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FACTORS AFFECTING NEW TECHNOLOGIES IN FASHION INDUSTRY IN THE UNITED KINGDOM: A SURVEY ON CUSTOMER'S PERSPECTIVE

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Abstract

Purpose: *Advance technologies such as "Artificial Intelligence (AI), Blockchain, Big Data, Internet of Things (IOTs), Augmented Reality (AR), and Virtual Reality (VR)", are game changers, which are reshaping fashion industry work, and way to interact with customers. Despite advancements, there is still a lot of confusion about why some customers are quick to adopt these new tools while others hesitate. Hence, aim of this research is to understand customer's perspective on "Factors influencing the adoption of new technologies within the United Kingdom fashion industry".*

Design/Methodology/Approach: *To determine factors, "Theoretical/Conceptual Framework" is developed to present relationships between constructs such as "Perceive Ease Of Use (PEOU), Perceive Usefulness (PU), Social Influence (SI), Cost (C), Compatibility (Comp), and Customers Experiences (CE)" with "Technology Adoption (TA)", based on Technology Adoption Model (TAM) and its extended constructs. Survey data were collected from 122 customers of UK fashion industry. Pearson correlation is performed for hypotheses testing and descriptive analysis is performed to analyse current trends, challenges, and recommendations.*

Findings/Outcomes: *The results indicate that all constructs PEOU, PU, SI, lower C, Comp, and CE have positive significance relations with TA. It is also reported complexity of technology interfaces as challenges for customers. Finding also highlighted lower cost and accessibility of technologies based applications and devices attract adoption.*

Recommendations: *Recommendations highlighted for fashion brands to focus on easy interface embedded with advanced technologies integration for customers. For technology developer, it is recommended focus on customisable interface, and lower cost of fashion apps and devices. For customer's, it is highlighted to engage with advanced applications, and participate in feedback to help brands.*

1.1 INTRODUCTION

1.1.1 Problem Statement

The fashion industry in the United Kingdom is experiencing rapid influx of new technologies due to "Artificial Intelligence (AI), Block-chain, Big-Data, and Internet of Things (IOTs)". Despite introducing innovations, there remains a significant lack of clarity regarding the factors influencing the adoption of these technologies among customers. This gap in understanding presents several challenges for fashion companies. These companies struggle for effectively integration of these new technologies into their operations leads suboptimal utilisation and missed opportunities for improvement in efficiency and customer satisfaction. Hence, it is the need of the hour to overcome this problem of understanding the factors for new technologies to their fullest potential and to remain competitive in a fast-evolving market.

1.1.2 Research Issue

A major issue within the fashion industry exist due to lack of alignment between technological advancements and personalised needs of individual customers. The effectiveness of these technologies depends upon their ability to cater to the specific preferences and requirements of customers. However, there is a lack of clear evidence and understanding of how these technologies can be enhanced to meet the diverse preferences of customers effectively. This lack of understanding stops the industry from using technology to its best and to keep up-to-date with what customers want as their needs change.

1.2 Background

1.2.1 UK fashion Industries Statistics

The UK fashion and textile industry is major contributor for national economy which add £62 billion to the UK GDP (OE-Report, 2023). This sector employs 500k people across Scotland, Wales, and England, with 88k in manufacturing, 62k in wholesale, and 413k in retail. As of till 2020, there were 34,045 fashion and textile businesses operating in UK, from which 30,035 were retailers, 8,825 were wholesalers, and 8,245 were manufacturers. (UK Fashion & Textile Association, 2021). In Northern Ireland, industry provides employment for 40k people. This industry is segmented into various markets such as luxury fashion (Gucci, Chanel, Louis Vuitton, etc..), fast fashion (Zara, H&M, Primark, etc..), sportswear (Nike, Adidas, etc..), formal wear (Armani, Gucci, etc..), and more, each target different groups within general population.

1.2.2 Role of Technologies

Role of new technologies is the use of computing devices and applications toward automation for manufacturer, wholesaler, retailer, and customers. According to Holmes (2023), key areas of recent technological developments based on "Artificial Intelligence (AI), Big Data, Block Chain, and Internet of Things (IoTs)". These innovations are in collectively known as "Industrial Revolution 4.0", which has characteristics as integration of "Radio-Frequency IDentification (RFID), Augmented Reality (AR), Virtual Reality (VR), Digital Applications, Robotics", all of which boost entire industry efficiency and effectiveness (Ahmad et al., 2020). The research conducted by Vashisht and Rani (2019) highlighted role of digitalisation for e-commerce, digital marketing, online retailing, and to engage consumer through digital way, in which also involve role of advanced technologies such as advanced data processing tools, big data analytics, and machine learning, which are used to analyse consumer preferences, trends prediction, optimise inventory, and to make data-driven business decisions. From customer perspective, new technologies within fashion industry are the technologies or advancements which are embedded in fashion industry products or services for customers. Hence, in this way, aims of the technologies are to improve different aspects of operations within fashion industry, because these technologies support innovations for design and business models.

1.2.3 Role of Customers'

According to Blázquez (2014), customers interact with new technologies in the form digital models, 3D visualisation, image enlargement, AR, mobile friendly websites and applications, and with creation of digital profiles. In fashion industry, customer interact with Product-Service Systems (PSSs) (Khitous, Urbinati and Verleye, 2022). The study conducted by Assen (2023), emphasis on understanding customer acceptance which is essential for successful implementation of digital technologies that enhance overall shopping experience. Integration of VR glasses, and AI-based algorithms enhance overall customer experience. Customers trends are found in the form of self-checkouts and autonomous scanning. Moreover, customers' interaction in fashion industry are through physical store, online retail websites, mobile application, social media platforms, virtual fitting rooms, chat-bots and virtual assistants. Hence, it is necessary to identify the factors that influence for new technologies by customers.

1.3 Research Scope

1.3.1 Research Aim

The aim of this research project is to understand customer's perspective on "Factors influencing adoption of new technologies within the United Kingdom fashion industry".

1.3.2 Research Questions

1. What are the main factors that influence customers' willingness to adopt new technologies in the fashion industry?
2. What current trends exist among customers in UK regarding adoption of new technologies in fashion?
3. What are main challenges faced by customers in UK when using new technologies in the fashion industry?
4. What recommendations do customers in the UK have for fashion companies to improve the adoption and implementation of new technologies?

1.3.3 Research Objectives

1. To identify the key "Factors influencing customers' adoption of new technologies in the fashion industry".
2. To explore emerging trends in adoption and usage patterns of new technologies among customers in UK.
3. To identify and analyse the primary challenges encountered by customers in the UK while utilising new technologies in the fashion industry.
4. To gather insights from customers in the UK regarding their recommendations for fashion companies to enhance the adoption and implementation of new technologies.

1.3.4 Research Deliverables

1. A detailed analysis on factors influencing customers' willingness to adopt new technologies in the UK fashion industry.
2. An in-depth exploration of existing trends in technology adoption among UK customers within the fashion industry.
3. A comprehensive examination of the primary challenges faced by UK customers, when engage with fashion technologies.
4. Practical recommendations with aim to improve adoption and integration of new technologies.

1.4 Methodology

This research follows Onion model and employ quantitative data collection and analysis method. It uses mono-methods approach and data is collected through survey created using google form in the form of closed-ended questions. This study is to understand objective data responses quantitatively. Reasons to choose survey method for research are that this research cover wide population to collect data, which is usually not possible in using any other method. This method is also aligned well to achieve all objectives of this research as well as it is also cost effective as compared to other method of data collection method like in-person interviews or focus groups. Closed-ended questions provide quantifiable data which is analysed statistically. SPSS is used for

the analysis of data. All respondent answers the same questions in the same order which increases reliability and consistency of data.

1.5 Significance of the research

This research is significant for multiple stakeholders in which include fashion companies, customers, academics, policymakers, and the broader industry. It provides valuable insights that drive innovation, improve customer experiences, and support sustainable and competitive growth in the UK fashion industry. This research is significant for understanding customer behaviour, current trends, addressing challenges, gain competitive advantage, contribution to academic knowledge, support for sustainable practices, policy and decision-making, economic impact, and enhancement in digital transformation. It delves into the factors which influence customers' adoption of new technologies within fashion industry to understand customer preferences and motivations which is also essential for marketing strategies, product development, and technological innovations to meet customer needs and expectations. It also identifies main challenges which lead toward development of more user-friendly and accessible technologies to improve customer experience. It also explores current trends to anticipate future changes in customer behaviour. It also enhances competitive advantage by integrating customer feedback into strategies. Through recommendations, it also make improvement in adoption and implementation of new technologies to satisfy and engage customer interactions. Findings can be used to develop policies, standards, and regulations that support innovation while protecting consumer interests. Enhanced adoption of new technologies leads to increased efficiency, reduced cost and higher productivity for fashion companies and can contribute to economic growth within the industry. It also leads toward more effective implementation of digital tools and technologies which can drive innovation and growth in the industry.

1.6 Structure of the research

The structure of this research is organised into five main chapters. Chapter 1 provides an introduction to the research topic, in which include problem statement, research issue, background, research aim, questions, objectives, deliverables, methodology outline, and significance of the research. Chapter 2 reviews the relevant literature and highlight key concepts including Technology Acceptance Model (TAM), methodologies, hypothesis formulation, and previous research findings. Chapter 3 outlines research methodology in the form of research design, data collection methods, and analytical techniques employed and highlighted that this research is performed quantitative methodological choice using structured survey questionnaires and SPSS v 29 is used to performed analysis on data. Hypotheses testing is performed through Pearson Correlation in SPSS and descriptive analysis is also performed in SPSS. Chapter 4 presents findings, analysis, and discussion based on results in relation to the research and literature reviewed. First, it presents demographic data of respondent's, then it explores research objective (RO) 1 and hypotheses testing. Then, it explores remaining ROs - RO2, RO3, and RO4 with descriptive analysis to achieve these objectives. Finally, Chapter 5 presents summary of key findings, conclusions, recommendations/action plan, limitations, and also propose future work.

Literature Review

2.1 Introduction

This chapter reviews literature on factors behind technological adoption and provides an analytical view of trends and challenges faced by fashion customers. It also explores recommendations from the customer's perspective. Basic constructs from Technology Acceptance Model (TAM) by Davis (1989) and extended constructs proposed by different studies are used to discuss adoption factors. Hence, this review explores literature on new technology adoption in UK fashion industry, with the aim to understand key concepts, theoretical models, and empirical findings. It

identifies themes to analyse factors behind adoption, trends, challenges, and provides recommendations to address research issue.

2.2 Fundamental concepts

2.2.1 Concepts of new technologies:

The integration of advanced technologies such as "Artificial Intelligence (AI), Blockchain, Big Data, Internet of Things (IoTs), Augmented Reality (AR), and Virtual Reality (VR)", is transforming fashion industry (Collins et al., 2021; Sivarajah et al., 2017). These technologies not only streamline operations but also change customer experiences by providing personalised, efficient, and responsive services. AI-driven chatbots enhance customer engagement (Saini, 2023), while big data analytics optimises inventory management and reduce costs and waste. Blockchain and IoTs ensure transparency and traceability, which is crucial for sustainable practices. AR and VR revolutionise shopping with virtual try-ons, increase purchasing confidence and reduce returning. These advancements lead toward higher efficiency, cost savings, and competitive edge position businesses as leaders in innovation (Zide and Jokonya, 2022). This strategic adoption underscores importance of technological integration to maintain industry leadership and respond to evolving consumer demands.

2.2.2 New technologies in the fashion industry:

According to Godoe and Johansen (2012), new technologies enhance efficiency and effectiveness, yet numbers of technology-based products and services fail to reach to their full potential due to barriers such as "Effort Expectancy, Social Influence, and Facilitating Conditions" (Skoumpopoulou et al., 2018). This gap is evident in UK fashion industry, where technologies are adopted but not fully integrated, and highlight disconnection between intention and practice.

Technologies such as AR (Whang et al., 2021; Jung et al., 2021), VR (Xue, Parker and Hart, 2020), and Blockchain (Singh et al., 2022) enhance customer engagement and operational efficiency through digital interface and Chatbots (Aslam, 2023). Big data analytics drives real-time data-driven fast fashion, and optimise inventory management and enhance customer experiences (Silva, Hassani and Madsen, 2019). The Apparel industry valued at approximately $800 billion face severe environmental challenges, and generate 92 million tons of waste annually due to unsold stocks and unsustainable disposal methods (Jain et al., 2022). Blockchain technology mitigates these issues by providing transparency, traceability, and authenticity which enable stakeholders including customers to track products origins and promote sustainable practices.

Virtual prototypes enable designers to visualise their ideas in virtual environment to explore creativity and innovation (Arribas and Alfaro, 2018). RFID technologies streamline inventory management and improve customer's engagement (Yip and Huang, 2017). Smart mirror fashion technology (SMFT) enhances shopping experience of customers to virtually try on clothing items and accessories without physically changing outfits. Findings by Ogunjimi et al. (2021) reveal positive relationship between customer satisfaction, and service quality with the use of SMFT.

The strategic adoption of these technologies addresses industry challenges which enhances sustainability, and improves customer experiences. This integration underscores importance of technological integration to maintain industry leadership, drive innovation and respond to evolving consumer demands.

2.2.3 Customer perspective in the fashion industry:

Customers interact with fashion industry through online websites, mobile fashion applications, physical shops, fashion events, social media, and technology-integrated platforms to enhance their overall experience. Bhardwaj and Fairhurst (2010) highlight that customer demand right product at the right time which influence fashion retailers to follow trends from fashion runways, and fashion shows. This demand-driven approach underscores dynamic nature of customer

expectations and necessity for retailers to remain agile.

Blázquez (2014), notes that clothing has become fastest growing online category in the UK, and suggested that stores should implement new technologies to improve shopping experiences. This recommendation emphasises strategic importance of technology to meet evolving customer behaviours, as driven by growth of smart phone ownership and deeper mobile internet penetration.

Roy et al. (2023), provide examples of Apple, Burberry, Starbucks, and Amazon. It illustrated satisfaction of basic psychological needs which influences customer engagement. This finding indicates that technology adoption not only meets functional needs but also enhance emotional satisfaction which foster deeper customer connections.

Bacik et al. (2020) explore customer perceptions of digital devices, comfort with using new technologies and attitudes toward adoption innovative online shopping methods. Difference in device preferences highlight need for retailers to adapt their digital strategies for diverse customer segment.

Dwivedi et al. (2021) note that customers interaction through social media platforms emphasise critical role of social media toward shaping customer perceptions and engagement.

Hence, by analysing, it is evident that integration of advanced technologies is vital for retailers to enhance customer satisfaction, engagement, and loyalty. This integration addresses multifaceted demands of modern consumers, and position retailers to thrive in competitive market.

2.3 Technology Adoption Model (TAM)

Davis (1989) emphasises theoretical and practical implications of Technology Acceptance Model (TAM) in understanding user behaviours and attitudes towards technology adoption. TAM highlights constructs such as PU and PEOU which shape user acceptance of technology. Esfahbodi et al. (2022) implemented TAM model with extended constructs such as cost saving, security, and traceability, which provide more comprehensive insights for customers attitudes. This extended version reveals that such additional constructs also influence toward technology acceptance and adoption.

Holmes (2023) also used TAM model for collaborative technology adoption, and integrated with "Unified Theory of Acceptance and Use of Technology (UTAUT)". This integration added additional constructs such as "Social Influence and Facilitating Conditions" as critical factors which affect user intention (Straub, 2009). This application demonstrates TAM and its ability to incorporate new constructs for better predictive accuracy.

Assen (2023) discusses framework as provided by TAM and UTAUT 2, and highlighted their utility for understanding factors which influence on individual for technology adoption. This discussion underscore importance of adapting theoretical models to reflect complexities of real-world technology use. Singh et al. (2022) analysed various constructs to demonstrate that TAM bridge gap between conceptual, and theorised model which show its versatility and adaptability.

Hence, by exploring these additional constructs, it become evident that incorporating additional factors such as "Social Influence, Security, and Cost Savings" enhances model's predictive power. This integration not only broadens scope of TAM, but also offers valuable insights for industries to adapt technology acceptance among customers. These insights help businesses to adapt approaches to increase user adoption and satisfaction, for technological innovation and efficiency.

2.4 Factors influence in the adoption of new technology

Assen (2023), Esfahbodi et al. (2022), Singh et al. (2022), and Skoumpopoulou et al. (2018) utilised extended construct for TAM to highlight factors which influence adoption of block-chain and digital technology in various sectors such as fashion industry, e-commerce sector, and work place. These studies identified critical factors such as "Perceived Ease Of Use, Perceived Usefulness, Performance and Effort Expectancy,

Price, Facilitating Conditions, Hedonic Motivation, Social Influence, Attitude, Trust and Transparency". These studies also revealed gap for evaluation of new technologies adoption specifically within fashion industry.

"Perceived Ease of Use (PEOU) and Perceived Usefulness (PU)" are the foundational elements of TAM. Both of these constructs address primary user considerations while interaction with technologies. These constructs have been empirically validated across numbers of studies as key predictors of technology adoption decisions. Also, Social Influence (SI), Cost (C), Compatibility (Comp), and Customer Experience (CE) has been recognised in extended models of TAM (TAM2 and UTAUT) and in latest Models of TAM which influence on technology adoption for fashion customers where consumer behaviour is often influenced by these constructs. Technology Adoption (TA) has also own items but this construct depend on all others constructs for consumer's willingness to adopt and use fashion-related technologies, such as online shopping experiences, virtual fitting rooms, and augmented reality apps.

To align TAM with extended constructs, which aims to evaluate main factors which influence customers' willingness to adopt new technologies in fashion industry, the following constructs are derived from literature:

2.4.1 Perceived Ease of Use (PEOU):

Davis (1989) found that this construct impacts user's acceptance of new technology. Technologies which are easy to understand and use are more likely to be adopted by customers (Zaman, 2020). In fashion industry, an app that simplifies browsing and product purchasing is quickly adopted by users (Assen, 2023; Singh et al., 2022). Simplifying technology operations increases likelihood of adoption in daily routines (Esfahbodi et al., 2022; Ma, Gam and Banning, 2017). The importance of PEOU lies in its ability to reduce user resistance to rise learning curve which is associated with new technology. Therefore, fashion retailers need to prioritise intuitive design and user friendly interfaces to enhance customer adoption and acceptance.

2.4.2 Perceived Usefulness (PU):

Venkatesh and Davis (2000) highlighted critical role of this construct toward technology adoption. Studies by Syakira and Setiyanto (2019) and Suleman and Sabil (2019) confirmed that this construct influences online purchasing behaviour. When consumers perceive new technologies as beneficial, it positively affects their purchase decision (Tobias-Mamina, Maziriri and Kempen, 2021). PU impact customer's perception of value addition that technology brings to their shopping experience. This construct is crucial for technologies that enhance efficiency and provide unique features and advantages over traditional methods. By implementation of PU, fashion retailers can gain practical benefits of new technologies, and researcher can access insights from targeted audience to get results.

2.4.3 Social Influence (SI):

According to Perumal, Qing and Jaganathan (2022), new technologies are the outcomes of Industry Revolution 4.0 which are deeply integrated within digital devices. Finding by Tjokrosaputro and Cokki (2019) about Starbucks coffee revealed that social factors and influence of peers control consumer decisions to buy environmentally friendly products. The research conducted by Gigauri (2024) highlighted that social influence leads consumers to make purchases that align with social expectations and trends, which positively affect performance expectancy (Sandra Maria Correia Loureiro and Marlene Amorim, 2017). SI underscores role of social networks and peer pressure in shaping consumer behaviours. Hence, fashion retailer can use social media platforms and influencer marketing to drive adoption among potential customers.

2.4.4 Cost (C):

Yang and Jolly (2009) suggests that this construct is significant barrier for adoption of new

technologies. Lower perceived costs of online shopping increase impulsive buying behaviours (Peña-García et al., 2020). According to Suarez, Vigonte and Abante (2023), cost affects adoption of technology in businesses. Hence, cost considerations include not only monetary expense but also time and effort required to adopt and use technology. Fashion retailers can mitigate cost barriers by offering promotions, discounts, and flexible payment options to encourage initial adoption.

2.4.5 Compatibility (Comp):

Studies show that compatibility with users' needs and lifestyle positively influences technology adoption. When technology fits well with current practices and experiences, users are more likely to adopt and continue using it (Mairura, Ngugi and Kanali, 2016; Ramadhani, Astuti and Nasirun, 2022). Greater compatibility encourages faster adoption rates (Hubert et al., 2019; Deng, Li and Chen, 2023). Compatibility ensures that new technologies seamlessly integrate into user's existing habits and preferences. Hence, it required to fulfil gap how these technologies align with customer's lifestyles and enhance their current practices.

2.4.6 Customer Experience (CE):

Positive experiences with technology usage drive further adoption. According to Foroudi et al. (2018), positive interactions enhance customer's willingness to embrace and use technologies continuously. According to McLean and Wilson (2016), when customer feel they are spending more time for searching information online than necessary, their satisfaction decreases. Hence, customer experience and satisfaction influence adoption of new technology (Bag and Lin, 2018). Hence, CE is critical for long-term adoption and loyalty. It required to focus on delivery of exceptional customer service, seamless user experiences, and improvement in technologies integration based on customer feedback.

2.4.7 Technology Adoption (TA):

The research conducted by Esfahbodi et al. (2022), adopted Adoption Intention construct (Taylor and Todd, 1995) because it is critical factor to understand consumer decision to embrace new technologies such as blockchain in the context of e-commerce. Singh et al. (2022), Venkatesh and Davis (2000) and Venkatesh et al. (2003) purpose usage intention construct to serve as predictor of actual technology usage behaviour. It reflects "User's Intention To Use" particular technology or system which is influenced by other factors, such as PU, and PEOU. Based on TAM2, the study conducted by Whang et al. (2021), also adopted purchase intention construct and specified path between variables to show relationship between variables.

Analysis revealed that integration of advanced technologies is essential to enhance customer satisfaction, engagement, and loyalty. This integration addresses multifaceted demands of modern consumers. Hence, based on these constructs conceptual research model and hypotheses for further analysis are developed in Chapter 3: Section 3.3 (See Figure 2).

2.5 Fashion Trends and latest Technological Innovation

According to Mendes, Broega and Sant'Anna (2016), a fashion trend signifies most prevailing preferences (Gwozdz et al., 2013) at a given time, refer to most popular behaviour, style, and technologies preferences. These trends determine how people interact with technology. According to Saravanan and V (2015), contemporary consumer culture is influenced by technology through social media and online platforms. Analysing methodologies used in various studies reveals depth and evolution of consumer behaviour and technological adoption in fashion.

Mishra et al. (2023) used survey to demonstrate growing fashion trend in India and underscore importance of consumer-centric methodologies to capture evolving trends. Similarly, Thakur (2021) utilised survey questionnaires to explore online shopping trends among Indian consumers and

revealed that customers prefer more online shopping because it's convenient.

Helgeson et al. (1984) employed content analysis, and found increase in complexity and empirical nature of consumer behaviour over time. In contrast, Czerwiński and Domański (2023) used theoretical analysis to identify rise of digital consumption as key trends, which emphasis need for diverse methodological approach to capture multifaceted nature of consumer behaviour.

Blázquez (2014) opted quantitative survey approach to identify trends among customers while Zou et al. (2022) employed quantitative bibliometric analysis using CiteSpace software, and revealed trends such as sustainable fashion and growing influence of wearable technology. Kautish et al. (2023) focus on emerging trends in the form of AI-enabled voice assistants like Alexa and Google Assistant which highlights transformative impact of AI on consumer shopping behaviour. This underscores need for continuous innovation in retail technology.

These studies highlight integration of various methodological approaches provides understanding of fashion trends and technological innovations. Hence, analysis uncover insights for consumer's behaviours.

2.6 Challenges and Integration of Technologies

Akram et al. (2022) employed qualitative research methodology and utilised case studies, and expert interviews to gather insights. The study highlighted challenges from customer perspective in the adoption of new technologies in fashion such as complexity and usability, privacy and security concerns, high costs, and lack of awareness about benefits and potential of such technologies.

Miell, Gill and Vazquez (2018) employed mixed-method approach and performed content analysis and literature review to examine digital fit technologies in the fashion industry, highlighted challenges such as reliability, poor user experience, technological limitation, and concerns over privacy. These challenges highlighted need for improvement in technology to meet need of consumer expectations in effective way.

Parker-Strak, Doyle and Studd (2024) employed qualitative methodology using semi-structured interview and performed thematic analysis. Results revealed key challenges in the form of complex integration of digital and physical shopping channels. It also found concerns about data privacy and security.

The challenges highlighted by Goworek et al. (2020) from customer perspective include in the form of awareness and knowledge about sustainable practices. Kullak, Baier and Woratschek (2023) also highlighted challenges difficulties in navigation between different shopping platforms but all these research unable to provide quantitative results because of employing qualitative methodological choice using semi-structured interviews.

Javaid et al. (2024) employed bibliometric analysis and systematic literature review to analyse challenges in digital economy and highlighted concerns about data privacy, and complexity in the form of navigation through digital interfaces. Karadayi-Usta (2024) employed mixed-methods through the use of Fermatean Fuzzy Sets and the ORESTE decision-making technique. Data is collected through literature reviews and expert interviews and analysed using multi-criteria decision-making tools to explore adoption of AI and AR in sustainable fashion practices. The challenges highlighted issues with practical application and usability of AI/AR technologies in fashion such as complexity of technologies and lack of intuitive user interfaces (Grewal et al., 2023; Amendola et al., 2018).

2.7 Recommendations for implementation of new technologies

Based on research study by Blázquez (2014), customers in UK provided recommendations for fashion companies to enhance the adoption and implementation of new technologies in fashion industry in the form of embracement of interactive technologies with feature like virtual fitting rooms and mix-and match technology, focus on personalisation based on digital profiles,

enhance mobile connectivity, integrate online and offline channels, redefine in-store experience with interactive technologies, and understand behaviour of multichannel consumers to enhance customer satisfaction and loyalty.

Davis and Aslam (2024) highlighted recommendations to enhance socialisation feature on AR apps (Grewal et al., 2023) to make shopping decision-making easier, detailed information and sizing about product through multiple methods along with guidance through videos, and to improve user experience with features like 3D visual experiences (Miell, Gill and Vazquez, 2018).

Moreover, some recommendation that customers in the UK have for fashion companies to improve the adoption and implementation of new technologies are focus on data privacy and security to build trust and credibility (Du, 2019), collaboration with technology partners to enhance technological capabilities, consider consumer sentiment (Marroncelli, 2024), customer's environmental concerns (Pereira et al., 2022), enhance transparency using block-chain (Jain et al., 2022), technological accessibility in the form of user-friendly digital tools (Munmun, 2023), use of informative posters and advertisements (Hageman et al., 2024), seamless integration of technologies, training and education to both customers (Abebaw and Matukuta, 2018) and employees (Salem and Alanadoly, 2024) to use new technologies in-store, continuous improvement in chat-bot (Aslam, 2023), utilise social media effectively (Helal, Ozuem and Lancaster, 2018) and embrace innovation, enhance digital experience (Fobiri et al., 2024), free of cost virtual apps for fashion customers (Zide and Jokonya, 2022), virtual styling consultations (Suarez, Vigonte and Abante, 2023), leadership support and seek user feedback (Zaman, 2020), use of IoTs devices, and AI-driven tools to meet needs of customers (Kautish et al., 2023).

2.8 Research Gap

Existing research focuses on digital transformation through smartphone use and internet connectivity, and integration of AI, VR, AR, big data, IoT. However, there is a noticeable lack of direct literature from customer's perspective on new technologies within fashion industry. This gap highlights need for quantitative research to quantify factors which influence customer's willingness to adopt new technologies in UK fashion industry. Understanding these factors, trends, and challenges through surveys data can provide specific insights to improve adoption and implementation strategies for alignment of technological advancements with customer expectations which can enhanced diverse preferences of customers effectively.

2.9 Conclusion

This chapter provide detailed understanding of adoption of new technologies in UK fashion industry. It examines factors influencing this adoption, trends, challenges for fashion customers, and potential recommendations from customer's perspective. Key technologies such as AI, big data, block-chain, IoT, VR, and AR enhance operational efficiencies and customer experiences. These technologies contribute to automation, streamlined operations, and competitive advantage through personalised services. The review uses Technology Acceptance Model (TAM) and its extensions to understand and predict customer behaviours toward technology adoption and highlight importance of "Perceived Ease Of Use and Usefulness". It also notes a gap for fully integration of these technologies within fashion sector. This chapter shed light on digital transformations in re-shaping shopping experiences and customer interactions with fashion brands, and emphasis the need for more focused research to bridge gap between technological capabilities and customer expectations.

Methodology

3.1 Introduction

This chapter provide overview about methodology which is employed for this entire research with research Onion Model as employed

by Wu (2022), Vedeikytė and Lechmanová (2019), Cameron (2009) and Aleksandras Melnikovas (2018).

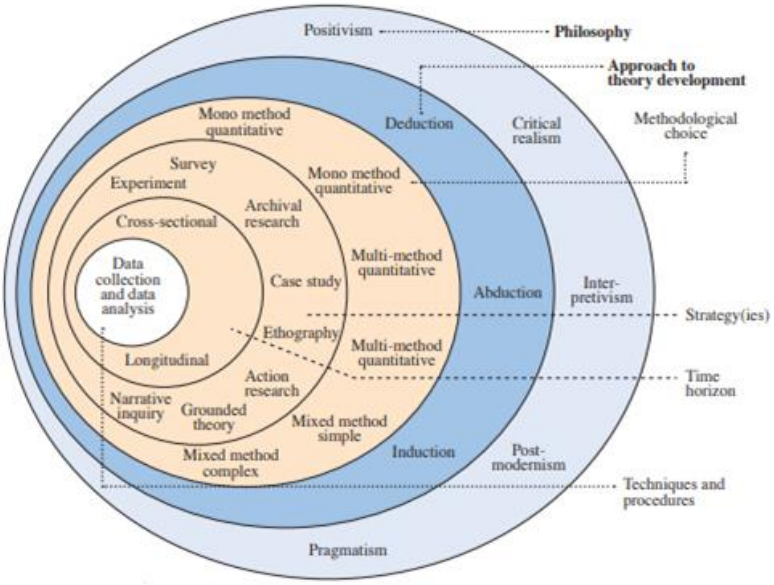

Figure 1: Onion Model (Saunders, Lewis and Thornhill, 2009)

This study used primary questionnaire data using survey instruments through Google form. After collection of data, relevant data analysis methods are discussed which is used for hypothesis testing, formulation of results, and answering for research questions.

3.2 Research Philosophy

Positivism research philosophy is chosen for this study. This philosophy is appropriate for this study because it aligns with the use of quantitative methods and seeks to discover objective truths through observable phenomena. Positivism emphasises use of scientific methods to identify patterns and make predictions (Toloie-Eshlaghy et al., 2011).

In this study, positivist philosophy guided development of research design, particularly formulation of hypothesis and choice of quantitative survey method. This approach provide direction for the collection of measurable data which could be analysed statistically to test hypotheses and answering to research questions.

3.3 Research Approach and Hypothesis Development

Deductive research approach is used for this study. This approach is suitable because it starts with theoretical/ conceptual framework and hypothesis which tests through data collection and analysis. This approach is systematic and allows for hypothesis testing using quantitative data.

Based on literature review (Chapter 2: Section 2.4) and analysing hypotheses formulated by Hageman et al. (2024), Assen (2023), Uhm et al. (2022), Singh et al. (2022), Esfahbodi et al. (2022), Wu (2022), Kochhar (2020), Gazzola et al. (2020), Whang et al. (2021), and Jung et al. (2021), the hypotheses are formulated for first research question using extended constructs of TAM as follows:

Hypothesis 1 (H1): Customers who perceive new technologies in the fashion industry as easy to use are more likely to adopt them.

Hypothesis 2 (H2): Customers who find new technologies in the fashion industry useful are more likely to adopt them.

Hypothesis 3 (H3): Social influence positively affects customers' willingness to adopt new technologies in the fashion industry.

Hypothesis 4 (H4): Lower cost of new technologies in the fashion industry positively influences customers' willingness to adopt them.

Hypothesis 5 (H5): The compatibility of new technologies with existing customer needs and lifestyles positively influences their willingness to adopt them.

Hypothesis 6 (H6): Positive customer experiences with new technologies in the fashion industry increase their willingness to adopt these technologies.

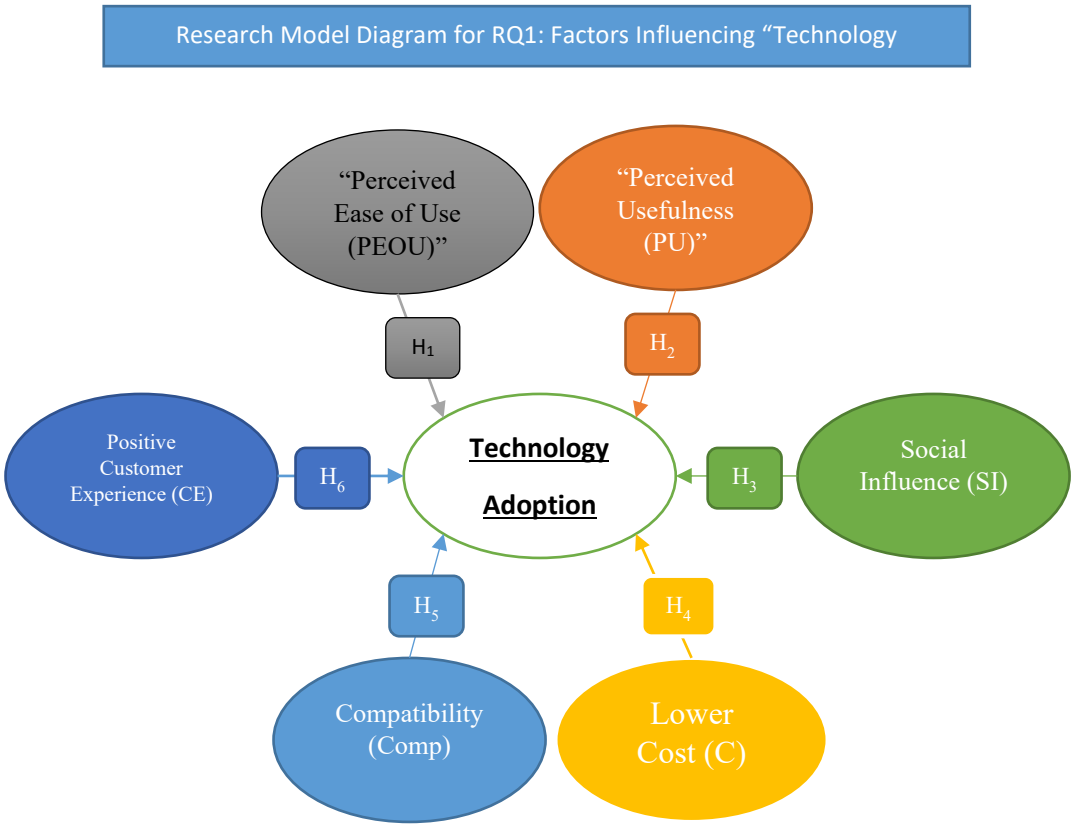

Figure 2: Theoretical/Conceptual Framework.

Figure 2 is presenting theoretical/conceptual framework (Singh et al., 2022) based on previous and existing literature reviewed for addressing RQ1, utilising approach used by Assen (2023) and Laradi et al. (2024). RQ1 is relational necessitate formulation of hypotheses to examine relationship between variables. In contrast, RQ2, RQ3, RQ4 are descriptive and there is no need to formulate hypothesis for these research questions as approach followed by (Gazzola et al., 2020).

3.4 Research Methodological Choice

Mono-method quantitative methodological choice is chosen for this research. This means that only one type of quantitative method, specifically survey was used to collected data (Odiadi, 2024). The survey method was chosen as instrument because this strategy is effective for gathering data from a large number of respondents to perform statistical analysis (Bergmann, 2024).

Using mono-method quantitative approach, it ensured that data collected was consistent and could be easily analysed using statistical

techniques. This approach also facilitated measurement of variables and testing of hypothesis related to research question.

3.5 Research Strategy

The research strategy which is employed in this study is survey. Surveys are common and effective method for collecting data from large number of participants (Chege and Otieno, 2020). This strategy is particularly useful for gathering information about people's attitudes, behaviours, and experiences (Taherdoost, 2022b).

In this research, an online survey was created using Google Forms. The survey was designed to collected data from customers in the UK about their experiences with and attitudes toward new technologies in the fashion industry. The survey included mix of closed-ended questions to gather quantifiable data which could be analysed statistically (Kittur, 2023). Overall, research strategy with research process which is followed (Abebaw and Matukuta, 2018) are as:

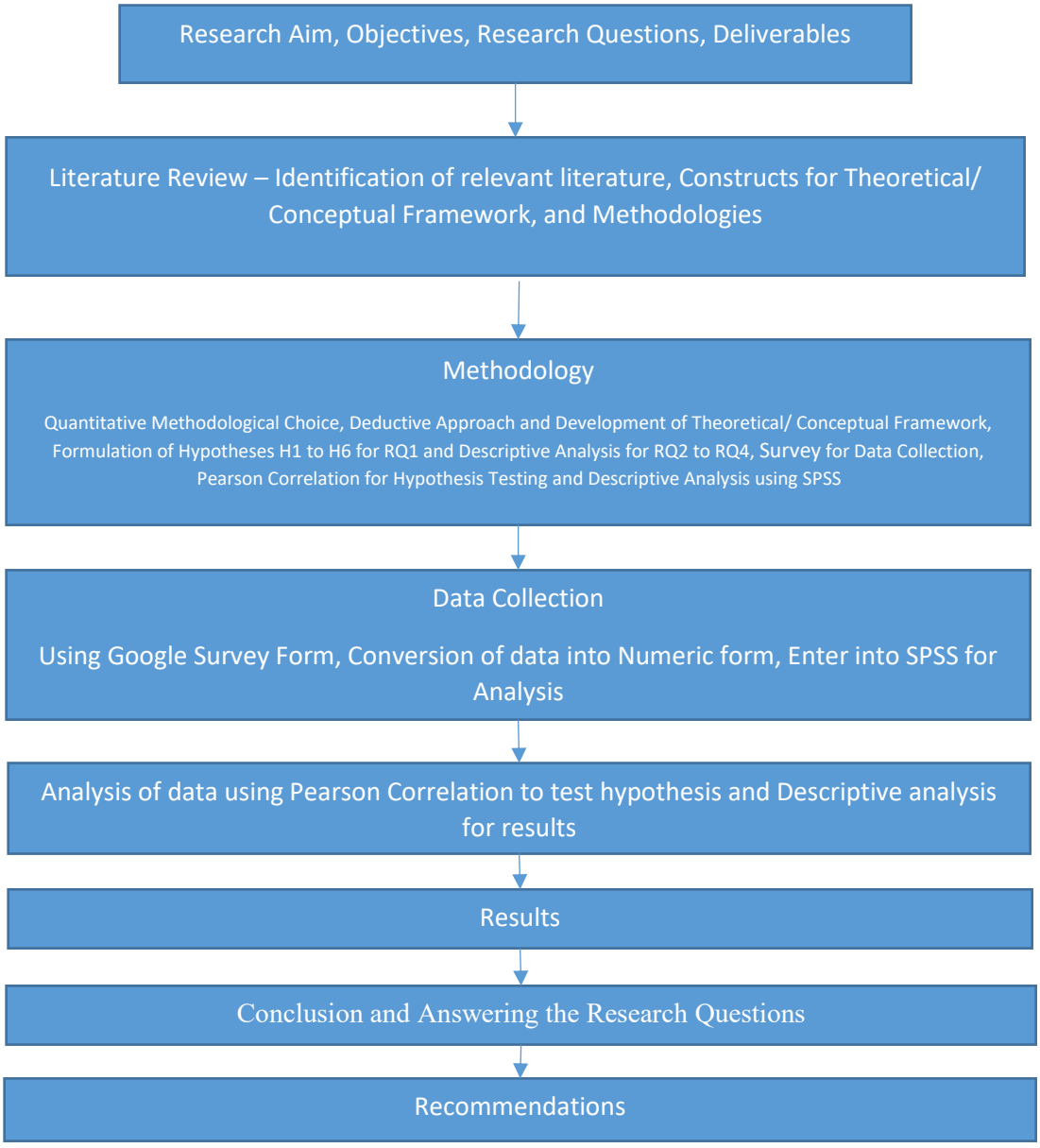

Figure 3: Overall Research Strategy Flow-Chart

3.6 Research Time Horizon

Cross-sectional is chosen for this research. This time horizon collects data at a single point in time or over a short period (Iovino and Tsitsianis, 2020; Matza et al., 2016). This time horizon was chosen because it provides snapshot for current state of adoption of new technologies in UK fashion industry.

Data was collected over a period of one month, during the month of July 2024. This timeframe was sufficient to gather representative sample of responses to ensure that the data reflected current trends and opinions of customers.

3.7 Research Techniques and Procedures:

3.7.1 Data Collection Methods

Online survey is chosen as primary data collection method for this research (Nardi, 2018), which was created using online "Google Forms" and distributed through online channels including social media platforms such as WhatsApp. The survey was designed with clear and concise questions which are to be easy to complete (Mellinger and Hanson, 2020; Marshall, 2005) are shown in figure 4:

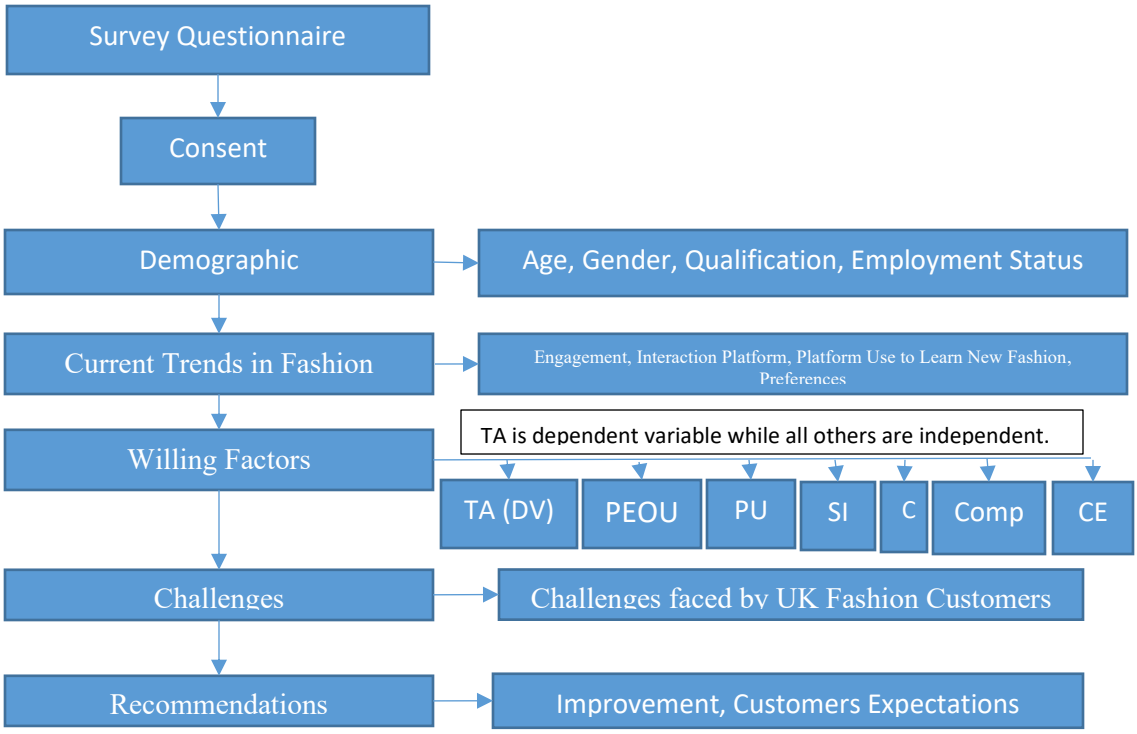

Figure 4: Survey Questionnaire Content Structure

The survey consisted of six sections:

1. Ethical considerations and consent: This section provided information about research including its purpose and voluntary nature of participation. Participants were required to give their consent before proceeding.
2. Demographics: This section included questions about participants age, gender, education, and employment status. These questions helped to understand diversity of sample and to segment data for analysis. These questions based on Single Choice Questions.
3. Measurement of current trends exist among customers regarding adoption of new

technologies in fashion: This section included questions about participant's awareness and adoption of current trends. These questions based on both Single Choice Questions and Multiple Choice Questions.

4. "Factors that influence customer's willingness to adopt new technologies in the fashion industry": This section included questions about technologies adoption based on sequence of hypotheses from H1 to H6. Based on hypothesis independent and dependant variable are created as:

"Independent Variables"	**"Dependent Variable"**
"Perceived Ease of Use (PEOU)"	"Technology Adoption (TA)"
"Perceived Usefulness (PU)"	
"Social Influence (SI)"	
"Cost (C)"	
"Compatibility (Comp)"	
"Customer Experience (CE)"	

For measurement of these variables, items for each variable are declared to measure questionnaires based on measurement scale. Measurement scale is chosen like "Likert Scale from Strongly disagree to Strongly agree".

5. Challenges faced by customers in UK when using new technologies in fashion industry: This section included question about challenges faced by customers in UK when using new technologies in fashion industry. These questions based on Multiple Choice Questions.

6. Recommendations do customers in UK have for fashion companies to improve adoption and implementation of new technologies: This section included questions about recommendations for fashion companies. These questions based on Multiple Choice Questions.

The survey used mix of question types, including select all that apply, multiple choice, Likert scale, rating scale, and matrix types questions (Taherdoost, 2022a; Diem, 2002). This variety enable collection of relevant and quantifiable data.

3.7.2 Data Analysis Methods

After data collection, responses were downloaded from Google Forms in Excel sheets and imported into statistical software SPSS v 29 for analysis. Descriptive analysis is performed on sample data through SPSS, while the same software is used to analyse data for hypotheses testing using Pearson Correlation, which measures the relationship between variables as analysis followed by Yusoff et al. (2023) and Abdelhafez, Thottathil and Buduru (2020).

To perform analysis, all data is converted into numeric form using Excel and SPSS. For Likert-types questionnaires which is followed for testing hypothesis, all respondents were converted into numeric form using SPSS, while for Multiple Choice Questions, where respondents provided multiple options, all options splitted into separate columns with numerical value assigned to each options to analyse response for each type of such questions which are used in survey form for RQ2, RQ3, and RQ4 to perform descriptive analysis. For Single Choice Questions, such questions can also be easily converted within SPSS. Hence data analysis is performed as shown in figure 5:

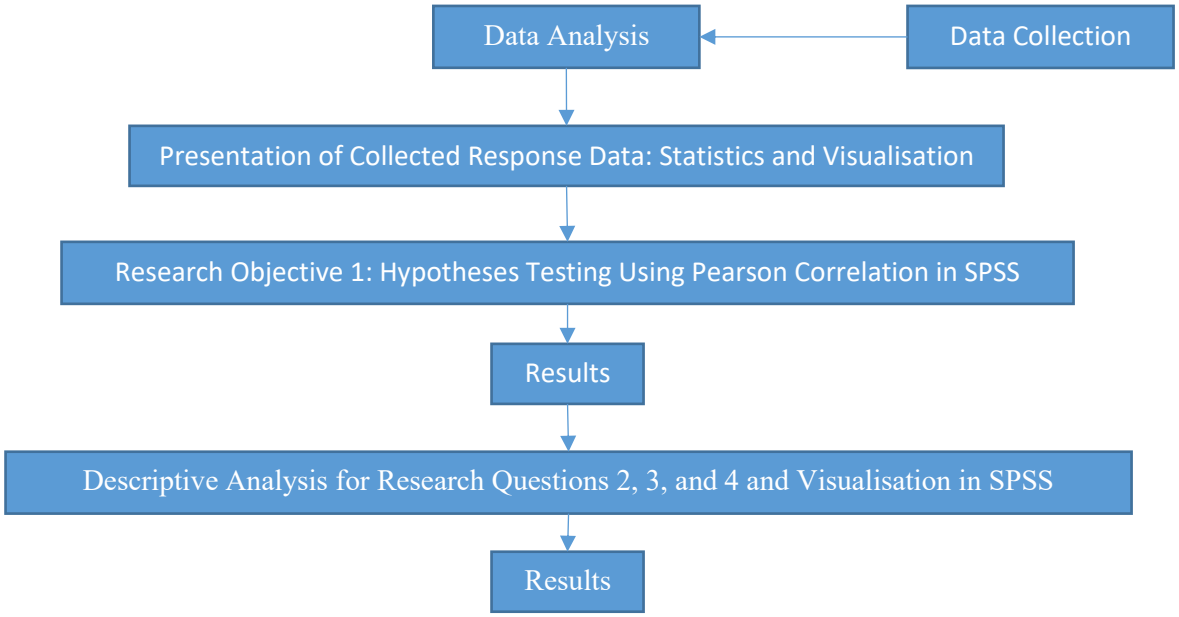

Figure 5: Data Analysis Structure

Hence, in analysis, the study provided overall statistics and descriptive view of collected respond using demographic data of responds. Then, the study provided analysis for hypothesis testing (Assen, 2023) using Pearson Correlation to get results for hypothesis using p-value (Yusoff et al., 2023). On the basis of *p*-value, which is $p<0.001$ for this study, it has determined significance for hypotheses. Then, the study provided descriptive analysis to determine current trends, challenges and recommendations (Gazzola et al., 2020).

3.7.3 Validity and Reliability Considerations

Validity refers to "the extent to which survey as instrument measures what it claims to measure" (Abebaw and Matukuta, 2018). To perform content validity procedure, survey questionnaire was forwarded to supervisor for their expert feedback to ensure each item is relevant and representative of the construct and got approved. To ensure construct validity, correct operational measures which link data collection questionnaires with research objectives were used. For this purpose, Technology Adoption Model (TAM) by Davis (1989) is employed. Only relevant and standardised items for each construct were included in the survey questions by considering all relevant resources which was considered while formulation of hypotheses.

To ensure reliability, which show that data are consistent and dependable, Laradi et al. (2024) employed reliability measure to ensure consistent questionnaire design, conducted pilot testing to refine questions, and analyse internal consistency using measures with Cronbach's alpha. Cronbach's alpha value is used to assess consistency of responses within each construct to ensure reliability of data collected. Its value is ranges "From 0 to 1, and higher values indicate greater internal consistency. Moreover, Cronbach's alpha value of 0.70 or higher is considered acceptable" (Y and Dan, 2023). Reliability test is conducted using SPSS and it is determined Cronbach's Alpha value for variables such as 0.792 for TA, 0.763 for PEOU, 0.779 for PU, 0.730 for SI, 0.705 for C, 0.806 for Comp, and 0.819 for CE. Hypotheses testing provided results for each hypothesis to determine its significance for the willingness of factors willingness to adopt new technologies in the fashion industry, while descriptive analysis for all

others research objectives provided evaluations for current trends, challenges faced by UK fashion customers and recommendations to make improvements for technologies in the UK fashion industry for customers.

3.8 Ethical Considerations

This study meets all requirements of ethical considerations to perform research and data collection. All data is collected as anonymously. While collecting data, respect and dignity of participants were upheld. Only voluntary participants were included in the survey. It was clearly stated in the survey form that there was no risk to any participant's personal data while completing survey questionnaire.

3.9 Chapter Summary

This chapter provides clear view of methodology for this research. All step identified through literature to perform research are clearly highlighted in this chapter. This chapter identifies that the entire research follows quantitative methodological choice as the data is collected using Google form Survey from UK fashion Customers. Deductive approach and Positivism Philosophy are employed for this research. As the data is collected using Survey form, validity and reliability of questionnaires were also considered. All questionnaires are considered well aligned with literatures. After data collection, mostly through UK WhatsApp groups, data is refined for further processing into numeric form using Excel and SPSS. All analysis on data is performed in SPSS to achieve research objectives and answer the research questions.

Findings, Analysis and Discussion

4.1 Introduction

This chapter presents findings derived from analysis on survey data. It begins with an overview of demographic data, in which include statistics of collected responses and their visualisations. Following this, the chapter discusses findings on analysis of survey data in alignment with research objectives.

4.2 Demographic Data of Survey Respondent's

A total of 122 participants took part in survey, comprises of 52 females and 70 males. The demographic data includes information on age group, gender, qualification, and employment status. Visualisations for demographic data are as follows:

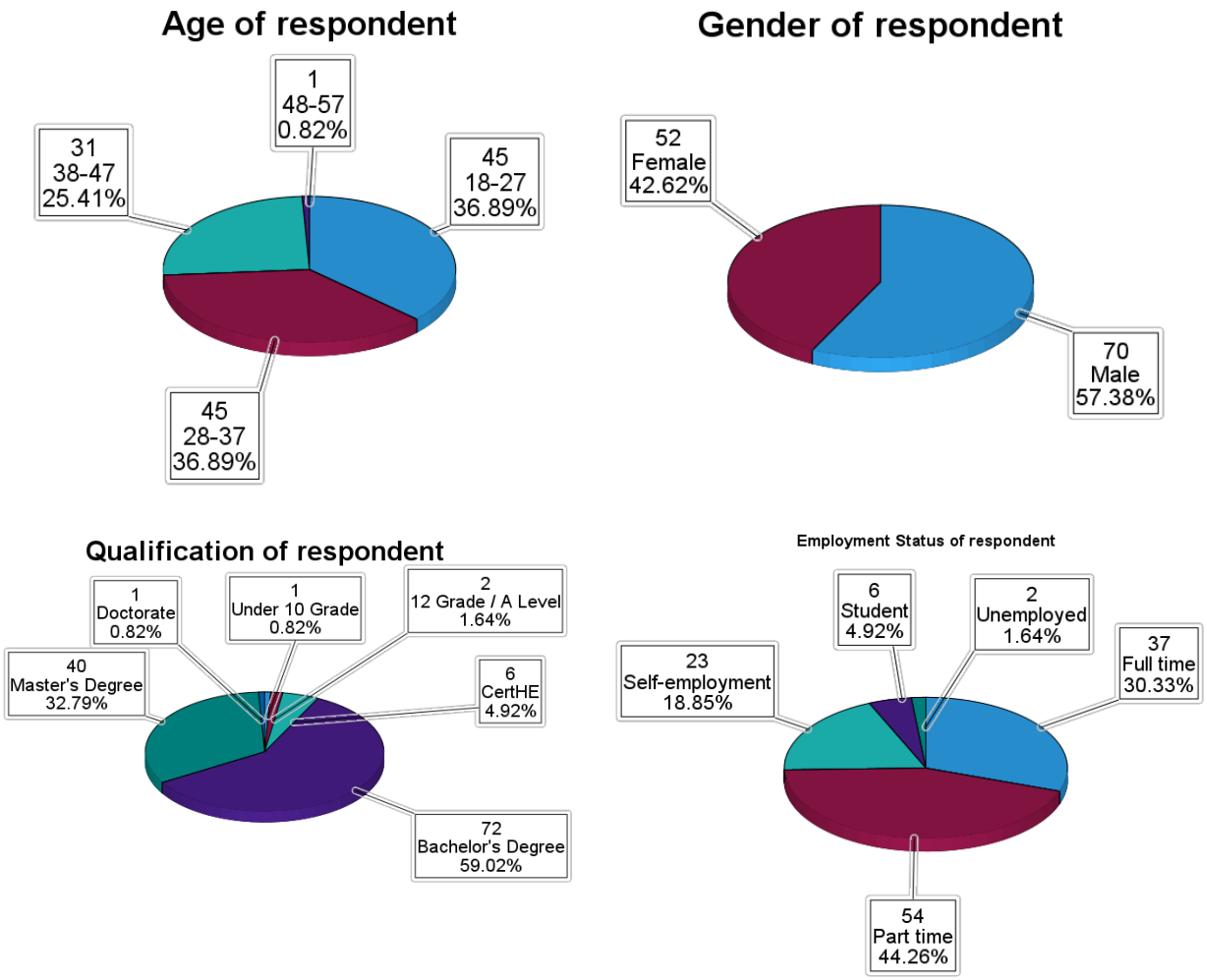

Figure 6: Demographic Data of Survey Respondent's

Figure 6 presents all four demographic data visualisations. In each box, top number shows frequency, middle value shows actual value such as age group, gender, qualification, and employment status, and last value shows percentage of respondents in each category. For example, in "Age of respondent" visualisation, data is shown clockwise. The first age group, ranging from 18-27, and includes 45 participants, which is 36.89% of total participants.

4.3 Research Objective 1 and Hypotheses Testing

Research Objective 1 is restated here, "To identify the key factors influencing customers' adoption of new technologies in the fashion industry". In order to achieve this objective, and for the identification of key factors, Technology Adoption Model (TAM) is employed, and on the basis of this model, six hypotheses H1 to H6, were formulated based on literature review as highlighted in figure 2 for theoretical/conceptual framework. Hypotheses testing is performed in SPSS using Bivariate Pearson Two-tailed Correlation. Average value for elements of each constructs both for dependent and independent variables are calculated. Based on average value for each constructs, correlation is determined. All of six hypothesis testing are as:

H1: Customers who perceive new technologies in the fashion industry as easy to use are more likely to adopt them.

There is a very strong positive correlation between TA and PEOU, which is significant at 0.01 level. This means that customers who perceive new technologies as easy to use are highly likely to adopt them. To prove H1, output of correlation between TA and PEOU are as:

Table 1: Correlation Between TA and PEOU

Correlations

		TA	PEOU
TA	r	1	.713**
	p		<.001
	N	122	122
PEOU	r	.713**	1
	p	<.001	
	N	122	122

Where r = "Pearson Correlation", p = "Sig. (2-tailed)" and ** = "Correlation is significant at the 0.01 level (2-tailed)". Also, same for Tables 2 to 6. Hence, correlation between TA and PEOU, r = 0.713, this indicates that there is a very strong positive correlation between TA and PEOU. Based on r value which is already defined as 1 indicate perfect positive correlation, 0 indicate no linear correlation, while -1 indicate perfect negative correlation (Rumsey, 2023). It means that customers who find new technologies easy to use are highly likely to adopt them, while P-value is p<0.001 (Zhu, 2016), this mean that this correlation is highly significant, indicate strong evidence that this relationship is not due to random chance. Therefore, H1 is supported. Evidence from literature also support this hypothesis as easy to understand and easy to use technologies (Zaman, 2020), and intuitive interface (Assen, 2023; Singh et al., 2022; Esfahbodi et al., 2022; Ma, Gam and Banning, 2017) are more likely to be adopted by customers. Hence, in fashion industry, user-friendly, easy to learn how to use, intuitive interface, adapt quickly, straightforward use of new technologies enhances overall efficiency of the customers.

H2: Customers who find new technologies in the fashion industry useful are more likely to adopt them.

There is a strong positive correlation between TA and PU, which is significant at 0.01 level. This indicates that customers who find new technologies useful are more likely to adopt them. To prove H2, output of correlation between TA and PU is as follows:

Table 2: Correlation Between TA and PU

Correlations

		TA	PU
TA	r	1	.640**
	p		<.001
	N	122	122
PU	r	.640**	1
	p	<.001	
	N	122	122

Hence, correlation between TA and PU, r = 0.640, indicates that there is a very strong positive correlation between TA and PU. It suggests that customers who find new

technologies useful are more likely to adopt them, while P-value is p<0.001. This mean that this correlation is highly significant, which confirmed that this relationship is not due to random chance. Therefore, H2 is supported. Evidence from literature also support this hypothesis as PU influence customers online purchasing behaviour (Syakira and Setiyanto, 2019; Suleman and Sabil, 2019; Venkatesh and Davis, 2000), and purchasing decision (Tobias-Mamina, Maziriri and Kempen, 2021). Hence, in fashion industry, new technologies improve customer shopping experience, fashion choices, fashion knowledge, save time, informed fashion decision, which seem that implementation of new technologies in fashion are essential for modern shopping.

H3: Social influence positively affects customers' willingness to adopt new technologies in the fashion industry.

There is a strong positive correlation between TA and SI, which is significant at 0.01 level. This suggests that SI positively affects customers' willingness to adopt new technologies. To prove H3, output of correlation between TA and SI are is as follows:

Table 3: Correlation Between TA and SI

Correlations

		TA	SI
TA	r	1	.564**
	p		<.001
	N	122	122
SI	r	.564**	1
	p	<.001	
	N	122	122

Hence, correlation between TA and SI, r = 0.564, indicates that a strong positive correlation between TA and SI. It means that SI significantly affects customers' willingness to adopt new technologies in the fashion industry, while P-value is p<0.001. This mean that this correlation is highly significant, indicate strong evidence that this relationship is not due to random chance. Therefore, H3 is supported. Evidence from literature also support this hypothesis as SI control consumer decisions (Perumal, Qing and Jaganathan, 2022; Tjokrosaputro and Cokki, 2019), align customers with social expectations and trends (Gigauri, 2024), and affect performance expectancy (Sandra Maria Correia Loureiro and Marlene Amorim, 2017). Hence, in fashion industry, friends and family, social media/circle, trends by celebrities, peer pressure, fashion blogs and magazines, and recommendation from fashion professionals influence customer's intention to use new technologies in fashion industry.

H4: Lower cost of new technologies in the fashion industry positively influences customers' willingness to adopt them.

There is a moderate positive correlation between TA and C, which is significant at 0.01 level. This means that lower costs positively influence customers' willingness to adopt new technologies. To prove H4, output of correlation between TA and C is as follows:

Table 4: Correlation Between TA and C

Correlations

		TA	C
TA	r	1	.463**

	p		<.001
	N	122	122
C	*r*	.463**	1
	p	<.001	
	N	122	122

Hence, correlation between TA and C, r = 0.463, indicates that a moderate positive correlation between TA and C. It suggests that lower costs positively influence customers' willingness to adopt new technologies in the fashion industry, while P-value is p<0.001. This mean that this correlation is highly significant, which confirmed that this relationship is not due to random chance. Therefore, H4 is supported. Evidence from literature also support this hypothesis as higher cost is significant barrier (Yang and Jolly, 2009), while, low cost due to technologies or low cost of technologies (Suarez, Vigonte and Abante, 2023; Peña-García et al., 2020) increase adoption of new technologies. Hence, in fashion industry, lower prices, financial incentives, cost-benefit comparison, financing options, and drop prices are the elements of C which customer's considered in the adoption of new technologies, while, the element of high cost/difficulties in the use of new technologies makes hesitant for customer's to adopt new technologies.

H5: The compatibility of new technologies with existing customer needs and lifestyles positively influences their willingness to adopt them.

There is a strong positive correlation between TA and Comp, which is significant at 0.01 level. This indicates that the compatibility of new technologies with customer needs and lifestyles positively influences their adoption. To prove H5, output of correlation between TA and Comp is as follows:

Table 5: Correlation Between TA and Comp

Correlations

		TA	Comp
TA	*r*	1	.599**
	p		<.001
	N	122	122
Comp	*r*	.599**	1
	p	<.001	
	N	122	122

Hence, correlation between TA and C, r = 0.599, indicates that a strong positive correlation between TA and Comp. It means that the compatibility of new technologies with customers' existing needs and lifestyles positively influences their willingness to adopt these technologies, while P-value is p<0.001. This mean that this correlation is highly significant, which confirmed that this relationship is not due to random chance. Therefore, H5 is supported. Evidence from literature also support this hypothesis as fits well experience with technology (Mairura, Ngugi and Kanali, 2016; Ramadhani, Astuti and Nasirun, 2022), greater compatibility (Hubert et al., 2019; Deng, Li and Chen, 2023) encourages faster adoption rates. Hence, in fashion industry, fit well experiences, relevant to daily fashion choices, support fashion interests and hobbies, enhance fashion related activities, solutions fit for lifestyle, and functionalities well to fashion choices are the elements of Comp which customer's considered for the adoption of new technologies.

H6: Positive customer experiences with new technologies in the fashion industry increase their willingness to adopt these technologies.

There is a strong positive correlation between TA and CE, which is significant at 0.01 level. This

indicates that the positive customer experiences with new technologies increase their willingness to adopt these technologies. To prove H6, output of correlation between TA and CE is as follows:

Table 6: Correlation Between TA and CE

Correlations

		TA	CE
TA	r	1	.489**
	p		<.001
	N	122	122
CE	r	.489**	1
	p	<.001	
	N	122	122

Hence, correlation between TA and CE, r = 0.489, indicates that a moderate positive correlation between TA and CE. It suggests that positive customer experiences with new technologies in the fashion industry increase their willingness to adopt these technologies, while P-value is p<0.001. This mean that this correlation is highly significant, which confirmed that this relationship is not due to random chance. Therefore, H6 is supported. Evidence from literature also support this hypothesis as fits well experience with technology (Mairura, Ngugi and Kanali, 2016; Ramadhani, Astuti and Nasirun, 2022), greater compatibility (Hubert et al., 2019; Deng, Li and Chen, 2023) encourages faster adoption rates. Hence, in fashion industry, positive interactions (Foroudi et al., 2018), time saving experience (McLean and Wilson, 2016), and customer experience and satisfaction (Bag and Lin, 2018) enhance customer's willingness to embrace technologies. Hence, in fashion industry, experience, impact on fashion choices, benefits received, customer support, efficiency to complete purchases, and personalisation are the elements of CE which customer's considered in the adoption of new technologies.

The finding revealed by Esfahbodi et al. (2022) shows that PU for adoption intention supported at level p<0.05, PEOU for PU supported at level p<0.001, and Cost Saving for PU is also supported, which also overall support this study for PEOU, PU, and C constructs. Finding by Tjokrosaputro and Cokki (2019), also support this study based on SI constructs which is found significant for purchase intention. Hence, SI constructs is also supported adoption of new technologies for fashion Customer's. Findings by Singh et al. (2022) also support this study for PEOU, PU, Comp, and CE, in which all variables found to have significant relationships. Hence, to achieve RO1, the identified key factors are found in the form of TA as dependent variables and PEOU, PU, SI, C, Comp and CE are independent variables, which revealed that integration of technology in fashion retail makes shopping more convenient, mobile apps are useful to enhance shopping experience, interactive technology features within physical store, technologies interface for latest fashion trends, eco-friendly and sustainable fashion options, use of social media by fashion retailers with advanced technology to engage customers are the elements of TA which depends on all of the elements of independent variables. Hence, findings revealed that all elements of independent variables are interconnected with all of the elements of TA such as PEOU of new technologies in fashion industry depend on user-friendly interfaces, hence, integration of technology in fashion retail make shopping convenient for customers. Overall, correlations indicate that PEOU, PU, SI, C, Comp and CE all play crucial roles in customers' willingness to adopt new technologies.

4.4 Research Objective 2 and Descriptive Analysis

Research Objective 2 is restated here, "To explore emerging trends in the adoption and usage patterns of new technologies among customers in the UK, that include preferences, behaviours, and attitudes". In order to achieve this objective, and to explore trends in the adoption and usage of new technologies among customer's in UK, data is collected as indicated in figure 4 to explore current trends in fashions. The output for current trends in fashion using SPSS are as follow:

Figure 7: Current trend in Fashions among UK customers'

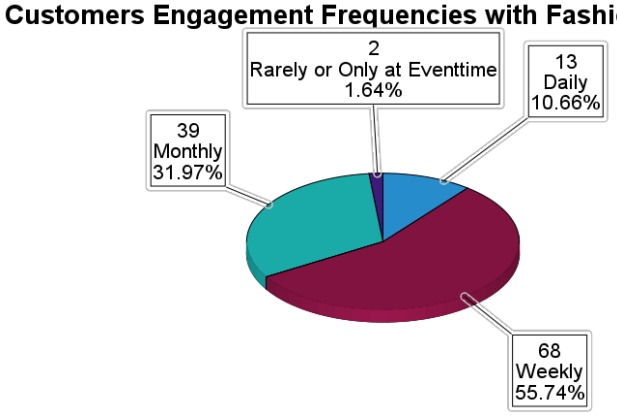

Figure 7.1: Customer's Engagement Frequencies with Fashion Industry. (Respondent's Selection based on top one Choice)

Figure 7.1 shows that most of the customers of the fashion industry engage with fashion industry on weekly basis and percentage of users are 55.74%, while 31.97% of customers engage with fashion industry on monthly basis. On daily basis, 10.66% of customers engage with fashion industry, while 1.64% of customers engage rarely or only at even-time. These statistics based on most top one choice of respondent's selection. Hence, analysis revealed that most of customers interact with fashion industry on weekly basis.

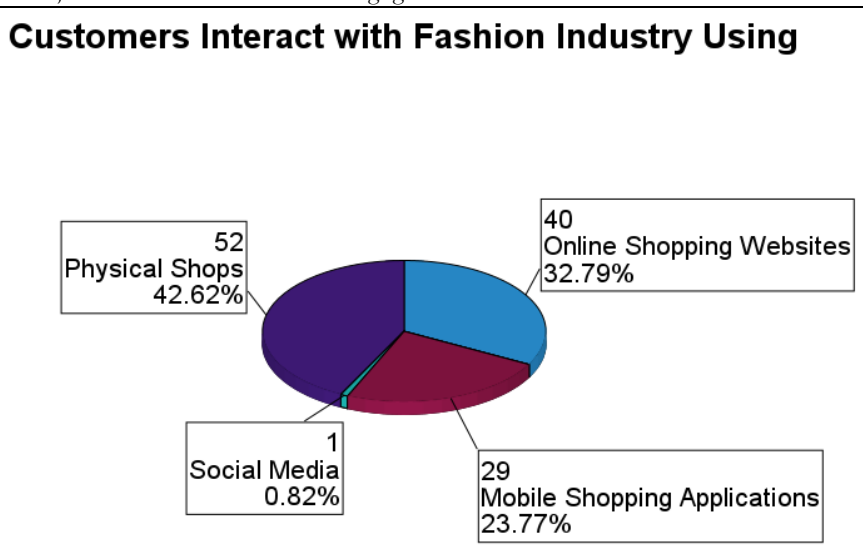

Figure 7.2: Customers Interaction with Fashion Industry (Respondent's Selection based on top one Choice)

Figure 7.2 shows that most of fashion industry customers interact using physical shops and the percentage of customers are 42.62%. Then, after physical shops, 32.79% of customers interact with fashion industry using online shopping websites, while 23.77% of customers interact

with fashion industry using mobile shopping applications. Only 0.82% of customers interact with fashion industry using social media. These statistics are also based on users most top choice for interaction with fashion industry.

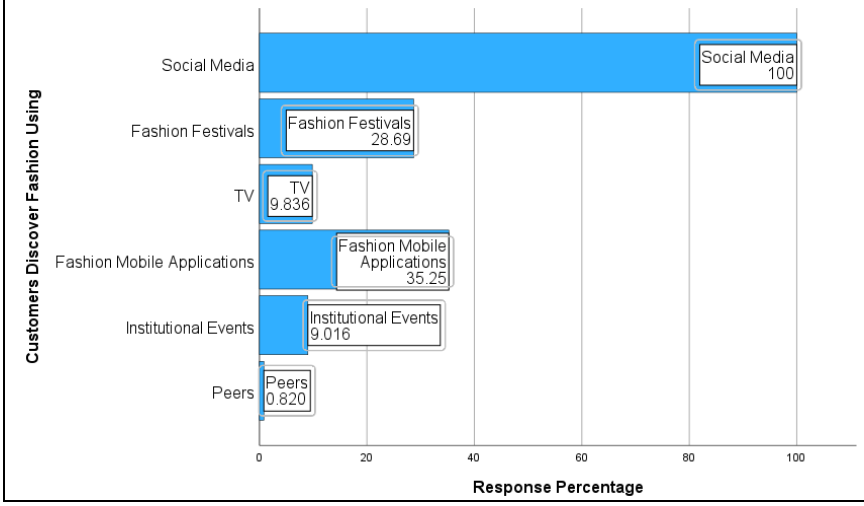

Figure 7.3: Customers Discover Fashion (Respondent's Selection based on Multiple Response)

Figure 7.3 shows that Customers discover or learn about new fashion technologies based on multiple response, almost all customers use social media and social media is largest sources to discover or learn about new fashion technologies (Helal, Ozuem and Lancaster, 2018). Then, 35.25% of users discover through fashion mobile applications. Fashion mobile applications has larger scope than online shopping applications, based on applications such as Virtual Reality and Augmented Reality for fashion. Beside these, others sources to discover or learn new technologies in fashion are 28.69% from fashion festivals, 9.836% from TV, 9.016% from Institutional events, and 0.820% from peers. Hence, it is found that social media is the largest platform which customers use to become familiar with latest trends about technologies in fashion industry (Mishra et al., 2023).

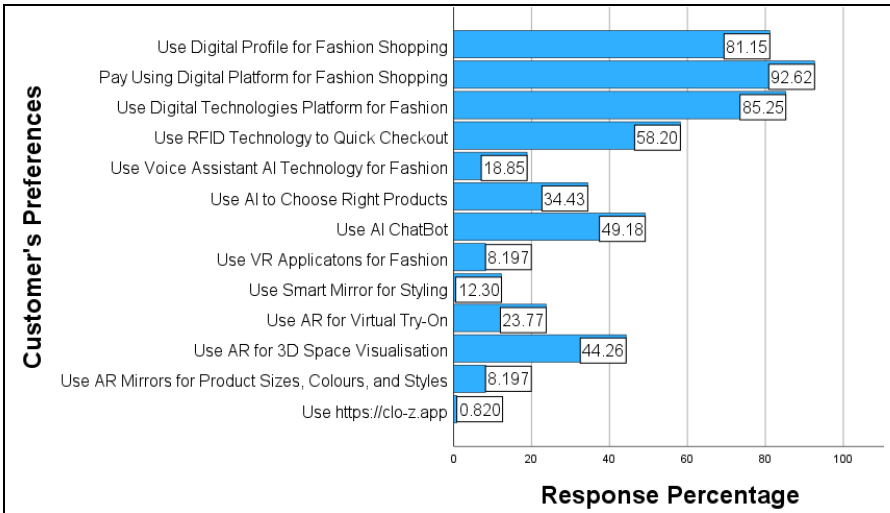

Figure 7.4: Customers Preferences (Respondent's Selection based on Multiple Response)

Figure 7.4 shows that 92.62% of customers pay using digital platform for fashion shopping, while 81.15% of customers have their digital profile for fashion shopping. 85.25% of customers use digital technologies platform for fashion, hence, AI, VR, AR, digital shopping application,

payments applications etc. 58.20% of customers use RFID technology, 18.85% use voice assistant AI, 34.43% use AI to choose right products, 49.18% of customers use AI chatbot (Aslam, 2023), 8.197% use VR applications, 12.30% choose smart mirror for styling, 23.77% use AR for virtual try-on (Blázquez, 2014), 44.26% use 3D space visualisation (Miell, Gill and Vazquez, 2018), 8.197% use AR mirrors for products sizes, colours, and styles, and 0.820% use online web technology based fashion applications.

Hence, findings revealed that most customers engage (Mendes, Broega and Sant'Anna, 2016) with fashion industry on weekly basis, primarily through physical shops, then followed by online shopping websites and mobile apps (Thakur, 2021). Social media is emerged as leading platform to discover new fashion technologies (Saravanan and V, 2015), while significant majority of customers prefer using digital platforms for fashion shopping (Czerwiński and Domański, 2023), from which many are adopting various digital technologies such as AI (Kautish et al., 2023), VR, and AR to enhanced shopping experiences (Grewal et al., 2023).

4.5 Research Objective 3 and Descriptive Analysis

Research Objective 3 is restated here, "To identify and analyse the primary challenges encountered by customers in the UK while utilising new technologies in the fashion industry". In order to achieve this objective, and to identify and analyse primary challenges which are encountered by customers in UK while utilising new technologies in the fashion industry, data is collected as indicated in figure 4. The output to determine challenges in fashion using SPSS are as follow:

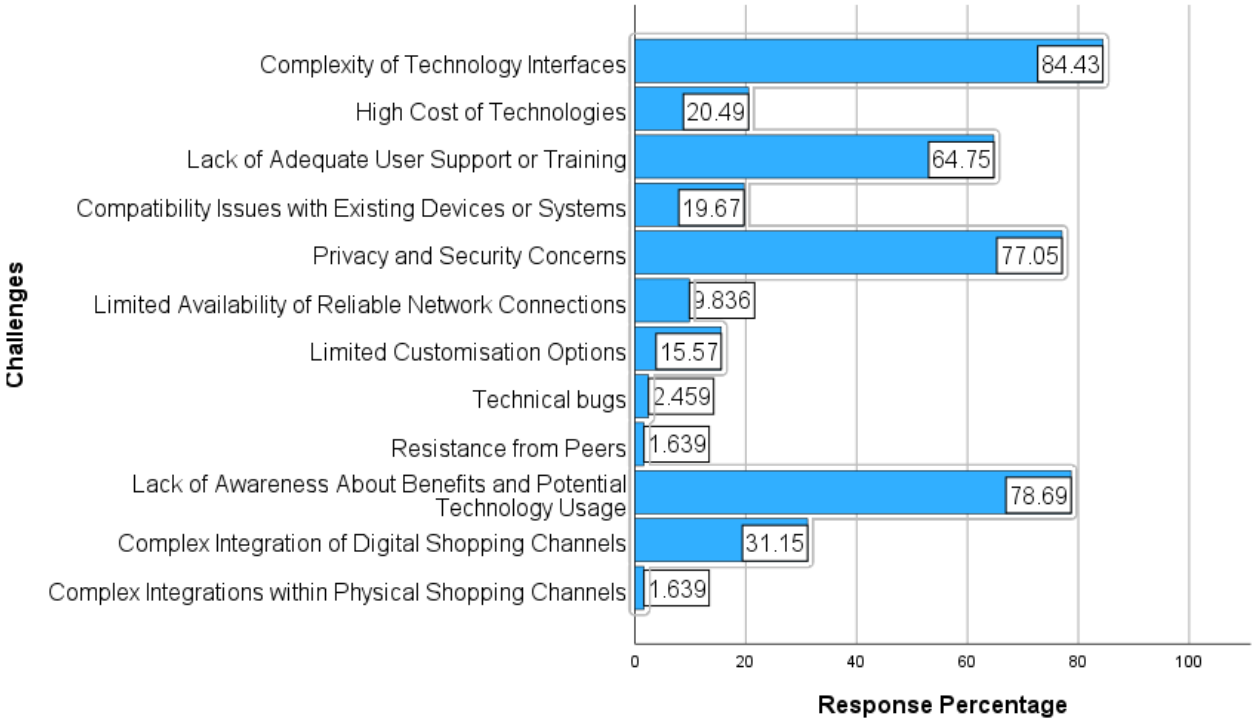

Figure 8: Challenges in Digital Technology Usage Faced by UK Fashion Customer's

Figure 8 shows that despite customers have ability to PEOU, and PU, 84.43% of users reported technology interfaces complex. Complex interfaces lead to frustration, decreased productivity, and increased time to complete tasks (Akram et al., 2022). This reason also

justifies the gap which found between usages of mobile applications as in figure 7.3, it is found that 35.25% customers discover fashion using fashion mobile applications, while only 23.77% of customer use mobile shopping applications as shown by figure 7.2. This also highlight other challenges such as 15.57% of limited customisation options, 31.15% complex integration of digital shopping channels, 1.639% of complex integrations within physical shopping channels (Salem and Alanadoly, 2024; Parker-Strak, Doyle and Studd, 2024). 2.459% technical bugs. Hence, users are struggling to understand and utilise all features and functionalities. The complexity of interfaces means poor design choices, lack of user-friendly layouts, and insufficient guidance or tutorials (Kullak, Baier and Woratschek, 2023). Hence, solution is simple technology interfaces which can lead toward higher user satisfaction and better adoption rates. Fashion developers should prioritise intuitive design with focus on comprehensive training materials.

20.49% of users reported high costs associated in the usage of digital technology. To address this challenge, businesses and policymakers can explore subsidies, and financing options. It means that users also faced high cost of using VR, AR, AI technology (Karadayi-Usta, 2024; Grewal et al., 2023; Amendola et al., 2018) while interacting with technology in fashion industry based on statistics as shown in figure 7.4.

64.75% of users reported gap in provision of training and support for effective utilisation of technology. Lack of training leads to underutilisation and incorrect use of technology. Hence, Online tutorials, and helpdesks can empower users and improve their proficiency.

19.67% of users report compatibility issues with existing devices. This issue arises when new technology unable to integrate in seamless with existing devices, which cause to disruptions and additional costs. Compatibility problems reflect cause due to lack of standardisation or lack of logical consideration.

77.05% reported issue of privacy and security concerns as users have fear their data may be compromised or misused (Miell, Gill and Vazquez, 2018). Incidents of data breaches and cyber-attacks exacerbate these fears. Insufficient security measures can lead to data loss, financial damage, and loss of trust (Javaid et al., 2024). Hence, implementation of security protocols, regular security audits, and educate users about best practices can improve these concerns. Transparent policies regarding data use and protection are also crucial.

78.69% of users reported challenges of lack of awareness about benefits and potential Technology usage which can be overcome by promoting awareness through targeted campaigns, and user success stories (Goworek et al., 2020). 9.836% of users reported limited availability of reliable network connections due to which fashion retailers can considered alternative services to cover gap of 9.836% customers for their seamless services (Blázquez, 2014).

The challenges presented in the chart reflect diverse and multifaceted nature of technology adoption and usage. To Address these challenges, it requires thoughtful design, comprehensive support, robust security measures, and effective communication. With the understanding of these barriers to mitigates, businesses and developers can enhance user experiences, promote wider adoption, and leverage technology's full potential.

4.6 Research Objective 4 and Descriptive Analysis

Research Objective 4 is restated here, "To gather insights from customers in the UK regarding their recommendations for fashion companies to enhance the adoption and implementation of new technologies, with a focus on improvement in user experience, addressing concerns, and to meet evolving needs and expectations". In order to achieve this objective, and to gather insights from customers regarding their recommendations to enhance adoption and implementation of new technologies, data is collected as indicated in figure 4. The output to gather insights from customers in fashion using SPSS are as follow:

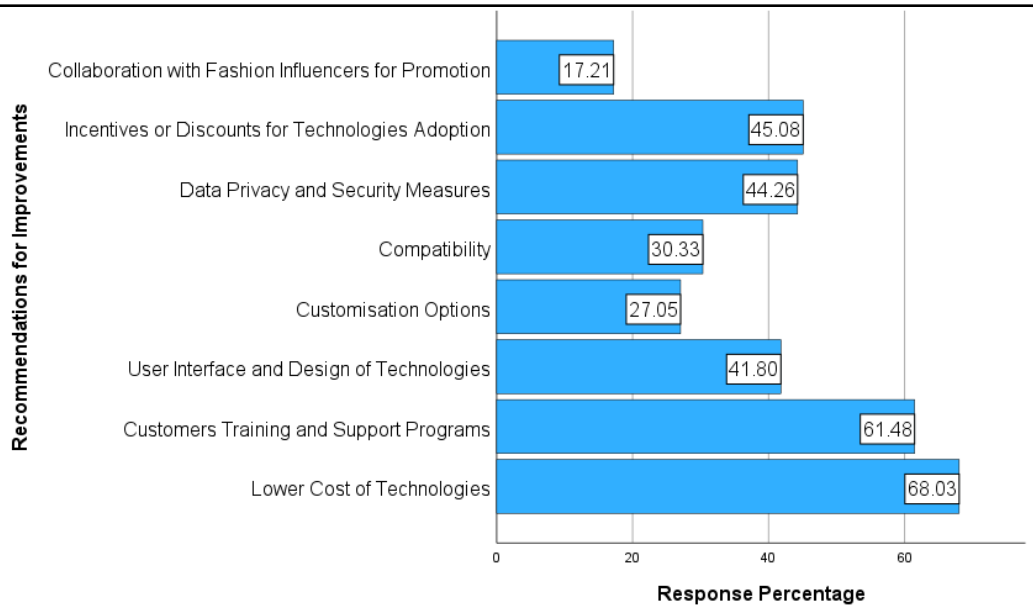

Figure 9: Recommendations for Improvements

Figure 9 shows percentage of user's recommendations for improvements. Users pay high cost for usage of technologies, to access AR and VR applications which can customised experience of users. Hence, 68.03% users made recommendations for lower cost of technologies, 61.48% for customers training and support programs, 41.80% for improvement in user interface and design of technologies, 27.05% for customisation options, 30.33% for compatibility related to existing system, 44.26% for data privacy and security measures (Du, 2019), 45.08% for incentives or discounts for technologies adoption,17.21% for collaboration with fashion influencers for promotion. Hence, overall, it is revealed that it is urgent need to make accessible different technologies interfaces such as AR, VR (Xue, Parker and Hart, 2020), use of AI, and block-chain (Jain et al., 2022) embedded within fashion applications for customers with lower cost and strong data privacy and security measures (Davis and Aslam, 2024). Overall, these recommendations highlight importance to improve affordability, user support, intuitive design, security, incentives, compatibility, customisation, and strategic promotion to enhance technology adoption. Implementation of these recommendations can improve user experiences and encourage broader acceptance and usage of new technologies.

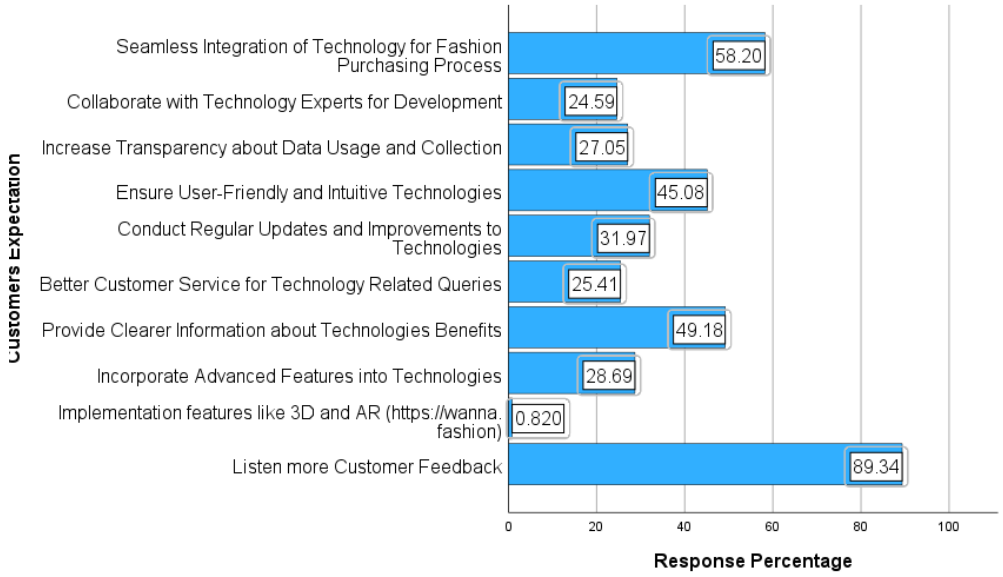

Figure 10: Customers Expectations

Figure 10 shows percentage of user expectations from fashion industry. 89.34% expected for listen more customer feedback (Zaman, 2020), 58.20% expected for seamless integration of technology for fashion purchasing process, 49.18% expected for provision of clearer information about technologies benefits, 45.08% ensure user-friendly and intuitive technologies (Suarez, Vigonte and Abante, 2023; Zide and Jokonya, 2022), 27.05% expected for increase of transparency about data usage and collection, 25.41% expected for better customer service for fashion technology related queries (Fobiri et al., 2024), 24.59% expected for collaborate with technology experts for development, while 0.820 expected for implementation of feature like 3D and AR applications for customers (Miell, Gill and Vazquez, 2018).

Overall, it is revealed that customers prioritise to being heard and want to involved in development process, for seamless integration. Also, customers want clear information, user-friendly design, and regular updates. Implementation of these expected recommendations can improve user experiences and can promote broader technology adoption.

4.7 Chapter Summary

This chapter provides comprehensive analysis of survey data. Demographic section shows distribution among 122 participants. Analysis structured is based on research objectives and hypotheses, with utilising TAM for theoretical framework. RO1 identifies factors which influence TA and highlight significant positive correlations between PEOU and PU with TA. Hence, both of these are critical for customer acceptance of new technologies. SI and C also play significant roles, as lower costs and strong social endorsements enhance adoption rates. Compatibility with existing needs and lifestyles, and positive CE further encourage adoption willingness. RO2 explores emerging trends and it is revealed that most customers engage with fashion industry weekly through physical shops, while online platforms are also in trending. Social media emerges crucial medium to discover new technologies for fashion, and there is strong preference for digital payment platforms and AI-driven applications. This trend indicates growth for reliance on digital technologies to enhanced shopping experience.

RO3 identifies challenges in using new technologies in fashion, such as complex interfaces, high costs, insufficient training, and privacy and security concerns. To address these

issues, it is discussed solution in the form of intuitive design, cost reduction, comprehensive training, and robust security measures for wider acceptance. RO4 gathers customer's recommendations to improve TA. Customers believe for lower costs, better training, improved user interfaces, and enhanced data privacy. Customer's also emphasise need for clearer information about technology benefits and seamless integration for shopping process. Hence, successful TA in the fashion industry based on user-friendly, cost-effective and secure technologies aligned with customer lifestyles and needs. Further, by addressing identified challenges and implementation of customer recommendations, fashion companies can enhance user experiences and can become adoptive broader technology acceptance for customer's.

Conclusions and Recommendations

5.1 Summary of Research

This research set out to explore factors influencing technology adoption within UK fashion industry, with focus on the application of Technology Acceptance Model (TAM) in the form of perceive ease of use, perceive usefulness and its extensions in which include social influence, cost, compatibility, and customer experience. It also explores current trends, challenges, and recommendations from UK fashion customers. This research determined how these variables impact adoption of new technologies by fashion consumers. The research was guided by four key research objectives (ROs). To achieve first research objective, six hypotheses addressed relationships between perceived ease of use (PEOU), perceived usefulness (PU), social influence (SI), cost (C), compatibility (Comp), and customer experiences (CE) on technology adoption. To achieve all other ROs, it is also found statistics for current trends, challenges, and recommendations from UK fashion customers about new technologies within fashion industry. This research employed quantitative methods, using surveys which is distributed to participants of fashion industry, to gather data and to test these hypotheses. Statistical analyses, using Pearson correlation, were performed to validate proposed relationships for hypotheses, and descriptive analysis is performed to find trends, challenges, and recommendations. Methodology was carefully designed to ensure robustness and reliability of findings, with the utilisation of established scales and metrics to measure constructs based on literature review. The data collected provided insights for various factors which play significant role in influencing technology adoption, which were then analysed in relation to determine significance of hypotheses. To achieve RO1, it is found that PEOU, PU, SI, C, Comp, and CE are all significant construct which influence customer adoption for new technologies in UK fashion industry. Correlation found in the form of strong positive correlation between customer's PEOU and their likelihood to adopt new technologies. PU also strongly affects customer's adoption decisions. SI and lower costs also positively affect customer's willingness to adopt new technologies. Compatibility of new technologies with customer's existing needs and positive customer experiences also significantly increase adoption rates. For RO2, it is found that emerging trends are found that there is an increase engagement with digital and mobile platforms for shopping in fashion industry. Customer's significant use online platforms and social media to discover new fashion technologies. Customers also frequently engage with fashion technologies devices via online, digital, and mobile applications which indicate trend towards digital adoption. For RO3, it is found that customers face challenges due to complexity of new technologies which affects their usability. High costs associated with new technologies, which mean difficult access for new technologies deter adoption. Also, it is found that there is general lack of awareness about benefits and potential of new technologies. For RO4, customer's recommendations found that it need to enhance user-friendliness and accessibility of new technologies. It also need to implement reduce costs, discounts, and provide more training

tutorials for customers on the use of interface embedded with technologies. Further, it also need to improve security measures to protect user data.

5.2 Conclusions

This research conclusion provides clear answers to the research questions which were set out at the beginning of the research and validate hypotheses:

5.2.1 RQ1 - Factors Influencing Willingness to Adopt New Technologies:

The results confirmed that six proposed hypotheses were supported.

PEOU and PU significantly influences as positive impact on adoption. Hence, user-friendly, easy to learn how to use, intuitive interface, adapt quickly, straightforward use of digital applications and devices embedded with advanced technologies enhances overall efficiency of the customers. Also, implementation of advanced technologies with easy interface improve customer shopping experience, fashion choices, fashion knowledge, save time, informed fashion decision, which are also essential for modern shopping.

SI highlighted impact of peers and industry leaders on adoption decisions. Hence, friends and family, social media/circle, trends by celebrities, peer pressure, fashion blogs and magazines, and recommendation from fashion professionals influence customer's intention to use interface embedded with advanced technologies in fashion industry.

Cost was identified as significant barrier which demonstrates that high expenses can deter adoption. Lower prices, financial incentives, cost-benefit comparison, financing options, and drop prices are the elements of C which customer's considered in the adoption of interface embedded with advanced technologies, while, the element of high cost/difficulties in the use of interface embedded with advanced technologies makes hesitant for customer's to adopt new technologies.

Compatibility of technologies according to personalised needs, styles, and preferences was found to be crucial which indicates that interface of digital applications and digital devices that fit well with current practices are more readily adopted.

Positive customer experiences with technology significantly encourage adoption rates, which emphasise on importance of user satisfaction. Hence, positive experience, impact on fashion choices, benefits received, customer support, efficiency to complete purchases, and personalisation are the items of CE which customer's considered in the adoption of new technologies.

5.2.2 RQ2 – Current Trends in Technology Adoption:

Descriptive analysis revealed that most of customers interact with fashion industry using physical shops on weekly and monthly basis. Also, most of the customers discover new fashion using social media. Customers are facing lack of usage of fashion mobile shopping applications, AR, VR, Smart Mirror, voice assistant, and AI help to choose right products applications.

5.2.3 RQ3 – Challenges in Technology Adoption:

Descriptive analysis revealed that customers are also facing challenges due to complex interfaces of digital applications, limited customisation options, insufficient guidance or tutorials, gap between in discovering of fashion using fashion mobile applications and usage of these applications for shopping purpose.

5.2.4 RQ4 – Recommendations for Technology Adoption:

Analysis revealed that user pay high cost to access AR, VR and interfaces embedded with advanced technologies and recommend to fashion stakeholder to consider lower cost and easy access of interface embedded with advanced technologies, customisation and personalisation options, discount in the usage of technologies based applications. Also, customers want seamless

access of digital interfaces embedded with advanced technologies which can make possible smooth fashion purchasing process, fashion brands should must listen more customer's feedback, and should conduct regular updates and improvements in interfaces with advanced technologies in their applications.

5.3 Recommendations / Action Plan

Based on insights gained, following targeted recommendations are proposed:

5.3.1 For Fashion Brands:

- Develop intuitive and easy-to-use Interface embedded with advanced technologies features such as voice assistance, AI to choose rights products, AR, Smart Mirrors, AI Chatbots, customisation, and personalised options for their customers to enhance technology adoption.
- Provide such interface to customers so that customer's feel easy access of fashion products, easy purchasing of fashion products, according to their choices and preferences to enhance technology adoption.
- Communicate practical benefits of usage of digital interfaces through interactive marketing and by providing discounts to customers to enhance technology adoption.

5.3.2 For Technology Developers:

- Focus on customisable interface of digital interface to meet diverse customer's needs.
- Focus on digital interface free from technical error, interfaces close to access of real fashion products and services, enhance functionality of AR and lower cost of VR applications for more personalised and immersive shopping experiences.
- Focus to secure platform to protect user data and increase trust in interface usage.
- Enhance user interfaces to make them more intuitive for first-time users.

5.3.3 For Customer's:

- Actively engage with digital devices interfaces and digital applications interfaces to better understand their benefits.
- Participate in surveys and feedback initiatives to help brands to improve their technological based interfaces.

5.4 Limitations

This research faces limitations related to geographic limitation as confined to UK, sample diversity as respondents may not fully wider UK consumer base due to limited time availability for this research, and scope of technology as this study considered aggregate use of different advanced technologies such as AR, and AI in digital applications and devices of fashion industry which are available in both online and physical store in the market of UK fashion industry.

5.5 Future Work

Future research may focus on

- Different types of technologies based fashion applications and devices, and their impacts on customer's adoption and fashion products purchasing.
- Comparative analysis of digital interfaces of different fashion brands applications with respect to interfaces embedded with advanced technologies.
- Comparative analysis of different types of interfaces embedded with advanced technologies and their optimal integration in fashion shopping applications.
- Regional comparison of technology based applications for fashion industry.
- Explore longitudinal effects of digital applications and devices embedded with advanced technologies such as blockchain, AI, IoT, bigdata, and AR for technology adoption in fashion industry.
- Beside customer's perspective, it may focus on perspective of fashion industry manufacturer, fashion brands, and comparison of different brands to get insights and fully integration of new technologies in the fashion industry.

In Conclusion, this research has addressed research questions and validated hypotheses related to technology adoption in fashion industry. Findings not only provide actionable

recommendations for businesses, those are seeking to embrace new technologies, it also highlights critical factors that influence adoption decisions. Despite limitations, insights also offer foundation for future research. As fashion industry continues to evolve, it needs to understand dynamics of technology adoption which will be essential for businesses to remain competitive and innovative in digital landscape.

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