Migration Letters

Volume: 21, No: S8 (2024), pp. 890-901

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)

www.migrationletters.com

Sustainable Consumption And Digital Era: A Review And Research Agenda

Muhammad Mohsin Ali Khan[1*], Dr. Hamid Mahmood[2]

Abstract

The transformation in the digital era has enabled marketers and scholars to understand how companies might facilitate sustainable consumption. Recognizing its significance, the current study provides a brief review of emerging concepts in sustainable consumption studies, aiming to emphasize crucial research themes that have not yet been extensively investigated. This study is anticipated to provide valuable insights into the future direction of sustainable consumption and identify topics that warrant further scholarly advancement, emphasizing its academic prominence. We further emphasize certain themes that need to be prioritized when implementing new technologies, particularly artificial intelligence (AI), in order to encourage sustainable consumption.

Keywords:

Social media, Digital marketing, Artificial intelligence, Sustainable consumption, Industry 5.0, Disruptive events.

Introduction

The world has been steadily transitioning toward the digital era over the years. The rise of this age has resulted in a nearly complete disclosure of the brand among customers in this particular era (Mbama & Ezepue, 2018; Mahmood et al., 2022). Particularly in the field of sustainability, the advent of innovative technologies that utilize artificial intelligence (AI) and the Internet of Things (IoT) has ushered in an era of profound change across a variety of industries (Kumar et al., 2021; Kim et al., 2021). In conjunction with various social networking platforms, these technologies have become indispensable components of the daily lives of customers (Dieck et al., 2022). In today's world, tech-savvy customers spend a significant amount of time online to get knowledg[1]e about the most recent and environmentally friendly goods (Kaur et al., 2020; Urdea et al., 2021). Consequently, marketers are making significant investments in innovative technologies that help to manufacture products that are not only effective and efficient but also prove exceptional potential in promoting sustainable consumption (SC), especially within the field of marketing.

With the increasing awareness of environmental concerns worldwide, there has been a notable change in consumer attitude towards the purchase of sustainable goods (Mahmood et al., 2020; Lavuri et al., 2023). The rise of this phenomenon is reinforced by technological

[1] PhD Scholar, Times institute Multan, Pakistan.
[2]Assistant Professor, Times institute Multan, Pakistan.
*Corresponding author email: mohsin.ali@numl.edu.pk

advancements, which have facilitated customers' access to information on the ecological consequences of their purchases (Urdea et al., 2021). With the changing nature of the digital landscape, marketers must promote sustainable practices. This will help reduce greenhouse gas emissions (Severo et al., 2023), promote human health and happiness (Ivanov, 2023), and build a positive reputation for the brand among eco-conscious consumers (Zameer et al., 2020). Thus, sustainable consumption (SC), which reflects the customers' energy conservation, waste and recycling behavior, involvement in nature-related activities, and environmentally conscious purchasing, has great significance (Tan & Lau, 2011). Another evidence of SC's practical value in the business sector is that SDG 12 of the "United Nations Sustainable Development Program" 2030 calls for responsible production and consumption with the objective of "doing more and better with less" to raise the standard of living and ensure that "no one is left behind" through the promotion of sustainable consumption (General, 2015).

Drawing on various theoretical frameworks, different scholars have used SC in different contexts. The concept of SC has been used to identify purchasing behavior (Tan & Lau, 2011), consumption behavior (Kadic-Maglajlic et al., 2019), explaining sustainable choices (Li et al., 2021b), pro-environmental engagement (Čapienė et al., 2021) and advancing sustainable consumption (Dermody et al., 2015). But prominently, the role of influencer marketing in producing greater effectiveness in the utilization of resources and on the consumption behavior of customers has been defined by many researchers (Bognar et al., 2019; Chopra et al., 2021; Kilipiri et al., 2023; Li et al., 2024). However, social media sites have played a prominent role in influencing the customers' attitudes and behavior towards SC, which still needs attention.

Considering its practical importance in today's business environment, SC has also been a focal point in recent marketing research (Weber et al., 2021; Haider et al., 2022; Kar & Harichandan, 2022). In recent years, there has been a significant increase in research focused on SC in the emerging online/digital environment, especially artificial intelligence, etc. (Li et al., 2024; Kilipiri et al., 2023; Cao & Liu, 2023). Recently, SC has begun to be discussed more frequently in digitally networked media, including journal special issues, conferences, and research publications (Hermann, 2023a; CERASI et al., 2023; Kilipiri et al., 2023; Zia et al., 2022), a topic that was absent from marketing discussions a few years ago. Recognizing its theoretical and practical importance, we provide a brief overview of a few chosen sustainable consumption studies to draw attention to important themes and research concerns that might direct future work in this dynamic and rapidly expanding field of SC.

Emerging research themes

We highlight the following study areas to facilitate SC through digital means. In addition, these themes bring to light several significant aspects that require managerial attention whenever new technologies are implemented to properly develop and manage SC.

Disruptive events and SC

Disruptive events have influenced the sustainable consumption behavior of customers throughout history and are a significant factor in upsetting business-as-usual (BAU) procedures. Past disruptions have either been caused by humans or natural forces. For instance, the oil crises that occurred in the 1970s provided a catalyst for the industry to make efforts to improve energy efficiency, which in turn contributed to decreases in greenhouse gas emissions. This occurred even before climate change became a major concern for the general public (Mikhaylov et al., 2020). More recently, the COVID-19 epidemic and the subsequent lockdowns that were implemented to restrict its spread have also caused the economic BAU to

be disrupted, with varied outcomes on the customer willingness to spend sustainably (Severo et al., 2021; Hüttel & Balderjahn, 2022). Besides that, the Gillingham et al. (2020) study highlights that the global dependence on work-from-home arrangements and the slowdown of economic activity have resulted in a significant reduction in greenhouse gas emissions and other air pollutants by a significant amount (Severo et al., 2023). In contrast, the consumption and usage of personal sustainable equipment, packaging materials, and disposable medical supplies have all contributed to an increase in the number of various forms of plastic garbage (Klemes et al., 2020). However, these disruptive events are continuously transforming the customer pattern of using the products and services and highlights multiple factors (Chiu et al., 2020; Haider et al., 2022; Borsatto et al., 2024) to marketers and practitioners to boost the sustainable consumption behavior of customers.

In addition, literature has also revealed the factors that influence the consumption patterns of individuals and populations as a whole. According to Li et al. (2019), the decision to engage in a sustainable lifestyle is influenced by both internal and external factors. Internal factors include demographics such as age, gender, marital status, and financial capacity, as well as psychological variables such as attitudes, beliefs, and subjective norms. While external factors include social norms, convenience, community facilities, and innovation. But still, the studies acknowledge the existence of a gap between consumers' attitudes and their actions. The concern is the consumers may have the information and the consciousness for environmental concern, but they do not necessarily act on it, which means that it does not always transfer to sustainable behavior (Jaeger-Erben et al., 2015; Lin et al., 2022). Although to induce a shift toward a lifestyle that is more sustainable, it will be necessary to intervene (for example, by legislative or economic measures) to change everyday behaviors, which are often rarely pondered about. Even though, a single event or change (for example, the sudden unavailability of a sustainable product or the influence of peers) may easily break such a new sustainable consumption effort overnight (Carden & Wood, 2018; Lazaric et al., 2020). It may take a long time to develop sustainable practices and shift from old, ingrained bad habits to sustainable practices.

Practitioners need to have a more in-depth grasp of how to properly manage disruptive events to avoid aberrant behavior and bad reactions towards sustainable consumption (Haider et al., 2022; Borsatto et al., 2024). This is a necessary aid to cultivate awareness of these situations. In addition, practitioners need to pay attention to the internal and external factors that consumers have accessible to them as well as their desire to take part in activities and interactions that are associated with the brand (Essiz & Mandrik, 2022). In light of this, the challenge for marketers is to transform their strategy towards such types of disruptive events over time to facilitate the environment through enhancing sustainable consumption.

Artificial intelligence and SC

Marketers are facing the challenge of personalizing their communication and selecting the targeted audience to promote their sustainable products (Collazo et al., 2020; Chokera et al., 2023). To minimize this concern, they are using multiple AI tools such as Canva, Feed Hive, etc. to provide highly customized visual graphics content (Talha et al., 2023) and social media post management. The integration of AI into different sectors of society gives prospects that hold great promise for the improvement of environmentally responsible approaches to consumption. Artificial intelligence (AI) systems are intricate socio-technical–ecological systems that are linked to a variety of social, environmental, and economic concerns (Sætra, 2021). Ecologically society is a topic that is currently being discussed, and the review explains the role of AI in enhancing sustainable consumption in a society to facilitate energy efficiency and work for environmental safety (Cao & Liu, 2023). Although, the potential of AI systems

for ecological goals, such as ecosystem monitoring, climate protection, or the energy transition (Rolnick et al., 2022), sustainable manufacturing (Jamwal et al., 2022), and social good, such as public health issues or education, terms such as "AI for Earth" or "AI for Social Good" (Robbins & van Wynsberghe, 2022) are being used.

In addition, literature has suggested the AI role in optimizing the consumption and smart management of resources (Li et al., 2021a), individualized recommendations to customers for environmentally friendly items (Kim et al., 2021), improving supply chain transparency (Modgil et al., 2022), and supporting circular economy activities (Pathan et al., 2023). Even though, customers are increasingly becoming omnichannel shoppers which influences their sustainable consumption behavior. Resultantly, it is no longer sufficient for marketers to think just in terms of maximizing sales in physical stores as compared to online retailers (Kumar & Yadav, 2021). Thus, this also raises the question of how marketers and practitioners adopt the strategy to use AI in physical stores to enhance the sustainable consumption behavior of the customers. Likewise, the success of practitioners will also be determined by how they take into account a diverse range of customer-brand touch points especially in the context of the fashion industry (Zhou et al., 2022) to interact with each customer and enhance the entire consumer experience.

Even though the potential advantages of artificial intelligence in fostering sustainability are generally acknowledged, the topic is still in the process of developing in the academic literature (Hermann, 2023a, b). There is a growing interest among academics in investigating the confluence of artificial intelligence and sustainable consumerism by focusing on customer intellectual targeting (Hermann, 2023b) and using smart grid technologies (Schappert & von Hauff, 2020). Nevertheless, further study is still required to adequately comprehend the implications and possible difficulties that are involved with this integration. Besides that, researchers (Cao & Liu, 2023) have examined the effect of just two aspects of AI technology stimuli on customer perception, intention, and behavior. Therefore, future study can be carried out to investigate new features of AI technology stimuli. In addition, while analyzing the influence of external elements, it is important to take into consideration the variables that are associated with the customer's self-considerations, such as their values (Cao & Liu, 2023). It is anticipated that the function that AI plays in furthering sustainable consumption will become a more prominent focus of academic investigation and practical application as it continues to improve and be used in a variety of industries going forward.

Industry 5.0 and SC

The new idea known as Industry 5.0, which is built upon the gains realized by Industry 4.0, emphasizes the incorporation of human-centric methods and environmentally responsible practices into industrial operations (Chivilò & Meneghetti, 2023). Industry 5.0 has the potential to transform production and consumption patterns by emphasizing environmental and social sustainability (Figure 1). Literature suggests that this shift in perspective entails utilizing humans with technologies such as artificial intelligence, the Internet of Things, and automation to maximize the usage of resources, limit the impact on the environment, and eliminate waste across the whole product lifetime. This concept provides the solution to the concern of not being human-centric and does not focus on sustainability during the whole supply chain process (Collazo et al., 2020; Aheleroff et al., 2022; Masoomi et al., 2023).

Studies comprising Industry 5.0 emphasizes the significance of ethical concerns, human well-being, and community participation in the manufacturing processes, which helps to promote a more holistic approach to sustainability (Wang et al., 2023; Ivanov, 2023; Mehroush et al., 2024). This approach provides implications to create a positive brand image in the customer's mind regarding the company's sustainable production process (Zameer et al.,

2020) by following the ethical guidelines provided by the administration. Similarly, another study has emphasized that a brand having a positive image influences customers' behavior toward consuming sustainable products (Dam & Dam, 2021). However, the study enables future research directions to marketers and academics to focus on sustainability to create a positive perception among targeted customers by combining technology, ethics, and sustainability which might lead to long-term benefits through the creation of a global economy that is more socially responsible and ecologically sensitive.

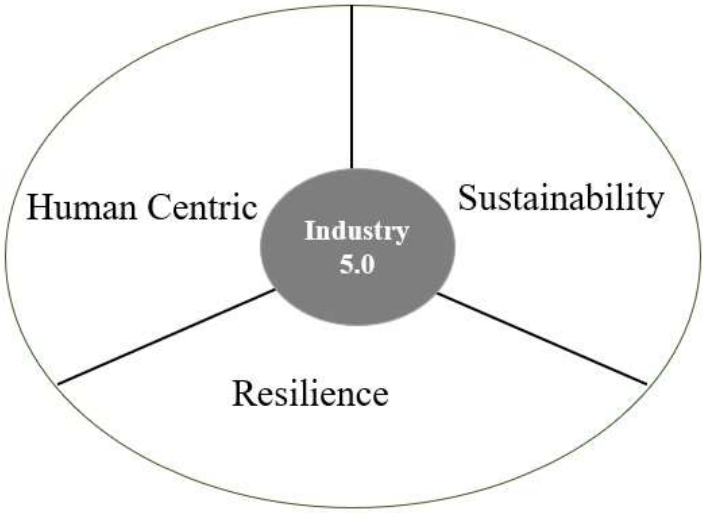

Figure 1: Industry 5.0 (Source: Chivilò & Meneghetti, 2023**)**

Despite that, Industry 5.0 concept provides direction to investigate how businesses connect their production processes, supply networks, marketing tactics, and product offerings with their sustainability goals (Xu et al., 2021). However, the practitioners also find the difficulties and obstacles that they encounter while attempting to adopt solutions for Industry 5.0. Yet, future studies can also be carried out to investigate the policy implications of Industry 5.0 concerning the promotion of sustainable consumption on the local, national, and international levels. The evaluation of current policy frameworks and the identification of possibilities to build new policies or regulatory measures with the help of government interventions (Muhamad et al., 2023) encourage the adoption of Industry 5.0 technologies while also guaranteeing beneficial environmental and social consequences.

Negative influence of digital technology on SC

The introduction of technology-enabled digital interfaces has provided marketers with a credible platform, especially social media to influence their sustainable consumption behavior (Wibowo et al., 2020; Yıldırım, 2021) and support their substantial participation in co-creating and influencing the product or service they are selling (Ravazzani & Hazée, 2022). Today, consumers rely on the authoritative information and evaluations (whether positive or negative) that are offered by other consumers WOM regarding sustainable products and services which influence the customers' perceived risk associated with product purchasing (Jiang et al., 2021). Even though not all engaged consumers constantly submit positive comments concerning a brand selling sustainable products, some customers have a negative attitude toward sustainable products (Sabir et al., 2020, 2022; Halim et al., 2022; Mahmood et al., 2023). The expansion of social media has made it easier for customers to swiftly convey negative feedback in the form of blog writing or posting unfavorable comments regarding sustainable products

(Labrecque et al., 2022). Thus, this hampers customers from using the products and influences the overall sustainable consumption behavior of the customers.

Despite the fact that there is substantial theoretical evidence suggesting that negative customer feedbacks are more compelling than good ones, the SC literature has, up to this point, put the majority of its attention on the positive side of sustainable consumption (Tomșa et al., 2021). Considering that future research must integrate the concepts of SC expressions that are both positively and negatively valanced (Mahmud et al., 2020; Tomșa et al., 2021; Sipilä, 2021; Acuti et al., 2022). Research should be conducted consistently to detect and confirm the potential risk that posts having negative WOM regarding sustainable products on social media may bring to the overall reputation of the brand. Studies need to be conducted to determine whether millennials react positively towards social media posts that have a positive or negative WOM concerning SC, and how they react to these expressions. Thus, it is anticipated that this kind of study, which applies to a wide range of industries and categories such as other than the fashion or automobile industry will provide valuable insights into the growth of this developing field (Strähle & Gräff, 2017; Radziszewska, 2021).

Marketers have a strategic obligation to concentrate on identifying the technological factors that minimize the sustainable consumption behavior of the customers. Future studies should be conducted to identify the determinants that can negatively influence the sustainable consumption pattern of individuals. Future studies should also identify the role of gender which might diversify in case of negative WOM on social media regarding sustainable consumption (Horrich et al., 2024; Rasheed et al., 2024). In the digital arena, where SC behavior is still a major concern, appropriate strategies are required. This is because the possible consequences of such behavior can have severe short-term and long-term effects on the environment as well as the reputation of the companies (Khan et al., 2022; Lavuri et al., 2023). Despite that, marketers should not ignore any negative reviews, but they should also follow up on them with improvement strategies to mitigate the negative impact of such reviews.

Conclusion

The implication of SC has grown over the past few years, where customers have transformed from being information receivers to active participators on social media platforms through its reviews and WOM. Customers are engaging with numerous brands to promote "value co-creation," which helps marketers actively address customers' issues by offering sustainable and creative products and services that they desire. This review provides a brief analysis of four key study topics to enhance both the theoretical and empirical understanding of sustainable consumption in the digital age.

Despite that, the researchers contend that investigating additional technical considerations in conjunction with SC may yield valuable findings and implications. Researchers can explore the factors that encourage customers to purchase sustainable products and services through several touch-points. In addition, academic attention is required to explore how companies may use SC to support human and environmental well-being. Thus, future research should involve a collaborative effort between behavioral psychologists and philosophers of science to conduct an interdisciplinary investigation that examines the transparency and ethical aspects of AI in influencing customers' sustainable consumption behavior (Khakurel et al., 2018; Mahmood et al., 2020). Consequently, research needs to examine the impact of a company's sustainable production practices, as part of its CSR efforts, on improving SC behavior by promoting favorable emotions and attitudes towards these companies. Not only that, a need to do empirical research on the behavior of online consumers regarding the increasing options for customizing sustainable products and services

(Gajdzik et al., 2023) and the influence of SC on customers' love or loyalty towards that brand (Rehman et al., 2021; Khalid et al., 2023). However, it is anticipated that this study will increase awareness of the fascinating field of SC within the changing digital world by showcasing some intriguing research ideas.

Acknowledgement

I am deeply grateful for the invaluable guidance, unwavering support, and insightful feedback provided by my supervisor throughout this research endeavor at Times institute Multan, Pakistan. Their expertise, encouragement, and dedicated mentorship have played an instrumental role in shaping my academic journey as a PhD Scholar and the successful completion of this review paper.

References

Acuti, D., Pizzetti, M., & Dolnicar, S. (2022). When sustainability backfires: A review on the unintended negative side-effects of product and service sustainability on consumer behavior. Psychology & Marketing, 39(10), 1933-1945.

Aheleroff, S., Huang, H., Xu, X., & Zhong, R. Y. (2022). Toward sustainability and resilience with Industry 4.0 and Industry 5.0. Frontiers in Manufacturing Technology, 2, 951643.

Bognar, Z. B., Puljic, N. P., & Kadezabek, D. (2019). Impact of influencer marketing on consumer behaviour. Economic and Social Development: Book of Proceedings, 301-309.

Borsatto, J. M. L. S., Marcolin, C. B., Abdalla, E. C., & Amaral, F. D. (2024). Aligning community outreach initiatives with SDGs in a higher education institution with artificial intelligence. Cleaner and Responsible Consumption, 12, 100160.

Cao, P., & Liu, S. (2023). The Impact of Artificial Intelligence Technology Stimuli on Sustainable Consumption Behavior: Evidence from Ant Forest Users in China. Behavioral Sciences, 13(7), 604.

Čapienė, A., Rūtelionė, A., & Tvaronavičienė, M. (2021). Pro-environmental and pro-social engagement in sustainable consumption: Exploratory study. Sustainability, 13(4), 1601.

Carden, L., & Wood, W. (2018). Habit formation and change. Current opinion in behavioral sciences, 20, 117-122.

CERASI, C. C., BALCIOGLU, Y. S., KILIC, A., & HUSEYNOV, F. (2023, May). THE ROLE OF SOCIAL MEDIA IN SUSTAINABLE CONSUMPTION: A CLASS-WISE ANALYSIS. In 7th FEB International Scientific Conference (p. 57).

Chiu, A. S., Aviso, K. B., Baquillas, J., & Tan, R. R. (2020). Can disruptive events trigger transitions towards sustainable consumption?. Cleaner and Responsible Consumption, 1, 100001.

Chivilò, M., & Meneghetti, A. (2023). An Industry 5.0 Perspective on Feeding Production Lines. Sustainability, 15(22), 16088.

Chokera, F., Edward, M., Dube, M., & Hungwe, D. R. (2023). Sustainable Marketing in Emerging Markets: How to Market Sustainable Products in Emerging Markets. In Sustainable Marketing, Branding, and Reputation Management: Strategies for a Greener Future (pp. 117-143). IGI Global.

Chopra, A., Avhad, V., & Jaju, A. S. (2021). Influencer marketing: An exploratory study to identify antecedents of consumer behavior of millennial. Business Perspectives and Research, 9(1), 77-91.

Collazo, P., Radu, A., & Mikaela, B. (2020). Sustainable Marketing: Challenges faced when implementing sustainable marketing strategies.

Dam, S. M., & Dam, T. C. (2021). Relationships between service quality, brand image, customer satisfaction, and customer loyalty. The Journal of Asian Finance, Economics and Business, 8(3), 585-593.

Dermody, J., Hanmer-Lloyd, S., Koenig-Lewis, N., & Zhao, A. L. (2015). Advancing sustainable consumption in the UK and China: The mediating effect of pro-environmental self-identity. Journal of Marketing Management, 31(13-14), 1472-1502.

Essiz, O., & Mandrik, C. (2022). Intergenerational influence on sustainable consumer attitudes and behaviors: Roles of family communication and peer influence in environmental consumer socialization. Psychology & Marketing, 39(1), 5-26.

Gajdzik, B., Jaciow, M., & Wolny, R. (2023). Types of E-consumers and their implications for sustainable consumption—a study of the behavior of polish E-consumers in the second decade of the 21st century. Sustainability, 15(16), 12647.

General, A. (2015). Transforming our world: The 2030 agenda for sustainable development. UN.

Gillingham, K. T., Knittel, C. R., Li, J., Ovaere, M., & Reguant, M. (2020). The short-run and long-run effects of Covid-19 on energy and the environment. Joule, 4(7), 1337-1341.

Haider, M., Shannon, R., & Moschis, G. P. (2022). Sustainable consumption research and the role of marketing: A review of the literature (1976–2021). Sustainability, 14(7), 3999.

Halim, R. E., Rahmani, S., Gayatri, G., Furinto, A., & Sutarso, Y. (2022). The effectiveness of product sustainability claims to mitigate negative electronic word of mouth (N-eWOM). Sustainability, 14(5), 2554.

Hermann, E. (2023a). Artificial intelligence in marketing: friend or foe of sustainable consumption?. AI & SOCIETY, 38(5), 1975-1976.

Hermann, E. (2023b). Psychological targeting: nudge or boost to foster mindful and sustainable consumption?. AI & SOCIETY, 38(2), 961-962.

Horrich, A., Ertz, M., & Bekir, I. (2024). The effect of information adoption via social media on sustainable consumption intentions: The moderating influence of gender. Current Psychology, 1-14.

Hüttel, A., & Balderjahn, I. (2022). The coronavirus pandemic: A window of opportunity for sustainable consumption or a time of turning away?. Journal of Consumer Affairs, 56(1), 68-96.

Ivanov, D. (2023). The Industry 5.0 framework: Viability-based integration of the resilience, sustainability, and human-centricity perspectives. International Journal of Production Research, 61(5), 1683-1695.

Jaeger-Erben, M., Rückert-John, J., & Schäfer, M. (2015). Sustainable consumption through social innovation: a typology of innovations for sustainable consumption practices. Journal of Cleaner Production, 108, 784-798.

Jamwal, A., Agrawal, R., & Sharma, M. (2022). Deep learning for manufacturing sustainability: Models, applications in Industry 4.0 and implications. International Journal of Information Management Data Insights, 2(2), 100107.

Jiang, G., Liu, F., Liu, W., Liu, S., Chen, Y., & Xu, D. (2021). Effects of information quality on information adoption on social media review platforms: Moderating role of perceived risk. Data Science and Management, 1(1), 13-22.

Kadic-Maglajlic, S., Arslanagic-Kalajdzic, M., Micevski, M., Dlacic, J., & Zabkar, V. (2019). Being engaged is a good thing: Understanding sustainable consumption behavior among young adults. Journal of business research, 104, 644-654.

Kar, S. K., & Harichandan, S. (2022). Green marketing innovation and sustainable consumption: A bibliometric analysis. Journal of Cleaner Production, 361, 132290.

Kaur, H., Paruthi, M., Islam, J., & Hollebeek, L. D. (2020). The role of brand community identification and reward on consumer brand engagement and brand loyalty in virtual brand communities. Telematics and Informatics, 46, 101321.

Khakurel, J., Penzenstadler, B., Porras, J., Knutas, A., & Zhang, W. (2018). The rise of artificial intelligence under the lens of sustainability. Technologies, 6(4), 100.

Khalid, A., Awan, R. A., Ali, R., & Sarmad, I. (2023). The antecedent cognitions of brand love and its impact on brand loyalty: The moderating role of sustainability marketing. Corporate Governance: The International Journal of Business in Society.

Khan, A., Sabir, I., Majid, B. M., Javaid, U., Haq, A., Mahmood, H. (2022). Celebrity Endorsements, Whitening products and Consumer Purchase Intentions: A Review of Literature. Journal of Cosmetic Dermatology, DOI (10.1111/jocd.14903).

Kilipiri, E., Papaioannou, E., & Kotzaivazoglou, I. (2023). Social Media and Influencer Marketing for Promoting Sustainable Tourism Destinations: The Instagram Case. Sustainability, 15(8), 6374.

Klemeš, J. J., Van Fan, Y., Tan, R. R., & Jiang, P. (2020). Minimising the present and future plastic waste, energy and environmental footprints related to COVID-19. Renewable and Sustainable Energy Reviews, 127, 109883.

Kumar, S., & Yadav, R. (2021). The impact of shopping motivation on sustainable consumption: A study in the context of green apparel. Journal of Cleaner Production, 295, 126239.

Kumar, V., Ramachandran, D., & Kumar, B. (2021). Influence of new-age technologies on marketing: A research agenda. Journal of Business Research, 125, 864-877.

Labrecque, L. I., Markos, E., Yuksel, M., & Khan, T. A. (2022). Value Creation (vs Value Destruction) as an Unintended Consequence of Negative Comments on [Innocuous] Brand Social Media Posts. Journal of Interactive Marketing, 57(1), 115-140.

Lavuri, R., Roubaud, D., & Grebinevych, O. (2023). Sustainable consumption behaviour: Mediating role of pro-environment self-identity, attitude, and moderation role of environmental protection emotion. Journal of Environmental Management, 347, 119106.

Lazaric, N., Le Guel, F., Belin, J., Oltra, V., Lavaud, S., & Douai, A. (2020). Determinants of sustainable consumption in France: the importance of social influence and environmental values. Journal of Evolutionary Economics, 30, 1337-1366.

Li, D., Zhao, L., Ma, S., Shao, S., & Zhang, L. (2019). What influences an individual's pro-environmental behavior? A literature review. Resources, Conservation and Recycling, 146, 28-34.

Li, J., Chiu, D. K., Ho, K. K., & So, S. (2024). The Use of Social Media in Sustainable Green Lifestyle Adoption: Social Media Influencers and Value Co-Creation. Sustainability, 16(3), 1133.

Li, M., Gao, J., Zhou, C., Shen, X. S., & Zhuang, W. (2021a). Slicing-based artificial intelligence service provisioning on the network edge: Balancing AI service performance and resource consumption of data management. IEEE Vehicular Technology Magazine, 16(4), 16-26.

Li, X., Zhang, D., Zhang, T., Ji, Q., & Lucey, B. (2021b). Awareness, energy consumption and pro-environmental choices of Chinese households. Journal of Cleaner Production, 279, 123734.

Lin, Y. T., Tseng, T. H., Chang, A., & Yang, C. C. (2022). A value adoption approach to sustainable consumption in retail stores. International Journal of Retail & Distribution Management, 50(11), 1412-1435.

Mahmood, H., Rehman, A., Sabir, I., Rauf, A., Afthanorhan, A., Nawal, A. (2023). Does organizational justice facet matter in knowledge hiding? Heliyon, DOI (10.1016/j.heliyon.2023.e18372).

Mahmood, H., Rehman, A., Sabir, I., Rauf, A., Afthanorhan, A., Nawal, A. (2022). Restaurant Diners' Switching Behavior during the COVID-19 Pandemic: Protection Motivation Theory: Frontiers in Psychology, DOI: (10.3389/fpsyg.2022.833627).

Mahmood, H., Abdullah, M., Rauf, A., Ramzan, M., Ahmed, H. (2020). Influence of interpersonal characteristics on the success of ventures in IT. International Journal of Advanced Science and Technology, 29(7), 12716-12727.

Mahmood, H., Awang, Z., Sabir, I., Abdullah, M., Aftab, M., Nawal, A., & Majid, B. M., (2020). Neuromarketing with subliminal messages, provoking intention without consent: International Journal of Disaster Recovery and Business Continuity, Vol. 11, No. 3, pp. 1107-1126.

Mahmood, H., Awang, Z., Abdullah, M., Sabir, I., Aftab, M., Rehman, A., & Majid, B. M., (2020). Ascertaining the "Subliminal Messages" of marketing-development and authentication of instrument: International Journal of Disaster Recovery and Business Continuity, Vol. 11, No. 3, pp. 1095-1106.

Mahmud, S. M., Majid, B. M., Yusof, Y., Foziah, M. H. N., Sabir, I., Mahmood, H., & Nawal, A., (2020). Evaluating effects of workforce diversity on employee's innovativeness: testing mediation and moderation model. International Journal of Disaster Recovery and Business Continuity, Vol. 11, No. 3, pp. 273-282.

Mahmud, S. M., Nawaz, S. M., Jamal, A., Sabir, I., Majid. B. M., Rehman, A., Mahmood, H., (2020). Purchase of Halal products and consumer behavioral intention: A systematic literature review. International Journal of Disaster Recovery and Business Continuity, Vol. 11, No. 3, pp. 1403-1411.

Mehroush, I., Shaheen, W.A., Shabir, M. & Talha, M. (2024). Pathways to ecological resilience: exploring green energy and finance for sustainable development. Environment, Development and Sustainability, 1-25.

Masoomi, B., Sahebi, I. G., Ghobakhloo, M., & Mosayebi, A. (2023). Do industry 5.0 advantages address the sustainable development challenges of the renewable energy supply chain?. Sustainable Production and Consumption, 43, 94-112.

Mbama, C. I., & Ezepue, P. O. (2018). Digital banking, customer experience and bank financial performance: UK customers' perceptions. International journal of bank marketing, 36(2), 230-255.

Mikhaylov, A., Moiseev, N., Aleshin, K., & Burkhardt, T. (2020). Global climate change and greenhouse effect. Entrepreneurship and Sustainability Issues, 7(4), 2897.

Modgil, S., Singh, R. K., & Hannibal, C. (2022). Artificial intelligence for supply chain resilience: learning from Covid-19. The International Journal of Logistics Management, 33(4), 1246-1268.

Muhamad, M. Q. B., Mohamad, S. J. A. N. S., & Nor, N. M. (2023). Influence of Government Intervention towards Industry 4.0 Adoption among Service Sector SMEs: Perspective from an emerging economy. Environment-Behaviour Proceedings Journal, 8(SI15), 47-54.

Pathan, M. S., Richardson, E., Galvan, E., & Mooney, P. (2023). The Role of Artificial Intelligence within Circular Economy Activities—A View from Ireland. Sustainability, 15(12), 9451.

Radziszewska, A. (2021, September). Managing customer knowledge of sustainable consumption using social media. In European Conference on Knowledge Management (pp. 623-XXIII). Academic Conferences International Limited.

Rasheed, N., Sabir, I., Mahmood, H., Rauf, A., Ibrahim, A. M., Naseem, W. (2024). Impact of pro-environmental values on sustainable green apparel buying behavior in Pakistan. Cleaner and Responsible Consumption, DOI (10.1016/j.clrc.2024.100180).

Ravazzani, S., & Hazée, S. (2022). Value co-creation through social media: A multistakeholder, communication perspective. Journal of Service Management, 33(4/5), 589-600.

Rehman, A., Nawal, A., Sarwar, H. M., Mahmood, H., Majid. B. M. (2021). Modeling Media Exposure, Appearance-Related Social Comparison, Thin-Ideal Internalization, Body Image Disturbance and Academic Achievement of Female University Students. Journal of Contemporary Issues in Business and Government Vol. 27, No. 3, 2569- 2582. DOI: 10.47750/cibg.2021.27.03.308.

Robbins, S., & van Wynsberghe, A. (2022). Our new artificial intelligence infrastructure: becoming locked into an unsustainable future. Sustainability, 14(8), 4829.

Rolnick, D., Donti, P. L., Kaack, L. H., Kochanski, K., Lacoste, A., Sankaran, K., ... & Bengio, Y. (2022). Tackling climate change with machine learning. ACM Computing Surveys (CSUR), 55(2), 1-96.

Sabir, I., Imran, A., Majid, B. M., Sabir, N., Mahmood, H., Rehman, A., Nawaz, F., (2020). Impact of perceived organizational support on employee performance in IT firms- A comparison among Pakistan and Saudi Arabia: International Journal of Organizational Analyses, Vol. 30 No. 3, pp. 795-815. DOI (10.1108/IJOA-10-2019- 1914).

Sabir, I., Nazri, M., Majid, B. M., Mahmood, H., Abbas, K., Bano, S. (2022). Restructuring interlinked with Employer and Corporate Branding amidst COVID-19: Embodying Crowdsourcing: Frontiers in Psychology, DOI: 10.3389/fpsyg.2022.835017.

Sætra, H. S. (2021). AI in context and the sustainable development goals: Factoring in the unsustainability of the sociotechnical system. Sustainability, 13(4), 1738.

Schappert, M., & von Hauff, M. (2020). Sustainable consumption in the smart grid: From key points to eco-routine. Journal of Cleaner Production, 267, 121585.

Severo, E. A., De Guimarães, J. C. F., & Dellarmelin, M. L. (2021). Impact of the COVID-19 pandemic on environmental awareness, sustainable consumption and social responsibility: Evidence from generations in Brazil and Portugal. Journal of cleaner production, 286, 124947.

Severo, E. A., De Guimarães, J. C. F., Wanderley, L. S. O., Gueiros, M. M. B., & Jabbour, C. J. C. (2023). Influence of the COVID-19 pandemic on the use of social media on awareness' socio-environmental and sustainable consumption: Consolidating lessons from the pandemic. Environmental Development, 46, 100865.

Sipilä, J. (2021). The role of ambivalence in sustainable consumption: literature review and research agenda. Research Handbook of Sustainability Agency, 104.

Strähle, J., & Gräff, C. (2017). The role of social media for a sustainable consumption. Green fashion retail, 225-247.

Tan, B. C., & Lau, T. C. (2011). Green purchase behavior: Examining the influence of green environmental attitude, perceived consumer effectiveness and specific green purchase attitude. Australian Journal of Basic and Applied Sciences, 5(8), 559-567.

Talha, M., Tahir, Z., & Mehroush, I. (2023). Enhancing customer engagement through source appearance and self-influencer congruence in mobile advertising. Spanish Journal of Marketing-ESIC.

Tom Dieck, M. C., & Han, D. I. D. (2022). The role of immersive technology in Customer Experience Management. Journal of Marketing Theory and Practice, 30(1), 108-119.

Tomșa, M. M., Romonți-Maniu, A. I., & Scridon, M. A. (2021). Is sustainable consumption translated into ethical consumer behavior?. Sustainability, 13(6), 3466.

Urdea, A. M., Constantin, C. P., & Purcaru, I. M. (2021). Implementing experiential marketing in the digital age for a more sustainable customer relationship. Sustainability, 13(4), 1865.

Wang, X., Yang, J., Wang, Y., Miao, Q., Wang, F. Y., Zhao, A., ... & Vlacic, L. (2023). Steps toward industry 5.0: Building "6S" parallel industries with cyber-physical-social intelligence. IEEE/CAA Journal of Automatica Sinica, 10(8), 1692-1703.

Weber, H., Loschelder, D. D., Lang, D. J., & Wiek, A. (2021). Connecting consumers to producers to foster sustainable consumption in international coffee supply–a marketing intervention study. Journal of Marketing Management, 37(11-12), 1148-1168.

Wibowo, A., Chen, S. C., Wiangin, U., Ma, Y., & Ruangkanjanases, A. (2020). Customer behavior as an outcome of social media marketing: The role of social media marketing activity and customer experience. Sustainability, 13(1), 189.

Xu, X., Lu, Y., Vogel-Heuser, B., & Wang, L. (2021). Industry 4.0 and Industry 5.0—Inception, conception and perception. Journal of Manufacturing Systems, 61, 530-535.

Yıldırım, S. (2021). Do green women influencers spur sustainable consumption patterns? Descriptive evidences from social media influencers. Ecofeminism and Climate Change, 2(4), 198-210.

Zameer, H., Wang, Y., & Yasmeen, H. (2020). Reinforcing green competitive advantage through green production, creativity and green brand image: implications for cleaner production in China. Journal of cleaner production, 247, 119119.

Zhou, S., Baek, E., & Jang, J. (2022). The Rise of Virtual Representation of Fashion in Marketing Practices: How It Can Encourage Sustainable Luxury Fashion Consumption. In Sustainable Luxury: An International Perspective (pp. 271-292). Cham: Springer International Publishing.

Zia, A., Alzahrani, M., Alomari, A., & AlGhamdi, F. (2022). Investigating the drivers of sustainable consumption and their impact on online purchase intentions for agricultural products. Sustainability, 14(11), 6563.