative hypothesis accepted which states that teenagers were showing their inclination

Source: Mathur & Mathur, 2023

Figure 2. The Food Supply Chain – Technology embedded to reduce food loss and waste and enhance customer satisfaction.

Figure 3. Graph showing the teenager's Inclination towards Sustainability with emphasis on 3R's Recycle, Reuse, and Reduce.

towards environment sustainability and focusing on 3R's recycle, reuse, and reduce.

5. Discussion

The advancement of digitalization also stimulates customer behavioural changes and shapes the information society. Consumer behaviour is complex and measuring it is difficult due to the effect of individual and societal psychology (Voramontri & Klieb, 2019). In general, what is known as an individual's psychographic predisposition,' such as environmental concerns, appears to have a substantial impact on personal attitude (Aschemann-Witzel, *et.al.* 2015).

Food loss and waste are often seen as serious threats to food security, the economy, and the environment. Goal numbered 12.3 of the 2015 Sustainable Development Goals (SDGs) asks for food loss and waste to be eliminated by 2030 (de Oliveira *et al.*, 2021). Food loss and waste in the supply chain is a big issue, accounting for two-thirds of all lost food (Cattaneo *et al.* 2021). It is estimated that the yearly worldwide value of food loss and waste exceeds $1 trillion. The loss and waste in the supply chain influence availability and customer needs. The parties involved will suffer if the quality of the food deteriorates through the supply chain. Food waste and loss endanger the long-term survival of the ecosystem (McNeely, 2021). Today's teenagers were showing their inclination towards environmental sustainability and focusing on 3R's recycle, reuse, and reduce.

The study will help existing online food industry operators rearrange their strategies to increase customer satisfaction and enhance consumer attachment. The online food service providers also have to take into consideration the sustainable development goals related to their business as the government of India is very conscious regarding sustainability. In return, customer satisfaction and retention will be enhanced as the youth of every country (Future market) inclines the quality of food and sustainability.

The study would be examined by the online food players to establish their CSR policies and begin their journey toward Sustainable Development Goals (SDGs).

The implications towards food waste and environmental friendliness provide insight for education practitioners into the incorporation of food waste and its impact in the curriculum, which creates awareness of the world's future. The study should be reviewed by online food service providers to identify the key areas in strategy formulation to provide the highest level of customer value and satisfaction.

6. Conclusion

Consumers are increasingly interested in the authenticity of the food and want to ensure that they receive the right quality of food. To address this and connect with food waste, there is a need for reliable and robust tools to be available in industry 4.0 that can trace the food throughout the supply chain from production to consumption. The study is concentrating

on the part of online food applications to create transparency, traceability, and information availability as per the need of the parties involved. The food supply chain 4.0 design included technologies such- Artificial Intelligence and Machine Learning, Integrated Information Systems, and Blockchain Technology. Food supply chain 4.0 will reduce food loss and waste. The study surrounds food waste which in turn affects the environment. Hence, the study's progress towards environmental sustainability and confirmed by collecting the data on environmental inclination among Teenagers, the future of India and proved a positive relationship. This inclination will reduce food waste which in turn will reduce hunger.

The study will help the online food industry operators whether having a physical format or a virtual one rearrange their strategies to increase customer satisfaction and enhance consumer attachment. The online food service providers also have to take into consideration the sustainable development goals related to their business as the government of India is very conscious regarding sustainability. In return, customer satisfaction and retention will be enhanced as the youth of every country (Future market) inclines the quality of food and sustainability. The study will act as a reference for the existing online food applications to strategies according to the trend identified to develop an edge over direct and indirect competitors. Involvement of technology resulting in the achievement of sustainable development goals will showcase these firms as "**Social Responsible Citizens**".

7. References

Amankwah-Amoah, J., Khan, Z., Wood, G., & Knight, G. (2021). COVID-19 and digitalization: The great acceleration. Journal of Business Research, 136, 602-611. https://doi.org/10.1016/j.jbusres.2021.08.011 PMid:34538980 PMCid:PMC8437806

Ananno, A. A., Masud, M. H., Chowdhury, S. A., Dabnichki, P., Ahmed, N., & Arefin, A. M. E. (2021). Sustainable food waste management model for Bangladesh. Sustainable Production and Consumption, 27, 35-51. https://doi.org/10.1016/j.spc.2020.10.022

Aschemann-Witzel, J., De Hooge, I., Amani, P., Bech-Larsen, T., & Oostindjer, M. (2015). Consumer-related food waste: Causes and potential for action. Sustainability, 7(6), 6457-6477. https://doi.org/10.3390/su7066457

Azzurra, A., Massimiliano, A., & Angela, M. (2019). Measuring sustainable food consumption: A case study on organic food. Sustainable Production and Consumption, 17, 95-107. https://doi.org/10.1016/j.spc.2018.09.007

Bashir, R., Mehboob, I., & Bhatti, W. K. (2015). Effects of online shopping trends on consumer-buying behaviour: An empirical study of Pakistan. Journal of Management and Research, 2(2), 1-24. https://doi.org/10.29145/jmr/22/0202001

Cao, Y., Jia, F., & Manogaran, G. (2019). Efficient traceability systems of steel products using blockchain-based industrial Internet of Things. IEEE Transactions on Industrial Informatics, 16(9), 6004-6012. https://doi.org/10.1109/TII.2019.2942211

Cattaneo, A., Sánchez, M. V., Torero, M., & Vos, R. (2021). Reducing food loss and waste: Five challenges for policy and research. Food Policy, 98, 101974. https://doi.org/10.1016/j.foodpol.2020.101974 PMid:33012956 PMCid:PMC7523127

Chenarides, L., Manfredo, M., & Richards, T. J. (2021). COVID-19 and food supply chains. Applied Economic Perspectives and Policy, 43(1), 270-279. https://doi.org/10.1002/aepp.13085

Chetan Panse, D. S. R., Sharma, A. R. P. I. T. A., & Dorji, N. A. M. G. A. Y. (2019). Understanding consumer behaviour towards utilization of online food delivery platforms. Journal of theoretical and applied information technology, 97(16).

Chusminah, S. M., Sugiyah, S., Haryati, R. A., & Lestari, R. (2020, October). Factors influencing online buying behaviour of millennial generation. In Proceeding of LPPM UPN "Veteran" Yogyakarta Conference Series 2020-Economic and Business Series (pp. 165-171).

Dabija, D. C., Bejan, B. M., & Dinu, V. (2019). How sustainability oriented is Generation Z in retail? A literature review. Transformations in Business and Economics, 18(2).

de Andres Gonzalez, O., Koivisto, H., Mustonen, J. M., & Keinänen-Toivola, M. M. (2021). Digitalization in just-in-time approach as a sustainable solution for maritime logistics in the baltic sea region. Sustainability, 13(3), 1173. https://doi.org/10.3390/su13031173

De Meo, E., Berbel, J., Campo, R., & Giannoccaro, G. (2018). Food waste: A survey about consumers and their attitudes. Food waste: A survey about consumers and their attitudes, 181-194. https://doi.org/10.3280/RISS2018-001013

de Oliveira, M. M., Lago, A., & Dal'Magro, G. P. (2021). Food loss and waste in the context of the circular economy: A systematic review. Journal of Cleaner Production, 294, 126284. https://doi.org/10.1016/j.jclepro.2021.126284

Dsouza, D., & Sharma, D. (2020). Online food delivery portals during COVID-19 times: An analysis of changing consumer behavior and expectations. International Journal of Innovation Science. https://doi.org/10.1108/IJIS-10-2020-0184

Grewal, D., & Roggeveen, A. L. (2020). Understanding retail experiences and customer journey management. Journal of Retailing, 96(1), 3-8. https://doi.org/10.1016/j.jretai.2020.02.002

Gupta, A. S., & Mukherjee, J. (2022). Long-term changes in consumers' shopping behavior post-pandemic: An exploratory study. International Journal of Retail and Distribution Management, (ahead-of-print). https://doi.org/10.1108/IJRDM-04-2022-0111

Hamid, S., Sood, K., & Seth, N. (2020). Consumer Behaviors in Ordering Foodstuff Online Using App Services: A Fundamental Study to Ascertain Procurement Psychology of Academic Diaspora in the Indian State of Punjab.

Ishangulyyev, R., Kim, S., & Lee, S. H. (2019). Understanding food loss and waste-why are we losing and wasting food? Foods, 8(8), 297. https://doi.org/10.3390/foods8080297 PMid:31362396 PMCid:PMC6723314

Joardder, M. U., & Masud, M. H. (2019). Causes of food waste. In Food Preservation in Developing Countries: Challenges and Solutions (pp. 27-55). Springer, Cham. https://doi.org/10.1007/978-3-030-11530-2_2

Kumar, A., Prakash, G., & Kumar, G. (2021). Does environmentally responsible purchase intention matter for consumers? A predictive sustainable model developed through an empirical study. Journal of Retailing and Consumer Services, 58, 102270. https://doi.org/10.1016/j.jretconser.2020.102270

Lemieux, V. L. (2016). Trusting records: is Blockchain technology the answer? Records Management Journal. https://doi.org/10.1108/RMJ-12-2015-0042

Liu, G., Agostinho, F., Duan, H., Song, G., Wang, X., Giannetti, B. F., ... & Lega, M. (2020). Environmental impacts characterization of packaging waste generated by urban food delivery services. A big-data analysis in Jing-Jin-Ji region (China). Waste Management, 117, 157-169. https://doi.org/10.1016/j.wasman.2020.07.028 PMid:32828013

McNeely, J. A. (2021). Nature and COVID-19: The pandemic, the environment, and the way ahead. Ambio, 50(4), 767-781. https://doi.org/10.1007/s13280-020-01447-0 PMid:33454883 PMCid:PMC7811389

Mondejar, M. E., Avtar, R., Diaz, H. L. B., Dubey, R. K., Esteban, J., Gómez-Morales, A., ... & Garcia-Segura, S. (2021). Digitalization to achieve sustainable development goals: Steps towards a Smart Green Planet. Science of the Total Environment, 794, 148539. https://doi.org/10.1016/j.scitotenv.2021.148539 PMid:34323742

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. https://doi.org/10.1016/j.jbusres.2020.05.015

Pérez Vega, C., Zielinska-Dabkowska, K. M., & Hölker, F. (2021). Urban lighting research transdisciplinary framework-a collaborative process with lighting professionals. International Journal of Environmental Research and Public Health, 18(2), 624. https://doi.org/10.3390/ijerph18020624 PMid:33450951 PMCid:PMC7828419

Rishi, A., Patil, C., & Prasad, V. H. D. (2021). Factors influencing consumer attitude and perception towards online to offline (O2O) food delivery business in a tier 3 city of India. Journal of University of Shanghai for Science and Technology, 23(8), 5-30. https://doi.org/10.51201/JUSST/21/07324

Russell, S. V., Young, C. W., Unsworth, K. L., & Robinson, C. (2017). Bringing habits and emotions into food waste behaviour. Resources, Conservation and Recycling, 125, 107-114. https://doi.org/10.1016/j.resconrec.2017.06.007

Sankaran, G., Sasso, F., Kepczynski, R., & Chiaraviglio, A. (2019). Improving Forecasts with Integrated Business Planning. Springer. https://doi.org/10.1007/978-3-030-05381-9

Subramanian, N., Chaudhuri, A., & Kayikci, Y. (2020). Blockchain applications in food supply chain. In Blockchain and supply chain logistics (pp. 21-29). Palgrave Pivot, Cham. https://doi.org/10.1007/978-3-030-47531-4_3

Suhartanto, D., Kartikasari, A., Najib, M., & Leo, G. (2022). COVID-19: pre-purchase trust and health risk impact on M-commerce experience-young customers experience on food purchasing. Journal of International Food & Agribusiness Marketing, 34(3), 269-288. https://doi.org/10.1080/08974438.2021.1880514

Tasnim, Z. E. R. I. N. (2020). Disruption in global Food Supply Chain (FSCs) due to Covid-19 pandemic and

impact of digitalization through block chain technology in FSCs management. European journal of business and management, 12(17), 73-84.

Teigiserova, D. A., Hamelin, L., & Thomsen, M. (2020). Towards transparent valorization of food surplus, waste and loss: Clarifying definitions, food waste hierarchy, and role in the circular economy. Science of the Total Environment, 706, 136033. https://doi.org/10.1016/j.scitotenv.2019.136033 PMid:31855638

Thamaraiselvan, N., Jayadevan, G. R., & Chandrasekar, K. S. (2019). Digital food delivery apps revolutionizing food products marketing in India. International Journal of Recent Technology and Engineering, 8(2), 662-665. https://doi.org/10.35940/ijrte.B1126.0782S619

Tribhuvan, A. (2020). A study on consumers perception on food apps. International Journal Of Advance Research And Innovative Ideas In Education, 6(4), 208-243.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research, 122, 889-901. https://doi.org/10.1016/j.jbusres.2019.09.022

Voramontri, D., & Klieb, L. (2019). Impact of social media on consumer behaviour. Int J Inf Decis Sci, 11(3), 209-233. https://doi.org/10.1504/IJIDS.2019.101994

Wang, W., Xu, J., Zhang, W., Glamuzina, B., & Zhang, X. (2021). Optimization and validation of the knowledge-based traceability system for quality control in fish waterless live transportation. Food Control, 122, 107809. https://doi.org/10.1016/j.foodcont.2020.107809

Wunderlich, S. M. (2021). Food supply chain during pandemic: Changes in food production, food loss and waste. International Journal of Environmental Impacts, 4(2), 101-112. https://doi.org/10.2495/EI-V4-N2-101-112

Xu, B., Li, L., Hu, D., Wu, B., Ye, C., & Cai, H. (2018). Healthcare data analysis system for regional medical union in smart city. Journal of Management Analytics, 5(4), 334-349. https://doi.org/10.1080/23270012.2018.1490211

Zanetta, L. D. A., Hakim, M. P., Gastaldi, G. B., Seabra, L. M. A. J., Rolim, P. M., Nascimento, L. G. P., ... & da Cunha, D. T. (2021). The use of food delivery apps during the COVID-19 pandemic in Brazil: The role of solidarity, perceived risk, and regional aspects. Food Research International, 149, 110671. https://doi.org/10.1016/j.foodres.2021.110671 PMid:34600673 PMCid:PMC8436220

Zulkarnain, K., Ahasanul, H., & Selim, A. (2015). Key success factors of online food ordering services: An empirical study. Malaysian institute of Management, 50(2), 19-36.